PUTNAM VALLEY
CENTRAL SCHOOL DISTRICT

171 Oscawana Lake Road, Putnam Valley, NY 10579

Capital Projects Phase 2
Putnam Valley Middle School Toilet Room Alterations
SED NO: 48-05-03-04-0-004-016

ARCHITECT:

KG+D ARCHITECTS, PC
285 Main Street
Mount Kisco, NY 10549

SYSTEMS ENGINEER:

BARILE GALLAGHER & ASSOCIATES
39 Marble Avenue
Pleasantville, NY 10570

ABATEMENT DESIGN:

WSP USA
96 Morton Street, 8th Floor
New York, NY 10014

CONSTRUCTION DOCUMENTS: **March 15, 2021**

THE UNDERSIGNED CERTIFIES THAT TO THE BEST OF HIS KNOWLEDGE, INFORMATION AND BELIEF, THE PLANS AND SPECIFICATIONS ARE IN ACCORDANCE WITH APPLICABLE REQUIREMENTS OF THE NEW YORK STATE UNIFORM FIRE PREVENTION AND BUILDING CODE, THE STATE ENERGY CONSERVATION CONSTRUCTION CODE, AND BUILDING STANDARDS OF THE EDUCATION DEPARTMENT, AND THAT THE PLANS AND SPECIFICATIONS REQUIRE THAT NO ASBESTOS CONTAINING MATERIAL SHALL BE USED.

_____
Walter P. Hauser, AIA

Index to the
Project Manual/Specifications
for
Putnam Valley Central School District
Capital Projects Phase 2
Putnam Valley Middle School Toilet Room Alterations

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Legal Notice

The Putnam Valley Central School District will receive individual sealed bid proposals before **4:00 PM on April 5, 2021, for:**

CAPITAL PROJECT PHASE 2
TOILET ROOM ALTERATIONS

PUTNAM VALLEY PUTNAM VALLEY MIDDLE SCHOOL
142 Peekskill Hollow Road

Bid No. 2020-21-05

The District will receive the proposals at the Business Office, 171 Oscawana Lake Road, Putnam Valley, NY, 10579, and at that time and place any and all such proposals that have been received in accordance with the terms hereof will be publicly opened and read aloud.

The District invites bidders to bid on the work described in the Bid Documents that falls within the following bid packages:

Bid Package #	**Trade**
GC	General Construction (Single Prime Contract)

See the Bid Documents for a further description of the scope of work.

Bidders must use the Bid Proposal Forms included with the Bid Documents in order to make their proposals, and each proposal must be made in accordance with those Forms.

Bidders may obtain the Bid Documents **after 3:00 PM on March 15, 2021,** from REV, 330 Route 17A, Goshen, NY, 10924, (877) 272-0216. Complete digital sets of Bidding Documents, drawings and specifications, may be obtained online as a download at the following website: www.usinglesspaper.com under 'public projects.' Complete hard copy sets of Bidding Documents, drawings, and specifications, may be obtained from REV upon depositing the sum of **$50.00** for each combined set of documents. Checks or money orders shall be made payable to "*Putnam Valley Central School District*." The full deposit will be refunded to bidders upon return of the Bid Documents in acceptable condition within one week of notification of award by the District as per NYS General Municipal Law Article 5A, Section 102. Bidders are to submit a written request for plan deposit refund which is to be accompanied by a copy of the canceled check or District issued receipt. Upon receipt of request, the Business Office will generate a refund on the next available check run. Any bidder requiring documents to be shipped shall make arrangements with the printer and pay for all packaging and shipping costs.

Please note Rev (www.usinglesspaper.com) is the designated location and means for distributing and obtaining all bid package information. All bidders are urged to register to ensure receipt of all necessary information, including bid addenda.

There will be a pre-bid site meeting **on March 22, 2021,** as follows at **3:45 PM at Putnam Valley Middle School,** outside the Main Entrance.

Bidders are urged to attend the site meeting. Knowledge of the field conditions is crucial to understanding the Work.

Each proposal must be accompanied by a certified check payable to the *Putnam Valley Central School District* or by a Bid Bond for a sum equal to five percent (5%) of the bid, conditioned as set forth in the Instructions to Bidders. All bid security, except those of the three low bidders will be returned within four days after proposals are submitted. The bid security provided by the three low bidders will be returned after the execution of the Trade Contract.

The District will require the successful bidder to provide separate Performance and Labor & Materials Payment Bonds in the amount of the contract price and in the form specified in the Bid Documents.

To the fullest extent allowed by law, the District reserves the right to reject bids that contain omissions, exceptions, or modifications, or in their sole discretion to waive such irregularities, or to reject any or all bids or to accept any bid which is in the best interest of the District.

All laborers, workers, and mechanics working on the site of this project must be certified as having successfully completed the OSHA 10-hour construction safety & health course.

All Requests for Information shall be sent in writing to the Architect, Teresa May, via email at tmay@kgdarchitects.com (or if email is unavailable, by fax at (914) 666-0051), no later than 14 days before the bid opening date.

All proposals shall be sealed in an opaque envelope distinctly marked on the outside as follows:

Putnam Valley Central School District
Capital Project Phase 2 – Toilet Room Alterations
Putnam Valley Middle School
Bid Opening Date: ***April 5, 2021, 4:00 PM***
Name of Bidder
Bid Package
"SEALED BID"

Such proposals must be delivered to **Jill Figarella, District Treasurer**, or her designee, **no later than the appointed time on the bid opening date**, at **the Business Office, 171 Oscawana Lake Road, Putnam Valley, NY, 10579 (bids will be opened in the Elementary School building at the same address)**. The District will not open or consider any proposal unless it is received at that location by no later than the appointed time on the bid opening date, on the bid opening date. Bidders are solely responsible for the arrival of each bid proposal at the place of bid opening by the appointed time, regardless of the means of delivery.

END OF ADVERTISEMENT

SECTION 00 21 00

INVITATION AND INSTRUCTIONS TO BIDDERS

1.01 OWNER, PROJECT, ARCHITECT, BID PROCEDURE

A. The Owner, Putnam Valley Central School District; 171 Oscawana Lake Road, Putnam Valley, NY 10579, invites sealed bids for the Capital Project Phase 2 Toilet Room Alterations located at Putnam Valley Middle School, 142 Peekskill Hollow Road, Putnam Valley, NY 10579, as described in the accompanying contract documents as prepared by KG+D Architects, PC, located at 285 Main Street, Mount Kisco, NY 10549.

B. Bids shall be received in accordance with the New York State Public Bidding Laws, this project will be executed under **SINGLE PRIME CONTRACT** as noted below and scope of work generally as outlined in Section 01 10 00:

C.

Bid Package	**Trade**
GC	General Construction

D. The attention of all bidders is directed to the fact that a single set of documents exist for the construction of the Project as a whole. Work on each sheet, or within any technical specification section may or may not have an effect on the work of any single Contractor. Failure on the part of any Contractor to examine all documents will not be cause for additional cost to the Owner.

1.02 DISCREPANCY

A. Should any bidder find any discrepancies in, or omission from, the Contract Documents, or should the bidder be in doubt as to the meaning of any portion of said documents, they shall at once notify the Architect and obtain an interpretation or clarification prior to submission of their bid.

B. Any request for interpretation or clarification given in accordance with this provision shall be sent in writing to the architect via email (**tmay@kgdarchitects.com**).

C. The bidder may, during the bidding period, be advised by addendum of additions, deletions, or alterations in any of the documents forming a part of this Contract. All such additions, deletions or alterations shall be included in the work covered by the bid and shall become a part of this Contract.

Upon such mailing or delivery and making available for inspection, such addendum shall become a part of the Contract Documents and shall be binding on all Bidders whether or not the Bidder receives or acknowledges the actual notice of such addendum.

The requirements contained in all Contract Documents shall apply to all addenda.

CUTOFF DATE FOR RECEIPT OF REQUESTS FOR INFORMATION (RFI'S) SHALL BE 5 WORKING DAYS PRIOR TO DESIGNATED DATE FOR RECEIPT OF BIDS.

D. Only interpretations, corrections or additional Contract provisions made in writing by

the Architect as addenda shall be binding. No officer, agent or employee of the Owner or the Architect is authorized to explain or to interpret the Contract Documents by any other method and any such explanation or interpretation, if given, shall not be relied upon by the Bidder.

1.03 REPRESENTATION - Each bidder, by making their bid, represents that -

A. They have read and understands the Bidding Documents (consisting of the Project Manual, Drawings and Addenda (if any) and their Bid is made in accordance therewith.

B. They have visited the site and have familiarized themselves with the conditions under which the work is to be performed.

C. All materials to be incorporated in the work shall be "asbestos free" in their manufacture.

1.04 DOCUMENTS

A. Bidders may obtain electronic or hard copies of the Bid Documents **on or after 3:00 PM on March 15, 2021,** by contacting REV, 330 Route 17A, Goshen, NY, 10924, (877) 272-0216

B. A deposit of $50.00 per set will be required. Deposit checks shall be made out to the Putnam Valley CSD.

D. The full deposit will be refunded to bidders upon return of the Bid Documents in acceptable condition within one week of notification of award by the District as per NYS General Municipal Law Article 5A, Section 102. Bidders are to submit a written request for plan deposit refund which is to be accompanied by a copy of the canceled check or District issued receipt. Upon receipt of request, the Business Office will generate a refund on the next available check run. Any bidder requiring documents to be shipped shall make arrangements with the printer and pay for all packaging and shipping costs. Additional copies of the documents will be available from the designated printer and at the non-refundable cost of reproduction.

1.05 INFORMATIONAL MEETING - All bidders are advised that an informational meeting will be held on **March 22, 2021,** at **3:45 PM at Putnam Valley Middle School,** outside the Main Entrance.

Any and all questions that may arise as a result of this meeting will be recorded and answered by the Addendum process.

NOTE: ALL BIDDERS WILL BE PRESUMED TO HAVE FULL KNOWLEDGE OF THE SITE, AND ALL INFORMATION AVAILABLE AT THE PRE-BID WALK THROUGH. NO EXTRA COST OR TIME EXTENSIONS WILL BE GRANTED BECAUSE OF LACK OF KNOWLEDGE OF ON SITE CONDITIONS, APPARENT, OR DATA AVAILABLE DURING THE WALK THROUGH.

1.06 BIDDING

A. Sealed bids, with the name and address of the Bidder contained thereon, will be received at the District Office, 171 Oscawana Lake Road, Putnam Valley, NY, **on or before April 5, 2021, at 4:00 PM** Local Prevailing Time, at which time all bids will be opened publicly and read aloud.

B. All bids shall be submitted in duplicate on the Proposal Forms provided within the

specifications and shall be submitted in an opaque sealed envelope with the following contained thereon:

1. Project Name
2. Contract Number
3. Type of Construction
4. Name of Bidder
5. Mark “SEALED BID”

C. All spaces on Proposal Form must be completed. All signatures shall be in ink and in longhand.

D. No oral or telephonic proposals or modifications of proposals will be considered.

E. In accordance with Section 135 of the New York State Finance Law, commonly known as the “Wick’s Law” and applicable to the jurisdiction of the Project, each Bidder must submit in a sealed envelope within his bid package a list of all subcontractors including their names, addresses, contact information and the value of their contracts. This list may not be changed except at the direction of the Owner.

F. Any proposals containing exceptions or modifications may, at the Owner's option, be disqualified.

1.07 QUALIFICATIONS OF BIDDER

A. The Owner may make such investigation as the Owner deems necessary to determine the responsibility of any Bidder or to determine the ability of any Bidder to perform the Work.

B. Bidders shall furnish to the Owner all information and data required by the Owner, including complete financial data, within the time and in the form and manner required by the Owner.

C. The Owner reserves the right to reject any bid if the evidence required by the Owner is not submitted as required or if the evidence submitted by or the investigation of any Bidder fails to satisfy the Owner that the Bidder is responsible or is able or qualified to carry out the obligations of the Contract or to complete the Work as contemplated.

1.08 POST BID PROCEDURES

A. The responsibility of bidders and of their proposed subcontractors will be considered in making the award. The Owner through the Architect may make such investigation as the Owner deems necessary to determine the responsibility of any bidder or to determine the ability of any bidder to perform the Work.

B. When requested by the Architect, bidders shall furnish all information and data required by the Owner, including financial data, within the time and in the form and manner required by the Owner. Upon notification from the Architect, the three apparent low bidders shall furnish within three (3) working days after the bid opening four (4) copies of the following information in writing:

1. a signed and notarized bidder qualification statement (see Section 00 45 13);
2. the names, addresses and phone numbers of the subcontractors and suppliers that the bidder proposes to use on the project;
3. the bidder's proposed site safety plan;
4. a bar chart (see paragraph 1.03, Section 01 32 00 of the General Requirements) showing the bidders' proposed plan and schedule to complete the bidder's work in accordance with the phasing milestones outlined in Section 01 10 00;

5. the insurance certificates required by the Bid Documents;
6. a proposed schedule of values for the bidder's work;
7. a proposed list of submittals and a proposed schedule for making them, all keyed to the bar chart.

C. After receipt of the above information, the Architect will designate a time and place for a meeting between the Owner, the Architect and the apparent low bidder. The apparent low bidder's principal, project manager and site superintendent will attend that meeting, at which time the parties will discuss the bidder's responsiveness, responsibility and qualifications.

D. The Owner reserves the right to disapprove the use of any proposed Subcontractor and in such event the bidder shall submit the name of another Subcontractor in like manner within the time specified by the Architect.

E. To the fullest extent allowed by law, the Owner reserves the right to reject any bid if the evidence required by the Owner is not submitted or fails to satisfy the Owner that the bidder is responsible, able and qualified to carry out the obligations of the Contract or to complete the Work as contemplated. The Owner will consider the information received under paragraphs A through D above in determining whether or not to accept a proposal.

F. Acceptance of a proposal will be a notice in writing signed by a duly authorized representative of the Owner.

G. Any bidder whose proposal is accepted will be required to sign the Trade Contract within ten (10) days after receiving notice of acceptance.

H. In the event that the Owner should reject the proposal of a bidder as provided above or otherwise, at the Owner’s option, the Owner may elect to meet with the next lowest bidder and to consider the information as provided in paragraphs A through D above. In the event that the proposal of the next lowest bidder is rejected as provided above or otherwise, at the Owner’s option, the Owner may elect to meet with the third lowest bidder and repeat the above process. At all times the Owner retains the right to reject all bids.

1.09 APPROVAL OF SUBCONTRACTORS

A. When requested by the Owner, Bidders shall, within the time specified by the Owner, submit to the Owner the names of the Subcontractors which the Bidder proposes to use on the project.

B. The Owner reserves the right to disapprove the use of any proposed Subcontractor and in such event the Bidder shall submit the name of another Subcontractor in like manner within the time specified by the Owner.

C. The Owner reserves the right to reject any bid if the names of proposed Subcontractors are not submitted as required.

1.10 SECURITY AND BONDS (Coordinate with Section 00 61 00)

A. Every bid shall be accompanied by a Bid Bond in the amount of 5 percent of the Contract Sum drawn by a recognized surety authorized to conduct business in the State of New York and made payable to the Owner.

1. Bid Security shall be submitted in a separate sealed envelope clearly identifying the company and project as well as the name and address of the Surety Company.
2. Each Bond must be accompanied by a Power of Attorney, giving names of Attorneys-in-fact, and the extent of their bonding authority. All bonds shall be

countersigned by a resident Agent and with a Surety Company or Corporation meeting the following qualifications:

a. Surety must be licensed to do business in the State of New York.

b. Surety shall be listed on the current U.S. Treasury Department Circular 570 entitled “Companies Holding Certificates of Authority” from the Secretary of the Treasury under the Act of Congress approved July, 30, 1974 (6 U.S.C., Sec. 6-13), as Acceptable Sureties on Federal Bonds.

c. Surety must meet minimum rating requirements as published in current “Best’s Key Rating Guide” as listed in the attachment to Section 00 61 00.

d. Limitations:

- Bonding limits or bonding capacity refers to the limit or amount of bond acceptable on any one project.
- The bonding limit for each contractor shall not exceed the amount listed on the above referenced U.S. Treasury Department List for the Surety issuing the bond.

e. All Surety companies are subject to approval and may be rejected by the Owner without cause, in the same manner that bids may be rejected.

f. Compliance: In the event any of the requirements outlined herein are not complied with, the Owner shall have the right to reject the bid or annul the Award of the Contract.

B. Bid security will be returned to all except the three lowest bidders, after formal analysis and evaluation of bids. No bid will be withheld beyond the forty-five (45) day period stipulated above.

C. Remaining bid security will be returned to bidders after Owner and successful bidder have executed the Agreement and the Owner has received and approved performance and payment bonds.

D. If the required agreement has not been executed within the specified period of time after the bid opening, bid security of any bidder will be returned upon his request, provided he has not been notified of acceptance of his bid prior to the date of his request.

E. Separate Performance and Payment Bonds will be required for the work. Each shall be in the amount of 100% of the Contract price.

F. The Contractors shall include in their proposal amounts the total premiums for the performance and labor and material payment bonds as set forth in Section 00 61 00.

1.11 TAX STATUS (Coordinate with Article 3.6 of Section 00 70 00 (AIA A201)

A. The Owner, **Pelham Central School District**, is an educational non-profit institution and is therefore "tax-exempt" in accordance with the applicable laws of the State of New York and with Chapter 32 of the Internal Revenue Code, as most recently amended, for collection of all sales and excise taxes.

B. Exemption Certificates will be furnished to each Respective Prime Contractor.

1.12 INSURANCE

A. Insurance as required by Article 11 of the General Conditions and as set forth in the Insurance Rider (Section 00 70 02) shall be required of the Contractor and shall be of forms and limits required therein.

1.13 EQUIVALENCY CLAUSE (Coordinate with Section 01 25 00)

A. When in the project manual/specifications, two or more kinds, types, brands, or manufacturers of materials are named they are regarded as establishing the required standard of quality and not for the purpose of limiting competition.

B. The contractor may select one of these items or, if the contractor desires to use any kind, type, brand, manufacturer or material other than those named in the specification, he shall, in accordance with the instructions set forth in “Post-Bid Requirements” herein, identify within three (3) days after bid submission, but in any event prior to award of contract, what kind, type, brand, or manufacturer is included in the base bid for the specified item following procedures set forth in Section 01 25 00.

C. Failure to so identify the perceived “equivalencies”, will not relieve contractor from providing the specified items.

1.14 AWARD OF CONTRACT

A. This notice is an offer to receive proposals for a contract and not an offer of a contract.

B. The award of the Contract shall be made to the Bidder submitting the lowest bid if, in the opinion of the Owner, such Bidder is qualified to perform the Work involved, is responsible and reliable.

C. Alternates, if stated in the Proposal Form, shall be chosen at the discretion of the Owner when awarding the Contract. The lowest bid will then be determined by adding to, or subtracting from, to the bidder's total base bid, all Alternates chosen by the Owner.

D. The Bidder agrees to commence work within ten (10) days of receipt of a Notice to Proceed, Letter of Intent, and/or Execution of Contract whichever is earlier.

E. The Owner reserves the right to reject any bid or all bids, to waive any informalities or irregularities or omissions in any bid received or to afford any Bidder an opportunity to remedy any informality or irregularity if it is in the Owner's interest to do so.

F. The award of the Contract shall not be construed as a guarantee by the Owner that the plant, equipment and the general scheme of operations of a Bidder is either adequate or suitable for the satisfactory performance of the Work or that other data supplied by a Bidder is accurate.

1.15 LAWS AND REGULATIONS

A. All applicable Federal, State, County, Municipal or other laws, orders, ordinances, rules and regulations of all Authorities having jurisdiction over construction work in the locality of the project shall apply to the Contract and shall be deemed to be included in the Contract as if fully set forth therein at length.

B. This project is subject to wage determination as issued by the Department of Labor. Reference Section 00 46 43.

C. In accordance with the requirements of General Municipal Law §103-g, the bidder is required to include with its bid either (1) the “Certification of Compliance with the Iran Divestment Act” or, in the case where the bidder is unable to make such certification, (2) the form titled “Declaration of Bidder’s Inability to Provide Certification of Compliance with the Iran Divestment Act”.

1.16 ARREARS

A. No bids will be accepted from, or contracts awarded to, any person, persons, firms or vendors who are in arrears to the Municipality upon debt, or contract, or who is a defaulter as surety or otherwise upon obligations to the Municipality.

1.17 NONDISCRIMINATION

A. Notwithstanding implementation of the Owner's Affirmative Action Plan, if any, all Contractors and Subcontractors of all tiers and vendors will be required to comply with all provisions of the Civil Rights Act of 1964, Executive Order 11246 of 24 September 1965 and the relevant "Laws", "Acts" rules, regulations and orders of the Labor Department of the State of New York as amended.

End of Section

Geotechnical Engineering Report

Proposed School Additions
Putnam Valley, New York
September 6, 2019
Terracon Project No. JB195150

Prepared for:
Putnam Valley Central School District
Putnam Valley, New York

Prepared by:
Terracon Consultants-NY, Inc
Dba Dente Group
Watervliet, New York

September 6, 2019

Putnam Valley Central School District
146 Peekskill Hollow Road
Putnam Valley, New York 10579

Attn: Mr. David Spittal
E: dspittal@pvcsd.org

Re: Geotechnical Engineering Report
Proposed School Additions
Putnam Valley, New York
Terracon Project No. JB195150

Dear Mr. Spittal:

We have completed the Geotechnical Engineering services for the above-referenced project. This study was performed in general accordance with Dente Group Proposal No. PJB195150. This report presents the findings of the subsurface exploration and provides geotechnical recommendations concerning earthwork and the design and construction of foundations, floor slabs, retaining walls, and pavements for the proposed project.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning this report or if we may be of further service, please contact us.

Sincerely,
Terracon Consultants-NY, Inc.

Edward C. Gravelle, P.E.
Senior Engineer

Fred A. Dente, P.E.
Principal

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Note: This report was originally delivered in a web-based format. **Orange Bold** text in the report indicates a referenced section heading. The PDF version also includes hyperlinks which direct the reader to that section and clicking on the ***GeoReport*** logo will bring you back to this page. For more interactive features, please view your project online at client.terracon.com.

ATTACHMENTS

EXPLORATION AND TESTING PROCEDURES
SITE LOCATION AND EXPLORATION PLANS
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Note: Refer to each individual Attachment for a listing of contents.

Geotechnical Engineering Report

Proposed School Additions
Putnam Valley Central School District
Putnam Valley, New York

Terracon Project No. JB195150
September 6, 2019

INTRODUCTION

This report presents the results of our subsurface exploration and geotechnical engineering services performed for the proposed additions to the Putnam Valley Central School District campus in Putnam Valley, New York. The purpose of these services is to provide information and geotechnical engineering recommendations relative to:

- Subsurface soil conditions
- Groundwater conditions
- Site preparation and earthwork
- Pavement design and construction
- Retaining wall design and construction
- Foundation design and construction
- Floor slab design and construction
- Seismic site classification per NYSBC
- Frost considerations

The geotechnical engineering Scope of Services for this project included the advancement of five test borings to depths ranging from approximately 10 to 17 feet, observation of four test pits to depths of approximately 3 feet, and preparation of this summary report.

Maps showing the site and test boring locations are shown in the **Site Location and Exploration Plans** section.

SITE CONDITIONS

The Putnam Valley Central School District (CSD) campus is located south of Peekskill Hollow Road near its intersection with Brookfalls Road in the town of Putnam Valley, New York as shown on the USGS Topographic Map presented with the **Site Location and Exploration Plans**. As depicted on the USGS map, the site is situated within an area of glaciated hills and drumlins. The site itself lies on the northern flank of an elliptical drumlin shaped hill which trends southwest to northeast. The site's ground surface slopes down from south to north between elevations 280 and 220 feet.

The original building was constructed in the 1970's and now serves as the Middle School. Cut and fill work was performed at that time to level the sloping site for the building and adjoining athletic field construction. The High School building and additional athletic fields were added to

the campus circa 1999-2000 and these were also built into the hillside. These additions entailed excavations as deep as 30 feet and fills up to about 10 feet deep to level the site for building and field construction. The fill used to establish the site grades for the original building and later addition were composed primarily of the on-site cut materials composed of sand, silt, gravel, cobbles and boulders.

In 1998, a Geotechnical Report was prepared for the High School and Athletic Field Additions by Dente Engineering, our predecessor firm. This report was referenced in part to develop the site history discussed above, and the results of subsurface explorations completed for that report are referenced and included in the following sections.

PROJECT DESCRIPTION

It is our understanding the project will entail construction of a small courtyard in-fill addition for the Middle School building and a larger Health Center on the north side of the High School as shown on the aerial photographs in the **Photograph Log**.

The Middle School in-fill addition will be a slab-on-grade structure with no basement. It is our understanding that the adjoining Middle School building has a partial basement. The courtyard where the in-fill is planned is relatively level and within about one foot of the planned floor elevation. The surface in this area is currently lawns and concrete sidewalks.

The Health Center addition will be a one-story field house with a turf floor. The turf will be installed over the soil subgrades with no concrete slab beneath it. A small storage space and vestibule will have slabs. The structure will be a bent steel frame Butler style building. The Health Center site is currently an open lawn with ground surface elevations generally in the range of 249 to 252 feet. At the northeast corner of the proposed building the ground surface begins to slope down more steeply and is near elevation 246 feet at the building corner. We assume the turf surface inside the addition will be set at elevations in the range of 250 to 252 feet.

No building load information for the new additions was provided to us. For the purposes of this evaluation it has been assumed that column loads will be less than 200 kips and wall load less than 2 kips per linear foot.

GEOTECHNICAL CHARACTERIZATION

We have developed a general characterization of the subsurface conditions based upon our review of the subsurface exploration, geologic setting and our understanding of the project. This characterization, termed GeoModel, forms the basis of our geotechnical calculations and evaluation of site preparation and foundation options. Conditions encountered at each exploration

point are indicated on the individual logs. The individual logs can be found in the **Exploration Results** and the GeoModels in the **Figures** sections of this report.

As part of our analyses, we identified the following model layers within the subsurface profile. For a more detailed view of the model layer depths at each boring location, refer to the GeoModel.

Model Layer	Layer Name	General Description
1	**Surface Material**	Topsoil at the Health Center site and topsoil or concrete sidewalk at the Middle School site.
2	**Fill and Possible Fill**	Generally composed of sand with variable lesser amounts of silt and gravel, occasional cobbles and rootlets. Occasional foreign matter, i.e., wire, small metal pieces and vitrified pipe in the shallow test pits at the Health Center site.
3	**Glacial Deposits**	Generally composed of sand with variable lesser amounts of silt and gravel, occasional cobbles.

At the Middle School site, the fills appeared to extend to depths of 2 and 5 feet at the boring locations. Based upon standard penetration “N” values, the fill was judged to be of a medium dense to loose relative density. Here the fill contained no discernible foreign matter.

At the Health Center site, the depth of fill ranged from 7 to possibly as deep at 13.5 feet. In the shallow test pits made in this area, occasional foreign matter was found in the fill as noted in the table above. Based upon standard penetration “N” values, the fill was judged to be of a medium dense to very loose relative density.

We caution that the fill materials were similar in gradation to the native soils and it was difficult to discern between the two. Thus, the fill and possible fill depths shown on the logs may vary somewhat from actual conditions. It is noted that the test pit depths were limited to a maximum depth of about 3 feet with the type of excavation equipment provided by the school. Thus, the depth of fills was not be confirmed with the test pits.

The glacial deposits found beneath the topsoil and/or fills extended fully through the remaining depths explored. Based upon standard penetration “N” values, these soils were judged to be medium dense and they became dense to very dense at depths of about 10 to 25 feet.

Based upon laboratory gradation testing completed during the 1998 study, and our visual observations of the recovered soil samples, the fill and native soils are generally classified under the Unified Soil Classification System Group SM. The percentage, by weight, of particles finer than a No. 200 mesh sieve (i.e., silt and clay size) ranged between 10 and 40 percent in the samples tested.

Groundwater observations and measurements were made as the boreholes were completed and the results are noted on the individual logs. It should be understood that the depths noted may not reflect a stabilized groundwater measurement because adequate time may not have passed for groundwater to enter and achieve a stable level in the augers.

At the Middle School site, groundwater was measured at depths of 15.7 and 9.0 feet at completion of drilling the 2019 borings.

At the Health Center site, groundwater was first encountered at a depth of 9.1 feet in the 2019 test boring B-3. In borings B-4 and B-5, no measurable groundwater was present during or at completion of drilling. No groundwater was present in the shallow test pits completed at this location. In the 1998 borings completed in this area, groundwater was generally found at depths of about 7 to 11 feet after drilling was completed and the augers were removed.

Fluctuations in groundwater levels may occur because of seasonal variations in the amount of rainfall, runoff, and other factors that may differ from those present at the time the explorations were performed. Additionally, grade adjustments on and around the site, as well as surrounding drainage improvements, may affect the water table.

GEOTECHNICAL OVERVIEW

In general, the subsurface profile at the project site consists of variable depths of fill material over deep glacial deposits. The fill and native soils were similar in gradation and were composed predominately of sand with lesser amounts of silt, gravel, cobbles and boulders. Groundwater was found during this study and in the 1998 explorations at depths in the range of about 7 to 11 feet. These conditions are consistent with those expected to be present based upon the geology of the project area and the history of the site development. Based upon our evaluation of these conditions, the following general guidelines were developed to assist in planning for design and construction.

- The deep deposits of native soils which are present at the project site are considered suitable for the support of conventional shallow spread foundations and slab-on-grade design.

- For planning purposes, it should be assumed that all existing fill must be removed and replaced beneath new building foundations. Where deeper fills are present at the Health Center site, the excavation of test pits should be considered using equipment capable of reaching depths on the order of 10 to 15 feet. These excavations should confirm the fill depths and serve as the basis for estimating project costs associated with undercutting beneath the foundations.

- At the Middle School site, the shallow fill materials found at that location should be acceptable for support of floor slabs provided that the surface is proof-rolled, and any soft areas are undercut and stabilized accordingly.

- The deeper fills at the Health Center site are more prone to long-term consolidation which could result in settlement of the turf and any isolated slabs which may be included within the structure. The magnitude of settlement cannot be accurately predicted because pockets of organic matter or otherwise unsuitable material, which were not found in the test borings, may be present between the discrete test locations. Proof-rolling and stabilization of the subgrade surface will reduce, but not eliminate the settlement risks. Consideration could be given to leaving the fills in place beneath the turf which should be less impacted by settlement of the surface. Beneath floor slab areas the fills can be left in place, with some risk of settlement accepted by the Owner, or the fills can be removed and replaced in these localized areas.

- Assuming the existing fills are similar in composition to those found in the test borings, they should be suitable to support new pavements provided the subgrade surfaces are proof-rolled and stabilized accordingly. As noted above, it should be understood the proof-rolling will reduce, but not eliminate, the possibility that settlement of the pavements constructed over the existing fills may occur over time and require periodic maintenance.

- Groundwater may be encountered in foundation excavations and undercuts. If present, it is expected that seepage of water into the excavations should be relatively slow and standard sump and pump methods of dewatering should be adequate. For long-term groundwater control, the installation of a standard perimeter foundation drain is recommended for the new additions.

- Undercuts of existing fills from beneath building foundations should be backfilled using an imported Structural Fill. For planning purposes, the existing fills and native soils excavated on-site should generally be reused as fill in landscape areas or to increase grades beneath the turf field inside the Health Center subject the requirements specified in the **Earthwork** section of this report.

The following sections of this report provide more detailed recommendations to assist in planning for the geotechnical related aspects of the project. We should be provided with the opportunity to review plans and specifications prior to their release for bidding to confirm that our recommendations were properly understood and implemented, and to allow us to refine our recommendations, if warranted, based upon the final design. The **General Comments** section provides an understanding of the report limitations.

SEISMIC CONSIDERATIONS

The seismic design requirements for buildings and other structures are based on Seismic Design Category. Site Classification is required to determine the Seismic Design Category for a structure. The Site Classification is based on the upper 100 feet of the site profile defined by a weighted average value of either shear wave velocity, standard penetration resistance, or undrained shear strength in accordance with Section 20.4 of ASCE 7 and the International Building Code (IBC).

Seismic Site Classification

Based on the soil properties encountered at the site and as described on the exploration logs, it is our professional opinion that the **Seismic Site Classification is D**. Subsurface explorations at this site were extended to a maximum depth of 17 feet for this study and 25 feet for the 1998 explorations. The site properties below the boring depth to 100 feet were estimated based on our experience and knowledge of geologic conditions of the general area.

Liquefaction

Liquefaction of the soils should not occur in response to earthquake motions. This opinion is based upon the composition and density of the site soils.

EARTHWORK

Earthwork is anticipated to include stripping of asphalt, topsoil and surficial organic matter, removal of existing fills from beneath the foundation, compaction and stabilization of the subgrade surfaces, and associated site fill and backfill placement and compaction. The following sections provide recommendations for use in the preparation of specifications for the work. Recommendations include critical quality criteria, as necessary, to render the site in the state considered in our geotechnical engineering evaluation for foundations, floor slabs and pavements.

Construction site safety is the sole responsibility of the contractor who controls the means, methods, and sequencing of construction operations. Under no circumstances shall the information provided herein be interpreted to mean Terracon is assuming responsibility for construction site safety, or the contractor's activities; such responsibility shall neither be implied nor inferred.

Site Preparation

Site preparation should begin with stripping of asphalt, concrete, topsoil and surficial organic matter from proposed building pad and pavement areas.

All existing fills should be removed and replaced beneath the building foundations per the figures presented in the **Shallow Foundations** section of this report.

The fills may remain in place beneath new turf, floor slabs and pavements provided the surfaces are proof-rolled as described below and some degree of risk for settlement is acceptable to the Owner. If no settlement risk is acceptable, the existing fills must be removed and replaced.

Prior to placing fills to raise site grades and/or after cuts are made to the plan subgrade elevations, the subgrades should be proof-rolled using a steel drum roller with a static weight of at least ten tons except within 10 feet of structures where a walk-behind roller should be used. The rollers should operate in their vibratory mode and complete at least four passes over all subgrade surfaces. The method of proof-rolling may be modified by the Geotechnical Engineer based upon the conditions exposed at the time of construction.

Soft areas identified by the proof-rolling should be investigated to determine the cause and stabilized accordingly. These investigations may include the excavation of test pits. If existing fills are found and are determined to be unsuitable by the Geotechnical Engineer, the fills should be removed and replaced as deemed necessary.

Fill Material Types

Imported Structural Fill should be used as backfill of foundation undercuts and to increase grades beneath floor slabs. The imported Structural Fill should be a well graded bank-run sand and gravel which meets the limits of gradation tabulated below. The fills should be free of recycled concrete, asphalt, bricks, glass and pyritic shale rock

IMPORTED STRUCTURAL FILL

Sieve Size	Percent Finer
3”	100
¼”	30 to 75
No. 40	5 to 40
No. 200	0 to 10

Imported Structural Fill and/or suitable portions of existing fills and native soils excavated on-site may be considered to increase grades beneath the turf inside the Health Center and beneath pavements. Suitable on-site material should consist of silty sand or silty sand and gravel. Cobbles, boulders and particles larger than four inches sorted out and the material should not contain organics, topsoil or debris.

Fill Compaction Requirements

Fills beneath the building pad and pavements should be placed in uniform loose layers no more than about one-foot thick where heavy vibratory compaction equipment is used. Smaller lifts should be used where hand operated equipment is required for compaction. Each lift should be compacted to no less than 95 percent of the maximum dry density and at a moisture content

within two percent of optimum for the soil which is established by the Modified Proctor Compaction Test, ASTM D1557. In landscape areas, the compaction may be reduced to 90 percent of maximum dry density.

Temporary Excavation Slopes

As a minimum, temporary excavations should be performed in accordance with OSHA 29 CFR, Part 1926, Subpart P, “Excavations” and its appendices, for an OSHA Type C soil, and in accordance with any applicable local, and/or state regulations. The contractor should be aware that slope height, slope inclination, and excavation depth should in no instance exceed OSHA regulations. Flatter slopes than those dictated by the regulations or temporary shoring may be required depending upon the soil conditions encountered and other external factors. OSHA regulations are strictly enforced and if they are not followed, the owner, contractor, and/or earthwork and utility subcontractor could be liable and subject to substantial penalties.

In general, excavations should not encroach within a zone of influence defined by a line extending out and down from the existing structures at an inclination of 1V:1.5H. Excavations that encroach within this zone should be sheeted, shored, and braced to support the soil and adjacent structure loads, or the structure should be underpinned to establish bearing at a deeper level.

Construction Observation and Testing

The earthwork efforts should be monitored under the direction of the Geotechnical Engineer. Monitoring should include documentation of adequate removal of topsoil and unsuitable fills, proof-rolling, and mitigation of areas delineated by the proof-roll to require mitigation.

Each lift of compacted fill should be tested, evaluated, and reworked, as necessary, until approved by the Geotechnical Engineer prior to placement of additional lifts. Each lift of fill should be tested for density and water content at a frequency of at least one test for every 2,500 square feet of compacted fill in the building areas. One density and water content test should be performed for every 50 linear feet of compacted utility trench backfill.

Foundation bearing grades and subgrades for floor slabs and pavements should be evaluated under the direction of the Geotechnical Engineer. If unanticipated conditions are encountered, the Geotechnical Engineer should prescribe mitigation options.

It should be understood the actual subsurface conditions that exist will only be known when the site is excavated. The continuation of the Geotechnical Engineer into the construction phase of the project will allow for validation of the subsurface conditions assumed to exist for this study and the design recommended in this report, including assessing variations, providing recommendations and reviewing associated design changes.

SHALLOW FOUNDATIONS

If the site has been prepared in accordance with the requirements noted previously in **Earthwork** and below under the **Foundation Construction Considerations**, the following design parameters may be assumed.

Design Parameters – Compressive Loads

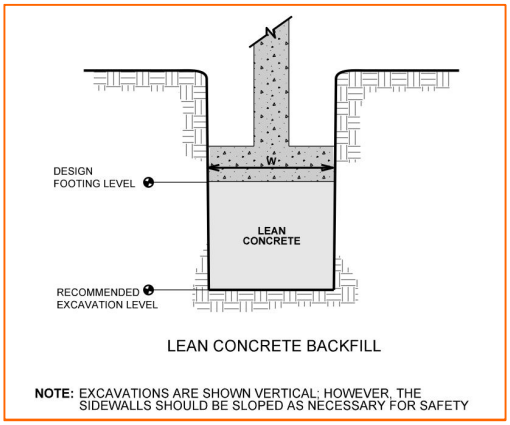
Item	Description
Maximum Net Allowable Bearing Pressure [1, 2]	4,000 psf
Required Bearing Stratum [3]	Undisturbed native soils or Imported Structural Fill placed over the native sand after removal of existing fills.
Minimum Foundation Dimensions	Columns: 36 inches Continuous: 18 inches
Ultimate Coefficient of Sliding Friction [4]	0.45 (Native Soil or Structural Fill)
Minimum Embedment below Finished Grade [5]	Exterior footings: 48 inches Interior footings in heated areas: 24 inches [6] Interior footings in unheated areas: 48 inches
Estimated Total Settlement from Structural Loads [2]	Less than about one (1) inch
Estimated Differential Settlement [2, 7]	About 75% of total settlement

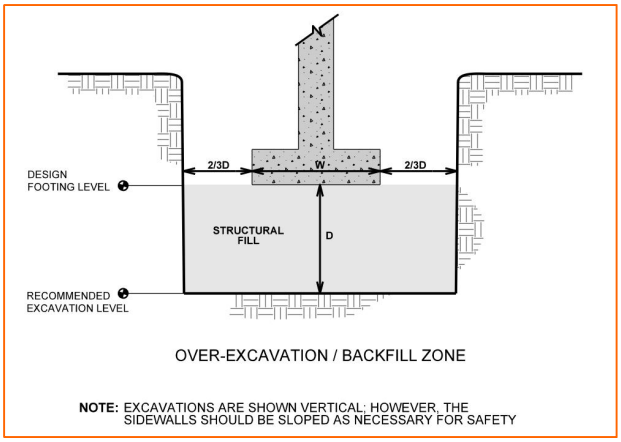
1. The maximum net allowable bearing pressure is the pressure which exceeds the minimum surrounding overburden pressure at the footing base elevation. An appropriate factor of safety has been applied.
2. Values provided are for maximum loads noted in **Project Description**. The settlements should occur relatively quickly as construction is completed and each load increment is applied.
3. The bearing grades should be prepared per the recommendations presented below in the **Foundation Construction Considerations**.
4. Can be used to compute sliding resistance where foundations are placed on suitable soil/materials. Should be neglected for foundations subject to net uplift conditions.
5. Embedment necessary to minimize the effects of frost and/or seasonal water content variations.
6. The 24" embedment depth for interior footings does not apply to thickened slabs supporting interior walls. The embedment depth for interior foundations must also comply with local building code regulations.
7. Differential settlements are as measured over a span of 50 feet.

Foundation Construction Considerations

The foundation bearing grades should consist of undisturbed native soils, or Lean Concrete or Imported Structural Fill placed over the native soils after all existing fills are removed per the figures below. If the Imported Structural Fill option is selected, the over-excavation should be

backfilled up to the footing base elevation with Structural Fill placed and compacted as recommended in the **Earthwork** section.





All final bearing grades should be relatively firm, stable, and free of loose soil, mud, water and frost. The Geotechnical Engineer should approve the condition of the foundation bearing grades immediately prior to placement of the reinforcing steel and concrete.

Foundation Drainage

Installation of a standard perimeter foundation drain is recommended to reduce the potential for surface infiltration to become trapped within the backfill soils and possible enter beneath the turf field for in the Health Center addition.

FLOOR SLABS

Floor Slab Design Parameters

The floor slabs should be constructed upon a minimum six-inch thick base of Crusher-Run Stone which conforms to requirements for Type 2 material specified in Section 304 of the NYSDOT Standard Specifications for Construction and Materials. A vapor retarder, Stego Wrap 15 mil Class A or equivalent, should be placed per ACI 302 and/or ACI 360 guidelines.

A vertical modulus of subgrade reaction equal to 150 pounds per cubic inch (pci) at the top of the stone base layer may be assumed for the slab design purposes.

Floor Slab Construction Considerations

The Geotechnical Engineer should approve the condition of the floor slab subgrades immediately prior to placement of the floor slab support course, reinforcing steel, and concrete. Attention should be paid to high traffic areas that were rutted and disturbed earlier, and to areas where backfilled trenches are located.

LATERAL EARTH PRESSURES

Design Parameters

Building or site walls that retain earth should be designed to resist lateral pressures, with applicable surcharge loads, assuming the parameters listed below. Active earth pressures may be assumed for walls that are free to deflect as the backfill is placed. At-rest earth pressures should be assumed for all walls that are braced prior to backfilling or applying surcharge loads. The recommended design parameters do not include a factor of safety.

- Soils Angle of Internal Friction (φf) = 30 degrees
- Coefficient of At-Rest Earth Pressure = 0.50
- Coefficient of Active Earth Pressure = 0.33
- Coefficient of Passive Earth Pressure = 3.00
- Total Unit Weight of Compacted Soil = 120 pcf
- Coefficient of Sliding Friction Soil (tanφf) = 0.45

For the listed values to be valid, the wall must be backfilled with Suitable On-Site Soils or Imported Structural Fill as specified in the **Earthwork** section of this report. The Structural backfill must extend out and up from the base of the wall at an angle of at least 45 degrees from vertical for the Active and At-Rest cases.

Subsurface Drainage for Below-Grade Walls

A standard perimeter foundation drain should be installed for basement walls and in the backfills for site retaining walls. The basement walls should be damp-proofed.

PAVEMENTS

General Pavement Comments

Pavement designs are provided for the site assuming the traffic will generally consist of automobiles and/or school buses. A critical aspect of pavement performance is site preparation. Pavement designs noted in this section must be applied to the site which has been prepared as recommended in the **Earthwork** section.

Pavement Section Thicknesses

Two pavement sections were developed, a Light-Duty Section may be used for automobile parking and a Heavy-Duty Section for entrance lanes and areas subject to school bus traffic. The recommended pavement sections can be refined by us if we are provided with specific design traffic loading.

Asphaltic Concrete Design			
Layer	NYSDOT Item Number [1]	Thickness (inches)	
		Light Duty	Heavy Duty
Asphaltic Concrete Top	#402.127303	1.0	1.5
Asphaltic Concrete Binder	#402.257903	2.0	2.5
Processed Sand and Gravel	#304.14	8	12
Stabilization Fabric [2]	N/A	Single Ply	Single Ply

1. All materials should meet the current New York State Department of Transportation (NYSDOT) Standard Specifications for Construction and Materials.
2. Stabilization Fabric should be Mirafi 500X or approved equivalent.

Pavement Drainage

Pavements should be sloped to provide rapid drainage of surface water. Water allowed to pond on or adjacent to the pavements could saturate the subgrade and contribute to premature pavement deterioration.

Pavement Maintenance

The pavement sections represent minimum recommended thicknesses and, as such, periodic maintenance should be anticipated. Therefore, preventive maintenance should be planned and provided for through an on-going pavement management program. Maintenance activities are intended to slow the rate of pavement deterioration and to preserve the pavement investment. Maintenance consists of both localized maintenance (e.g., crack and joint sealing and patching) and global maintenance (e.g., surface sealing).

Temporary Construction Access Roadways

The recommended pavement sections are not designed to support heavy construction traffic which may require thicker sections. The contractor shall construct temporary haul and construction roadways and routes on site as appropriate for the specific weather conditions and equipment anticipated at the site.

Frost Considerations

It should be understood that sidewalks and pavements constructed upon the site's soils will heave as frost seasonally penetrates the subgrades. The magnitude of the seasonal heave will vary with many factors and result in differential movements. As the frost leaves the ground, the sidewalks and pavements will settle back, but not entirely in all areas, and this may accentuate the differential movements across the pavement areas. Where curbs, walks, and storm drains meet these pavements, these differential heave and settlements may result in undesirable movements and create trip hazards. To limit the magnitude of heave and the creation of these uneven joints to generally tolerable magnitudes for most winters, a 16-inch thick crushed stone base course, composed of Blend 57 aggregate, may be placed beneath the sensitive sidewalk, drive, etc. areas. The stone layer must have an underdrain placed within it.

GENERAL COMMENTS

Our analysis and opinions are based upon our understanding of the project, the geotechnical conditions in the area, and the data obtained from our site exploration. Natural variations will occur between exploration point locations or due to the modifying effects of construction or weather. The nature and extent of such variations may not become evident until during or after construction. Terracon should be retained as the Geotechnical Engineer, where noted in this report, to provide observation and testing services during pertinent construction phases. If variations appear, we can provide further evaluation and supplemental recommendations. If variations are noted in the absence of our observation and testing services on-site, we should be immediately notified so that we can provide evaluation and supplemental recommendations.

Our Scope of Services does not include either specifically or by implication any environmental or biological (e.g., mold, fungi, bacteria) assessment of the site or identification or prevention of pollutants, hazardous materials or conditions. If the owner is concerned about the potential for such contamination or pollution, other studies should be undertaken.

Our services and any correspondence or collaboration through this system are intended for the sole benefit and exclusive use of our client for specific application to the project discussed and are accomplished in accordance with generally accepted geotechnical engineering practices with no third-party beneficiaries intended. Any third-party access to services or correspondence is solely for information purposes to support the services provided by Terracon to our client. Reliance upon the services and any work product is limited to our client and is not intended for third parties. Any use or reliance of the provided information by third parties is done solely at their own risk. No warranties, either express or implied, are intended or made.

Site characteristics as provided are for design purposes and not to estimate excavation cost. Any use of our report in that regard is done at the sole risk of the excavating cost estimator as there may be variations on the site that are not apparent in the data that could significantly impact excavation cost. Any parties charged with estimating excavation costs should seek their own site characterization for specific purposes to obtain the specific level of detail necessary for costing. Site safety, and cost estimating including, excavation support, and dewatering requirements and design are the responsibility of others. If changes in the nature, design, or location of the project are planned, our conclusions and recommendations shall not be considered valid unless we review the changes and either verify or modify our conclusions in writing.

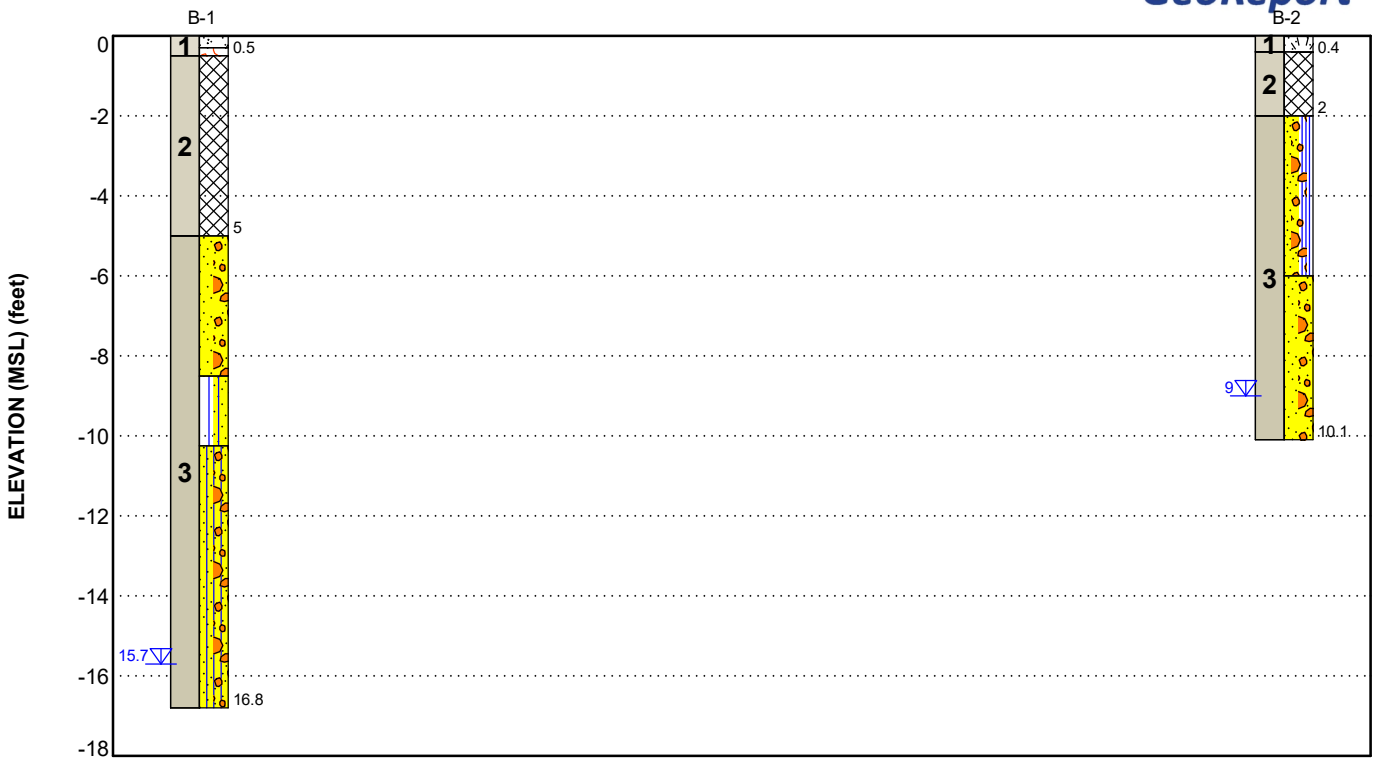
FIGURES

Contents:

GeoModel (2 pages)

GEOMODEL - MIDDLE SCHOOL

Putnam Valley CSD ■ Putnam Valley, New York
Terracon Project No. JB195150



This is not a cross section. This is intended to display the Geotechnical Model only. See individual logs for more detailed conditions.

Model Layer	Layer Name	General Description
1	**Surface Materials**	Topsoil at the Health Center site and topsoil or concrete sidewalk at the Middle School site.
2	**Fill and Possible Fill**	Generally composed of sand with variable lesser amounts of silt and gravel, occasional cobbles,rootlets, and foreign matter, i.e., wire, small metal pieces and vitrified pipe in the shallow test pits at the Health Center site.
3	**Glacial Deposits**	Generally composed of sand with variable lesser amounts of silt and gravel, occasional cobbles.

LEGEND

- Concrete
- Aggregate Base Course
- Fill
- Poorly-graded Sand with Gravel
- Silt with Sand
- Silty Sand with Gravel
- Topsoil
- Poorly-graded Sand with Silt and Gravel

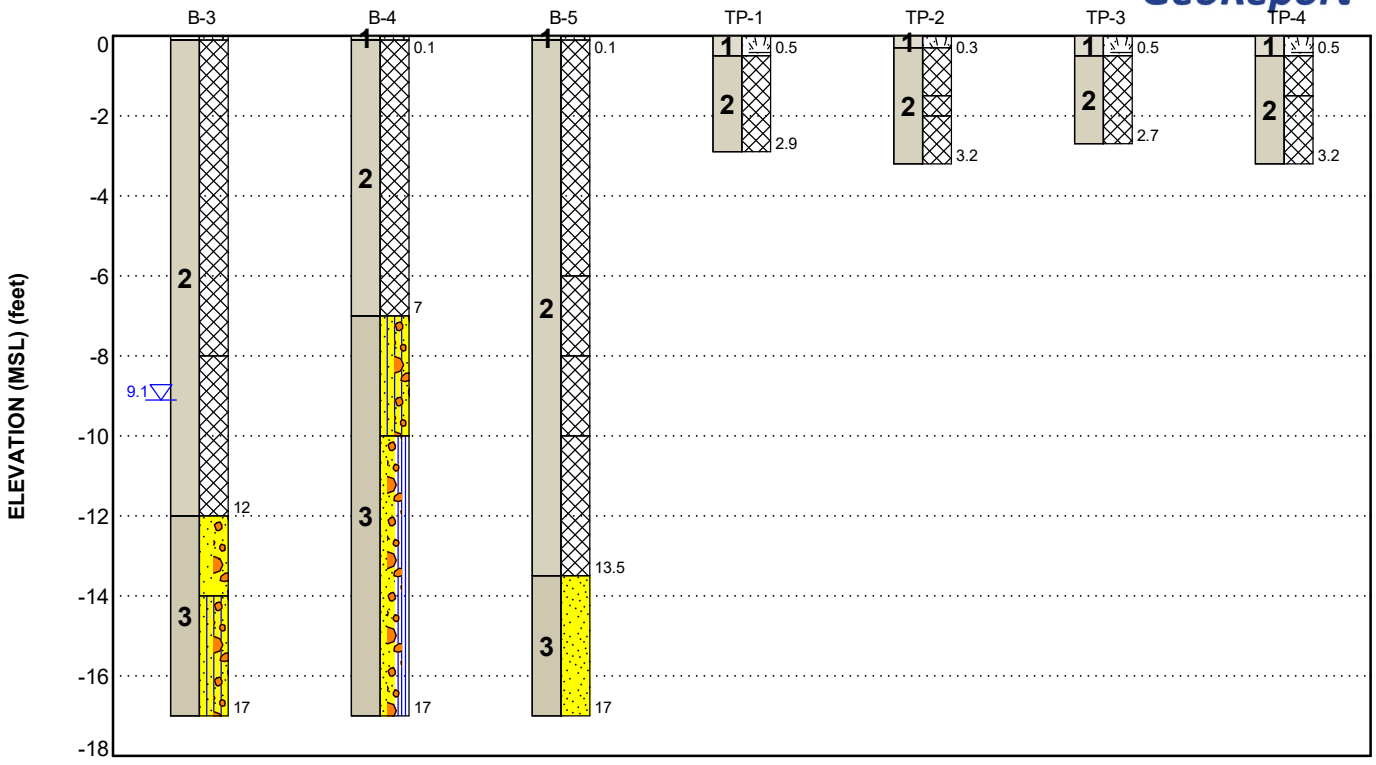
▽ First Water Observation
▽ Second Water Observation

Groundwater levels are temporal. The levels shown are representative of the date and time of our exploration. Significant changes are possible over time. Water levels shown are as measured during and/or after drilling. In some cases, boring advancement methods mask the presence/absence of groundwater. See individual logs for details.

NOTES:
Layering shown on this figure has been developed by the geotechnical engineer for purposes of modeling the subsurface conditions as required for the subsequent geotechnical engineering for this project. Numbers adjacent to soil column indicate depth below ground surface.

GEOMODEL - HEALTH CENTER

Putnam Valley CSD ■ Putnam Valley, New York
Terracon Project No. JB195150



This is not a cross section. This is intended to display the Geotechnical Model only. See individual logs for more detailed conditions.

Model Layer	Layer Name	General Description
1	**Surface Materials**	Topsoil at the Health Center site and topsoil or concrete sidewalk at the Middle School site.
2	**Fill and Possible Fill**	Generally composed of sand with variable lesser amounts of silt and gravel, occasional cobbles,rootlets, and foreign matter, i.e., wire, small metal pieces and vitrified pipe in the shallow test pits at the Health Center site.
3	**Glacial Deposits**	Generally composed of sand with variable lesser amounts of silt and gravel, occasional cobbles.

LEGEND

- Topsoil
- Fill
- Poorly-graded Sand with Gravel
- Silty Sand with Gravel
- Poorly-graded Sand with Silt and Gravel
- Poorly-graded Sand

▽ First Water Observation
▽ Second Water Observation

Groundwater levels are temporal. The levels shown are representative of the date and time of our exploration. Significant changes are possible over time. Water levels shown are as measured during and/or after drilling. In some cases, boring advancement methods mask the presence/absence of groundwater. See individual logs for details.

NOTES:
Layering shown on this figure has been developed by the geotechnical engineer for purposes of modeling the subsurface conditions as required for the subsequent geotechnical engineering for this project. Numbers adjacent to soil column indicate depth below ground surface.

ATTACHMENTS

EXPLORATION AND TESTING PROCEDURES

Field Exploration

Number of Borings	Boring Depth (feet)	Location
5	10 to 17	Middle School and Health Center

Number of Test Pits	Boring Depth (feet)	Location
4	3	Health Center

Test Boring and Pit Layout and Elevations: The test boring locations were established by Terracon relative to existing site features. Ground surface elevations for the borings were estimated based upon our interpolation between topographic contours shown on the site plans provided to us. If more precise locations and/or elevations are desired, the as-built boring locations should be surveyed.

Test Boring Subsurface Exploration Procedures: The test borings were made using a standard rotary drill rig equipped with hollow stem augers. As the augers were advanced, the soils were sampled at intervals of five feet or less in accordance with the Standard Method for Penetration Test and Split-Barrel Sampling of Soils, ASTM D1586. In the split-barrel sampling procedure, a standard 2-inch outer diameter split-barrel sampling spoon was driven into the ground by a 140-pound automatic hammer falling a distance of 30-inches. The number of blows required to advance the sampling spoon the middle 12-inches of a normal 24-inch penetration is recorded as the Standard Penetration Test (SPT) resistance value. The SPT resistance values, also referred to as N-values, are indicated on the boring logs at the test depths. Upon completion of drilling the boreholes were backfilled with auger cuttings and sand.

Our exploration team prepared field boring logs as part of the drilling operations. These field logs included visual classifications of the materials encountered during drilling and our interpretation of the subsurface conditions between samples. The sampling depths, penetration distances, and other sampling information was recorded on the field boring logs.

The soil samples were placed in appropriate containers and taken to our soil laboratory classification by a Geotechnical Engineer. Final boring logs were prepared, and they represent the Geotechnical Engineer's interpretation of the field logs and include modifications based on observations of the samples in our laboratory.

Test Pit Excavation Procedures

A Geologist from our office observed the excavation of shallow test pits excavated by School District personnel. The equipment provided was capable of excavating only to a depth of about 3 feet. Individual logs of the test pits were prepared by the Geologist based upon a visual classification of the soils.

PHOTOGRAPHY LOG

Contents:

Aerial Photographs (2 pages)

Note: All attachments are one page unless noted above.



PUTNAM VALLEY CSD ADDITIONS
(2018 Aerial Photograph)



PUTNAM VALLEY CSD ADDITIONS
(2018 Aerial Photograph)

SITE LOCATION AND EXPLORATION PLANS

Contents:

Site Location Plan
Exploration Plans (2 pages)

Note: All attachments are one page unless noted above.

SITE LOCATION

Putnam Valley CSD ■ Putnam Valley, New York
September 4, 2019 ■ Terracon Project No. JB195150

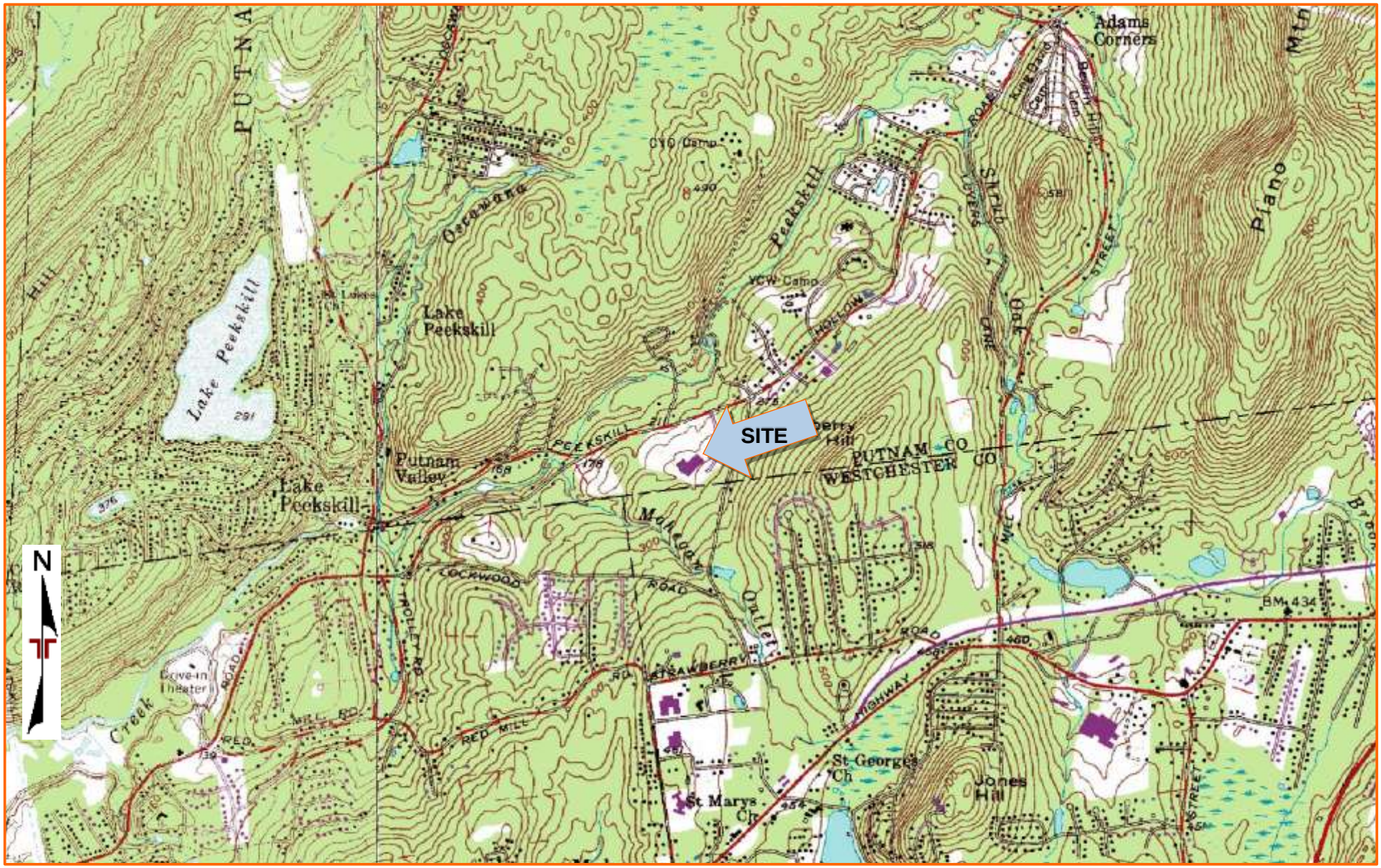


DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

TOPOGRAPHIC MAP IMAGE COURTESY OF THE U.S. GEOLOGICAL SURVEY QUADRANGLES INCLUDE: PEEKSKILL, NY (1/1/1981) and MOHEGAN LAKE, NY (1/1/1981).

EXPLORATION PLAN – HEALTH CENTER

Putnam Valley CSD ■ Putnam Valley, New York

September 4, 2019 ■ Terracon Project No. JB195150

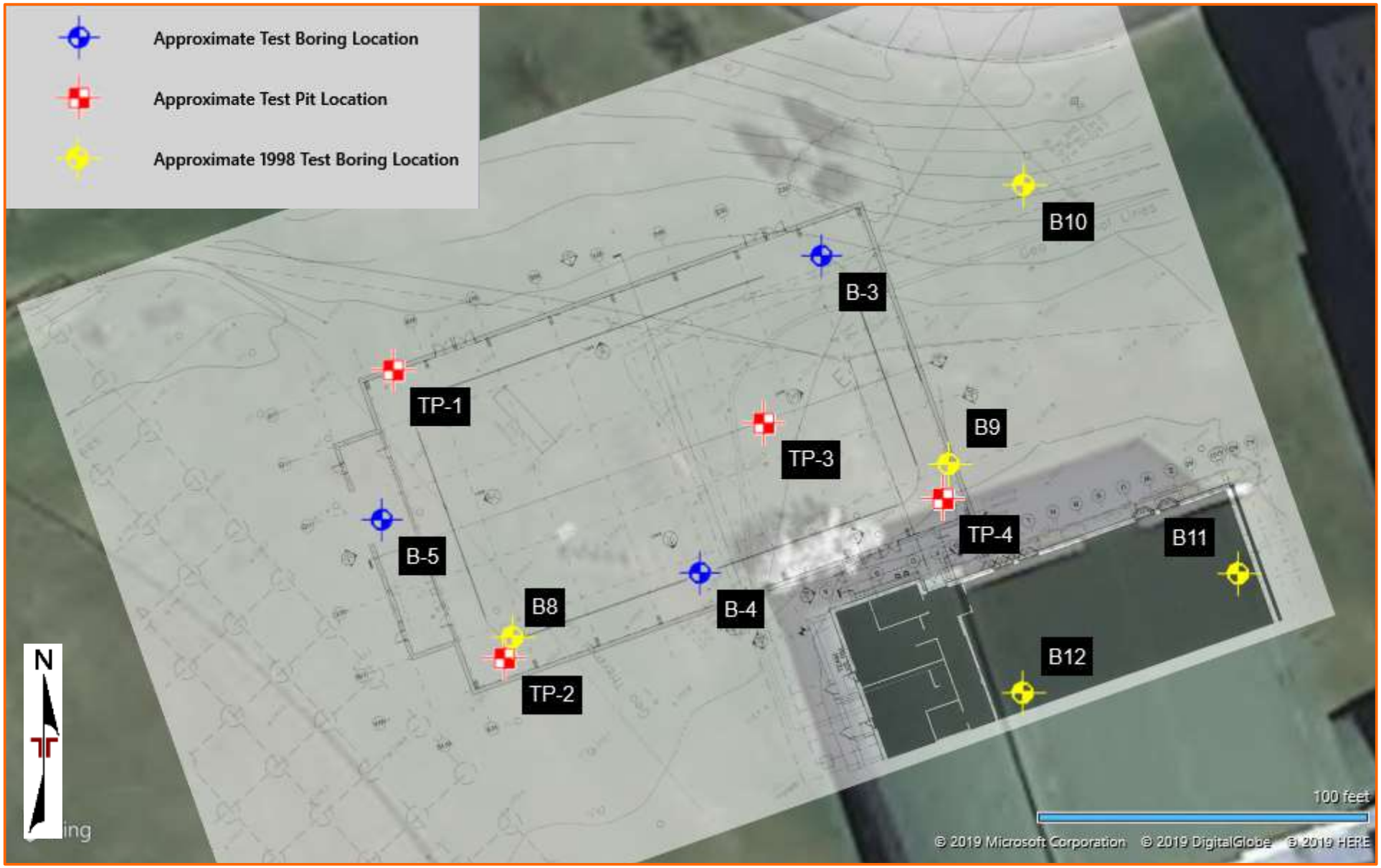


DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

AERIAL PHOTOGRAPHY PROVIDED BY MICROSOFT BING MAPS

EXPLORATION PLAN – MIDDLE SCHOOL

Putnam Valley CSD ■ Putnam Valley, New York

September 4, 2019 ■ Terracon Project No. JB195150



DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

AERIAL PHOTOGRAPHY PROVIDED BY MICROSOFT BING MAPS

EXPLORATION RESULTS

Contents:

2019 Boring Logs (B-1 through B-5) (5 pages)
2019 Test Pit Logs (TP-1 through TP-4) (4 pages)
1998 Boring Logs (B8 through B12) (5 pages)

Note: All attachments are one page unless noted above.

BORING LOG NO. B-1

PROJECT: Putnam Valley CSD

CLIENT: Putnam Valley CSD
Putnam Valley, New York

SITE: 171 Oscawana Lake Road
Putnam Valley, New York

MODEL LAYER	GRAPHIC LOG	LOCATION See Exploration Plan DEPTH / ELEVATION (Ft.) (Surface Elev.: 0 Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS
1		0.3 / -0.5 **PORTLAND CEMENT CONCRETE WALKWAY**					
		0.5 / -0.5 **CONCRETE BASE**					
2		**FILL - SILTY SAND**, trace gravel, fine to medium grained, gray to brown, moist, medium dense			X	22	6-9-9-8 N=18
					X	19	13-10-6-8 N=16
		5.0 / -5	5				
		POORLY GRADED SAND WITH GRAVEL (SP), fine to medium grained, gray to brown, moist, medium dense			X	21	8-8-9-9 N=17
					X	22	6-9-10-7 N=19
		8.5 / -8.5					
		SILT WITH SAND (ML), trace clay and gravel, fine grained, tan, moist, loose					
		10.3 / -10.5	10				
3		**SILTY SAND WITH GRAVEL (SM)**, occasional cobbles, fine to medium grained, tan, moist to wet, very dense			X	19	3-42-11-23 N=53
			15	▽	X	22	20-35-41-50/4" N=76
		16.8 / -17					
		Sampler Refusal on Probable Boulders at 16.8 Feet					

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
3 1/4" ID HSA

Abandonment Method:
Boring backfilled with soil cuttings upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

▽ *15.7 feet after boring completion*

Terracon
594 Broadway
Watervliet, NY

Boring Started: 08-01-2019 | Boring Completed: 08-01-2019

Drill Rig: CME 45 | Driller: S. Loiselle

Project No.: JB195150

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL JB195150 PUTNAM VALLEY CSD.GPJ TERRACON_DATATEMPLATE.GDT 9/4/19

BORING LOG NO. B-2

PROJECT: Putnam Valley CSD

CLIENT: Putnam Valley CSD
Putnam Valley, New York

SITE: 171 Oscawana Lake Road
Putnam Valley, New York

MODEL LAYER	GRAPHIC LOG	LOCATION See Exploration Plan DEPTH / ELEVATION (Ft.) (Surface Elev.: 0 Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS
1		0.4 / -0.5 **TOPSOIL**					
2		**FILL - POORLY GRADED SAND WITH SILT**, trace gravel and rootlets, fine grained, brown, moist, loose 2.0 / -2				9	1-1-4-7 N=5
3		**POORLY GRADED SAND WITH SILT AND GRAVEL (SP-SM)**, fine to coarse grained, orange to brown, moist, loose				19	3-4-3-3 N=7
			5			19	3-3-5-5 N=8
		POORLY GRADED SAND WITH GRAVEL (SP), occasional cobbles, fine to medium grained, brown, moist to wet, medium dense				21	11-10-12-15 N=22
		6.0 / -6		▽			
		10.1 / -10	10			1	50/1"
		Sampler Refusal on Probable Boulders at 10.1 Feet					

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
3 1/4" ID HSA

Abandonment Method:
Boring backfilled with soil cuttings upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

▽ *9 feet after boring completion*

Terracon
594 Broadway
Watervliet, NY

Boring Started: 08-01-2019 | Boring Completed: 08-01-2019

Drill Rig: CME 45 | Driller: S. Loiselle

Project No.: JB195150

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL JB195150 PUTNAM VALLEY CSD.GPJ TERRACON_DATATEMPLATE.GDT 9/4/19

BORING LOG NO. B-3

PROJECT: Putnam Valley CSD

CLIENT: Putnam Valley CSD
Putnam Valley, New York

SITE: 171 Oscawana Lake Road
Putnam Valley, New York

MODEL LAYER	GRAPHIC LOG	LOCATION See Exploration Plan DEPTH / ELEVATION (Ft.) (Surface Elev.: 0 (Ft.))	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS
2		0.1 / 0 **TOPSOIL** **FILL - POORLY GRADED SAND WITH SILT**, trace gravel and rootlets, occasional cobble, fine to medium grained, orange to brown, moist, loose to dense				19	3-7-8-7 N=15
						22	5-16-24-15 N=40
		Grades to gray	5			12	7-9-6-4 N=15
						0	3-3-1-1 N=4
		8.0 / -8 **POSSIBLE FILL - SILTY SAND WITH GRAVEL (SM)**, occasional cobbles, fine to medium grained, gray, wet, very loose to medium dense		▽		1	WH/12"-1-1 N=1
			10			6	1-7-10-11 N=17
3		12.0 / -12 **POORLY GRADED SAND WITH GRAVEL (SP)**, trace silt, fine to coarse grained, gray, wet, medium dense				19	7-7-6-6 N=13
		14.0 / -14 **SILTY SAND WITH GRAVEL (SM)**, fine to medium grained, tan, wet, medium dense					
			15			19	4-5-5-5 N=10
		17.0 / -17 ***Boring Terminated at 17 Feet***					

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
3 1/4" ID HSA

Abandonment Method:
Boring backfilled with soil cuttings upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:
WH = Weight of Hammer

WATER LEVEL OBSERVATIONS

▽ *9.1 feet while drilling*

Terracon
594 Broadway
Watervliet, NY

Boring Started: 08-02-2019 | Boring Completed: 08-02-2019

Drill Rig: CME 45 | Driller: S. Loiselle

Project No.: JB195150

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL JB195150 PUTNAM VALLEY CSD.GPJ TERRACON_DATATEMPLATE.GDT 9/4/19

BORING LOG NO. B-4

PROJECT: Putnam Valley CSD

CLIENT: Putnam Valley CSD
Putnam Valley, New York

SITE: 171 Oscawana Lake Road
Putnam Valley, New York

MODEL LAYER	GRAPHIC LOG	LOCATION See Exploration Plan DEPTH / ELEVATION (Ft.) (Surface Elev.: 0 (Ft.))	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS
1		0.1 / 0 **TOPSOIL**					
2		**FILL - SILTY SAND**, trace gravel, occasional cobbles, fine to medium grained, orange to brown, moist, medium dense to dense				19	6-10-13-20 N=23
						22	21-17-20-16 N=37
			5			22	10-12-8-8 N=20
						22	10-10-13-15 N=23
		7.0 / -7					
		SILTY SAND WITH GRAVEL (SM), occasional cobbles, fine to coarse grained, orange to brown, moist, medium dense				4	10-14-11-12 N=25
		10.0 / -10	10				
3		**POORLY GRADED SAND WITH SILT AND GRAVEL (SP-SM)**, fine to coarse grained, tan, moist, medium dense to dense				21	8-7-6-4 N=13
		Seams of wet silty sand (SM) observed from about 10 to 12 feet				21	5-4-3-3 N=7
			15				
						21	4-20-29-48 N=49
		17.0 / -17					
		Boring Terminated at 17 Feet					

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
3 1/4" ID HSA

Abandonment Method:
Boring backfilled with soil cuttings upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

No free water observed

Terracon
594 Broadway
Watervliet, NY

Boring Started: 08-01-2019 | Boring Completed: 08-01-2019

Drill Rig: CME 45 | Driller: S. Loiselle

Project No.: JB195150

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL JB195150 PUTNAM VALLEY CSD.GPJ TERRACON_DATATEMPLATE.GDT 9/4/19

BORING LOG NO. B-5

PROJECT: Putnam Valley CSD

CLIENT: Putnam Valley CSD
Putnam Valley, New York

SITE: 171 Oscawana Lake Road
Putnam Valley, New York

MODEL LAYER	GRAPHIC LOG	LOCATION See Exploration Plan DEPTH / ELEVATION (Ft.) (Surface Elev.: 0 (Ft.))	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS
1		0.1 **TOPSOIL** 0 **FILL - POORLY GRADED SAND WITH SILT AND GRAVEL**, occasional cobbles, fine to medium grained, gray to brown, moist, medium dense to very dense				21	4-12-14-24 N=26
						12	22-24-23-32 N=47
			5			12	4-12-50/2"
		6.0 -6					
2		**FILL - SILTY SAND**, trace gravel and rootlets, fine to medium grained, gray to black, wet, very loose				19	WH/12"-3-4 N=3
		8.0 -8 **FILL - POORLY GRADED SAND WITH SILT AND GRAVEL**, fine to coarse grained, gray to black, moist, medium dense				12	4-12-17-19 N=29
		10.0 -10 **POSSIBLE FILL - POORLY GRADED SAND WITH SILT**, trace gravel, fine to medium grained, tan, moist, medium dense	10			19	9-11-11-11 N=22
						22	12-13-13-11 N=26
		13.5 -13.5					
3		**POORLY GRADED SAND (SP)**, trace gravel, fine to medium grained, brown, wet, medium dense	15				
						20	9-8-6-7 N=14
		17.0 -17					
		Boring Terminated at 17 Feet					

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
3 1/4" ID HSA

Abandonment Method:
Boring backfilled with soil cuttings upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:
WH = Weight of Hammer

WATER LEVEL OBSERVATIONS

No free water observed

Terracon
594 Broadway
Watervliet, NY

Boring Started: 08-02-2019 | Boring Completed: 08-02-2019

Drill Rig: CME 45 | Driller: S. Loiselle

Project No.: JB195150

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL JB195150 PUTNAM VALLEY CSD.GPJ TERRACON_DATATEMPLATE.GDT 9/4/19

TEST PIT LOG NO. TP-1

PROJECT: Putnam Valley CSD

CLIENT: Putnam Valley CSD
Putnam Valley, New York

SITE: 171 Oscawana Lake Road
Putnam Valley, New York

MODEL LAYER	GRAPHIC LOG	LOCATION See Exploration Plan DEPTH / ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS
1		Surface Elev.: 0 (Ft.) 0.5 **TOPSOIL** -0.5					
2		**FILL - POORLY GRADED SAND WITH SILT AND GRAVEL**, occasional cobbles and boulders, pieces of wire, vitrified clay pipe, and metal debris, fine to coarse grained, brown, dry					
		2.9 -3 ***Test Pit Terminated at 2.9 Feet***					

Stratification lines are approximate. In-situ, the transition may be gradual.

Advancement Method:
Tractor-mounted New Holland 758C utility backhoe

Abandonment Method:
Test pit backfilled with spoils upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

No free water observed

Terracon
594 Broadway
Watervliet, NY

Test Pit Started: 08-14-2019 | Test Pit Completed: 08-14-2019

Excavator: New Holland 758C | Operator:

Project No.: JB195150

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL JB195150 PUTNAM VALLEY CSD.GPJ TERRACON_DATATEMPLATE.GDT 9/4/19

TEST PIT LOG NO. TP-2

PROJECT: Putnam Valley CSD

CLIENT: Putnam Valley CSD
Putnam Valley, New York

SITE: 171 Oscawana Lake Road
Putnam Valley, New York

MODEL LAYER	GRAPHIC LOG	LOCATION See Exploration Plan DEPTH / ELEVATION (Ft.) (Surface Elev.: 0 Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS
1		0.3 **TOPSOIL** -0.5					
2		**FILL - POORLY GRADED SAND WITH SILT AND GRAVEL**, trace rootlets, occasional cobbles and boulders, fine to medium grained, orange to brown, dry 1.5 -1.5					
		2.0 **FILL - POORLY GRADED SAND WITH GRAVEL**, medium to coarse grained, gray, dry -2					
		FILL - SILTY SAND WITH GRAVEL, fine to medium grained, orange to black, moist 3.2 -3					
		Test Pit Terminated at 3.2 Feet					

Stratification lines are approximate. In-situ, the transition may be gradual.

Advancement Method:
Tractor-mounted New Holland 758C utility backhoe

Abandonment Method:
Test pit backfilled with spoils upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

No free water observed

Terracon
594 Broadway
Watervliet, NY

Test Pit Started: 08-14-2019 | Test Pit Completed: 08-14-2019

Excavator: New Holland 758C | Operator:

Project No.: JB195150

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TEST PIT LOG NO. TP-3

PROJECT: Putnam Valley CSD

CLIENT: Putnam Valley CSD
Putnam Valley, New York

SITE: 171 Oscawana Lake Road
Putnam Valley, New York

MODEL LAYER	GRAPHIC LOG	LOCATION See Exploration Plan DEPTH / ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS
		Surface Elev.: 0 (Ft.)					
1		0.5 / -0.5 **TOPSOIL**					
2		**FILL - POORLY GRADED SAND WITH SILT AND GRAVEL**, occasional cobbles and boulders, pieces of small metal debris, fine to medium grained, brown, dry					
		2.7 / -2.5 ***Bucket Refusal on Boulders at 2.7 Feet***					

Stratification lines are approximate. In-situ, the transition may be gradual.

Advancement Method:
Tractor-mounted New Holland 758C utility backhoe

Abandonment Method:
Test pit backfilled with spoils upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

No free water observed

Terracon
594 Broadway
Watervliet, NY

Test Pit Started: 08-14-2019	Test Pit Completed: 08-14-2019
Excavator: New Holland 758C	Operator:
Project No.: JB195150	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL JB195150 PUTNAM VALLEY CSD.GPJ TERRACON_DATATEMPLATE.GDT 9/4/19

TEST PIT LOG NO. TP-4

PROJECT: Putnam Valley CSD

CLIENT: Putnam Valley CSD
Putnam Valley, New York

SITE: 171 Oscawana Lake Road
Putnam Valley, New York

MODEL LAYER	GRAPHIC LOG	LOCATION See Exploration Plan DEPTH / ELEVATION (Ft.) (Surface Elev.: 0 (Ft.))	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS
1		0.5 **TOPSOIL** -0.5					
2		**FILL - POORLY GRADED SAND WITH SILT AND GRAVEL**, occasional cobbles, pieces of brick, fine to medium grained, orange to brown, dry 1.5 -1.5					
		FILL - SILTY SAND WITH GRAVEL, fine to medium grained, gray, moist 3.2 -3					
		Test Pit Terminated at 3.2 Feet					

Stratification lines are approximate. In-situ, the transition may be gradual.

Advancement Method:
Tractor-mounted New Holland 758C utility backhoe

Abandonment Method:
Test pit backfilled with spoils upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

No free water observed

Terracon
594 Broadway
Watervliet, NY

Test Pit Started: 08-14-2019 | Test Pit Completed: 08-14-2019

Excavator: New Holland 758C | Operator:

Project No.: JB195150

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL JB195150 PUTNAM VALLEY CSD.GPJ TERRACON_DATATEMPLATE.GDT 9/4/19

F.A. DENTE ENGINEERING, P.C.	SUBSURFACE LOG B8

PROJECT: Proposed High School	**DATE**	START: 11-30-98	FINISH: 11-30-98

LOCATION: Putnam Valley, New York	**METHODS:** 4 1/4" HSAC w/ ASTM
CLIENT. Putnam Valley Central School District	D 1586
DRILLER: SJB Services, Inc.	**SURFACE ELEVATION:** 249' ±
DRILL TYPE: CME 550	**INSPECTION:** D. Abrams

SAMPLE		BLOWS ON SAMPLER					CLASSIFICATION / OBSERVATIONS
DEPTH	#	6"	12"	18"	24"	N	SOD & TOPSOIL 0.4'
	1	1	2	3	9	5	Firm Brown, SILT & SAND, trace gravel **MOIST (FILL)**
	2	9	7	8	11	15	Grades to Black, Little Roots
5'	3	10	8	7	5	15	
	4	4	8	5	11	13	Firm, Olive / Gray, SILT & SAND, trace clay, trace fine gravel **MOIST** (GLACIAL TILL)
10'	5	10	8	13	12	21	
15'	6	1	5	5	7	10	Grades to Loose, Brown **WET**
20'	7	4	14	32	44	46	Grades to trace cobbles
25'	8	50	50/.1				End of boring at 24.6' depth No Groundwater at completion Groundwater at 7.0' depth after augers pulled
30'							

F.A. DENTE ENGINEERING, P.C.	SUBSURFACE LOG B9

PROJECT: Proposed High School	**DATE**	START: 11-30-98	FINISH: 11-30-98

LOCATION: Putnam Valley, New York	**METHODS:** 4 1/4" HSAC w/ ASTM
CLIENT. Putnam Valley Central School District	D 1586
DRILLER: SJB Services, Inc.	**SURFACE ELEVATION:** 251' ±
DRILL TYPE: CME 550	**INSPECTION:** D. Abrams

SAMPLE		BLOWS ON SAMPLER					CLASSIFICATION / OBSERVATIONS
DEPTH	#	6"	12"	18"	24"	N	SOD & TOPSOIL 0.5'
	1	1	5	6	6	11	
							Loose, Gray - Brown, SILT & SAND,
	2	4	7	13	12	20	**MOIST (FILL)**
5'	3	2	3	5	7	8	
	4	7	4	5	7	9	Grades to trace bricks, roots
	5	3	3	5	8	8	
10'							
	6	5	8	6	7	14	Firm, Gray, SILT & SAND, trace clay
							MOIST
15'							
	7	4	5	8	9	13	
20'							
	8	4	7	11	14	18	
25'	9	8	32	50/.4	—	REF	Grades **VERY COMPACT**
							End of boring at 25.4' depth
							Groundwater at 10.6' after augers pulled
30'							

F.A. DENTE ENGINEERING, P.C.	SUBSURFACE LOG B10

PROJECT: Proposed High School	**DATE**	START: 11-30-98	FINISH: 11-30-98

LOCATION: Putnam Valley, New York	**METHODS:** 4 1/4" HSAC w/ ASTM
CLIENT. Putnam Valley Central School District	D 1586
DRILLER: SJB Services, Inc.	**SURFACE ELEVATION:** 250' ±
DRILL TYPE: CME 550	**INSPECTION:** D. Abrams

SAMPLE		BLOWS ON SAMPLER					CLASSIFICATION / OBSERVATIONS
DEPTH	#	6"	12"	18"	24"	N	SOD & TOPSOIL 0.5'
	1	1	2	1	1	3	
							Loose, Dark Brown, SILT & SAND, trace
	2	1	2	2	3	4	roots **MOIST (FILLS)**
							Firm, Brown, SILT & SAND, trace clay
5'	3	2	5	7	8	12	**MOIST**
	4	7	7	8	11	15	
10'							
	5	5	7	6	10	13	Grades to **WET**
15'							
	6	9	9	12	15	21	
20'							Grades to Cobbles
	7	50/.1	—	—	—	REF	
							End of boring at 20.1' depth
							No Groundwater measured at completion
							Ground water at 7.0' after augers pulled
25'							
30'							

F.A. DENTE ENGINEERING, P.C.	SUBSURFACE LOG B11

PROJECT: Proposed High School	**DATE**	START: 11-30-98	FINISH: 11-30-98

LOCATION: Putnam Valley, New York	**METHODS:** 4 1/4" HSAC w/ ASTM
CLIENT. Putnam Valley Central School District	D 1586
DRILLER: SJB Services, Inc.	**SURFACE ELEVATION:** 256' ±
DRILL TYPE: CME 550	**INSPECTION:** D. Abrams

SAMPLE		BLOWS ON SAMPLER					CLASSIFICATION / OBSERVATIONS
DEPTH	#	6"	12"	18"	24"	N	
							SOD & TOPSOIL 0.4'
	1	1	4	8	11	12	Firm, Brown, SILT & SAND **(FILL)**
	2	14	15	11	11	26	Firm, Brown, SILT & SAND, trace clay,
							MOIST (GLACIAL TILL)
5'	3	7	6	8	8	14	
	4	8	11	11	8	22	Grades to fine Gravel
10'							
	5	11	11	13	15	24	
15'							
	6	50/.1					
							End of boring at 15.1' depth
							Auger refusal on boulder
							Groundwater at 8.0' after augers pulled
20'							
25'							
30'							

F.A. DENTE ENGINEERING, P.C.	SUBSURFACE LOG B12

PROJECT: Proposed High School	**DATE**	START: 11-25-98	FINISH: 11-25-98

LOCATION: Putnam Valley, New York	**METHODS:** 4 1/4" HSAC w/ ASTM
CLIENT. Putnam Valley Central School District	D 1586
DRILLER: SJB Services, Inc.	**SURFACE ELEVATION:** 253' ±
DRILL TYPE: CME 550	**INSPECTION:** D. Abrams

SAMPLE		BLOWS ON SAMPLER					CLASSIFICATION / OBSERVATIONS
DEPTH	#	6"	12"	18"	24"	N	SOD & TOPSOIL
	1	29	5	5	5	10	Loose, Dark Brown, SILT & SAND, **MOIST (FILL)**
	2	10	4	5	11	9	
5'	3	10	12	12	10	24	Firm, Brown, SILT & SAND, trace clay **MOIST**
10'	4	7	11	7	8	18	Grades to **WET**
15'	5	6	16	32	41	48	Grades to compact, trace f-m gravel, cobbles
20'	6	50	50/.3	—	—	REF	REFUSAL ON BOULDER
	7	—	50/.3				End of boring at 22.8' depth
25'							No groundwater measured at completion
30'							

SUPPORTING INFORMATION

Contents:

General Notes
Unified Soil Classification System

Note: All attachments are one page unless noted above.

GENERAL NOTES

DESCRIPTION OF SYMBOLS AND ABBREVIATIONS

Putnam Valley CSD ■ Putnam Valley, New York

Terracon Project No. JB195150

Terracon GeoReport

SAMPLING	WATER LEVEL	FIELD TESTS
Split Spoon	**Water Initially Encountered** **Water Level After a Specified Period of Time** **Water Level After a Specified Period of Time** Water levels indicated on the soil boring logs are the levels measured in the borehole at the times indicated. Groundwater level variations will occur over time. In low permeability soils, accurate determination of groundwater levels is not possible with short term water level observations.	**N** Standard Penetration Test Resistance (Blows/Ft.) **(HP)** Hand Penetrometer **(T)** Torvane **(DCP)** Dynamic Cone Penetrometer **UC** Unconfined Compressive Strength **(PID)** Photo-Ionization Detector **(OVA)** Organic Vapor Analyzer

DESCRIPTIVE SOIL CLASSIFICATION

Soil classification is based on the Unified Soil Classification System. Coarse Grained Soils have more than 50% of their dry weight retained on a #200 sieve; their principal descriptors are: boulders, cobbles, gravel or sand. Fine Grained Soils have less than 50% of their dry weight retained on a #200 sieve; they are principally described as clays if they are plastic, and silts if they are slightly plastic or non-plastic. Major constituents may be added as modifiers and minor constituents may be added according to the relative proportions based on grain size. In addition to gradation, coarse-grained soils are defined on the basis of their in-place relative density and fine-grained soils on the basis of their consistency.

LOCATION AND ELEVATION NOTES

Unless otherwise noted, Latitude and Longitude are approximately determined using a hand-held GPS device. The accuracy of such devices is variable. Surface elevation data annotated with +/- indicates that no actual topographical survey was conducted to confirm the surface elevation. Instead, the surface elevation was approximately determined from topographic maps of the area.

STRENGTH TERMS

RELATIVE DENSITY OF COARSE-GRAINED SOILS (More than 50% retained on No. 200 sieve.) Density determined by Standard Penetration Resistance		CONSISTENCY OF FINE-GRAINED SOILS (50% or more passing the No. 200 sieve.) Consistency determined by laboratory shear strength testing, field visual-manual procedures or standard penetration resistance		
Descriptive Term (Density)	**Standard Penetration or N-Value Blows/Ft.**	**Descriptive Term (Consistency)**	**Unconfined Compressive Strength Qu, (tsf)**	**Standard Penetration or N-Value Blows/Ft.**
Very Loose	0 - 3	Very Soft	less than 0.25	0 - 1
Loose	4 - 9	Soft	0.25 to 0.50	2 - 4
Medium Dense	10 - 29	Medium Stiff	0.50 to 1.00	4 - 8
Dense	30 - 50	Stiff	1.00 to 2.00	8 - 15
Very Dense	> 50	Very Stiff	2.00 to 4.00	15 - 30
		Hard	> 4.00	> 30

RELATIVE PROPORTIONS OF SAND AND GRAVEL		RELATIVE PROPORTIONS OF FINES	
Descriptive Term(s) of other constituents	Percent of Dry Weight	**Descriptive Term(s) of other constituents**	**Percent of Dry Weight**
Trace	<15	Trace	<5
With	15-29	With	5-12
Modifier	>30	Modifier	>12

GRAIN SIZE TERMINOLOGY		PLASTICITY DESCRIPTION	
Major Component of Sample	**Particle Size**	**Term**	**Plasticity Index**
Boulders	Over 12 in. (300 mm)	Non-plastic	0
Cobbles	12 in. to 3 in. (300mm to 75mm)	Low	1 - 10
Gravel	3 in. to #4 sieve (75mm to 4.75 mm)	Medium	11 - 30
Sand	#4 to #200 sieve (4.75mm to 0.075mm	High	> 30
Silt or Clay	Passing #200 sieve (0.075mm)		

UNIFIED SOIL CLASSIFICATION SYSTEM

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests [A]					Soil Classification	
					Group Symbol	Group Name [B]
Coarse-Grained Soils: More than 50% retained on No. 200 sieve	**Gravels:** More than 50% of coarse fraction retained on No. 4 sieve	**Clean Gravels:** Less than 5% fines [C]	Cu ³ 4 and 1 £ Cc £ 3 [E]		GW	Well-graded gravel [F]
			Cu < 4 and/or [Cc<1 or Cc>3.0] [E]		GP	Poorly graded gravel [F]
		Gravels with Fines: More than 12% fines [C]	Fines classify as ML or MH		GM	Silty gravel [F, G, H]
			Fines classify as CL or CH		GC	Clayey gravel [F, G, H]
	Sands: 50% or more of coarse fraction passes No. 4 sieve	**Clean Sands:** Less than 5% fines [D]	Cu ³ 6 and 1 £ Cc £ 3 [E]		SW	Well-graded sand [I]
			Cu < 6 and/or [Cc<1 or Cc>3.0] [E]		SP	Poorly graded sand [I]
		Sands with Fines: More than 12% fines [D]	Fines classify as ML or MH		SM	Silty sand [G, H, I]
			Fines classify as CL or CH		SC	Clayey sand [G, H, I]
Fine-Grained Soils: 50% or more passes the No. 200 sieve	**Silts and Clays:** Liquid limit less than 50	**Inorganic:**	PI > 7 and plots on or above “A”		CL	Lean clay [K, L, M]
			PI < 4 or plots below “A” line [J]		ML	Silt [K, L, M]
		Organic:	Liquid limit - oven dried	< 0.75	OL	Organic clay [K, L, M, N]
			Liquid limit - not dried			Organic silt [K, L, M, O]
	Silts and Clays: Liquid limit 50 or more	**Inorganic:**	PI plots on or above “A” line		CH	Fat clay [K, L, M]
			PI plots below “A” line		MH	Elastic Silt [K, L, M]
		Organic:	Liquid limit - oven dried	< 0.75	OH	Organic clay [K, L, M, P]
			Liquid limit - not dried			Organic silt [K, L, M, Q]
Highly organic soils:	Primarily organic matter, dark in color, and organic odor				PT	Peat

[A] Based on the material passing the 3-inch (75-mm) sieve.

[B] If field sample contained cobbles or boulders, or both, add “with cobbles or boulders, or both” to group name.

[C] Gravels with 5 to 12% fines require dual symbols: GW-GM well-graded gravel with silt, GW-GC well-graded gravel with clay, GP-GM poorly graded gravel with silt, GP-GC poorly graded gravel with clay.

[D] Sands with 5 to 12% fines require dual symbols: SW-SM well-graded sand with silt, SW-SC well-graded sand with clay, SP-SM poorly graded sand with silt, SP-SC poorly graded sand with clay.

[E] $Cu = D_{60}/D_{10}$ $\quad Cc = \dfrac{(D_{30})^2}{D_{10} \times D_{60}}$

[F] If soil contains ³ 15% sand, add “with sand” to group name.

[G] If fines classify as CL-ML, use dual symbol GC-GM, or SC-SM.

[H] If fines are organic, add “with organic fines” to group name.

[I] If soil contains ³ 15% gravel, add “with gravel” to group name.

[J] If Atterberg limits plot in shaded area, soil is a CL-ML, silty clay.

[K] If soil contains 15 to 29% plus No. 200, add “with sand” or “with gravel,” whichever is predominant.

[L] If soil contains ³ 30% plus No. 200 predominantly sand, add “sandy” to group name.

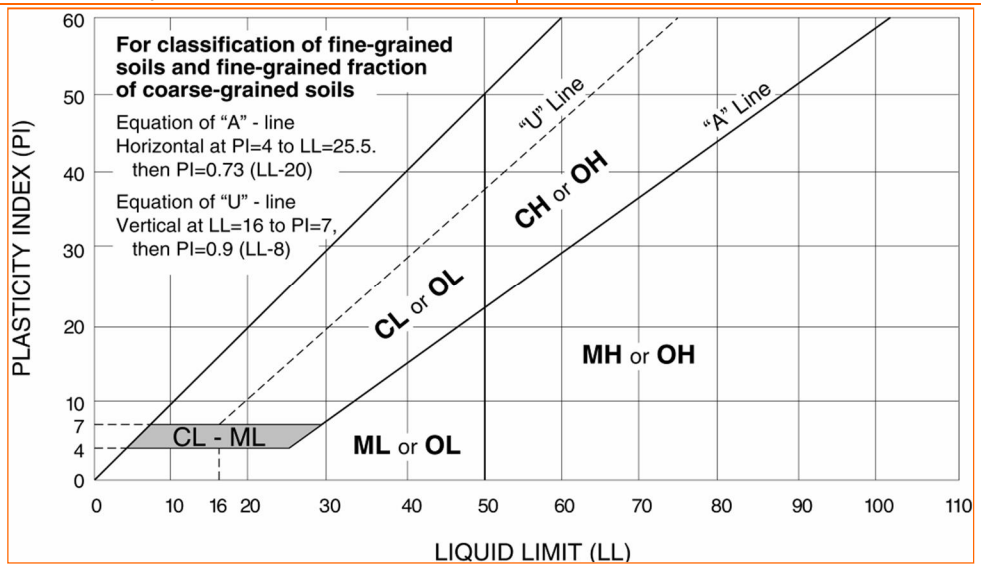
[M] If soil contains ³ 30% plus No. 200, predominantly gravel, add “gravelly” to group name.

[N] PI ³ 4 and plots on or above “A” line.

[O] PI < 4 or plots below “A” line.

[P] PI plots on or above “A” line.

[Q] PI plots below “A” line.



SECTION 00 41 00

PROPOSAL FORM

PROJECT: Putnam Valley Central School District
Capital Project Phase 2
Toilet Room Alterations
Putnam Valley Middle School
142 Peekskill Hollow Road, Putnam Valley, NY 10579

DATED: _____

To: Jill Figarella, District Treasurer
Putnam Valley Central School District
171 Oscawana Lake Road
Putnam Valley, NY 10579

Greetings:

The Undersigned, in compliance with the Invitation and Instructions to Bidders, agrees that if this bid is accepted as hereinafter provided he/she will provide all labor, materials, supplies, tools, plant and equipment necessary to perform all work required for the construction of the aforementioned project in accordance with documents as prepared by KG+D Architects, P.C., 285 Main Street, Mount Kisco, NY, 914.666.5900, for the class of work specified below:

GC - General Construction

_____Dollars ($_____)

Further, the undersigned:

- agrees to execute alternates selected for the sums (additive or deductive) set forth in the attached schedule of Alternate Proposals.
- agrees to the stated percentages for extra work if ordered on a Time and Material basis in accordance with Article 7 of the Conditions to cover all overhead and profit allowance.
- Takes notice of the time constraints set forth in Section 01 10 00 and agrees to the terms of the Contract and to the Actual Damages that will be enforced should the time constraints not be kept.

It is understood that the Owner reserves the right to accept or reject any and all bids that the Owner deems to be in his best interest.

Upon notification of acceptance of this proposal, the undersigned agrees to execute a contract in the form as stated within these contract documents for the amount stated.

Prices quoted shall be guaranteed for forty-five (45) days after date of proposal.

If written Notice to Proceed, Letter of Intent or Contract is received within forty-five (45) calendar days after the opening of bids, the undersigned agrees to execute said contract and furnish to

the Owner within ten (10) days after receipt of said notice of award, the executed Contract, together with the Performance Bond, Labor and Material Payment Bonds and Insurance Certificates required herein.

The Undersigned agrees that the Bid Security payable to Owner accompanying this proposal is left in escrow with the Owner; that its' amount is the measure of liquidated damages which the Owner will sustain by the failure of the Undersigned to execute and deliver the above named Bonds and Contract; and that if the undersigned defaults in furnishing said bonds or in executing and delivering said Contract within ten (10) days of written notification of award of the Contract to him/her, then said Security shall be payable to the Owner for its' own account; but if this proposal is not accepted within said forty five (45) days of the time set for submission of Bids, or if the Undersigned executes and delivers said bonds and Contract, the Bid Security shall be returned to the Undersigned.

The following Addenda have been received. The noted modifications to the Bid Documents have been considered and all costs are included in the Bid Sum.

Addendum	Date	Acknowledgment

The Undersigned hereby certifies that they are able to furnish labor that can work in harmony with all other elements of labor employed or to be employed on the Work.

The Undersigned has included with this Bid attachments noted:

1. Attachment #1: Schedule of Unit Prices
2. Attachment #2: Schedule of Alternates
3. Non-Collusive Affidavit
4. Certification of Compliance with the Iran Divestment Act
5. Bidder’s Declaration of Inability to Provide the Certification of Compliance with the Iran Divestment Act

Milestone Schedule:

Based on Award and Notice to Proceed and shall adjust accordingly if Notice is moved.

Award of Contract / Notice to Proceed	April 16, 2021
Start Construction	June 28, 2021
Substantial Completion	August 13, 2021
Final Completion	August 27, 2021

The Undersigned hereby certifies that they are able to furnish labor that can work in harmony with all other elements of labor employed or to be employed on the Work.

By submission of this Proposal

- the undersigned acknowledges that they have read the milestone and schedule requirements, Section 01 10 00, and agrees to provide sufficient staff and organization as well as to select subcontractors, suppliers and vendors to comply with the requirements for submittals, delivery dates, work periods and completion dates as

specified

- 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 that each bidder is not on the list created pursuant to paragraph (b) of subdivision 3 of Section 165-a of the state finance law."

- the Undersigned acknowledges that they have visited the site, informed themselves of the existing conditions, and have included in the Proposal a sum to cover the costs of all items in the contracts.

Respectfully submitted,

_____
Contractor Signature

Print Name_____Title_____

Business Name:_____

Address:_____

Office Telephone:_____

Cell Phone:_____

Contact Name and Email:_____

Attest Signature:_____Title_____

Attest Print Name:_____

SEAL IF CORPORATION

ATTACHMENT #1 - SCHEDULE OF UNIT PRICES

In accordance with the terms and conditions of the Contract and as part of the base proposal, the undersigned agrees to the following unit prices for designated work as described in Section 01 22 00 which shall be considered as payment forms and not for purpose of determining contract award. It shall be noted that work deducted from the basic contract covered by these stated unit prices will be DEDUCTED at the stated value LESS 15 percent.

Unit #1		$ /

End of Schedule of Unit Prices

ATTACHMENT #2 - SCHEDULE OF ALTERNATE PROPOSALS

In accordance with the terms and conditions of the Contract and the Proposal Form, the undersigned agrees to execute alternates selected for the sums set forth in the following schedule of Alternate Proposals in accordance with the general description outlined in Section 012300.

Alternate #1:

ADD _____ Dollars ($_____)
(in words) (in numerals)

End of Schedule of Alternates

Contractor Attestment To Schedule

Contractor _____

By _____

Dated _____

NON-COLLUSIVE AFFIDAVIT

Every bid or proposal made to a political subdivision of the State or any public department, agency or official thereof or to a fire district or any agency or official thereof, for work or services performed or to be performed or goods sold to 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 and is made pursuant to Section 103d of the General Municipal Law of the State of New York as amended by Laws of 1966.

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 his 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 the 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 if (a)1, 2 and 3 above, have not been complied with; provided, however, that if any case the bidder cannot make the foregoing certification, the bidder shall so state and shall furnish with the bid a signed statement which sets forth in detail the reasons therefore.
   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 purchasing unit of the political subdivision, public department, agency or official thereof to which bid is made, or his designee, determines that such disclosure was not made for the purpose of restricting competition.

Further, by submission of this 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 as to its own organization, under penalty of perjury, that to the best of its knowledge and belief that each bidder is not on the list created pursuant to paragraph (b) of subdivision 3 of Section 165-a of the state finance law."

- the Undersigned acknowledges that they have visited the site, informed themselves of the existing conditions, and have included in the Proposal a sum to cover the costs of all items in the contracts.

Respectfully submitted,

_____
Contractor

By_____Title_____

Business Name:_____

Address:_____

Telephone Number:_____

Attest:_____Title_____

SEAL IF CORPORATION

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: _____

OR

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.

_____
SIGNED

SWORN to before me this _____ day of _____20___

Notary Public: _____

** End of Proposal Form **

SECTION 00 45 13

BIDDER QUALIFICATION STATEMENT

After receipt of bids and upon notification from the Architect, the bidder shall answer all questions set forth in the form within the time required in Article 1.07 of the Invitation and Instructions to Bidders. Failure to answer these questions in full may be cause for rejection of the bidder's proposal. If more space is required, please attach additional sheets.

1. How many years has your organization been in business under your present business name? _____

2. How many years experience in construction work of a similar type has your organization had? _____

3. List below the construction projects your organization has under way as of this date:

Contract Sum	Class of Work / %Complete	Name/Address of Owner	Name & Phone # of Contact at Owner

4. List below a minimum of three (3) projects which your firm, as a firm, has performed in the past five (5) years which you feel will qualify you for this work.

Contract Sum	Class of Work / %Complete	Name/Address of Owner	Name & Phone # of Contact at Owner

5. Have you ever failed to complete any work awarded to you?
□ Yes □ No; If Yes, state where and why:

_____

_____

_____

6. Has any officer or partner of your organization ever been an officer or partner of some

other organization that failed to complete a construction contract?
□ Yes □ No; If Yes, state:

Name of Individual(s)	Name of Owner(s)	Reason(s)

7. Has any officer or partner of your organization ever failed to complete a construction contract handled in his own name?
□ Yes □ No; If yes, state:

Name of Individual(s)	Name of Owner(s)	Reason(s)

8. Has your firm or organization ever received a Notice of Default or Notice of Termination or ever been defaulted or terminated on a Project?
□ Yes □ No; If yes, state where and why:

_____

_____

The undersigned hereby authorizes and requests any firm, person or corporation to furnish any information requested by the Owner or Architect in verification of the matters contained in the Bidder Qualification Statement.

Dated _____, 20_____

_____
(Name of Bidder)

By _____

Title _____

AFFIDAVIT

STATE OF)
S.S.
COUNTY OF)

_____ being duly sworn and says that he/she is

_____ of _____

_____

(Name of Organization)

and that the answers to the foregoing interrogatories and all statements therein contained are true and correct.

Subscribed and sworn to before me

this _____ day of _____ 20_____

_____
Signature

_____

Notary Public, County of _____

End of Section

SECTION 00 46 43

WAGE AND HOUR RATES

1.01 GENERAL

A. The following are instructions for obtaining the minimum wage rates, health and welfare and pension fund contributions as determined by the Industrial Commissioner of the State of New York in accordance with the provisions of Section 220 of the Labor Law.

B. All contractors will be bound and obligated by the Laws of New York State to ensure payment to all workers involved with the construction of the Project.

1.02 MINIMUM WAGE RATES

A. The current wage and benefit rates are available when following the instructions on the attached page.

00 46 44

WAGE RATE ATTACHMENTS

The "Request for Wage and Supplement Information" (PW 39) you have submitted has been accepted, and a Prevailing Rate Case Number (PRC #2021000926 - Cap Proj Ph. 2 PVMS Toilet Rm) has been assigned to the project.

To access the PDF file of your schedule, click on https://apps.labor.ny.gov/wpp/publicViewProject.do?method=showIt&id=1508840 or copy and paste into your browser.

End of Section

New York State State Agencies Search all of NY.gov

New York State Department of Labor

Prevailing Wage

PRC#: 2021000926
Type of Contracting Agency: Local School District
Acceptance Status: Accepted Article 8

Contracting Agency

Putnam Valley CSD
Jeremy Luft
Superintendent
171 Oscawana Lake Road
Putnam Valley NY 10579

(845) 528-8143
jluft@pvcsd.org

Send Reply To

Teresa May, AIA
Associate Principal
KG+D Architects, PC
285 Main Street
Mount Kisco NY 10549

(914) 666 -5900
tmay@kgdarchitects.com

Project Information

Project Title	Cap Proj Ph. 2 PVMS Toilet Rm
Description of Work	Alteration of Toilet Rooms to provide handicapped accessibility & replace aging infrastructure/finishes.
Contract Id No.	2020-1015
Project Locations(s)	Putnam Valley Middle School
Route No / Street Address	142 Peekskill Hollow Road
Village / City	
Town	Putnam Valley
State / Zip	NY 10579
Nature of Project	Other Reconstruction, Maintenance, Repair or Alteration
Approximate Bid Date	03/01/2021
Checked Occupation(s)	Construction (Building, Heavy & Highway, Sewer, Water, Tunnel)

Applicable Counties

Putnam

AIA® Document A132™ – 2019

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

AGREEMENT made as of the day of in the year Two-Thousand Twenty-One
(In words, indicate day, month, and year.)

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

Putnam Valley Central School District
171 Oscawana Lake Road
Putnam Valley, NY 10579
Telephone: 845.528.8143

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

Telephone:

for the following Project:
(Name, location, and detailed description)
Capital Project Phase 2
Toilet Room Alterations
Putnam Valley Middle School
142 Peekskill Hollow Road, Putnam Valley, NY 10579
SED #48-05-03-04-0-004-016
Contract #

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

Triton Construction
30 E. 33rd Street, 11th Floor
New York, NY 10016
Telephone: 212.388.5700

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

KG+D Architects, PC
285 Main Street
Mount Kisco, NY 10549
Telephone: 914.666.5900

The Owner and Contractor agree as follows.

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

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

This document is intended to be used in conjunction with AIA Documents A232™–2019, General Conditions of the Contract for Construction, Construction Manager as Adviser Edition; B132™–2019, Standard Form of Agreement Between Owner and Architect, Construction Manager as Adviser Edition; and C132™–2019, Standard Form of Agreement Between Owner and Construction Manager as Adviser. AIA Document A232™–2019 is adopted in this document by reference. Do not use with other general conditions unless this document is modified.

Init.
/
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6 DISPUTE RESOLUTION

7 TERMINATION OR SUSPENSION

8 MISCELLANEOUS PROVISIONS

9 ENUMERATION OF CONTRACT DOCUMENTS

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

ARTICLE 1 THE CONTRACT DOCUMENTS

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

ARTICLE 2 THE WORK OF THIS CONTRACT

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

ARTICLE 3 DATE OF COMMENCEMENT AND DATES OF SUBSTANTIAL COMPLETION

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

[
(Paragraphs deleted)
X] The date of this Agreement.

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

§ 3.3 Substantial Completion of the Project or Portions Thereof

§ 3.3.1 Subject to adjustments of the Contract Time as provided in the Contract Documents, the date of Substantial Completion of the Work of all of the Contractors for the Project will be:
(Insert the date of Substantial Completion of the Work of all Contractors for the Project.)

Substantial Completion	
Final Completion	

(Table deleted)
(Paragraph deleted)

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

§ 3.4.1 Subject to adjustments of the Contract Time as provided in the Contract Documents, the Contractor shall substantially complete the entire Work of this Contract:

(Check one of the following boxes and complete the necessary information.)

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

[X] By the following date: See chart in Item 3.3.1

(Paragraph deleted)
(Table deleted)
(Paragraph deleted)

ARTICLE 4 CONTRACT SUM

§ 4.1 The Owner shall pay the Contractor the Contract Sum in current funds for the Contractor's performance of the Contract. The Contract Sum shall be one of the following:

(Check the appropriate box.)

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

[ ] Cost of the Work plus the Contractor's Fee

[ ] Cost of the Work plus the Contractor's Fee with a Guaranteed Maximum Price

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

§ 4.2 Stipulated Sum

§ 4.2.1 The Contract Sum shall be **Dollars and Cents ($)**, subject to additions and deductions as provided in the Contract Documents.

§ 4.2.2 Alternates

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

Item	Price

(Table deleted)
(Paragraphs deleted)

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

(Identify each allowance.)

(Table deleted)

§ 4.2.4 Unit prices, if any:

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

Item	Units and Limitations	Price per Unit ($0.00)

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

(Paragraph deleted)
(Table deleted)
(Paragraphs deleted)

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

(Paragraphs deleted)
(Table deleted)
(Paragraphs deleted)

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(Table deleted)
(Paragraphs deleted)
(Table deleted)
(Paragraphs deleted)
(Table deleted)
(Paragraphs deleted)
§ 4.5 Liquidated damages
(Insert terms and conditions for liquidated damages, if any, to be assessed in accordance with Section 3.4.)
NA

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

ARTICLE 5 PAYMENTS

§ 5.1 Progress Payments

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

§ 5.1.2 The period covered by each Application for Payment shall be one calendar month ending on the last day of the month.

§ 5.1.3 Provided that an Application for Payment is received by the Construction Manager not later than the **Fifteenth (15th)** day of a month, the Owner shall make payment of the amount certified to the Contractor not later than the **Fifteenth (15th)** day of the following month. If an Application for Payment is received by the Construction Manager after the application date fixed above, payment of the amount certified shall be made by the Owner not later than **Firty-Five** (**45**) days after the Construction Manager receives the Application for Payment.
(Federal, state or local laws may require payment within a certain period of time.)

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

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

§ 5.1.4.2 Applications for Payment shall show the percentage of completion of each portion of the Work as of the end of the period covered by the Application for Payment.

§ 5.1.4.3 In accordance with AIA Document A232™–2019, General Conditions of the Contract for Construction, Construction Manager as Adviser Edition, and subject to other provisions of the Contract Documents, the amount of each progress payment shall be computed as follows:

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

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

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

.1 The aggregate of any amounts previously paid by the Owner;
.2 The amount, if any, for Work that remains uncorrected and for which the Architect has previously withheld a Certificate for Payment as provided in Article 9 of AIA Document A232–2019;

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.3 Any amount for which the Contractor does not intend to pay a Subcontractor or material supplier, unless the Work has been performed by others the Contractor intends to pay;

.4 For Work performed or defects discovered since the last payment application, any amount for which the Architect may withhold payment, or nullify a Certificate of Payment in whole or in part, as provided in Article 9 of AIA Document A232–2019; and

.5 Retainage withheld pursuant to Section 5.1.7.

§ 5.1.5 Retainage

(Paragraphs deleted)

§ 5.1.7.1 For each progress payment made prior to when the Work of this Contract is substantially complete, the Owner may withhold the following amount, as retainage, from the payment otherwise due:

(Insert a percentage or amount to be withheld as retainage from each Application for Payment. The amount of retainage may be limited by governing law.)

Five Percent (5%)

(Paragraphs deleted)

§ 5.1.5.1.1 The following items are not subject to retainage:

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

NA

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

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

NA

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

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

NA

§ 5.2 Final Payment

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

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

.1 the Contractor has fully performed the Contract except for the Contractor's responsibility to correct Work as provided in Article 12 of AIA Document A232–2019, and to satisfy other requirements, if any, which extend beyond final payment; and

.2 a final Certificate for Payment or Project Certificate for Payment has been issued by the Architect.

§ 5.2.1.2 The Owner's final payment to the Contractor shall be made no later than 30 days after the issuance of the final Certificate for Payment or Project Certificate for Payment.

(Paragraphs deleted)

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

(Paragraphs deleted)

ARTICLE 6 DISPUTE RESOLUTION

§ 6.1 Initial Decision Maker

The Architect will serve as Initial Decision Maker pursuant to Article 15 of AIA Document A232–2019, unless the parties appoint below another individual, not a party to this Agreement, to serve as Initial Decision Maker.

(Paragraphs deleted)

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§ 6.2 Binding Dispute Resolution

For any Claim subject to, but not resolved by, mediation pursuant to Article 15 of AIA Document A232–2019, the method of binding dispute resolution shall be as follows:
(Check the appropriate box.)

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

[
(Paragraphs deleted)
X] Litigation in in the states courts in Putnam County, New York.

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

ARTICLE 7 TERMINATION OR SUSPENSION

§ 7.1 Where the Contract Sum is a Stipulated Sum

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

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

NA

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

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

§ 7.2.1 Termination

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

§ 7.2.1.2 Termination by the Owner for Cause

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

.1 Take the Cost of the Work incurred by the Contractor to the date of termination;

.2 Add the Contractor's Fee, computed upon the Cost of the Work to the date of termination at the rate stated in Section 4.3.2 or 4.4.2, as applicable, or, if the Contractor's Fee is stated as a fixed sum in that Section, an amount that bears the same ratio to that fixed-sum Fee as the Cost of the Work at the time of termination bears to a reasonable estimate of the probable Cost of the Work upon its completion;

.3 Subtract the aggregate of previous payments made by the Owner; and

.4 Subtract the costs and damages incurred, or to be incurred, by the Owner under Article 14 of AIA Document A232–2019.

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

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

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the Owner the rights and benefits of the Contractor under such subcontracts or purchase orders. All Subcontracts, purchase orders and rental agreements entered into by the Contractor will contain provisions allowing for assignment to the Owner as described above.

§ 7.2.1.3 Termination by the Owner for Convenience

If the Owner terminates the Contract for convenience in accordance with Article 14 of AIA Document A232–2019, then the Owner shall pay the Contractor a termination fee as follows:

(Insert the amount of or method for determining the fee, if any, payable to the Contractor following a termination for the Owner's convenience.)

NA

§ 7.3 Suspension

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

ARTICLE 8 MISCELLANEOUS PROVISIONS

§ 8.1 Where reference is made in this Agreement to a provision of AIA Document A232–2019 or another Contract Document, the reference refers to that provision as amended or supplemented by other provisions of the Contract Documents.

§ 8.2 The Owner's representative:

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

Jill Figarella, District Treasurer
Putnam Valley Central School District
171 Oscawana Lake Road
Putnam Valley, NY 10579
Telephone: 845.528.8143

§ 8.3 The Contractor's representative:

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

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

§ 8.5 Insurance and Bonds

§ 8.5.1 The Owner and the Contractor shall purchase and maintain insurance as set forth in AIA Document A132™–2019, Standard Form of Agreement Between Owner and Contractor, Construction Manager as Adviser Edition, and elsewhere in the Contract Documents.

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

§ 8.6 Notice in electronic format, pursuant to Article 1 of AIA Document A232–2019, may be given in accordance with AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, if completed, or as otherwise set forth below:

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

§ 8.7 Relationship of the Parties

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

(Paragraphs deleted)

ARTICLE 9 ENUMERATION OF CONTRACT DOCUMENTS

§ 9.1 This Agreement is comprised of the following documents:

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

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

.3 Drawings

Bid Issue Drawings dated – Title Sheet attached

.4 Specifications

Bid Issue Specifications dated – Cover and Index attached

(Table deleted)

(Paragraph deleted)

.5 Addenda, if any:

Number	**Date**	**Pages**
Bid Addendum #		pages

(Paragraphs deleted)

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

(Table deleted)

*(Paragraphs deleted)*This Agreement is entered into as of the day and year first written above.

OWNER *(Signature)*	**CONTRACTOR** *(Signature)*
President, Board of Education	
(Printed name and title)	*(Printed name and title)*

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SECTION 00 61 00

BOND REQUIREMENTS

SEE ATTACHMENT TO SECTION FOR ACCEPTABLE BONDING COMPANY RATINGS

1.01 Prior to the Owner signing the contract agreement, he will require the Contractor (s) to furnish separate performance and labor and material payment bonds covering the faithful performance of the entire construction contract agreement.

The performance bond and the labor and material payment bond shall each be made out in one hundred percent (100%) of the guaranteed maximum contract amount.

1.02 The "Performance Bond" and "Labor and Material Payment Bond," AIA Document A-312, as published by The American Institute of Architects shall be used and modified, if necessary, to comply with applicable statutes.

NOTE: Date of forms to be used shall be complimentary to the date of the contract form and general conditions incorporated within these Bidding and Contract Requirements.

1.03 The bonds shall be signed by an official of the bonding company and shall be accompanied by the bonding agent's written power of attorney.

1.04 Provide four (4) copies each of the bonds and the power of attorney in order that one (1) copy of each may be attached to each copy of the contract agreement.

1.05 The Contractor(s) shall include in his/their proposal(s) amount the total premiums for the performance and labor and material payment bonds.

End of Section

Section 00 61 01

Bonding Requirements

Acceptable Bonding Company Ratings

Contract Amounts ($)	A.M. Best Company Rating							
	A + XII	B + XI	B + X	B X	B IX	B VIII	B VII	B VI
10 Million and Over	▲							
7.5 to 10 Million	▲	▲						
5.0 to 7.5 Million	▲	▲	▲					
2.5 to 5.0 Million	▲	▲	▲	▲				
1.0 to 2.5 Million	▲	▲	▲	▲	▲			
0.5 to 1.0 Million	▲	▲	▲	▲	▲	▲		
0.25 to 0.5 Million	▲	▲	▲	▲	▲	▲	▲	
0.25 and Under	▲	▲	▲	▲	▲	▲	▲	▲

AIA® Document A310™ – 2010

Bid Bond

CONTRACTOR:
(Name, legal status and address)

SURETY:
(Name, legal status and principal place of business)

OWNER:
(Name, legal status and address)
Putnam Valley Central School District
171 Oscawana Lake Road
Putnam Valley, NY 10579

BOND AMOUNT: $

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

Capital Project Phase 2
Putnam Valley Middle School Toilet Room Alterations
142 Peekskill Hollow Road, Putnam Valley, NY 10579
SED #48-05-03-04-0-004-016

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

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

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

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

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furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

Signed and sealed this day of ,

	(Contractor as Principal) *(Seal)*
(Witness)	*(Title)*
	(Surety) *(Seal)*
(Witness)	*(Title)*

Init.
/

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AIA® Document A312™ – 2010

Payment Bond

CONTRACTOR:
(Name, legal status and address)

SURETY:
(Name, legal status and principal place of business)

OWNER:
(Name, legal status and address)
Putnam Valley Central School District
171 Oscawana Lake Road
Putnam Valley, NY 10579

CONSTRUCTION CONTRACT
Date:
Amount: $ 0.00
Description:
(Name and location)

Capital Project Phase 2
Putnam Valley Middle School Toilet Room Alterations
142 Peekskill Hollow Road, Putnam Valley, NY 10579
SED #48-05-03-04-0-004-016

BOND
Date:
(Not earlier than Construction Contract Date)

Amount: $
Modifications to this Bond: ☐ None ☐ See Section 18

CONTRACTOR AS PRINCIPAL		**SURETY**	
Company:	*(Corporate Seal)*	Company:	*(Corporate Seal)*
Signature:		Signature:	
Name and Title:		Name and Title:	

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

(FOR INFORMATION ONLY — Name, address and telephone)

AGENT or **BROKER:**

OWNER'S REPRESENTATIVE:
(Architect, Engineer or other party:)

ADDITIONS AND DELETIONS:
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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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User Notes: (1280264039)

§ 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.

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§ 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.

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§ 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		**SURETY**	
Company:	*(Corporate Seal)*	Company:	*(Corporate Seal)*
Signature:	_____	Signature:	_____
Name and Title:		Name and Title:	
Address:		Address:	

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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)
Putnam Valley Central School District
171 Oscawana Lake Road
Putnam Valley, NY 10579

CONSTRUCTION CONTRACT
Date:
Amount: $ 0.00
Description:
(Name and location)

Capital Project Phase 2
Putnam Valley Middle School Toilet Room Alterations
142 Peekskill Hollow Road, Putnam Valley, NY 10579
SED #48-05-03-04-0-004-016

BOND
Date:
(Not earlier than Construction Contract Date)

Amount: $
Modifications to this Bond: ☐ None ☐ See Section 16

CONTRACTOR AS PRINCIPAL	**SURETY**
Company: *(Corporate Seal)*	Company: *(Corporate Seal)*
Signature: _____	Signature: _____
Name and Title:	Name and Title:

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

(FOR INFORMATION ONLY — Name, address and telephone)

AGENT or **BROKER:**

OWNER'S REPRESENTATIVE:
(Architect, Engineer or other party:)

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

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

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

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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.

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§ 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		**SURETY**	
Company:	*(Corporate Seal)*	Company:	*(Corporate Seal)*
Signature:	_____	Signature:	_____
Name and Title:		Name and Title:	
Address:		Address:	

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SECTION 00 63 00

REQUESTS FOR INFORMATION (RFI)

Part 1 - GENERAL

1.01 This document is for issuance at the Post Bid/Pre-Construction Conference and specifies administrative and procedural requirements for handling requests for information (RFI's) made after award of Contract.

1.02 Attention is directed to Sections 01 33 00 and 01 32 00 of Division #1 as same concerns construction progress schedules, submittal schedules and submittals of shop drawings, samples and product data in general.

1.03 SUBMITTAL PROCEDURES: RFI's shall be submitted in the following manner:

A. One (1) completed copy of form following to Architect with copies to Owner (as directed) and appropriate Consultants with the following minimum information:

1. Work identified by RFI listing affected Drawing(s) and specific detail(s) and Specification paragraph reference(s).
2. Identify specific field conditions and "as-built" conditions on sketches attached to RFI submittal.
3. If RFI addresses conflict(s) in, or between, Contract Documents, describe completely and provide such data necessary to permit thorough and proper response by affected discipline.
4. Indicate proposed solution along with any impacts on cost and construction time.
5. Listing of Trade/Specialty Contractors affected by RFI and indication that RFI proposal has been coordinated with said contractors.

INCOMPLETE RFI's WILL BE RETURNED TO CONTRACTOR WITHOUT ACTION TAKEN.

1.04 REVIEW PROCEDURES/ACTIONS

A. Architect/Engineer may request additional information or documentation as may be deemed necessary for fair evaluation of RFI.

B. Architect/Engineer will respond with reasonable promptness as outlined in Section 01 33 00 in writing and may, if deemed appropriate, issue a "Bulletin" as a clarification to the Contract Documents.

End of Section

AIA® Document G716™ – 2004

Request for Information ("RFI")

TO: **FROM:**

PROJECT: **ISSUE DATE:** **RFI No.**

REQUESTED REPLY DATE:

PROJECT NUMBERS: / **COPIES TO:**

RFI DESCRIPTION: *(Fully describe the question or type of information requested.)*

REFERENCES/ATTACHMENTS: *(List specific documents researched when seeking the information requested.)*
SPECIFICATIONS: **DRAWINGS:** **OTHER:**

SENDER'S RECOMMENDATION: *(If RFI concerns a site or construction condition, the sender may provide a recommended solution, including cost and/or schedule considerations.)*

RECEIVER'S REPLY: *(Provide answer to RFI, including cost and/or schedule considerations.)*

BY **DATE** **COPIES TO**

Note: This reply is not an authorization to proceed with work involving additional cost, time or both. If any reply requires a change to the Contract Documents, a Change Order, Construction Change Directive or a Minor Change in the work must be executed in accordance with the Contract Documents.

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AIA® Document A232™ – 2019

General Conditions of the Contract for Construction, *Construction Manager as Adviser Edition*

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

Capital Project Phase 2
Toilet Room Alterations
Putnam Valley Middle School
142 Peekskill Hollow Road, Putnam Valley, NY 10579
SED #48-05-03-04-0-004-016
Contract #

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

Triton Construction
30 E. 33rd Street, 11th Floor
New York, NY 10016

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

Putnam Valley Central School District
171 Oscawana Lake Road
Putnam Valley, NY 10579

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

KG+D Architects, PC
285 Main Street
Mount Kisco, NY 10549

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

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

This document is intended to be used in conjunction with AIA Documents A132™–2019, Standard Form of Agreement Between Owner and Contractor, Construction Manager as Adviser Edition; B132™–2019, Standard Form of Agreement Between Owner and Architect, Construction Manager as Adviser Edition; and C132™–2019, Standard Form of Agreement Between Owner and Construction Manager as Adviser.

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User Notes: (1681475160)

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ARTICLE 1 GENERAL PROVISIONS

§ 1.1 Basic Definitions

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

§ 1.1.2 The Contract. The Contract Documents form the Contract for Construction. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations, or agreements, either written or oral. The Contract may be amended or modified only by a Modification. The Contract Documents shall not be construed to create a contractual relationship of any kind (1) between the Contractor and the Architect or the Architect's consultants, (2) between the Owner and the Construction Manager or the Construction Manager's consultants, (3) between the Owner and the Architect or the Architect's consultants, (4) between the Contractor and the Construction Manager or the Construction Manager's consultants, (5) between the Owner and a Subcontractor or Sub-subcontractor (6) between the Construction Manager and the Architect, or (7) between any persons or entities other than the Owner and Contractor. The Construction Manager and Architect shall, however, be entitled to performance and enforcement of obligations under the Contract intended to facilitate performance of their duties. No obligation of the Architect and/or the Owner's Representative to the Owner, whether expressed by agreement or implied by law, shall be construed as intended for the benefit of the Contractor. Nothing in the Contract Documents or in any aspect of the Architect's and/or Owner's Representative's relationship with the Owner will create or give rise to any duty whatsoever on the part of the Architect and/or the Owner's Representative to the Contractor. The term "Contractor" shall include the Contractor, its officers, employees, agents, and subcontractors of any tier.

§ 1.1.3 The Work. The term "Work" means the construction and services required by the Contract Documents, whether completed or partially completed, and includes all other labor, materials, equipment, and services provided or to be provided by the Contractor to fulfill the Contractor's obligations. The Work may constitute the whole or a part of the Project. The Contractor is cautioned that the "Work included" is general and in no way limits or qualifies the Contract requirements.

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

§ 1.1.5 Contractors. Contractors are persons or entities, other than the Contractor or Separate Contractors, who perform Work under contracts with the Owner that are administered by the Architect and Construction Manager. Where the word "Contractor" is used in the Contract Documents, it refers to all Prime Contractors. (See Sec. 3.1 for additional information)

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

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

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

§ 1.1.9 Instruments of Service. Instruments of Service are representations, in any medium of expression now known or later developed, of the tangible and intangible creative work performed by the Architect and the Architect's

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consultants under their respective professional services agreements. Instruments of Service may include, without limitation, studies, surveys, models, sketches, drawings, specifications, and other similar materials.

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

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

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

§ 1.1.13 Addenda. Addenda are written or graphic instruments issued prior to the execution of the Contract which modify or interpret the bidding documents.

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

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

§ 1.1.16 Furnish. "Furnish" shall mean purchasing and/or fabricate and deliver to the job site or other location when so designated.

§ 1.1.17 Install. "Install" shall mean build-in, mount in position, connect or apply the specified object(s) and, where applicable, adjust and start-in operation.

§ 1.1.18 Alternate. "Alternate" shall mean a variation in Contract requirements on which a separate price is to be received by the Owner as part of the bid. If the Alternate is accepted in writing by the Owner, the variation is then a part of the Contract and the amount of money quoted be added to or deleted from the base Bid is taken into account in determining the Contract Sum.

§ 1.1.19 Owner's Representative or Construction Manager. The terms Owner's Representative or Construction Manager may be used interchangeably throughout the Contract Documents. Owner's Representative or Construction Manager refers to any firm, entity or individual (or any successor firm, entity or individual) retained by the Owner as Owner's Representative or Construction Manager. Section 01080 of the Specifications identifies the retained Owner's Representative or Construction Manager for this project.

§ 1.2 Correlation and Intent of the Contract Documents

§ 1.2.1 The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all; performance by the Contractor shall be required only to the extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results.

§ 1.2.1.1 In the event of conflict, ambiguity and/or unclear circumstances between any of the requirements of the contract documents, the requirement that is most inclusive and of highest quantity and/or cost shall govern. The Contractor shall (1) provide the better quality or greater quantity of Work or (2) comply with the more stringent requirement; either or both in accordance with the Architect's interpretation. The Contractor herewith agrees that no extra compensation shall be awarded to him, since he herewith received specific instructions to the procedure and values of the work. The terms and conditions of this paragraph 1.2, however, shall not relieve the Contractor of any obligations set forth in paragraphs 3.2 and 3.7.

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§ 1.2.1.1.1 On the Drawings, given dimensions shall take precedence over small scale drawings.

§ 1.2.1.1.2 Before ordering any materials or doing any 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 shall be allowed on account of differences between actual dimensions indicated on the Drawings. Any difference which may be found shall be submitted to the Architect through the Construction Manager for resolution before proceeding with the Work.

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

§ 1.2.1.1.4 Drawings, in general, are made to scale, but all working dimensions shall be taken from the figured dimensions or by actual measurements taken 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 which might have been avoided thereby Whether or not an error is believed to exist, deviation from the Drawing and the dimensions given thereon shall be made only after approval in writing is obtained from the Architect through the Construction Manager.

§ 1.2.1.2 In case of omissions or discrepancies between the Contract Documents, the Contractor shall secure instructions from the Architect through the Construction Manager before proceeding with the work affected by omissions or discrepancies. The Contractor shall assume full responsibility and cost for proceeding with such work without approval.

§ 1.2.1.3 During the course of Work, should any errors, omissions, ambiguities, discrepancies or conflicts be found on the Drawings or in the Specifications to which the Contractor has failed to call attention before submitting his bid, the Architect through the Construction Manager shall interpret the intent of the drawings and Specifications and the Contractor hereby agrees to abide by the Architect's interpretation and agrees to carry out the work in accordance with the decision of the Architect.

§ 1.2.1.4 Whenever any additional materials and/or workmanship not shown or specified are required to complete the work of the Contract Documents in accordance with the obvious intent thereof, the Contractor shall provide these materials and workmanship at no additional cost to the Owner.

§ 1.2.1.5 Salvageable Materials: All existing materials, equipment, misc. etc. scheduled for demolition are the property of the Owner. If requested, Contractors will remove and store any such items to a location designated by the Owner.

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

§ 1.2.2 Execution of the contract by the Contractor is a representation that the Contractor has carefully examined the Contract Documents and the site, and represents that the Contractor is thoroughly familiar with the nature and location of the Work, the site and all improvements thereon, the specific conditions under which the Work is to be performed, and all matters which may in any way affect the Work or its performance. The Contractor further represents that as a result of such examinations and investigations, the Contractor thoroughly understands the Contract Documents and their intent and purpose, and is familiar with all applicable codes, ordinances, laws, regulations, and rules as they apply to the Work, and that the Contractor will abide by same. Claims for additional time or additional compensation as a result of the Contractor's failure to follow the foregoing procedure and to familiarize itself with all local conditions and the Contract Documents will not be permitted. The Contractor shall also review accessibility and general character of the site or building(s), the extent of existing work within or adjacent to the site, and any other work being performed thereon at the time of submission of his bid

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§ 1.2.2.1 The specifications are generally divided into trade sections in accordance with the Construction Specifications for the purpose of convenience, and ready reference only. The Contractor will be permitted to allot the work of Subcontractors at his own discretion regardless of the grouping in the specifications. It shall be his responsibility to settle definitely with each Sub-contractor the portions of the work, which each will be required to do and the Owner or Architect assumes no responsibility whatever for any jurisdiction claimed by any of the trades involved in the work. The Contractor shall provide each item listed, of quality noted and subject to qualifications noted, and shall perform operations prescribed according to the conditions stated, including specified operations, processes or methods, furnishing therefore all necessary labor, materials, equipment and incidentals required to complete the work.

§ 1.2.3 Unless otherwise stated in the Contract Documents, words that have well-known technical or construction industry meanings are used in the Contract Documents in accordance with such recognized meanings. It is intended that all mechanical and electrical systems will be complete and in proper operation and that all construction components will be complete and in compliance with accepted construction practice upon completion of the Work. Even if items are missing from the Plans and/or Specifications, but are normally required for proper operation of mechanical and electrical systems, or to complete otherwise incomplete construction or to meet governing code requirements, they shall be included by the Contractor, unless he sought and received contradictory interpretation or clarification from the Architect.

§ 1.2.4 The Contractor shall provide all labor, materials, equipment, appliances and services necessary to execute and complete all work as required by the Contract Documents and the applicable Building Codes. Contractors shall conduct pre-construction surveys and provide photo/videos of any existing damage in areas where new construction is to take place prior to the start of work.

§ 1.2.4.1 The Contractor and each Subcontractor shall evaluate and satisfy themselves with the conditions at the site and limitations under which the Work is to be performed including, without limitation, (1) the location, condition, layout and nature of the Project site and surrounding areas, (2) generally prevailing climatic conditions, (3) anticipated labor supply and costs, (4) availability and cost of materials, tools and equipment, (5) any time restrictions for accessing or working at the site, (6) the storage, handling and trucking of materials to be used on-site, and (7) all other matters as may be incidental to the work under the Contract, before and after delivery of the bid proposal.

§ 1.2.4.2 The Owner assumes no responsibility or liability for the physical condition or safety of the Project site or any improvements located on the Project site. The Contractor shall be solely responsible for providing a safe place for the performance of the Work. The Owner shall not be required to make any adjustment in either the Contract Sum or Contract Time in connection with any failure by the Contractor or any Subcontractor to comply with the requirements of this Paragraph 1.2.4.

§ 1.2.4.3 Contractor represents and warrants that its investigation of the site was performed in detail and was sufficient to disclose the condition of the Project Site and all improvements thereon, and the conditions under which the Work is to be performed, including, without limitation (i) the location, condition, layout and nature of the Project Site and surrounding areas; (ii) anticipated labor supply costs; (iii) availability and cost of materials, tools, and equipment; and (iv) other similar issues pertinent to the performance of the Work.

§ 1.2.4.4 The Contractor shall be responsible to remove and/or relocate all items which interfere with the new construction and shall correct all visible code violations at no additional cost to the Owner. Such violations shall include, but not be limited to, electrical panel wires, firestopping at fire-rated partitions.

§ 1.2.5 If the Contract Documents are not in concurrence regarding the quantity or quality of products, the Contractor shall request interpretation from the Architect. The Architect's interpretations shall be based on the following criteria:

.1 Specifications shall determine quality.
.2 Drawings shall determine quantity.
.3 Large scale details shall govern over smaller scale details.

§ 1.3 Capitalization

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

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§ 1.4 Interpretation

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

§ 1.5 Ownership and Use of Drawings, Specifications, and Other Instruments of Service

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

§ 1.5.2 The Contractor, Subcontractors, Sub-subcontractors, and suppliers are authorized to use and reproduce the Instruments of Service provided to them, subject to any protocols established pursuant to Sections 1.7 and 1.8, solely and exclusively for execution of the Work. All copies made under this authorization shall bear the copyright notice, if any, shown on the Instruments of Service. The Contractor, Subcontractors, Sub-subcontractors, and suppliers may not use the Instruments of Service on other projects or for additions to the Project outside the scope of the Work without the specific written consent of the Owner, Architect, and the Architect's consultants.

§ 1.5.3 Do not reproduce the Contract Documents, in whole or in part, for use as shop drawing backgrounds without the prior written consent of the Architect or Owner, where applicable. If consent is given, the current Architect shall determine the extent that the Contract Documents may be used in the preparation of shop drawings.

§ 1.6 Notice

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

(Paragraph deleted)

§ 1.7 Digital Data Use and Transmission

The parties shall agree upon protocols governing the transmission and use of Instruments of Service or any other information or documentation in digital form. The parties will use AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, to establish the protocols for the development, use, transmission, and exchange of digital data.

§ 1.8 Building Information Models Use and Reliance

Any use of, or reliance on, all or a portion of a building information model without agreement to protocols governing the use of, and reliance on, the information contained in the model and without having those protocols set forth in AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, and the requisite AIA Document G202™–2013, Project Building Information Modeling Protocol Form, shall be at the using or relying party's sole risk and without liability to the other party and its contractors or consultants, the authors of, or contributors to, the building information model, and each of their agents and employees.

§ 1.9 References to trade publications, industries, and published standards shall carry the latest date, including latest revisions, unless dated to the contrary. Further, all work mentioned or indicated in the Contract Documents shall be performed by the Contractor as part of this Contract unless it is specifically indicated in the Contract Documents that such Work is to be done by others. All work shall conform to the National Electric Code, the National Board of Fire Underwriters and applicable City and State Building Codes and Authorities having jurisdiction.

§ 1.10 The Contractor and all Subcontractors shall refer to all of the Drawings, including those showing primarily the work of the plumbing, heating, ventilation, air conditioning, electrical, and other specialized trades, and to all of the sections of the Specifications, and shall perform all work reasonably inferable therefrom as being necessary to produce the indicated results.

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§ 1.11 All indications or notations on the drawings which apply to one of a number of similar situations, materials, or processes shall be deemed to apply to all such situations, materials, or processes wherever they appear in the Work, except where a contrary result is clearly indicated by the Contract Documents.

§ 1.12 The general character of the detailed work is shown on the drawings, but minor modifications may be made on the full size drawings. Any details shall be worked out in relation to their location and their connection to other parts of the work. Where details or conditions are indicated in summary form, such details or conditions shall be continued throughout the course or parts in which they occur. The Contractor shall be responsible for the complete and correct application of such details throughout the portions of the project in which they occur.

§ 1.13 Should the Architect's written interpretations, in the opinion of the contractor, show additional work, or work of more expensive character than that shown or inferred by the Contract Drawings, it shall be the duty of the Contractor to so notify the Architect through the Construction Manager within five (5) days from receipt of same in order that proper adjustment may be made if found justifiable in the opinion of the Architect and the Owner. The Contractor shall assume full responsibility for all such work done without the approval of the Architect, the Construction Manager and the Owner.

§ 1.14 Confidentiality

§ 1.14.1 The Contractor warrants and represents that the Contractor shall not knowingly or negligently communicate or disclose at any time to any person or entity any information in connection with the Work or the Project, except: (1) with prior written consent of the Owner, (2) information that was in the public domain prior to the date of this Agreement, (3) information which becomes part of the public domain by publication or otherwise not due to any unauthorized act or omission of the Contractor, (4) as may be required to perform the Work or by any applicable law, or (5) for purposes of coordination with other prime contractors.

§ 1.14.2 The Contractor, any time upon request of the Owner, shall immediately return and surrender to the Owner all copies of any materials, records, notices, memoranda, recordings, drawings, specifications, and mock-ups and any other documents furnished by the Owner of the Architect to the Contractor.

§ 1.14.3 The Contractor shall specifically cause all Subcontractors or any other person or entity performing any services, or furnishing any materials or equipment of the Work to warrant and represent all items set forth in this Paragraph 1.6.

§ 1.14.4 The representations and warranties contained in this Paragraph 1.6 shall survive the complete performance of the Work or earlier termination of this Agreement.

ARTICLE 2 OWNER

§ 2.1 General

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

§ 2.1.2 The Owner shall furnish to the Contractor, within fifteen (15) business days after receipt of a written request, information necessary and relevant for the Contractor to evaluate, give notice of, or enforce mechanic's lien rights. Such information shall include a correct statement of the record legal title to the property on which the Project is located, usually referred to as the site, and the Owner's interest therein.

(Paragraphs deleted)

§ 2.3 Information and Services Required of the Owner

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

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

§ 2.3.3 The Owner has retained a construction manager a lawfully practicing construction management in the jurisdiction where the Project is located. That person or entity is identified as the Construction Manager in the Agreement and is referred to throughout the Contract Documents as if singular in number.

§ 2.3.4 If the employment of the Construction Manager or Architect terminates, the Owner may employ a successor construction manager or architect whose status under the Contract Documents shall be that of the Construction Manager or Architect, respectively.

§ 2.3.5 The Owner, upon request by the Architect, shall furnish surveys describing physical characteristics, legal limitations and utility locations for the site of the Project, and a legal description of the site. The Contractor shall be entitled to rely on the accuracy of information furnished by the Owner but shall exercise proper precautions relating to the safe performance of the Work.

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

§ 2.3.7 Each Prime Contractor will be furnished, free of charge, the following Contract Documents necessary for execution of the Work:

.1 Two (2) black line prints of the Drawings and two (2) bound copies of the Specifications. Additional sets of Documents, required by the Contractor(s), will be furnished at the cost of reproduction.

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

§ 2.4 Owner's Right to Stop the Work

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

§ 2.5 Owner's Right to Carry Out the Work

If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a three (3) day period after receipt of written notice from the Owner, Architect or Construction Manager to commence and continue correction of such default or neglect with diligence and promptness the Owner may, after such three (3) day period, without prejudice to other remedies, the Owner may have, immediately 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's, Construction Manager's and such consultant whose participation is deemed necessary by the Architect or Construction Manager for additional services and expenses rendered necessary by such default, neglect or failure, including, without limitation, the Owner's reasonable attorney's fees. Such action by the Owner and amounts charged to the Contractor are both subject to prior approval of the Architect and Construction Manager. Such change order shall be deemed to have been executed by the Contractor, whether or not actually signed by the Contractor. If payments then or thereafter due the Contractor are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner

§ 2.5 Acceleration Clause

§ 2.5.1 The Owner reserves the right to accelerate the work of the Contract. In the event that the Owner directs acceleration, such directive will be only in written form. The Contractor shall keep cost and other project records related to the acceleration directive separately from normal project costs and records and shall provide a written record of acceleration cost to the Owner on a daily basis.

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§ 2.5.2 In the event that the Contractor believes that some action or inaction on the part of the Owner constitutes an acceleration directive, the Contractor shall immediately notify the Owner in writing that the Contractor considers the actions an acceleration directive. This written notification shall detail the circumstances of the claimed acceleration directive. The Contractor shall not accelerate their work efforts until the Owner responds in writing to the written notification. If acceleration is then directed or required by the Owner, all cost records referred to above shall be maintained by the Contractor and provided to the Owner on a daily basis.

§ 2.5.3 In order to preserve a claim to recover additional costs due to acceleration, the Contractor must document that additional expenses were incurred and paid by the Contractor. Labor costs recoverable will be only overtime or shift premium costs or the cost of additional laborers brought to the site to accomplish the accelerated work effort. Equipment costs recoverable will be only the cost of added equipment mobilized to the site to accomplish the accelerated work effort.

ARTICLE 3 CONTRACTOR

§ 3.1 General

§ 3.1.1 The Contractor is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Contractor shall be lawfully licensed, if required in the jurisdiction where the Project is located. The Contractor shall designate in writing a representative who shall have express authority to bind the Contractor with respect to all matters under this Contract. The term "Contractor" means the Contractor or the Contractor's authorized representative.

§ 3.1.1.1 The plural term "Multiple Prime Contractors" refers to persons or entities who perform construction under contracts with the Owner that are administered by the Construction Manager. The term does not include the Owner's own forces, including persons or entities under separate contracts not administered by the Construction Manager.

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

§ 3.1.3 The Contractor shall not be relieved of its obligations to perform the Work in accordance with the Contract Documents either by activities or duties of the Construction Manager or Architect in their administration of the Contract, or by tests, inspections or approvals required or performed by persons or entities other than the Contractor.

§ 3.2 Review of Contract Documents and Field Conditions by Contractor

§ 3.2.1 Execution of the Contract by the Contractor is a representation that the Contractor has visited the site, become generally familiar with local conditions under which the Work is to be performed, and correlated personal observations with requirements of the Contract Documents. . The Contractor is deemed to be a qualified expert in the systems and construction requirements of the Work of his Contract. He is deemed to have anticipated the more expensive way of doing the Work, unless he sought and received a contradictory written interpretation, from the Architect, clarifying any errors, inconsistencies or omissions he may discover in the Contract Documents. Even if items are missing from the Plans or Specifications, but are normally required for proper execution, function and completion of the Work and the Contractor begins fabrication or execution of the Work without requesting said interpretation from the Architect, no excuse will thereafter be entertained for failure to complete the Work within the cost limits of his Contract.

§ 3.2.2 Because the Contract Documents are complementary, the Contractor shall, before starting each portion of the Work, carefully study and compare the various Contract Documents relative to that portion of the Work, as well as the information furnished by the Owner pursuant to Section 2.3.5, shall take field measurements of any existing conditions related to that portion of the Work, and shall observe any conditions at the site affecting it. These obligations are for the purpose of facilitating coordination and construction by the Contractor and are not for the purpose of discovering errors, omissions, or inconsistencies in the Contract Documents; however, the Contractor shall promptly report to the Construction Manager and Architect any errors, inconsistencies or omissions discovered by or made known to the Contractor as a request for information submitted to the Construction Manager in such form as the Construction Manager and Architect may require. It is recognized that the Contractor's review is made in the Contractor's capacity as a contractor and not as a licensed design professional, unless otherwise specifically provided in the Contract Documents.

§ 3.2.3 The Contractor is not required to ascertain that the Contract Documents are in accordance with applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, but the Contractor shall promptly report to the Construction Manager and Architect any nonconformity discovered by or made known to the

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Contractor as a request for information submitted to Construction Manager in such form as the Construction Manager and Architect may require.

§ 3.2.4 If the Contractor believes that additional cost or time is involved because of clarifications or instructions the Architect issues in response to the Contractor's notices or requests for information pursuant to Sections 3.2.2 or 3.2.3, the Contractor shall submit Claims as provided in Article 15. If the Contractor fails to perform the obligations of Sections 3.2.2 or 3.2.3, the Contractor shall pay such costs and damages to the Owner, subject to section 15.1.7, as would have been avoided if the Contractor had performed such obligations. If the Contractor performs those obligations, the Contractor shall not be liable to the Owner or Architect for damages resulting from errors, inconsistencies or omissions in the Contract Documents, for differences between field measurements or conditions and the Contract Documents, or for nonconformities of the Contract Documents to applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities.

§ 3.2.5 The Contractor may submit requests for information to the Architect through the Construction Manager to help facilitate the Contractor's performance of the Contract. Prior to submitting each request for information, the Contractor shall first carefully study and compare the Contract Documents, field conditions, other Owner provided information, Contractor prepared Coordination Drawings, and prior Project correspondence and documentation to determine that the information to be requested is not reasonably obtainable from such sources.

§ 3.2.6 Each request for information shall be submitted to the Architect through the Construction Manager, in writing, on the form immediately following these Supplementary Conditions. Each request for information shall identify the specific sources which were reviewed by the Contractor in an effort to determine the information requested, and a statement to the effect that the information being requested could not be determined from such sources.

§ 3.2.7 The Contractor shall submit each request for information sufficiently in advance of the date by which such information is required in order to allow the Architect sufficient time, in the Architect's professional judgment, to permit adequate review and response and to permit Contractor compliance with the latest construction schedule.

§ 3.2.8 The Contractor shall maintain a log at the Project site that sequentially numbers and lists each request for information. This log shall contain the Drawing reference or Specification section to which the request pertains, the date of the request, to whom the request was made, by whom the request was made, the nature of the request, and the Architect's resolution thereof. This log shall be reviewed at each Project meeting and the status of the requests for information shall be made part of the minutes of such meetings.

§ 3.2.9 The Contractor shall reimburse the Owner or accept a charge-back against contract sums due from the Owner for amounts charged to the Owner by the Architect for responding to Contractor requests for information where such information is available to the Contractor from a careful study and comparison of the Contract Documents, field conditions, other Owner provided information, Contractor prepared Coordination Drawings, or prior Project correspondence or documentation.

§ 3.3 Supervision and Construction Procedures

§ 3.3.1 The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention. The Contractor shall be solely responsible for, and have control over, construction means, methods, techniques, sequences, and procedures, and for coordinating all portions of the Work under the Contract. If the Contract Documents give specific instructions concerning construction means, methods, techniques, sequences, or procedures, the Contractor shall evaluate the jobsite safety thereof and shall be solely responsible for the jobsite safety of such means, methods, techniques, sequences, or procedures. If the Contractor determines that such means, methods, techniques, sequences or procedures may not be safe, the Contractor shall give timely notice to the Owner, the Construction Manager, and the Architect, and shall propose alternative means, methods, techniques, sequences, or procedures. The Architect shall evaluate the proposed alternative solely for conformance with the design intent for the completed construction. The Construction Manager shall review the proposed alternative for sequencing, constructability, and coordination impacts on the other Contractors. Unless the Architect or the Construction Manager objects to the Contractor's proposed alternative, the Contractor shall perform the Work using its alternative means, methods, techniques, sequences, or procedures.

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§ 3.3.1.1 The Contractor shall be responsible for and coordinate any and all inspections required by any governmental body having jurisdiction over the project. Failure to obtain any permits, licenses or other approvals because of the failure of the Contractor to conform to this requirement shall not extend the Contract time, and the Contractor shall not be entitled to any increase in the contract sum therefore. In addition, any additional costs and/or expenses of any nature incurred by the Owner as a result of the Contractor's failure to conform to this requirement shall constitute a charge against the Contractor's contract.

§ 3.3.2 The Contractor shall be responsible to the Owner for acts and omissions of the Contractor's employees, Subcontractors and their agents and employees, and other persons or entities performing portions of the Work for, or on behalf of, the Contractor or any of its Subcontractors.

§ 3.3.3 The Contractor shall be responsible for inspection of portions of the Project already performed to determine that such portions are in proper condition to receive subsequent Work.

§ 3.3.4 Each Contractor shall be responsible for complying with union regulations existing under current labor agreements in performing construction work on the project.. The existing Construction Manager/Owner Contract is an agency contract and all construction contracts will be made directly with the Owner.

§ 3.4 Labor and Materials

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

§ 3.4.2 Except in the case of minor changes in the Work approved by the Architect in accordance with Section 3.12.8 or ordered by the Architect in accordance with Section 7.4, the Contractor may make substitutions only with the consent of the Owner, after evaluation by the Architect, in consultation with the Construction Manager, and in accordance with a Change Order or Construction Change Directive.

§ 3.4.3 The Contractor shall enforce strict discipline and good order among the Contractor's employees and other persons carrying out the Work. The Contractor shall not permit employment of unfit persons or persons not properly skilled in tasks assigned to them.

§ 3.4.4 Substitutions: Substitutions may be proposed by the Contractor after award of Contract if, and only if, all specified materials, products or equipment are removed from, or becomes unavailable in, the market place after execution of the Contract and only at "no change" or "credit" to Contract amount. Such substitutions shall comply with the following requirements:

§ 3.4.4.1 The materials, products and equipment described in the Contract Documents establish the standard of required quality, function, dimension and appearance expected. Substitution requests will be considered only if these standards are met, or exceeded, and the Architect and Owner subsequently approve the substitutions

§ 3.4.4.2 Each request for substitution shall be submitted on forms provided by Architect and shall include:

(a) The name of the material, product or equipment item for which substitution is requested and a complete description of the proposed substitute including drawings, cuts, performance and test data and any other information necessary for a complete evaluation.

(b) A statement setting, forth any changes in other materials, products, equipment or other Work that incorporation of the substitution would require, shall be included.

§ 3.4.4.3 The burden of proof of the merit of the proposed substitution is upon the proposer.

§ 3.4.4.4 The Architect's decision of approval or disapproval of a proposed substitution shall be final and will be set forth in writing. Should the Architect not approve the proposed substitution, the cost of the Architect's and his consultant's review of any subsequent proposed substitutions for the material, product or equipment shall be deducted from the Contract Sum. The rate for the Architect's and his consultant's review shall be one-hundred seventy-five dollars ($175)

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per hour of professional time expended for the review.

§ 3.4.4.5 Contractor's Responsibilities: If any of the following conditions occur due to substitutions, the Contractor making the substitution shall bear the cost of such conditions, including payment for services rendered by the Architect;

(a) Redesign required for any of the Work.
(b) Material or quantity changes for any of the Work.
(c) Delays in any of the Work.
(d) Request for information generated due to substitutions.

§ 3.5 Warranty

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

§ 3.5.2 All material, equipment, or other special warranties required by the Contract Documents shall be issued in the name of the Owner, or shall be transferable to the Owner, and shall commence in accordance with Section 9.8.4.

§ 3.6 Taxes

§ 3.6.1 The Owner is a municipal corporation and not-for-profit educational institution, and is exempt from payment of sales and compensating use taxes of the State of New York and the cities and counties therein, and with Chapter 32 of the Internal Revenue Code, in accordance with all applicable state laws and regulations. These taxes are not to be included in bids.

§ 3.6.1.1 Exception: Plumbing and Drainage Contractor/Subcontractor to obtain and pay for all necessary connection taxes and other service charges required by local sewer or water authorities to complete plumbing systems.

§ 3.6.1.2 Exemption certificates will be furnished to the Contractor by the Owner.

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

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

§ 3.7.2 The Contractor shall comply with and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities applicable to performance of the Work.

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

§ 3.7.4 Concealed or Unknown Conditions. If the Contractor encounters conditions at the site that are (1) subsurface or otherwise concealed physical conditions that differ materially from those indicated in the Contract Documents or (2) unknown physical conditions of an unusual nature that differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract Documents, the Contractor shall promptly provide notice to the Owner, Construction Manager, and the Architect before conditions are disturbed and in no event later than 14 days after first observance of the conditions. The Architect and Construction Manager will promptly investigate such conditions and, if the Architect, in consultation with the Construction Manager, determines that they differ materially and cause an increase or decrease in the Contractor's cost of, or time required for, performance of any part of the Work, will recommend that an equitable adjustment be made in the

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Contract Sum or Contract Time, or both. If the Architect, in consultation with the Construction Manager, determines that the conditions at the site are not materially different from those indicated in the Contract Documents and that no change in the terms of the Contract is justified, the Architect shall promptly notify the Owner, Construction Manager, and Contractor, stating the reasons. If the Owner or Contractor disputes the Architect's determination or recommendation, either party may submit a Claim as provided in Article 15.

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

§ 3.8 Allowances

§ 3.8.1 The Contractor shall include in the Contract Sum all allowances stated in the Contract Documents. Items covered by allowances shall be supplied for such amounts and by such persons or entities as the Owner may direct, but the Contractor shall not be required to employ persons or entities to whom the Contractor has reasonable objection.

§ 3.8.2 Unless otherwise provided in the Contract Documents:

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

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

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

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

§ 3.9 Superintendent

§ 3.9.1 Prior to starting the work, the Contractor shall designate the project manager, superintendent and other key individuals who shall be assigned to the Project through and including final completion. Such designation shall be in writing and provided to the Architect, Construction Manager, and Owner. The Superintendent shall be in attendance at the Project site throughout the work, including completion of the punch list. The Superintendent shall, during the performance of the work, remain on the project site not less than eight hours per day, five days per week, until termination of the contract, unless the job is suspended or work is stopped by the Construction Manager or Owner. The Superintendent shall not be employed or used on any other project during the course of the work. The Superintendent shall be approved by the Owner in its sole discretion. Said representative shall be qualified in the type of work to be undertaken and shall not be changed during the course of construction without the prior written consent of the Owner. Should an approved representative thereafter leave the Contractor's employ, Contractor shall promptly designate a new representative. Owner shall have the right, at any time, to direct a change in the Contractor's representatives if their performance is unsatisfactory. In the event of such demand, Contractor shall, within seven days after notification thereof, replace said individual(s) with an individual satisfactory to Owner, in Owner's sole discretion. If said replacement is disapproved, the Contract may, at Owner's option be terminated for cause. The Superintendent shall represent the Contractor, and communications given to the Superintendent shall be binding as if given to the Contractor. The Owner shall have no obligation to direct or monitor the Contractor's employees. All references herein to the Superintendent shall be taken to mean the Contractor's superintending staff.

§ 3.9.2 The Contractor, as soon as practicable after award of the Contract, shall notify the Owner and Architect, through the Construction Manager, of the name and qualifications of a proposed superintendent. Within 14 days of receipt of the information, the Construction Manager may notify the Contractor, stating whether the Owner, the Construction Manager, or the Architect (1) has reasonable objection to the proposed superintendent or (2) require additional time for review. Failure of the Construction Manager to provide notice within the 14-day period shall constitute notice of no reasonable objection.

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

§ 3.9.4 The Contractor shall coordinate and supervise the work performed by Subcontractors so that the work is carried out without conflict between trades and so that no trade, at any time, causes delay to the general progress of the work. The Contractor and all Subcontractors shall afford each trade reasonable opportunity for the installation of their work and the storage of their materials.

§ 3.9.5 It is required of any and all supervisory personnel proposed for use by any Contractor that said personnel be versed in the written and spoken English language or, said Contractor shall furnish a full-time on-site interpreter to facilitate communications between the Owner's representative and the Architect.

§ 3.9.6 The Contractor shall employ a competent senior superintendent. Such superintendent may not be replaced during the duration of the Project including the completion of Punch List, unless approved by the Architect and the Owner's Representative.

§ 3.9.7 The Contractor shall provide the resume of Contractor's Superintendent to the Owner, Architect and Owner's Representative.

§ 3.9.8 The Contractor shall furnish the Owner's Representative in writing the names, addresses and telephone numbers of the members of his organization who can be contacted in the event of an off-hours emergency at the building site.

§ 3.9.9 The Contractor shall attend progress meetings with the Owner's Representative and such other persons the Owner may wish to have present. The progress meetings shall include all key personnel on the job, including the Contractor and Sub-contractors, or other persons in charge of various phases of the work.

§ 3.10 Contractor's Construction and Submittal Schedules

§ 3.10.1 The Contractor, promptly after being awarded the Contract, shall submit for the Owner's and Architect's information, and the Construction Manager's use in developing the Project schedule, a Contractor's construction schedule for the Work. The schedule shall contain detail appropriate for the Project, including (1) the date of commencement of the Work, interim schedule milestone dates, and the date of Substantial Completion; (2) an apportionment of the Work by construction activity; and (3) the time required for completion of each portion of the Work. The schedule shall provide for the orderly progression of the Work to completion and shall not exceed time limits current under the Contract Documents. The schedule shall be revised at appropriate intervals as required by the conditions of the Work and Project. The Contractor shall cooperate with the Construction Manager in scheduling and performing the Contractor's Work to avoid conflict with, and as to cause no delay in, the work or activities of other Contractors, or the construction or operations of the Owner's own forces or Separate Contractors.

§ 3.10.1.1 Submission of an accepted Construction Schedule shall be a prerequisite to initial payment. If the schedule is not submitted by said date, the Contractor has acknowledged his approving the Owner to complete a schedule for the Contractor. Such schedule will become the product and ownership of the Contractor and the Contractor will be back-charged all costs pertaining to the service of producing the schedule. The Contractor shall provide revised schedules at appropriate intervals as required by the Conditions of the Work and Project.

§ 3.10.1.2 Revisions to the Construction Schedule are subject to approval by the Owner.

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

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§ 3.10.3 The Contractor shall participate with other Contractors, the Construction Manager, and the Owner in reviewing and coordinating all schedules for incorporation into the Project schedule that is prepared by the Construction Manager. The Contractor shall make revisions to the construction schedule and submittal schedule as deemed necessary by the Construction Manager to conform to the Project schedule.

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

§ 3.10.5 All Construction Schedules are the product and ownership of the Contractor.

§ 3.10.6 The Construction Schedule.
§ 3.10.6.1 The Construction Schedule shall be in a detailed precedence style critical path method (CPM) or Primavera-type format satisfactory to the Owner, the Owner's Representative and the Architect which shall also:

(a) provide a graphic representation of all activities and events that will occur during performance of the work including the submission, review and approval of all submittals (i.e. Shop Drawings, etc.) required by the Contract Documents;

(b) identify with each phase of construction and occupancy; and

(c) set forth dates that are critical in insuring the timely and orderly completion of the Work in accordance with the requirements of the Contract Documents (hereinafter referred to as the Milestone dates).

§ 3.10.6.2 Upon review and acceptance by the Owner and the Construction Manager of the Milestone Dates, the Construction Schedule shall be deemed part of the Contract Documents. If not accepted by the Owner and the Construction Manager, the construction schedule shall be promptly revised by the Contractor in accordance with the recommendations of the Owner and the Construction Manager and re-submitted for acceptance.

§ 3.10.6.3 The Contractor shall monitor the progress of the work for conformance with the requirements of the construction schedule and shall promptly advise the Owner of any delays or potential delays.

§ 3.10.6.4 The accepted Construction Schedule shall be dated to reflect actual conditions (sometimes referred to as progress reports) or if requested by either the Owner or the Architect. In the event any progress report indicates any delays, the Contractor shall propose an affirmative plan to correct the delay, including overtime and/or additional labor, if necessary. In no event shall any progress report constitute an adjustment in the contract time, any Milestone Date or the Contract Sum unless any such adjustment is agreed to by the Owner and authorized pursuant to Change Order.

§ 3.10.6.5 The Construction Schedule shall be updated at least once a month or more frequently if requested. The Contractor shall furnish the Owner, Owner's Representative and Architect with sufficient copies of the original schedules and all updated schedules as the Owner, Owner's Representative, or Architect may require.

§ 3.10.6.6 In the event the Owner determines that the performance of the Work, as of a Milestone Date, has not progressed or reached the level of completion required by the Contract Documents, the Owner shall have the right to order the Contractor to take corrective measures necessary to expedite 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 progress of the Work complies with the stage of completion required by the Contract Documents. The Owner's right to require Extraordinary Measures is solely for the purpose of ensuring the Contractor's compliance with the construction schedule.

§ 3.10.6.6.1 The Contractor shall not be entitled to an adjustment in the Contract Sum in connection with Extraordinary Measures required by the Owner under or pursuant to this Paragraph 3.10.5.

§ 3.10.6.6.2 The Owner may exercise the rights furnished the Owner under or pursuant to this Paragraph 3.10.6 as frequently as the Owner deems necessary to ensure that the Contractor's performance of the Work will comply with any Milestone Date or completion date set forth in the Contract Documents.

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§ 3.10.6.6.3 The Owner reserves the right to withhold payment until such time as the Contractor submits a daily schedule showing work to be again on schedule with the Construction Schedule and performing per revised schedule, without additional cost to the Owner.

§ 3.10.7 The Owner shall have the right to direct a postponement or rescheduling of any date or time for the performance of any part of the Work that may interfere with the operation of the owner's premises or any tenants or invitee thereof. The Contractor shall, upon the Owner's request, reschedule any portion of the Work affecting operation of the premises during hours when the premises are not in operation. Any postponement, rescheduling or performance of the Work under this Paragraph 3.10.7 may be grounds for an extension of the Contract Time, if permitted under Paragraph 8.3.1 if: (1) the performance of the Work was properly scheduled by the Contractor in compliance with the requirements of the contract Documents and (2) such rescheduling or postponement is required for the convenience of the Owner.

§ 3.10.8 The various Prime Contractors shall be responsible for the coordination and orderly arrangement of the various equipment, lines and piping and architectural features, and to avoid any unsightly arrangements in exposed work.

§ 3.10.9 All Construction Schedules are the product and ownership of the Contractor.

§ 3.10.10 Revisions to the schedule shall be approved by the Owner and Construction Manager.

§ 3.10.11 Contractor shall provide all required labor and material to proceed with work as per the Construction Schedule and shall work continuously and expeditiously through project completion.

§ 3.11 Documents and Samples at the Site

§ 3.11.1 The Contractor shall maintain at the site for the Owner in addition to the Project Record copy held by the Construction Manager, one copy of the Drawings, Specifications, Addenda, Change Orders and other Modifications, in good order and marked currently to indicate field changes and selections made during construction, and one copy of approved Shop Drawings, Product Data, Samples and similar required submittals. These documents shall be available to the Architect and delivered to the Construction Manager for submittal to the Owner upon completion of the Work as a record of the Work as constructed.

§ 3.11.1.1 Each Prime Contractor shall provide a copy of daily field reports to the Owner's representative at the end of each week.

§ 3.11.2 The Contractor shall maintain at the Project site, and shall make available to Owner and Architect, one record copy of the Drawings (the "Record Drawings") in good order.

§ 3.11.2.1 The Record Drawings shall be prepared and updated during the prosecution of the Work in accordance with procedures specified in the Specifications.

§ 3.11.2.2 Final payment and any retainage shall not be due and owing to Contractor until the drawings receive the approval from the Architect and the Owner (and all other closeout requirements are met).

§ 3.11.3 The Contractor shall maintain all approved permit drawings in a manner so as to make them accessible to government inspectors and other authorized agencies. All approved drawings shall be wrapped, marked and delivered to the Owner within thirty (30) days of final completion of the Work.

§ 3.11 Documents and Samples at the Site

§ 3.11.1 The Contractor shall make available, at the Project site for the Owner in addition to the Project Record copy held by the Construction Manager, the Contract Documents, including Change Orders, Construction Change Directives, and other Modifications, in good order and marked currently to indicate field changes and selections made during construction, and the approved Shop Drawings, Product Data, Samples, and similar required submittals. These shall be in electronic form or paper copy, available to the Construction Manager, Architect, and Owner, and delivered to the Construction Manager for submittal to the Owner upon completion of the Work as a record of the Work as constructed.

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§ 3.11.2 The Contractor shall maintain at the Project site, and shall make available to Owner and Architect, one record copy of the Drawings (the "Record Drawings") in good order.

§ 3.11.2.1 The Record Drawings shall be prepared and updated during the prosecution of the Work in accordance with procedures specified in the Specifications.

§ 3.11.2.2 Final payment and any retainage shall not be due and owing to Contractor until the drawings receive the approval from the Architect and the Owner (and all other closeout requirements are met).

§ 3.11.3 The Contractor shall maintain all approved permit drawings in a manner so as to make them accessible to government inspectors and other authorized agencies. All approved drawings shall be wrapped, marked and delivered to the Owner within thirty (30) days of final completion of the Work.

§ 3.12 Shop Drawings, Product Data, and Samples

§ 3.12.1 Shop Drawings are drawings, diagrams, schedules, and other data specially prepared for the Work by the Contractor or a Subcontractor, Sub-subcontractor, manufacturer, supplier, or distributor to illustrate some portion of the Work. All shop drawings are the product and property of the Contractor. One complete set of all product data and approved Shop Drawings shall be submitted to the Owner as part of the close-out requirements.

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

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

§ 3.12.3.1 The Contractor shall submit for review to the Architect through the Construction Manager samples of materials listed under each section of the specifications. Samples shall be properly labeled for identification, consisting of the following information: job titles, sample number, submission number, and label large enough to receive Architect's stamps.

§ 3.12.3.2 The Contractor shall not commence work under sections of the specifications until the Architect's approval in writing is obtained for all listed samples.

§ 3.12.3.3 The Contractor shall not construe approval of advance samples as total guarantee of acceptance of materials. Materials will be subjected to field inspections, from time to time, as work progresses.

§ 3.12.3.4 Samples of specific manufactured products shall be accompanied with appropriate manufacturer's literature at time of submission.

§ 3.12.4 Shop Drawings, Product Data, Samples, and similar submittals are not Contract Documents. Their purpose is to demonstrate how the Contractor proposes to conform to the information given and the design concept expressed in the Contract Documents for those portions of the Work for which the Contract Documents require submittals. Review by the Architect and Construction Manager is subject to the limitations of Sections 4.2.10 through 4.2.12. Informational submittals upon which the Construction Manager and Architect are not expected to take responsive action may be so identified in the Contract Documents. Submittals that are not required by the Contract Documents may be returned by the Construction Manager or Architect without action.

§ 3.12.5 The Contractor shall review for compliance with the Contract Documents, approve, and submit to the Construction Manager, Shop Drawings, Product Data, Samples, and similar submittals required by the Contract Documents, in accordance with the Project submittal schedule approved by the Construction Manager and Architect or, in the absence of an approved Project submittal schedule, with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of other Contractors, Separate Contractors, or the Owner's own forces.

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The Contractor shall cooperate with the Construction Manager in the coordination of the Contractor's Shop Drawings, Product Data, Samples, and similar submittals with related documents submitted by other Contractors.

§ 3.12.5.1 The Contractor shall submit all Shop Drawings that are considered long lead items according to the time requirements of the Specifications.

§ 3.12.5.2 The Contractor shall submit to the Architect through the Construction Manager all other shop drawings and schedules in sufficient time to allow at least ten (10) working days for the Architect's review. Approval signatures of Contractors and all sub-contractors affected by the work shown therein must appear on all shop drawings before submission to Architect. A copy of Shop Drawings shall be provided for Owner's review as requested.

§ 3.12.6 By submitting Shop Drawings, Product Data, Samples, and similar submittals, the Contractor represents to the Owner, Construction Manager, and Architect, that the Contractor has (1) reviewed and approved them, (2) determined and verified materials, field measurements and field construction criteria related thereto, or will do so, and (3) checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.

§ 3.12.7 The Contractor shall perform no portion of the Work for which the Contract Documents require submittal and review of Shop Drawings, Product Data, Samples, or similar submittals, until the respective submittal has been reviewed and approved by the Architect.

§ 3.12.7.1 If the Contractor elects to release work without approvals, same shall be at his risk and expense.

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

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

§ 3.12.10 The Contractor shall not be required to provide professional services that constitute the practice of architecture or engineering unless such services are specifically required by the Contract Documents for a portion of the Work or unless the Contractor needs to provide such services in order to carry out the Contractor's responsibilities for construction means, methods, techniques, sequences, and procedures. The Contractor shall not be required to provide professional services in violation of applicable law.

§ 3.12.10.1 If professional design services or certifications by a design professional related to systems, materials, or equipment are specifically required of the Contractor by the Contract Documents, the Owner and the Architect will specify all performance and design criteria that such services must satisfy. The Contractor shall be entitled to rely upon the adequacy and accuracy of the performance and design criteria provided in the Contract Documents. The Contractor shall cause such services or certifications to be provided by an appropriately licensed design professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings, and other submittals prepared by such professional. Shop Drawings, and other submittals related to the Work, designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to the Architect. The Owner, the Architect, and the Construction Manager shall be entitled to rely upon the adequacy and accuracy of the services, certifications, and approvals performed or provided by such design professionals, provided the Owner and Architect have specified to the Contractor the performance and design criteria that such services must satisfy. Pursuant to this Section 3.12.10, the Architect will review and approve or take other appropriate action on submittals only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Construction Manager shall review submittals for sequencing, constructability, and coordination impacts on other Contractors.

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§ 3.12.10.2 If the Contract Documents require the Contractor's design professional to certify that the Work has been performed in accordance with the design criteria, the Contractor shall furnish such certifications to the Construction Manager and Architect at the time and in the form specified by the Architect.

§ 3.12.11 All shop drawings for any architectural, structural, mechanical or electrical work must be submitted to the Architect through the Construction Manager. The Contractor represents and warrants that all shop drawings shall be prepared by persons and entities possessing expertise and experience in the trade for which the shop drawing is prepared and, if required by the Architect or applicable law, by a licensed engineer.

§ 3.12.11.1 Each shop drawing shall contain a title block with provisions for the following:

(1) Number and Title of Drawing.
(2) Date of Drawing or Revision.
(3) Name of project.
(4) Name of Contractor or Sub-contractor submitting Drawing.
(5) Specification Section Title and Number.
(6) Space for Architect's Stamp and Received Stamps.

§ 3.12.11.2 Each shop drawing shall have listed on it all Contract Reference Drawing Numbers plus Shop Drawing Numbers on related work by other Subcontractors if available.

§ 3.12.11.3 Each shop drawing submission shall have indicated on the drawing under the submission number (whether first, second, third, etc.).

§ 3.12.11.4 Shop drawings for work of one trade shall be checked by Sub-contractors of related trades, and shall have received their stamp of approval before being submitted to the Architect.

§ 3.12.11.5 Each shop drawing submission after the first submission shall be clear of all previous stamps.

§ 3.12.12 Contractor shall communicate and supply Shop Drawings to other Contractors to ensure proper coordination.

§ 3.13 Use of Site

§ 3.13.1 The Contractor shall have limited access to the site on the inside and outside of the building

§ 3.13.1.1 The Owner's Representative shall establish the limits of the construction site in addition to any contract limit lines shown on the drawings. The Contractor shall continue his operations within these limits, unless upon written request and reply, a variance is agreed to by the Construction Manager and the Owner. The Contractor shall be responsible for trespassing on and/or damage to other property by any of his employees or his subcontractors' employees.

§ 3.13.1.2 The Contractor's right to entry and use thereof arises solely from the permission granted by the Owner under the Contract Documents.

§ 3.13.1.3 The Contractor shall be required to perform the work of the Project with no interruption to the School District's operations. Any work which will interfere with the School Districts' operations shall be performed on evenings and weekends when the Owner's facilities are not in operation. All costs incurred by the Owner to make the facilities available during those times shall be borne by the Contractor. The Owner reserves to itself the right to determine what work will "interfere" with its operations and said determination shall be final.

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

§ 3.13.2.1 Only materials and equipment which are to be used directly in the Work shall be brought to and stored on the Project site by the Contractor. After equipment is no longer required for the Work, it is to be promptly removed from the Project site. Protection of construction materials and equipment stored at the Project site from weather, theft,

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damage, and all other adversity is solely the responsibility of the Contractor. The Contractor shall be held responsible for repairs, patching, or cleaning arising from such use.

§ 3.13.2.2 The Contractor shall provide all temporary access walkways, both interior and exterior, temporary partitioning and the like necessary to complete the operations. The Contractor shall maintain in an unobstructed condition all entrances and/or exits from present buildings.

§ 3.13.3 The Contractor and any entity for which the Contractor is responsible shall not erect any sign on the Project site without the written consent of the Owner, which may be withheld in the sole discretion of the Owner.

§ 3.13.4 Without prior approval of the Owner, the Contractor shall not permit any workers to use any existing facilities at the Project site, including, without limitation, lavatories, toilets, entrances, and parking areas other than those designated by the Owner. Without limitation of any other provision of the Contract documents, the Contractor shall use his best efforts to comply with all rules and regulations promulgated by the Owner in connection with the use and occupancy of the Project site and the Building as amended from time to time. The Contractor shall immediately notify the Owner in writing if during the performance of the Work the Contractor finds compliance with any portion of the rules and regulations to be impracticable, setting forth the problems of such compliance and suggesting alternatives through which the same results intended by such portions of the rules and regulations can be achieved. The Owner may, in the Owner's sole discretion, adopt such suggestions, develop new alternatives or require compliance with the existing requirements of the rules and regulations. The Contractor shall also comply with all insurance requirements and collective bargaining agreements applicable to use and occupancy of the Project site and the Building.

§ 3.13.4.1 All Contractor shall confine their use of the premises for all purposes, to the areas occupied by the construction and related storage areas as and if shown.

§ 3.13.4.2 The responsibility for the safe working conditions at the site shall be the Contractor's. The Architect, Owner's Representative and Owner shall not be deemed to have any responsibility or liability in connection therewith.

§ 3.13.5 Contractor's, their workers, suppliers, etc. will be held to adhere strictly to the requirements hereinbefore stated, and shall not occupy or carry traffic through other parts of the site or interior of present buildings except by specific permission of the Construction Manager.

§ 3.13.6 The Contractor shall repair or replace any existing trees, shrubbery or other planting damaged by operations and/or workers employed in performance of its contract.

§ 3.13.7 Contractor shall insure that the Work, at all times, is performed in a manner that affords reasonable access, both vehicular and pedestrian, to the site of the Work and all adjacent areas. The Work shall be performed, to the fullest extent reasonably possible, in such a manner that public areas adjacent to the site of the Work shall be free from all debris, building materials and equipment likely to cause hazardous conditions. Without limitation of any other provision of the Contract Documents, Contractor shall use its best efforts to minimize any interference with the occupancy or beneficial use of (1) any areas and buildings adjacent to the site of the Work or (2) the Building in the event of partial occupancy, as more specifically described in Paragraph 9.9.

§ 3.13.7.1 The Contractor shall provide full and free access for the Architect, Owner's Representative, Owner and/or their representatives, to inspect job materials, equipment, fabrication, facilities, and storage locations, at and away from the job site.

§ 3.13.8 Employees, vehicles, equipment and material of the Contractor and of all others utilized by the Contractor for the performance of its work, shall enter onto the construction site only at those locations designated or approved by the Construction Manager.

§ 3.13.9 The Contractor shall familiarize itself with any access and storage requirements set forth in the Supplementary Conditions and Division 1 and shall be subject to them. The Contractor shall properly maintain all access to work and storage areas so that there will be continuous unimpeded access to the work site in all seasons of the year, on all regular working days and all regular working hours of any and all trades employed by all contractors during work at this site.

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§ 3.13.10 Only such vehicles, trucks and equipment shall be parked or stored within the work areas are absolutely necessary for performing the work, for the length of time that particular phase of work is performed. All other contractor's vehicles and/or employees and/or workers' vehicles including passenger cars shall be parked off the site. There are no exceptions to the rule.

§ 3.13.11 It shall be the responsibility of the Contractor to provide necessary and required security measures to adequately safeguard the construction site from vandalism and intrusion of unauthorized persons.

§ 3.13.11.1 The Contractor shall submit the means and methods of security to the Owner through the Owner's representative for approval. The project site must be secured 24 hours a day, seven (7) days a week including holidays.

§ 3.13.11.2 All workers and employees of any Contractor are prohibited from:

1. Trespassing or leaving any vehicle on any property not assigned by the Owner as set aside for the use of the Contractor.
2. leaving any vehicle on the grounds unless it is locked and the ignition keys removed.

§ 3.13.11.3 All employees or persons entering the property surrounding the facilities affected by the construction are restricted to the immediate area of work. Only persons having official business will be admitted to the construction site.

§ 3.13.11.4 Rules of Conduct

1. No smoking is allowed anywhere on school property per the New York State law. Violators are subject to a $1,000 fine and/or banishment from the property.
2. No drinking of alcoholic beverages or use of controlled substances allowed on the grounds. No reporting to work impaired by alcohol or controlled substances allowed. The Contractor bears the responsibility of determining if its, or its subcontractors, employees are impaired which would jeopardize the safety of the public, the employees of other Contractors and their Subcontractors, the Owner, Architect, and Construction Manager.
3. All Contractors, subcontractors, suppliers and their employees are to refrain from conversing with school personnel and students. Any construction employees found doing so will be removed from the site. NO COMMUNICATION BETWEEN WORKERS AND STUDENTS WILL BE TOLERATED.
4. All Contractors, subcontractors, suppliers, and their employees are to refrain from using indecent language. All doing so will be removed from the site. Artwork and decoration found on vehicles belonging to Contractors or Subcontractor's employees parked on or near the school property which contain obscenity, lewd or indecent language or pictures or symbols that foreseeably could cause a disruption to the educational environment shall either be covered or removed from the location.
5. All construction personnel to wear photo ID badges. Photo ID badges are to be provided by the Contractor and receive Owner's approval.
6. The use of radios, tape players, and the like is prohibited within the job site.

§ 3.14 Cutting and Patching

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

§ 3.14.2 The Contractor shall not damage or endanger a portion of the Work or fully or partially completed construction of the Owner, Separate Contractors, or of other Contractors by cutting, patching, or otherwise altering such construction, or by excavation. The Contractor shall not cut or otherwise alter construction by the Owner, Separate Contractors, or by other Contractors except with written consent of the Construction Manager, Owner, and such other Contractors or Separate Contractors. Consent shall not be unreasonably withheld. The Contractor shall not unreasonably withhold, from the Separate Contractors, other Contractors, or the Owner, its consent to cutting or otherwise altering the Work.

§ 3.14.3 Only trades persons skilled and experienced in cutting and patching shall perform such work.

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§ 3.14.4 Where required: Each Contractor before starting work shall consult with the Construction Manager and other Contractors to determine locations and sizes of required chases and openings for others. Construct chases and leave openings at proper locations and size to receive work of others. After work of others has been installed, fill in openings and/or patch around installed materials. After executing the above procedure, if chases, sleeves or openings are required after floors, walls, etc. are in place, the Contractor requiring such chases, sleeves or openings shall be responsible for cutting and patching as required for his work.

§ 3.14.5 The Contractor shall not cut, patch, damage or alter installed work, without the Architect's consent.

§ 3.15 Cleaning Up

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

§ 3.15.1.1 All Contractors' work areas shall be kept clean each day, of refuse, including containers, cups and the like. The facilities will remain in operation during the course of the entire construction operation. All Contractors performing work on this Contract shall schedule their work so as not to interfere with any traffic to and from the required areas of use. The Contractor shall be responsible for maintaining all traffic, and shall provide all barriers and protection as required to safeguard the work and the public and the occupants of the building during construction. The Prime Contractors shall comply with all state and local fire code regulations during construction, including vehicular parking, smoke partitions, rescue window obstructions, use of extension cords.

§ 3.15.2 If the Contractor fails to clean up as provided in the Contract Documents, the Owner, or Construction Manager with the Owner's approval, may do so and the Owner shall be entitled to reimbursement from the Contractor. Each Contractor shall be responsible for cleaning their rubbish daily and removing all rubbish from the interior and exterior site weekly or when otherwise requested by the Owner. The General Contractor shall broom sweep all construction areas at least every Friday. Surfaces shall be left clean of mortar and paint spots and the like. The Contractor shall work in a condition approved by the Construction Manager. An inspection will occur on Friday afternoon and failure to properly clean will result in the Owner engaging a cleaning company each time the requirement is not met, without prior notification to the Contractor. The cost will be divided among each Contractor who has not cleaned their debris and shall include any custodial overtime, Construction Manager's administration fees, etc.

§ 3.15.4 Cleaning

§ 3.15.4.1 General Cleaning. General cleaning during construction is required by the General Conditions.

§ 3.15.4.2 Final Cleaning. Clean each surface or unit to the condition expected in normal commercial building cleaning. Comply with manufacturer instructions. Complete the following cleaning operations before requesting inspection for Certificate of Substantial Completion.

1. Clean transparent materials including glass in doors windows. Replace any damaged glass.
2. Clean exposed finishes to a dust free condition, free of stains, films and similar foreign substances. Clean floors as recommended by the manufacturers if new, if existing carpeted floors shall be vacuumed and wood, ceramic tile and vinyl tile floor floors shall be mopped.
3. Wipe surfaces of mechanical and electrical equipment. Remove excess lubrication and other substances. Clean plumbing fixtures to a sanitary condition. Clean light fixtures and lamps.

§ 3.15.4.3 Removal of Protection. Remove temporary protection and facilities installed for protection of work during construction unless otherwise directed by the Owner, Architect or Construction Manager.

§ 3.15.4.4 Compliance. Comply with authorities having jurisdiction and safety standards for cleaning. Do not burn waste materials. Do not discharge volatile, harmful or dangerous materials into drainage systems. Remove waste materials from the site and dispose of in a lawful manner.

§ 3.16 Access to Work

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

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§ 3.17 Royalties, Patents and Copyrights

The Contractor shall pay all royalties and license fees. The Contractor shall defend suits or claims for infringement of copyrights and patent rights and shall hold the Owner, Construction Manager, and Architect harmless from loss on account thereof, but shall not be responsible for defense or loss when a particular design, process, or product of a particular manufacturer or manufacturers is required by the Contract Documents, or where the copyright violations are contained in Drawings, Specifications, or other documents prepared by the Owner, Architect, or Construction Manager. However, if an infringement of a copyright or patent is discovered by, or made known to, the Contractor, the Contractor shall be responsible for the loss unless the information is promptly furnished to the Architect through the Construction Manager.

§ 3.18 Indemnification

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

§ 3.18.2 In claims against any person or entity indemnified under this Section 3.18 by an employee of the Contractor, a Subcontractor, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, the indemnification obligation under Section 3.18.1 shall not be limited by a limitation on amount or type of damages, compensation, or benefits payable by or for the Contractor or a Subcontractor under workers' compensation acts, disability benefit acts, or other employee benefit acts.

§ 3.18.3 Unless otherwise stated in the Agreement, the Contractor shall, before commencing work, take out and pay for such insurance as may be required to comply with the indemnification and hold harmless provisions outlined under Article 3.18.1, and 3.18.2.

§ 3.18.4 Except for the special agreement in paragraph 3.18, nothing contained in the Contract Documents shall be construed to create any contractual relationship of any kind between the Architect or any of his agents or employees and the Contractor.

§ 3.18.5 A certificate of the required insurance naming the Architect, Engineers, Owner, Construction Manager, Consultants, Subconsultants and other such professional parties shall be submitted prior to the start of work. Said insurance shall be maintained through the entire project life. (Refer to insurance section of specifications).

§ 3.18.6 The Contractor shall indemnify and hold harmless the Owner, Architect and Construction Manager 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 act or omission of such Contractor or any person or firm for whose acts such Contractor may be liable, with respect to such Contract or the performance or failure to perform the Work under such Contract.

§ 3.19 Daily Records Clause

§ 3.19.1 The Contractor shall prepare and maintain Daily Inspection Records to document the progress of the work on a daily basis. Such daily records shall include a daily accounting of all labor and all equipment on the site for the Contractor and all subcontractors, at any tier. Such daily records will make a clear distinction between work being performed under Change Order, base scope work and/or disputed work.

§ 3.19.2 In the event that any labor or equipment is idled solely as a result of Owner actions or inactions, the daily records shall record which laborers and equipment were idled and for how long. In the event that specific work activities were

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stopped, solely as a result of Owner actions or inactions, and labor and equipment was reassigned to perform work on other activities, the daily records will make a clear record of which activities were stopped and where labor and equipment were redirected to.

§ 3.19.3 Such daily records shall be copied and provided to the Owner at the end of every week.

ARTICLE 4 ARCHITECT AND CONSTRUCTION MANAGER

§ 4.1 General

§ 4.1.1 The Architect is the person or entity retained by the Owner pursuant to Section 2.3.2 and identified as such in the Agreement.

§ 4.1.2 The Construction Manager is the person or entity retained by the Owner pursuant to Section 2.3.3 and identified as such in the Agreement.

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

§ 4.2 Administration of the Contract

§ 4.2.1 The Construction Manager will provide administration of the Contract and the Architect will provide professional services as described in the Contract Documents and both will be the Owner's representatives during construction until the date the Architect issues the final Certificate for Payment. The Construction Manager and Architect will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents.

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

§ 4.2.3 The Construction Manager shall provide one or more representatives who shall be in attendance at the Project site whenever the Work is being performed. The Construction Manager will determine in general if the Work observed is being performed in accordance with the Contract Documents, will keep the Owner and Architect reasonably informed of the progress of the Work, in writing, on a weekly basis and will promptly report to the Owner and Architect known deviations from the Contract Documents and the most recent Project schedule, and defects and deficiencies observed in the Work.

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

§ 4.2.5 The Construction Manager, except to the extent required by Section 4.2.4, and Architect will not have control over, charge of, or responsibility for, the construction means, methods, techniques, sequences or procedures, or for the safety precautions and programs in connection with the Work, since these are solely the Contractor's rights and responsibilities under the Contract Documents, and neither will be responsible for the Contractor's failure to perform the Work in accordance with the requirements of the Contract Documents. Neither the Construction Manager nor the Architect will have control over or charge of, or be responsible for acts or omissions of, the Contractor, Subcontractors, or their agents or employees, or of any other persons or entities performing portions of the Work.

§ 4.2.6 Communications. The Owner shall communicate with the Contractor and the Construction Manager's consultants through the Construction Manager about matters arising out of or relating to the Contract Documents. The Owner and Construction Manager shall include the Architect in all communications that relate to or affect the Architect's services or professional responsibilities. The Owner shall promptly notify the Architect of the substance of any direct communications between the Owner and the Construction Manager otherwise relating to the Project. Communications by and with the Architect's consultants shall be through the Architect. Communications by and with

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Subcontractors and suppliers shall be through the Contractor. Communications by and with other Contractors shall be through the Construction Manager. Communications by and with the Owner's own forces and Separate Contractors shall be through the Owner. The Contract Documents may specify other communication protocols.

§ 4.2.7 The Construction Manager and Architect will review and certify all Applications for Payment by the Contractor, in accordance with the provisions of Article 9.

§ 4.2.8 The Architect and Construction Manager have authority to reject Work that does not conform to the Contract Documents, and will notify each other about the rejection. Whenever the Construction Manager considers it necessary or advisable, the Construction Manager will have authority to require inspection or testing of the Work in accordance with Sections 13.4.2 and 13.4.3, upon written authorization of the Owner, whether or not the Work is fabricated, installed or completed. The foregoing authority of the Construction Manager will be subject to the provisions of Sections 4.2.18 through 4.2.20 inclusive, with respect to interpretations and decisions of the Architect. However, neither the Architect's nor the Construction Manager's authority to act under this Section 4.2.8 nor a decision made by either of them in good faith either to exercise or not to exercise such authority shall give rise to a duty or responsibility of the Architect or the Construction Manager to the Contractor, Subcontractors, suppliers, their agents or employees, or other persons performing any of the Work.

§ 4.2.9 Utilizing the submittal schedule provided by the Contractor, the Construction Manager shall prepare, and revise as necessary, a Project submittal schedule incorporating information from other Contractors, the Owner, Owner's consultants, Owner's Separate Contractors and vendors, governmental agencies, and participants in the Project under the management of the Construction Manager. The Project submittal schedule and any revisions shall be submitted to the Architect for approval.

§ 4.2.10 The Construction Manager will receive and promptly review for conformance with the submittal requirements of the Contract Documents, all submittals from the Contractor such as Shop Drawings, Product Data, and Samples. Where there are other Contractors, the Construction Manager will also check and coordinate the information contained within each submittal received from the Contractor and other Contractors, and transmit to the Architect those recommended for approval. By submitting Shop Drawings, Product Data, Samples, and similar submittals, the Construction Manager represents to the Owner and Architect that the Construction Manager has reviewed and recommended them for approval. The Construction Manager's actions will be taken in accordance with the Project submittal schedule approved by the Architect or, in the absence of an approved Project submittal schedule, with reasonable promptness while allowing sufficient time to permit adequate review by the Architect.

§ 4.2.11 The Architect will review and approve, or take other appropriate action upon, the Contractor's submittals such as Shop Drawings, Product Data, and Samples, but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Architect's action will be taken in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness while allowing sufficient time in the Architect's professional judgment to permit adequate review. Upon the Architect's completed review, the Architect shall transmit its submittal review to the Construction Manager.

§ 4.2.12 Review of the Contractor's submittals by the Construction Manager and Architect is not conducted for the purpose of determining the accuracy and completeness of other details such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the Contractor as required by the Contract Documents. The Construction Manager and Architect's review of the Contractor's submittals shall not relieve the Contractor of the obligations under Sections 3.3, 3.5, and 3.12. The Construction Manager and Architect's review shall not constitute approval of safety precautions or of any construction means, methods, techniques, sequences, or procedures. The Architect's approval of a specific item shall not indicate approval of an assembly of which the item is a component.

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

§ 4.2.14 The Construction Manager and the Architect will take appropriate action on Change Orders or Construction Change Directives in accordance with Article 7, and the Architect will have authority to order minor changes in the Work as provided in Section 7.4. The Architect, in consultation with the Construction Manager, will investigate and

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make determinations and recommendations regarding concealed and unknown conditions as provided in Section 3.7.4.

§ 4.2.15 Utilizing the documents provided by the Contractor, the Construction Manager will maintain at the site for the Owner one copy of all Contract Documents, approved Shop Drawings, Product Data, Samples, and similar required submittals, in good order and marked currently to record all changes and selections made during construction. These will be available to the Architect and the Contractor, and will be delivered to the Owner upon completion of the Project.

§ 4.2.16 The Construction Manager will assist the Architect in conducting inspections to determine the date or dates of Substantial Completion and the date of final completion; issue Certificates of Substantial Completion in conjunction with the Architect pursuant to Section 9.8; and receive and forward to the Owner written warranties and related documents required by the Contract and assembled by the Contractor pursuant to Section 9.10. The Construction Manager will forward to the Architect a final Application and Certificate for Payment or final Project Application and Project Certificate for Payment upon the Contractor's compliance with the requirements of the Contract Documents.

§ 4.2.17 If the Owner and Architect agree, the Architect will provide one or more Project representatives to assist in carrying out the Architect's responsibilities at the site. The Owner shall notify the Construction Manager of any change in the duties, responsibilities and limitations of authority of the Project representatives.

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

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

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

§ 4.2.21 The Construction Manager will receive and review requests for information from the Contractor, and forward each request for information to the Architect, with the Construction Manager's recommendation. The Architect will review and respond in writing, through the Construction Manager, to requests for information about the Contract Documents. The Construction Manager's recommendation and the Architect's response to each request will be made in writing within any time limits agreed upon or otherwise with reasonable promptness. If appropriate, the Architect will prepare and issue supplemental Drawings and Specifications in response to the requests for information.

ARTICLE 5 SUBCONTRACTORS

§ 5.1 Definitions

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

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

§ 5.1.3 The term "Specialist" or "Specialty Contractor" 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.

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§ 5.1.3.1 Where Contract Specifications require installation by a "Specialist", that term shall also be deemed to mean either the manufacturer of the item, an individual or firm licensed by the manufacturer, or an individual or firm who will perform such work under the manufacturer's direct supervision. All other requirements and provisions contained in these documents pertaining to subcontractors and sub-subcontractors are applicable to Specialty Contractors.

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

§ 5.2.1 As soon as practicable after award of the Contract, , but no more than 30 days after receipt of official notice of award of the Contract, the Contractor shall notify the Construction Manager, for review by the Owner, Construction Manager and Architect, the names of the persons or entities (including those who are to furnish materials or equipment fabricated to a special design) and, where applicable, the name of the installing Subcontractor, proposed for each principal portion of the Work. . The Construction Manager may reply within 14 days of receipt of the information to the Contractor, in writing, stating (1) whether the Owner, the Construction Manager or the Architect has reasonable objection to any such proposed person or entity or, (2) that the Construction Manager, Architect or Owner requires additional time for review. Failure of the Construction Manager, Owner, or Architect to reply within the 14-day period shall constitute notice of no reasonable objection.

§ 5.2.1.1 Refer to Information to Bidders for requirements for delivery of a list of Subcontractors to Architect's office after receipt of bids and before award of Contract.

§ 5.2.1.2 Subcontractors will not be acceptable unless, when required by the Construction Manager, 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.

§ 5.2.2 The Contractor shall not award any work to any Subcontractor without prior written approval of the Construction Manager and Owner, which approval will not be given until the Contractor submits to the Construction Manager a written statement concerning the proposed award to the Contractor, which statement shall contain such information as the Construction Manager or Owner will require.

§ 5.2.3 If the Owner, Construction Manager or Architect has reasonable objection to a person or entity proposed by the Contractor, the Contractor shall propose another to whom the Owner, Construction Manager or Architect has no reasonable objection. No increase in the Contract Sum shall be allowed where a Subcontractor is rejected by the Owner, Construction Manager or Architect who is deemed unqualified to perform the particular work subcontracted by the Contractor or having too many current projects handled by insufficient personnel.

§ 5.2.4 The Contractor shall not substitute a Subcontractor, person, or entity for one previously selected if the Owner, Construction Manager or Architect makes reasonable objection to such substitution.

§ 5.2.5 Notwithstanding any other provision of the Contract Documents, Contractor shall perform at least twenty-five percent (25%) of the field work by its own employees. For the purpose of the preceding sentence, any part of the work performed by supervisory personnel (persons above level of foreman) or by the office personnel shall not be considered part of the work performed by the Contractor's employees. Such items as bonds, certificates, shop drawings and similar items do not count towards the twenty-five percent (25%) requirements.

§ 5.3 Subcontractual Relations

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

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§ 5.3.1 The Contractor shall not enter into any subcontract, contract, agreement, purchase order or other arrangement for the furnishings of any portion of the materials, services, equipment or Work with any party or entity if such party or entity is an Affiliated Entity, unless such arrangement has been approved by the Owner, after full disclosure of the relationship and all details relating to the proposed Arrangement. The term "Affiliated Entity" means any entity related to or affiliated with the Contractor with respect to which the Contractor has direct or indirect ownership or control, including, without limitation,

.1 Any entity owned in whole or in part by the Contractor;

.2 Any holder of more than ten percent (10%) of the issued and outstanding shares of, or the holder of any interest in, the Contractor; or

§ 5.3.1.1 All Subcontracts over $5,000 shall be in writing.

§ 5.4 Contingent Assignment of Subcontracts

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

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

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

When the Owner accepts the assignment of a subcontract agreement, the Owner assumes the Contractor's rights and obligations under the subcontract.

§ 5.4.2 If the Work in connection with a Subcontract has been suspended for more than 30 days after termination of the Contract by the Owner pursuant to paragraph 14.2 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 such suspension.

§ 5.4.3 Upon assignment to the Owner under this Section 5.4, the Owner may further assign the subcontract to a successor Contractor or other entity. If the Owner assigns the subcontract to a successor Contractor or other entity, the Owner shall nevertheless remain legally responsible for all of the successor Contractor's obligations under the subcontract.

§ 5.4.4 Each Subcontract shall specifically provide that the Owner shall be responsible to the Subcontractor for those obligations of the Contractor that accrue subsequent to the Owner's exercise of any rights under this contingent assignment.

§ 5.5 Owner Payment to Subcontractors

§ 5.5.1 In the event of any default hereunder by the Contractor, or in the event the Owner, Construction Manager, or Architect fails to approve any application for payment, that is not the fault of a Subcontractor, the Owner, upon exercising such option by writing to the Contractor, may make direct payment to the Subcontractor, less appropriate retainage. In that event, the amount so paid the Subcontractor shall be deducted from the payment to the Contractor.

§ 5.5.2 Nothing contained herein shall create any obligation on the part of the Owner to make any payments to any Subcontractor, and no payment by the Owner to any Subcontractor shall create any obligation to make any further payments to any Subcontractor.

§ 5.5.3 The Contractor shall promptly notify the Owner, Construction Manager, and Architect of any material defaults by any Subcontractors. Notwithstanding any provision contained in this Article 5 to the contrary, it is hereby acknowledged and agreed that the Owner has in no way agreed, expressly or impliedly, nor will the Owner agree, to allow any Subcontractor or other material supplier or worker employed by the Contractor the right to obtain a judgment or decree against the Owner for the amount due it from the Contractor.

§ 5.5.4 The Contractor shall check record drawings each month. Written confirmation that the record drawings are "up to date" shall be required by the Construction Manager prior to approval of the Contractor's monthly payment requisition.

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ARTICLE 6 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

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

§ 6.1.1 The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, and with Separate Contractors retained under Conditions of the Contract substantially similar to those of this Contract, including those provisions of the Conditions of the Contract related to insurance and waiver of subrogation. Should the Contractor sustain any damage or delay through any act or omission of any other Contractor having a contract with the owner for the delivery of materials, supplies, equipment, plant or appliances, or should the contractor sustain any damage or delay through any act of omission of a sub-contractor, the Contractor shall have no claim against the Owner or their Architects for such damage or delay but shall have a right to recover or to claim such damage only from the other Contractor or Subcontractor.

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

§ 6.1.2.1 Where the term "Contractor" or "Prime Contractor" is used in the General Conditions, Supplementary General Conditions, and other Contract Documents, it shall mean the Contractor who executed the Owner-Contractor Agreement.

§ 6.1.2.2 Where the term "separate contractor" is used in this Article it shall mean other contractor performing construction or operation on the site not included in the Project.

§ 6.1.3 The Contractor shall not interfere with the erection, installation or storage upon the premises of any work, materials, supplies or equipment not included in the Work, but which is to be performed and furnished by other Contractors, and the Contractor shall properly connect and coordinate the work therewith. The Contractor shall be responsible for the coordination and intermeshing of the work of his various sub-contractors and the work of other Contractors with the work.

§ 6.1.4 All Contractors, including the Owner's Contractors, shall cooperate with each other in the installation and construction of each contractor's work and in such manner as the Owner and/or Construction Manager may direct. All Contractors shall control and coordinate the work of their subcontractors, if any. The Owner and/or Construction Manager shall approve or require the modification of the work schedules of all contractors to the end of the Project so the whole Project may be progressed, as expeditiously as possible, as one unit. The Award of more than one Contract for the Project requires sequential or otherwise inter-related contractor operations, and may involve inherent delays in the progress of any individual contractor's work. Accordingly, the Owner and/or Construction Manager cannot guarantee the unimpeded operations of any contractor. Each Contractor acknowledges these conditions and understands that he shall bear the risk of all ordinary delays caused by the presence or operations of other contractors engaged upon the Project and ordinary delays attended upon the approved Construction Schedule.

§ 6.1.5 The Contractor accepts assignment of, and liability for, all purchase orders and other agreements for procurement of materials and equipment that are identified as part of the Contract Documents. The Contractor shall be responsible for such pre-purchased items, if any, as if the Contractor were the original purchaser. The Contract Sum includes, without limitation, all costs and expenses in connection with delivery, storage, insurance, installation and testing of items covered in any assigned purchase orders or agreements. All warranty and correction of the Work obligations under the Contract Documents shall also apply to any pre-purchased items, unless the Contract Documents specifically provide otherwise.

§ 6.1.6 The Owner reserves the right to perform work on any phase of the project through a change order plus appropriate administrative costs when the established milestones become jeopardized due to any contractor's inaction. Inaction includes, but is not limited to, failure to man the work properly, failure to prosecute approved submittals, failure to prosecute contracts and purchase orders, and other acts or omissions which are deemed by the Owner to be in the best interests of the work."

§ 6.1.6.1 During the progress of the work, other contractors, utilities and the Owner's own personnel (referred to collectively as "Others") may be engaged in performing work or may be awarded other contracts for additional work on this project. In the event, the Contractor shall coordinate the work to be done hereunder with such Others and the Contractor shall fully cooperate with such Others, and carefully fit its own work to such Other's work.

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§ 6.2 Mutual Responsibility

§ 6.2.1 The Contractor shall afford the Owner's own forces, Separate Contractors, Construction Manager and other Contractors reasonable opportunity for introduction and storage of their materials and equipment and performance of their activities, and shall connect and coordinate the Contractor's construction and operations with theirs as required by the Contract Documents.

§ 6.2.1.1 Unless directed by the Owner to the contrary in the Invitation, Advertisement or Instructions to Bidders, the Contractor shall coordinate its operations with those of other contractors, whether prime contractors or separate contractors, and shall be responsible for the coordination of the work of its various subcontractors which shall be arranged and conducted to avoid delays.

§ 6.2.1.2 The Contractor shall not commit or permit any act which will interfere with the performance of work by any separate or Prime Contractor involved with the work. If the Contractor sustains any damage through any act or omission of other contractors or utilities having a Contract with the Owner for the performance of work upon the site or of work which may be necessary to be performed for the proper execution of the work to be performed for the proper execution of the work to be performed hereunder, or through any act or omission of a subcontractor of such contractor and/or utility, the Contractor shall have no claim against the Owner for such damage, but shall have a right to recover such damage from the contractor and/or utility under the provision similar to the following provisions which have or will be inserted in the contracts with such contractors and/or utilities.

§ 6.2.1.3 Should any other contractor having or who shall hereunder have a Contract with the Owner for the performance of Work upon the site, sustain any damage through any act or omission of the Contractor hereunder or through any act or omission of any subcontractor of the Contractor, the Contractor agrees to reimburse such other Contractor for all such damages and to defend at its own expense any suit based upon such claim.

§ 6.2.1.4 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 of the acts or omissions of any subcontractor of the Contractor. 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.

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

§ 6.2.1.6 In case of interference between the operations of different Contractors, the Architect or Owner's Representative, will be 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 6.2.1, shall not be made the basis of claims for delay or damages.

§ 6.2.1.7 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 of lack of progress on the part of the other Contractors where such delay will interfere with its own operations.

§ 6.2.1.7.1 Failure of a 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.

§ 6.2.1.8 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.

§ 6.2.2 If part of the Contractor's Work depends for proper execution or results upon construction or operations by the Owner's own forces, Separate Contractors or other Contractors, the Contractor shall, prior to proceeding with that portion of the Work, promptly notify the Construction Manager and Architect of apparent discrepancies or defects in the construction or operations by the Owner or Separate Contractor or other Contractors that would render it

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unsuitable for proper execution and results of the Contractor's Work. Failure of the Contractor to notify the Construction Manager and the Architect of apparent discrepancies or defects prior to proceeding with the Work shall constitute an acknowledgment that the Owner's or Separate Contractor's or other Contractors' completed or partially completed construction is fit and proper to receive the Contractor's Work. The Contractor shall not be responsible for discrepancies or defects in the construction or operations by the Owner or Separate Contractors or other Contractors that are not apparent.

§ 6.2.3 The Contractor shall reimburse the Owner for costs the Owner incurs, including costs that are payable to a Separate Contractors or to other Contractors, because of the Contractor's delays, improperly timed activities or defective construction. The Owner shall be responsible to the Contractor for costs the Contractor incurs because of delays, improperly timed activities, damage to the Work or defective construction by the Owner's own forces, Separate Contractors, or other Contractors.

§ 6.2.4 The Contractor shall promptly remedy damage that the Contractor wrongfully causes to completed or partially completed construction, or to property of the Owner, Separate Contractors, or other Contractors as provided in Section 10.2.5.

§ 6.2.5 The Owner, Separate Contractors, and other Contractors shall have the same responsibilities for cutting and patching as are described for the Contractor in Section 3.14.

§ 6.3 Owner's Right to Clean Up

If a dispute arises among the Contractor, Separate Contractors, other Contractors, and the Owner as to the responsibility under their respective contracts for maintaining the premises and surrounding area free from waste materials and rubbish, the Owner may clean up and the Construction Manager, with notice to the Architect, will allocate the cost among those responsible.

ARTICLE 7 CHANGES IN THE WORK

§ 7.1 General

§ 7.1.1 Changes in the Work may be accomplished after execution of the Contract, and without invalidating the Contract, by Change Order issued by the Architect, Construction Change Directive or Field Order for a minor change in the Work, issued by the Architect or Construction Manager subject to the limitations stated in this Article 7 and elsewhere in the Contract Documents. Change Orders shall be submitted in total amounts for a particular change and not in installments for each trade thereafter. All partial change order submissions will be rejected and returned to the contractor for completion.

§ 7.1.2 A Change Order shall be based upon agreement among the Owner, Construction Manager, Architect and Contractor. A Construction Change Directive requires agreement by the Owner, Construction Manager and Architect and may or may not be agreed to by the Contractor. An order for a minor change in the Work may be issued by the Architect alone.

§ 7.1.3 Changes in the Work shall be performed under applicable provisions of the Contract Documents. The Contractor shall proceed promptly with changes in the Work, unless otherwise provided in the Change Order, Construction Change Directive, or order for a minor change in the Work. Except as permitted in Paragraph 7.3, a change in the Contract Sum shall be accomplished only by 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 to an increase in any amounts due under the Contract Documents or a change in any time period provided for in the Contract Documents.

§ 7.1.4 The Contractor shall notify the Architect and Construction Manager within three (3) days of any change.

§ 7.2 Change Orders

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

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

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§ 7.3 Construction Change Directives

§ 7.3.1 A Construction Change Directive is a written order prepared by the Construction Manager and signed by the Owner, Construction Manager and Architect, directing a change in the Work prior to agreement on adjustment, if any, in the Contract Sum or Contract Time, or both. The Owner may by Construction Change Directive, without invalidating the Contract, order changes in the Work within the general scope of the Contract consisting of additions, deletions, or other revisions, the Contract Sum and Contract Time being adjusted accordingly. . No change in Contract Time shall be allowed for Change Orders performed by Contractor, except for substantial changes in scope determined by the Owner. In the case of increased scope, it is expected that Change Order Work shall be performed by increased manpower.

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

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

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

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

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

.4 As provided in Section 7.3.4.

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

§ 7.3.4.1 The value of a Change in the Work, shall be determined by one or more of the following:

1. Unit Prices or alternates previously agreed to by Contractor and Owner;

.2 If no such Unit Price or Alternates are previously agreed to, then value of the Change shall be determined by adding or deducting a fixed sum amount agreed on between the Owner and the Contractor; or

.3 By adding:

a. the actual cost to Contractor of labor for base wages only, including required union benefits as set forth in the applicable collective bargaining agreement, plus premiums required to be paid by Contractor for liability and workers' compensation insurance for such labor, plus state taxes for unemployment insurance and federal social security taxes, plus an allowance of 10% for Contractor's profit, supervision, administrative and all other overhead, indirect costs, and additional performance, labor, and material bond costs related to the labor portion of the Change; plus

(Paragraph deleted)

b. The actual cost to Contractor of materials incorporated or to be incorporated into the Project, including transportation to the site, plus maintenance, operation and rental, or reasonable rental value, of Contractor owned equipment, other than small tools, plus an allowance of five percent (5%) for Contractor's profit, supervision, administrative and all other overhead, indirect costs, and additional performance, labor, and material bond costs related to the materials portion of the Change.

.4 Should Contractor be required or permitted to subcontract all or a portion of the Change to be performed on the basis of the cost of labor and materials, payments to a Subcontractor of any tier that actually performs the Change shall be governed by the provision in subparagraph c above with the exception of the allowance stipulated therein. In the event of subcontracting the Change, the Contractor will be entitled to an allowance of ten percent (10%) for labor and five percent (5%) for material instead of the allowance set forth in subparagraph c above and it shall be the responsibility of the Contractor and its Subcontractor(s) of all tiers to allocate the allowances set forth in this subparagraph d between and amongst themselves.

.5 In order to facilitate checking of quotations for extras or credits, all proposals, shall be accompanied by a

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complete itemization of costs including labor, materials and sub-contracts. Labor and materials shall be itemized in the manner prescribed below and in the format described in the Specifications. Where major cost items are subcontracts, they shall be itemized also. All proposals without such itemization will be returned to the Contractor for resubmission, and Owner may issue a Construction Change Directive in lieu thereof.

1.	Materials (Itemized Breakdown)	_____
2.	Rental of Equipment (Itemized Breakdown)	_____
3.	Subtotal (Add lines 1-2)	_____
4.	Overhead and Profit (10% x line 3)	_____
5.	Subtotal (Add lines 3-4)	_____
6.	Labor (Itemized Breakdown)	_____
7.	Insurance on Labor (Workmen's Comp., etc.)	_____
8.	Subtotal (Add lines 6 and 7)	_____
9.	Overhead and Profit (15% x line 8)	_____
10.	Subtotal (Add lines 8 and 9)	_____
11.	Subcontract Work (Include Itemized Breakdown, Subcontractor's overhead and profit allowed is 10%)	_____
12.	Prime Contractor Overhead and Profit (5% x line 11)	_____
13.	Subtotal (Add lines 7 & 8)	_____
14.	Subtotal (Add lines 5, 10, and 13)	_____
15.	Bond charges (2% x line 14)	_____
16.	TOTAL CHANGE ORDER (Add lines 14 and 15)	_____

6 For additional bond charges for the total Change Order, two (2%) percent of the Cost. This shall apply for Deduct Change Orders as well.

.7 When performing any Work on the basis of the cost of labor and materials, and Contractor or its Subcontractors are permitted or required to perform any overtime work, the cost of labor shall include additional wages over and above straight time rates, as well as wages at straight time rates. However, the allowance set forth in subparagraph 7.3.4.1 subsubparagraphs .3 or .4, if applicable, shall not be computed nor paid with respect to such additional wages. Superintendent or non-working foreman fees are not allowed.

.8 Contractors are strongly urged to refer to the General Conditions for any and all provisions governing additional work and/or changes to the work.

§ 7.3.5 If the Contractor disagrees with the adjustment in the Contract Time, the Contractor may make a Claim in accordance with applicable provisions of Article 15.

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

§ 7.3.7 A Construction Change Directive signed by the Contractor indicates the Contractor's agreement therewith, including adjustment in Contract Sum and Contract Time or the method for determining them. Such agreement shall be effective immediately and shall be the basis for preparing a Change Order for final Owner approval.

§ 7.3.8 The amount of credit to be allowed by the Contractor to the Owner for a deletion or change that results in a net decrease in the Contract Sum shall be actual net cost as confirmed by the Construction Manager and Architect. When both additions and credits covering related Work or substitutions are involved in a change, the allowance for overhead and profit shall be figured on the basis of net increase, if any, with respect to that change.

§ 7.3.9 Pending final determination of the total cost of a Construction Change Directive to the Owner, the Contractor may request payment for Work completed under the Construction Change Directive in Applications for Payment. The Construction Manager and Architect will make an interim determination for purposes of monthly certification for payment for those costs and certify for payment the amount that the Construction Manager and Architect determine to be reasonably justified. The interim determination of cost shall adjust the Contract Sum on the same basis as a Change Order, subject to the right of either party to disagree and assert a Claim in accordance with Article 15.

§ 7.3.10 When the Owner and Contractor agree with a determination made by the Construction Manager and Architect concerning the adjustments in the Contract Sum and Contract Time, or otherwise reach agreement upon the adjustments, such agreement shall be effective immediately and the Construction Manager shall prepare a Change Order. Change Orders may be issued for all or any part of a Construction Change Directive.

§ 7.4 Minor Changes in the Work

The Architect may order minor changes in the Work that are consistent with the intent of the Contract Documents and do not involve an adjustment in the Contract Sum or an extension of the Contract Time. The Architect's order for minor changes shall be in writing. If the Contractor believes that the proposed minor change in the Work will affect the Contract Sum or Contract Time, the Contractor shall notify the Construction Manager and shall not proceed to implement the change in the Work. If the Contractor performs the Work set forth in the Architect's order for a minor change without prior notice to the Construction Manager that such change will affect the Contract Sum or Contract Time, the Contractor waives any adjustment to the Contract Sum or extension of the Contract Time.

§ 7.5 Field Orders

§ 7.5.1 Field Orders are an interpretation of the Contract Documents or an order to do minor changes in the Work. Since time is of the essence, Contractor shall promptly complete the Work directed in the Field Order. Field Orders shall provide the means to a written order described in 7.1.1. Failure to proceed with a Field Order, which will adversely impact the completion of the Project or delay the work of another contractor, shall be just cause for the Owner taking over the Work, or termination of Contract.

§ 7.5.2 Field Orders are not to be construed as Change Orders. A signed Field Order is not an approved Change Order.

§ 7.5.3 Neither the Owner, Architect nor Construction Manager shall sign field tickets, work orders or any other document prepared by the Contractor. Should the Contractor desire to record extra work performed, the Contractor may request that the work be monitored by the Construction Manager and submit a copy of the field ticket/work order immediately upon completion of such work. The Contractor may also request a copy of the Construction Manager's log.

ARTICLE 8 TIME

§ 8.1 Definitions

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

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

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§ 8.1.3 The date of Substantial Completion is the date certified by the Architect in accordance with Section 9.8. Work remaining to be completed after Substantial Completion shall be limited to items which can ordinarily be completed within the period between the payment at the time of substantial and final payment.

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

§ 8.1.5 The Date of Final Completion of the Work is the date all of the Work required under the Contract Documents is completed, and all applicable licenses, permits, certificates, or approvals have been obtained by the Contractor and delivered to the Owner to the extent provided for in the Owner–Contractor Agreement.

§ 8.1.6 Regular School Hours shall mean the time school is in session on any given day. Off Regular Hours shall mean all other time during the day. Regular School Days shall mean days school is in session. (See school calendar)

§ 8.2 Progress and Completion

§ 8.2.1 Time limits stated in the Contract Documents are of the essence of the Contract. By executing the Agreement, the Contractor confirms that the Contract Time is a reasonable period for performing the Work.

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

§ 8.2.2.1 Contractor shall not commence work on the site until two certified copies of all insurance policies as indicated in Article 11, attesting that the required coverage is in force, have been received and accepted by the Owner.

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

(Paragraph deleted)

§ 8.2.3.1 Contractor shall cooperate with the Owner, Architect, Engineer, Construction Manager and other Contractors on the Project, making every reasonable effort to reduce the Contract Time.

§ 8.2.4 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

§ 8.2.5 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 Owner's Representative for providing the site to the Contractor during the additional time periods.§ 8.3 Delays and Extensions of Time

§ 8.3.1

If the Contractor is delayed at any time in the commencement or progress of the Work by an act or neglect of the Owner, Architect, Construction Manager, or an employee of any of them, or of the Owner's own forces, any of the other Multiple Prime Contractors or an employee of any of them, fire, unusual delay in deliveries, unavoidable casualties or other causes beyond the Contractor's control; or by delay authorized by the Owner or by other causes that the Architect, based on the recommendation of the Construction Manager, determines may justify delay, then the Contract Time shall be extended by Change Order to the extent such delay will prevent the Contractor from achieving Substantial Completion within the Contract Time and if performance of the Work is not, was not or would not have been delayed by any other cause for which the Contract is not entitled to an extension in the Contract Time under the Contract Documents. The Contractor further acknowledges and agrees that adjustments in the Contract Time will be permitted for a delay only to the extent such delay (1) is not caused, or could not have been anticipated, by the Contractor, (2) could not be limited or avoided by the Contractor's timely notice to the Owner of the delay, (3) is of a duration not less than one (1) day and (4) the Contractor has made all reasonable effort to recover the alleged lost time. No extension of time will be granted for changes in work or labor disputes, picketing, handbilling, refusal to deliver or work stoppages due to asbestos removal and material procurement delays.

§ 8.3.1.1 An extension or extensions, of time may be granted subject to the provisions of this article, but only after written application thereof by the Contractor.

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§ 8.3.1.2 An extension of time shall be only for the number of days of delay which the Architect may determine to be due solely to the causes set forth in the application of extension of time. The Contractor shall not be entitled to receive a separate extension of time for each one of several causes of delay operating concurrently; but if at all, only the actual period of delay as determined by the Architect.

§ 8.3.1.3 The Contractor shall be responsible for labor peace on the Project and shall at all times exert its best efforts and judgment as an experienced contractor to adopt and implement policies and practices designed to avoid work stoppages, slowdowns, disputes, or strikes where reasonably possible and practical under the circumstances and shall, at all times, maintain Project wide labor harmony. The Contractor shall be liable to the Owner for all damages suffered by the Owner occurring as a result of work stoppages, slowdowns, disputes or strikes except as specifically provided for elsewhere in these Conditions.

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

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

§ 8.3.3 If the Contractor is delayed in completion of the Work under the Contract by an act or neglect of the Owner or of any other Contractor employed by the Owner, or by changes in the work, or by a priority or allocation order duly issued by the federal government, or by any unforeseeable cause beyond the control and without the fault or negligence of the Contractor, including but not restricted to, acts of God or of the public enemy, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, and abnormally severe weather, or by delays of prime contractors, separate contractors, subcontractors or suppliers occasioned by any of the causes described above, or by delay authorized by the engineer for any cause which the engineer shall deem justifiable, then:

.1 For each day of delay in completion of the work so caused, the Contractor shall be allowed one day additional to the time limitation specified in the Contract, it being understood and agreed that the allowance of same shall be solely at the discretion and approval of the Owner.

NO CLAIM FOR ANY MONETARY OR OTHER DAMAGES OR ANY CLAIM OTHER THAN FOR EXTENSIONS OF TIME AS HEREIN PROVIDED SHALL BE MADE OR ASSERTED AGAINST THE OWNER BY REASON OF ANY DELAYS CAUSED BY THE REASONS HEREINABOVE MENTIONED.

§ 8.3.4 If the Contractor submits a progress report indicating, or otherwise expresses an intention to achieve, completion of the Work prior to any completion date required by the Contract Documents or expiration of the Contract Time, no liability of the Owner to the contractor for any failure of the Contractor to so complete the Work shall be created or implied.

§ 8.3.5 When the Contract Time has been extended, as provided under this paragraph 8.3, such extension of time shall not be considered as justifying extra compensation to the Contractor for administrative costs of other similar reasons.

§ 8.4 Liquidated Damages - NA

ARTICLE 9 PAYMENTS AND COMPLETION

§ 9.1 Contract Sum

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

§ 9.1.1.1 Each Application for Payment shall include such instruments, evidence, and materials as Owner or Owner's lender shall require including, without limitation, such requisition forms, disbursements requests, indemnities (including evidence of All Risk physical damage insurance coverage on materials and equipment stored off-site), and undertaking as they may specify and an estimate of the total labor done and materials stored at the site (or other location approved in writing by Owner) or installed in the building, less cost for which payment has been made, and also less retainage. All applications for Payment shall be made on and in compliance with a form acceptable to Owner or Owner's lender, and Architect. Contractor shall supply such additional documentation and information as Owner's lender or its inspecting architect shall request in connection with each disbursement to Contractor.

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

§ 9.2 Schedule of Values

Where the Contract is based on a stipulated sum or Guaranteed Maximum Price, the Contractor shall submit a schedule of values to the Construction Manager, before the first Application for Payment, allocating the entire Contract Sum to the various portions of the Work. The schedule of values shall be prepared in the form, and supported by the data to substantiate its accuracy, required by the Construction Manager and the Architect. This schedule, unless objected to by the Construction Manager or Architect, shall be used as a basis for reviewing the Contractor's Applications for Payment. The Construction Manager shall forward to the Architect the Contractor's schedule of values. Any changes to the schedule of values shall be submitted to the Construction Manager and supported by such data to substantiate its accuracy as the Construction Manager and the Architect may require, and unless objected to by the Construction Manager or the Architect, shall be used as a basis for reviewing the Contractor's subsequent Applications for Payment.

§ 9.2.1 The Contractor and each Subcontractor shall prepare a trade payment breakdown for the Work for which each is responsible, such breakdown being submitted on a uniform standardized form approved by the Architect and Owner. The form shall be divided in detail sufficient to exhibit areas, floors and/or sections of the Work, and/or by convenient units and shall be updated as required by either the Owner or the Architect as necessary to reflect (1) description of Work (listing labor and material separately), (2) total value, (3) percent of the Work completed to date, (4) value of Work completed to date, (5) percent of previous amount billed, (6) previous amount billed, (7) current percent completed and (8) value of Work completed to date. Any trade breakdown which fails to include sufficient detail, is unbalanced or exhibits "front loading" of the value of the Work shall be rejected. If trade breakdown had been initially approved and subsequently used, but later found improper for any reason, sufficient funds shall be withheld from future Applications for Payment to ensure an adequate reserve (exclusive of normal retainage) to complete the Work. Breakdown shall include multiple construction sites, multiple locations within each site, additions versus renovation work, etc. as required to satisfy State Education Department requirements.

§ 9.3 Applications for Payment

(Paragraph deleted)

§ 9.3.1 The Contractor shall submit to the Construction Manager an itemized Application for Payment prepared in accordance with the schedule of values, if required under Section 9.2, for completed portions of the Work. The application shall be notarized, if required, and supported by all data substantiating the Contractor's right to payment that the Owner, Construction Manager or Architect require, such as copies of requisitions, and releases of waivers of lien from Subcontractors and suppliers. Each item listed in the Application for Payment shall have a separate amount for labor and a separate amount for material and other costs.

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

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

§ 9.3.1.3 Until final completion and acceptance of the Work in accordance with Paragraph 9.10, the Owner shall pay ninety-five percent (95%) of the amount of each progress payment due the Contractor, minus monies withheld for any duly filed liens against said Contractor, provided that a valid performance bond has been furnished and is in full force and effect at the time when periodic payments are due. Otherwise, progressive payments shall be paid at the 90 percent amount of each progressive payment due the Contractor, minus monies withheld for any duly filed liens against the contractor.

§ 9.3.1.4 Applications for Payment must be accompanied by any and all releases of liens for previous applications from Contractor and his subcontractors and a sworn and notarized statement that all subcontractors have been paid to at least ninety-five percent (95%) of previously requisitioned sums. As-built drawings showing all Work up to the time of the Request for Payment shall be prerequisite for making payment.

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§ 9.3.1.5 Contractors must submit separate Applications for Payment for each facility or per State Education Department Number. Only one Application for Payment may be submitted for payment for each month.

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

§ 9.3.2.1 Materials stored off the site will not be conditions for Request for Payment. Additionally, the Contractor must furnish the following information where payment is requested for materials and equipment stored off the project site, as part of its Application for Payment:

1. Type of material must be specifically identified by the Trade Contractor.
2. Trade Contractor must furnish an invoice from his supplier showing the total value of the material and/or equipment being stored off site.
3. Trade Contractor must provide a Certificate of Insurance for the full value of the item plus ten (10%) percent.
4. Trade Contractor must execute a Security Agreement.
5. Trade Contractor must execute a bill of Sale for stored material and/or equipment.
6. Trade Contractor must file a UCC-1 Form with the Security Agreement."

§ 9.3.2.2 Procedures required by Owner shall include, but are not necessarily limited to, submission by the Contractor to the Architect of bills of sale and bills of lading for such materials and equipment, provision of opportunity for Architect's visual verification that such materials and equipment are in fact in storage, and, if stored off-site, submission by the Contractor of verification that materials and equipment are stored in a bonded warehouse.

§ 9.3.2.3 All such materials and equipment, including materials and equipment stored on-site but not yet incorporated into the Work, upon which partial payments have been made shall become the property of the Owner, but the care and protection of such materials and equipment shall remain the responsibility of the Contractor until incorporation into the Work, including maintaining insurance coverage on a replacement cost basis without voluntary deductible.

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

§ 9.3.3.1 The Contractor shall save and keep the Owner and the Owner's property free from all liens and claims, legal or equitable, arising out of Contractor's work hereunder. In the event any such lien is filed by anyone claiming by, through or under the Contractor, the Contractor shall remove and discharge same within ten (10) days of the filing thereof. The Contractor further expressly undertakes to defend the Indemnities at the Contractor's sole expense against any actions, lawsuits or proceedings brought against Indemnities as a result of liens filed against the Work, the site of any of the Work, the Project site and any improvements thereon, payments due the Contractor or any portion of the property of any of the Indemnities referred to collectively as liens in this Paragraph 9.3. The Contractor hereby agrees to indemnify and hold Indemnities harmless against any such liens or claims of lien and agrees to pay any judgment or lien resulting from any such actions, lawsuits or proceedings.

§ 9.3.3.2 The Owner shall release any payments withheld due to a lien or claim of lien if the Contractor obtains security acceptable to the Owner or a lien bond which is: (1) issued by a surety acceptable to the Owner, (2) in form and substance satisfactory to the Owner, and (3) in an amount not less than One Hundred Fifty percent (150%) of such lien claim. By posting a lien bond or other acceptable security, however, the Contractor shall not be relieved of any responsibilities or obligations under this Paragraph 9.3, including, without limitation, the duty to defend and indemnify the Indemnities. The cost of any premiums incurred in connection with such bonds and security shall be the responsibility of the Contractor and shall not be part of, or cause any adjustment to, the Contract Sum.

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§ 9.3.3.3 Notwithstanding the foregoing, the Owner reserves the right to settle any disputed mechanic's or material men's lien claim by payments to the lien claimant or by such other means as the Owner, in the Owner's sole discretion, determines is the most economical or advantageous method of settling the dispute. The Contractor shall promptly reimburse the Owner, upon demand, for any payments to be made other than those made from the retainage under the Owner-Contractor Contract.

§ 9.3.4 Each Application for Payment shall be accompanied by the following, all in form and substance satisfactory to the Owner:

§ 9.3.4.1 A current Contractor's lien waiver and duly executed and acknowledged sworn statement showing all Subcontractors and materialmen with whom the Contractor has entered into subcontracts, the amount of each such subcontract, the amount requested for any Subcontractor and materialmen in the requested progress payment and the amount to be paid to the Contractor from all such Subcontractors and material men;

§ 9.3.4.2 Duly executed waivers of mechanic's and material men's liens from all Subcontractors and, when appropriate, from materialmen and lower tier Subcontractors 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;

§ 9.3.4.3 All information and materials required to comply with the requirements of the Contract Documents or reasonably requested by the Owner or the Architect. If required by the Owner's title insurer, if any, the Contractor shall execute a personal gap undertaking in form and substance satisfactory to such title insurer.

§ 9.3.4.4 All Applications for Payment must be accompanied with certified payrolls for all Contract Work performed. In addition, each Contractor and sub-contractor shall submit to the Owner within thirty days after issuance of its first payroll, and every thirty days thereafter, a transcript of the original payroll record, as provided by Assembly Bill 6394-B amending Article 8, Section 220, of the NYS Labor Law, subscribed and affirmed as true under penalties of perjury. The Owner shall be required to receive and maintain such payroll records. The original payrolls or transcripts shall be preserved for three years from the completion of the Work on the awarded project. An out of state contractor must post a wage rate schedule at the job site.

§ 9.3.5 The Contractor shall submit a "pencil-copy" requisition to the Construction Manager no later than the date as directed by the Construction Manager for work completed up to that day for review with field personnel and for comparison to the Contractor's as-built drawings which shall be updated daily per the General Conditions. After any adjustments are made, the Contractor shall finalize and submit to the Construction Manager no later than the date as directed by the Construction Manager five (5) copies of the requisition, signed and notarized, for the Construction Manager's final approval and signature. The Owner shall make payment within 30 days.

§ 9.3.6 Applications for Payment shall be delivered to the Construction Manager's office either in person or by mail. Requisitions are not to be delivered to the Project Executive or the Construction Manager at the job site.

§ 9.4 Certificates for Payment

§ 9.4.1 Where there is only one Contractor, the Construction Manager will, within seven days after the Construction Manager's receipt of the Contractor's Application for Payment, review the Application, certify the amount the Construction Manager determines is due the Contractor, and forward the Contractor's Application and Certificate for Payment to the Architect. Within seven days after the Architect receives the Contractor's Application for Payment from the Construction Manager, the Architect will either (1) issue to the Owner a Certificate for Payment, in the full amount of the Application for Payment, with a copy to the Construction Manager; or (2) issue to the Owner a Certificate for Payment for such amount as the Architect determines is properly due, and notify the Construction Manager and Owner of the Architect's reasons for withholding certification in part as provided in Section 9.5.1; or (3) withhold certification of the entire Application for Payment, and notify the Construction Manager and Owner of the Architect's reason for withholding certification in whole as provided in Section 9.5.1. The Construction Manager will promptly forward to the Contractor the Architect's notice of withholding certification.

§ 9.4.2 Where there is more than one Contractor performing portions of the Project, the Construction Manager will, within seven days after the Construction Manager receives all of the Contractors' Applications for Payment: (1) review the Applications and certify the amount the Construction Manager determines is due each of the Contractors; (2) prepare a Summary of Contractors' Applications for Payment by combining information from each Contractor's

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application with information from similar applications for progress payments from the other Contractors; (3) prepare a Project Application and Certificate for Payment; (4) certify the amount the Construction Manager determines is due all Contractors; and (5) forward the Summary of Contractors' Applications for Payment and Project Application and Certificate for Payment to the Architect.

§ 9.4.2.1 Within seven days after the Architect receives the Project Application and Project Certificate for Payment and the Summary of Contractors' Applications for Payment from the Construction Manager, the Architect will either (1) issue to the Owner a Project Certificate for Payment, with a copy to the Construction Manager; or (2) issue to the Owner a Project Certificate for Payment for such amount as the Architect determines is properly due, and notify the Construction Manager and Owner of the Architect's reasons for withholding certification in part as provided in Section 9.5.1; or (3) withhold certification of the entire Project Application for Payment, and notify the Construction Manager and Owner of the Architect's reason for withholding certification in whole as provided in Section 9.5.1. The Construction Manager will promptly forward the Architect's notice of withholding certification to the Contractors.

§ 9.4.3 The Construction Manager's certification of an Application for Payment or, in the case of more than one Contractor, a Project Application and Certificate for Payment, shall be based upon the Construction Manager's evaluation of the Work and the data in the Application or Applications for Payment. The Construction Manager's certification will constitute a representation that, to the best of the Construction Manager's knowledge, information, and belief, the Work has progressed to the point indicated, the quality of the Work is in accordance with the Contract Documents, and that the Contractor is, or Contractors are, entitled to payment in the amount certified.

§ 9.4.4 The Architect's issuance of a Certificate for Payment or, in the case of more than one Contractor, Project Application and Certificate for Payment, shall be based upon the Architect's evaluation of the Work, the recommendation of the Construction Manager, and data in the Application for Payment or Project Application for Payment. The Architect's certification will constitute a representation that, to the best of the Architect's knowledge, information, and belief, the Work has progressed to the point indicated, the quality of the Work is in accordance with the Contract Documents, and that the Contractor is, or Contractors are, entitled to payment in the amount certified.

§ 9.4.5 The representations made pursuant to Sections 9.4.3 and 9.4.4 are subject to an evaluation of the Work for conformance with the Contract Documents upon Substantial Completion, to results of subsequent tests and inspections, to correction of minor deviations from the Contract Documents prior to completion, and to specific qualifications expressed by the Construction Manager or Architect.

§ 9.4.6 The issuance of a Certificate for Payment or a Project Certificate for Payment will not be a representation that the Construction Manager or Architect has (1) made exhaustive or continuous on-site inspections to check the quality or quantity of the Work; (2) reviewed construction means, methods, techniques, sequences, or procedures; (3) reviewed copies of requisitions received from Subcontractors and suppliers and other data requested by the Owner to substantiate the Contractor's right to payment; or (4) made examination to ascertain how or for what purpose the Contractor has used money previously paid on account of the Contract Sum.

§ 9.5 Decisions to Withhold Certification

§ 9.5.1 The Construction Manager or Architect may withhold a Certificate for Payment or Project Certificate for Payment in whole or in part, to the extent reasonably necessary to protect the Owner, if in the Construction Manager's or Architect's opinion the representations to the Owner required by Section 9.4.3 and 9.4.4 cannot be made. If the Construction Manager or Architect is unable to certify payment in the amount of the Application, the Construction Manager will notify the Contractor and Owner as provided in Section 9.4.1 and 9.4.2. If the Contractor, Construction Manager and Architect cannot agree on a revised amount, the Architect will promptly issue a Certificate for Payment or a Project Certificate for Payment for the amount for which the Architect is able to make such representations to the Owner. The Construction Manager or Architect may also withhold a Certificate for Payment or, because of subsequently discovered evidence, may nullify the whole or a part of a Certificate for Payment or Project Certificate for Payment previously issued, to such extent as may be necessary in the Construction Manager's or Architect's opinion to protect the Owner from loss for which the Contractor is responsible, including loss resulting from the acts and omissions described in Section 3.3.2 because of

.1 defective Work not remedied;

.2 third party claims filed or reasonable evidence indicating probable filing of such claims, unless security acceptable to the Owner is provided by the Contractor;

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.3 failure of the Contractor to make payments properly to Subcontractors or suppliers for labor, materials or equipment;

.4 reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum;

.5 damage to the Owner or a Separate Contractor or other Contractor;

.6 reasonable evidence that the Work will not be completed within the Contract Time, and that the unpaid balance would not be adequate to cover actual damages for the anticipated delay;

.7 repeated failure to carry out the Work in accordance with the Contract Documents;

.8 Contractor's failure to give notice of errors and inconsistencies; or

.9 failure of the Contractor's subcontractors to comply with the mandatory requirements for maintaining record drawings.

§ 9.5.2 When either party disputes the Architect's decision regarding a Certificate for Payment under Section 9.5.1, in whole or in part, that party may submit a Claim in accordance with Article 15.

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

§ 9.5.4 If the Architect or Construction Manager withholds certification for payment under Section 9.5.1, the Owner may, at its sole option, issue joint checks to the Contractor and to any Subcontractor or supplier to whom the Contractor failed to make payment for Work properly performed or material or equipment suitably delivered. If the Owner makes payments by joint check, the Owner shall notify the Architect and the Construction Manager, and both will reflect such payment on the next Certificate for Payment.

§ 9.6 Progress Payments

§ 9.6.1 After the Architect has issued a Certificate for Payment or Project Certificate for Payment, the Owner shall make payment in the manner and within the time provided in the Contract Documents, and shall so notify the Construction Manager and Architect. Payments under this Agreement shall be made promptly as specified herein. Interest shall be due and payable on any late payments at the legal rate of interest that Owner is obligated to pay under the laws of the State of New York, from the day following the date payment was due. Owner agrees to sell bonds immediately upon authorization and in the event the Owner decides not to sell bonds immediately upon authorization, Owner agrees to sell bond anticipation notes as permitted by Local Finance Law Section 23.00 so that the initial payment due hereunder and all payments due hereunder will be made promptly as provided herein.

§ 9.6.2 The Contractor shall pay each Subcontractor, no later than seven days after receipt of payment from the Owner, the amount to which the Subcontractor is entitled, reflecting percentages actually retained from payments to the Contractor on account of the Subcontractor's portion of the Work. The Contractor shall, by appropriate agreement with each Subcontractor, require each Subcontractor to make payments to Sub-subcontractors in a similar manner. Also comply with paragraph entitled "Payment by Contractors to Subcontractors" contained in Section 106-b of the NYS General Municipal Law.**§ 9.6.3** The Construction Manager may, on request, in writing, by a Subcontractor to the Owner, furnish to a Subcontractor, if practicable, information regarding percentages of completion or amounts applied for by the Contractor and action taken thereon by the Owner, Construction Manager and Architect on account of portions of the Work done by such Subcontractor.

(Paragraph deleted)

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

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

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

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

§ 9.6.8 Provided the Owner has fulfilled its payment obligations under the Contract Documents, the Contractor shall defend and indemnify the Owner from all loss, liability, damage or expense, including reasonable attorney's fees and litigation expenses, arising out of any lien claim or other claim for payment by any Subcontractor or supplier of any tier. Upon receipt of notice of a lien claim or other claim for payment, the Owner shall notify the Contractor. If approved by the applicable court, when required, the Contractor may substitute a surety bond for the property against which the lien or other claim for payment has been asserted.

§ 9.7 Failure of Payment

If the Construction Manager and Architect do not issue a Certificate for Payment or a Project Certificate for Payment, through no fault of the Contractor, within fourteen days after the Construction Manager's receipt of the Contractor's Application for Payment, or if the Owner does not pay the Contractor within seven days after the date established in the Contract Documents, the amount certified by the Construction Manager and Architect or awarded by binding dispute resolution, then the Contractor may, upon seven additional days' notice to the Owner, Construction Manager and Architect, stop the Work until payment of the amount owing has been received. The Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shutdown, delay and start-up, plus interest as provided for in the Contract Documents.

§ 9.8 Substantial Completion

§ 9.8.1 Substantial Completion is the stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so the Owner can occupy or utilize the Work for its intended use; provided, however that as a condition precedent to Substantial Completion, the Owner has received all Certificates of Occupancy and any permits, approvals, licenses, and other documents from any governmental authority having jurisdiction thereof necessary for the beneficial occupancy of the Project.

§ 9.8.1.1 When advised by the Contractor that the Work is substantially completed, the Architect and the Contractor shall, within a reasonable time, make a joint inspection of the work and if the Architect shall determine the Work is substantially completed, the Contractor shall submit a substantial completion application.

§ 9.8.1.2 Notifications by the Contractor to the Architect for inspections to confirm Substantial Completion as parts and/or as a whole shall be judiciously and without abusing said process.

§ 9.8.2 When the Contractor considers that the Work, or a portion thereof which the Owner agrees to accept separately, is substantially complete, the Contractor shall notify the Construction Manager, and the Contractor and Construction Manager shall jointly prepare and submit to the Architect a comprehensive list of items to be completed or corrected prior to final payment. Failure to include an item on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents. When the Work, or major portions thereof as contemplated by the terms of the Contract, has been substantially completed the Contractor shall submit to the Owner through the Construction Manager and the Architect an Application for Payment of the remaining amount of the Contract balance. Upon receipt of such application, the Owner shall approve and promptly pay the remaining amount of the Contract balance less two times the value of any remaining items to be completed and an amount necessary to satisfy any claims, liens or judgments against the Contractor which have not been suitably discharged. As the remaining items of Work are satisfactorily completed or corrected, the Owner shall promptly pay, upon receipt of a requisition through the Construction Manager and the Architect, for those items less an amount necessary to satisfy any claims, liens or judgments against the Contractor which have not been suitably discharged. Any claims, liens and judgments referred to in this subparagraph shall pertain to the Project and shall be filed in accordance with the terms of the applicable Contract and/or applicable laws.

§ 9.8.3 Upon receipt of the list, the Architect, assisted by the Construction Manager, will make an inspection to determine whether the Work or designated portion thereof is substantially complete. If the Architect's inspection

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discloses any item, whether or not included on the list, which is not sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work or designated portion thereof for its intended use, the Contractor shall, before issuance of the Certificate of Substantial Completion, complete or correct such item upon notification by the Architect. In such case, the Contractor shall then submit a request for another inspection by the Architect, assisted by the Construction Manager, to determine Substantial Completion.

§ 9.8.4 When the Architect, assisted by the Construction Manager, determines that the Work of all of the Contractors, or designated portion thereof, is substantially complete, the Construction Manager will prepare, and the Construction Manager and Architect shall execute, a Certificate of Substantial Completion that shall establish the date of Substantial Completion; establish responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance; and fix the time within which the Contractor shall finish all items on the list accompanying the Certificate. Warranties required by the Contract Documents shall commence on the date of Substantial Completion of the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion.

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

§ 9.8.6 For any uncompleted work at the time of Substantial Completion, the Owner will retain monetized value of the remaining work, i.e. "punch list", times two hundred percent (200%) as determined by the Construction Manager, in addition to any duly filed and unresolved liens against the Contractor as per Section 106-b of the NYS General Municipal Law, which will be released upon notification by the Contractor to the Construction Manager that the Work has been completed to the Architect's satisfaction.

§ 9.9 Partial Occupancy or Use

§ 9.9.1 The Owner may occupy or use any completed or partially completed portion of the Work at any stage when such portion is designated by separate agreement with the Contractor, provided such occupancy or use is consented to by the insurer and authorized by public authorities having jurisdiction over the Project. Such partial occupancy or use may commence whether or not the portion is substantially complete, provided the Owner and Contractor have accepted in writing the responsibilities assigned to each of them for payments, retainage if any, security, maintenance, heat, utilities, damage to the Work and insurance, and have agreed in writing concerning the period for correction of the Work and commencement of warranties required by the Contract Documents. Such occupancy does not relieve the Contractor from completing the Work within the time period specified. When the Contractor considers a portion substantially complete, the Contractor and Construction Manager shall jointly prepare and submit a list to the Architect as provided under Section 9.8.2. Consent of the Contractor to partial occupancy or use shall not be unreasonably withheld. The stage of the progress of the Work shall be determined by written agreement between the Owner and Contractor or, if no agreement is reached, by decision of the Architect after consultation with the Construction Manager.

§ 9.9.2 Immediately prior to such partial occupancy or use, the Owner, Construction Manager, Contractor, and Architect shall jointly inspect the area to be occupied or portion of the Work to be used in order to determine and record the condition of the Work, and in order to prepare a complete punch list of omissions of materials, faulty workmanship, or any items to be repaired torn out or replaced..

§ 9.9.3 Unless otherwise agreed upon, partial occupancy or use of a portion or portions of the Work shall not constitute acceptance of Work. Further such occupancy alone shall not determine when substantial completion and the performance has been reached.

§ 9.10 Final Completion and Final Payment

§ 9.10.1 Upon completion of the Work, the Contractor shall forward to the Construction Manager a notice that the Work is ready for final inspection and acceptance, and shall also forward to the Construction Manager a final Contractor's Application for Payment. Upon receipt, the Construction Manager shall perform an inspection to confirm the completion of Work of the Contractor. The Construction Manager shall make recommendations to the Architect when the Work of all of the Contractors is ready for final inspection, and shall then forward the Contractors' notices and Application for Payment or Project Application for Payment, to the Architect, who will promptly make such inspection. When the Architect finds the Work acceptable under the Contract Documents and the Contract fully

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performed, the Construction Manager and Architect will promptly issue a final Certificate for Payment or Project Certificate for Payment stating that to the best of their knowledge, information and belief, and on the basis of their on-site visits and inspections, the Work has been completed in accordance with the Contract Documents and that the entire balance found to be due the Contractor and noted in the final Certificate is due and payable. The Construction Manager's and Architect's final Certificate for Payment or Project Certificate for Payment will constitute a further representation that conditions listed in Section 9.10.2 as precedent to the Contractor's being entitled to final payment have been fulfilled. All warranties and guarantees required under the Contract Documents shall be assembled and delivered by the Contractor to the Architect as part of the final Application, no final payment will be issued until all warranties and guarantees have been received and accepted by the Owner.

§ 9.10.1.1 If the 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 one-year correction period described in Article 12 shall be set by the Architect at his discretion, but no later than the date of the Final Certificate for Payment.

§ 9.10.1.2 If the Architect and/or Owner's Representative is required to perform additional final inspections because Work fails to comply with the certifications of the Contractor, the amount of compensation paid to the Architect or Owner's Representative by the Owner for additional services shall be deducted from the final payment to the Contractor.

§ 9.10.2 Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to the Architect through the Construction Manager (1) an affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the Owner or the Owner's property might be responsible or encumbered (less amounts withheld by Owner) have been paid or otherwise satisfied, (2) a certificate evidencing that insurance required by the Contract Documents to remain in force after final payment is currently in effect, (3) a written statement that the Contractor knows of no reason that the insurance will not be renewable to cover the period required by the Contract Documents, (4) consent of surety, if any, to final payment (5) documentation of any special warranties, such as manufacturers' warranties or specific Subcontractor warranties, and (6), if required by the Owner, other data establishing payment or satisfaction of obligations, such as receipts and releases and waivers of liens, claims, security interests, or encumbrances arising out of the Contract, to the extent and in such form as may be designated by the Owner. If a Contractor refuses to furnish releases or waivers required by the Owner to satisfy the Owner that there are no outstanding liens,, the Contractor may furnish a bond satisfactory to the Owner to indemnify the Owner against such lien, claim, security interest, or encumbrance. If a lien, claim, security interest, or encumbrance remains unsatisfied after payments are made, the Contractor shall refund to the Owner all money that the Owner may be compelled to pay in discharging the lien, claim, security interest, or encumbrance, including all costs and reasonable attorneys' fees , (6) a Punch List Item Letter stating that all items on the punch list have been completed to the Owner's satisfaction, all site documents, all procedures manuals and spare parts, all equipment guarantees and warrantees, Contractor Affidavit of Release of Liens, complete set of Shop Drawings and a set of as-built drawings in red ink or other reproducible color except black, and (7) a close-out meeting is required to review final documentation. Final approval is given by the Owner.

§ 9.10.2.1 In addition to the submittals required in Subparagraph 9.10.2 above, the Contractor shall submit separate release or waivers of liens for each subcontractor, material supplier, and others with lien rights against the property Owner, and shall submit a list of such parties.

§ 9.10.2.2 Submittals required above shall be made in accordance with procedure described in the Project Manual.

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

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

.1 liens, Claims, security interests, or encumbrances arising out of the Contract and unsettled;

.2 failure of the Work to comply with the requirements of the Contract Documents;

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.3 terms of special warranties required by the Contract Documents; or
.4 audits performed by the Owner, if permitted by the Contract Documents, after final payment.

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

§ 9.10.5.1 Acceptance In the event the Contractor does not achieve final completion within thirty (30) days after the date of substantial completion, allowing for any approved extensions of the contract time. Contractor shall not be entitled to any further payment and Contractor hereby agrees that such failure to complete the work within the time set forth above shall constitute a waiver of all claims by the Contractor to any money that may be due. This provision shall not operate as a waiver by the Owner of any claims or remedies of any nature against the Contractor arising out of the Contract.

§ 9.10.6 Contractor shall submit all documentation identified in this section within sixty (60) from the time the Contractor submits the list of items to be corrected. If the documentation has not been submitted, the Owner will obtain such through whatever means necessary. The Contractor shall solely be responsible for all expenses incurred by the Owner, provided the Owner has advised the Contractor of this action thirty (30) days prior to the culmination date and again, seven (7) days prior to the culmination date by written notice.

ARTICLE 10 PROTECTION OF PERSONS AND PROPERTY

§ 10.1 Safety Precautions and Programs

The Contractor shall be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the performance of the Contract. The Contractor shall submit the Contractor's safety program to the Construction Manager for review and coordination with the safety programs of other Contractors. The Construction Manager's responsibilities for review and coordination of safety programs shall not extend to direct control over or charge of the acts or omissions of the Contractors, Subcontractors, agents or employees of the Contractors or Subcontractors, or any other persons performing portions of the Work and not directly employed by the Construction Manager.

§ 10.2 Safety of Persons and Property

§ 10.2.1 The Contractor shall take reasonable precautions for safety of, and shall provide reasonable protection to prevent damage, injury, or loss to

.1 employees on the Work and other persons who may be affected thereby;
.2 the Work and materials and equipment to be incorporated therein, whether in storage on or off the site, under care, custody, or control of the Contractor, a Subcontractor, or a Sub-subcontractor;
.3 other property at the site or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures, and utilities not designated for removal, relocation, or replacement in the course of construction;
.4 construction or operations by the Owner, Separate Contractors, or other Contractors;
.5 the work of the Owner or other separate contractors; and
.6 prior to commencement of the Work, the Contractor shall document existing conditions recording existing damage to construction or property at the site to remain and notify the Construction Manager and Architect of same in writing.

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

§ 10.2.2.1 The Contractor agrees in working on the Owner's premises, to comply with all applicable codes and safety regulations as they apply to the Work and as set forth in the Occupational Safety and Health Act of 1970, as revised to date.

§ 10.2.2.2 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) as amended and the Construction Safety Act of 1969 as amended, including all standards and regulations that have been since or shall be promulgated by the governmental authorities which administer such acts, and shall hold harmless the Owner, Owner's Representative, the Architect, and all their employees, consultants and representatives from any and all claims,

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damages, losses, suits obligations, fines, penalties, costs, charges and expenses which may be imposed upon or incurred by or asserted against any of them by reason of any act or omission of such Contractor or any subcontractor or any person or firm directly or indirectly employed by such Contractor, with respect to violations of OSHA requirements, rules and/or regulations.

§ 10.2.2.3 Additional Requirements:

.1 Ladders and scaffolding shall be in good operating condition. Any damaged ladders, bakers, and rolling scaffolding shall be immediately removed from job.
.2 Ground properly all electric operated tools.
.3 Wear protective eye goggles during any cutting, whether by hand or mechanical means.
.4 Remove nails, screws, bolts and tack strips from floor immediately after demolition.
.5 Workmen to have proper shoes and clothing as per OSHA recommendation.
.6 No smoking is allowed in buildings or on School Property. No drinking of alcoholic beverages or use of controlled substances allowed on Owner's grounds. No reporting to work impaired by alcohol or controlled substances allowed. Any employee found to be under the influence of any controlled substance or alcohol will be banned from the site.
.7 All Contractors are to refrain from conversing with school personnel and students. Any construction employees found do so, will be removed from the site.
.8 All contractors are to refrain from using indecent language. All doing so, will be removed from the site.
.9 All construction personnel to wear photo ID badges. Photo ID badges to be provided by Contractor and receive Owner's approval.

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

§ 10.2.4 When use or storage of explosives or other hazardous materials or equipment or unusual methods are necessary for execution of the Work, the Contractor shall exercise utmost care and carry on such activities under supervision of properly qualified personnel.

§ 10.2.4.1 When use or storage of hazardous materials or equipment or unusual construction methods are necessary to promulgate the Work, the Contractor shall give the Owner reasonable advance notice, and shall maintain on the site, a full set of safety instructions relating to all such materials.

§ 10.2.5 The Contractor shall promptly remedy damage and loss (other than damage or loss insured under property insurance required by the Contract Documents) to property referred to in Sections 10.2.1.2, 10.2.1.3 and 10.2.1.4 caused in whole or in part by the Contractor, a Subcontractor, a Sub-subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable and for which the Contractor is responsible under Sections 10.2.1.2, 10.2.1.3 and 10.2.1.4. The Contractor may make a Claim for the cost to remedy the damage or loss to the extent such damage or loss is attributable to acts or omissions of the Owner, Construction Manager or Architect or anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable, and not attributable to the fault or negligence of the Contractor. The foregoing obligations of the Contractor are in addition to the Contractor's obligations under Section 3.18.

§ 10.2.6 The Contractor shall designate a responsible member of the Contractor's organization at the site whose duty shall be the prevention of accidents. This person shall be the Contractor's superintendent unless otherwise designated by the Contractor in writing to the Owner, Construction Manager and Architect.

§ 10.2.7 The Contractor shall not permit any part of the construction or site to be loaded so as to cause damage or create an unsafe condition.

§ 10.2.8 Injury or Damage to Person or Property

If either party suffers injury or damage to person or property because of an act or omission of the other party, or of others for whose acts such party is legally responsible, notice of the injury or damage, whether or not insured, shall be

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given to the other party within a reasonable time not exceeding 21 days after discovery. The notice shall provide sufficient detail to enable the other party to investigate the matter.

§ 10.2.8.1 When all or a portion of the Work is suspended for any reason, the Contractor shall securely fasten down all coverings and protect the Work, as necessary, form injury by any cause.

§ 10.2.8.2 The Owner, upon acceptance of the Work, will provide and maintain fire extinguishers on the site for the protection of the new and/or altered construction. Any other special precautions for fire protection necessary for the execution of a Contractor's Work shall be the responsibility of the Contractor requiring same and the cost of such precautions shall be paid for by that Contractor. The Contractor is in no way relieved of its responsibility to abide by the Occupational Safety Health Act (OSHA) regulations and for recording and registering accidents by the reporting of accidents to the Construction Manager, Architect and to the Owner.

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

§ 10.2.9.1 The Contractor solely assumes the following distinct and several risks whether said risks arise from acts or omissions, whether supervisory or otherwise, of the Owner, of the Construction Manager, of third persons or from any other cause, including unforeseen obstacles and difficulties which may be encountered in the prosecution of the Work, whether said risks are within or beyond the control of the Contractor and whether said risks involve any legal duty, primary or otherwise, imposed upon the Owner or Construction Manager, excepting only risks which arise from fault designs as shown by the plans and specifications or from affirmative acts of the Owner or the Owner's members, officers, representatives or employees committed with intent to cause the loss, damage or injuries hereinafter set forth:

.1 The risk of loss or damage, includes direct or indirect damage or loss, of whatever nature to the Work or to any plant, equipment, tools, materials or property furnished, used, installed or received by the Owner, the Construction Manager, the Contractor or any Subcontractor, materialmen or workmen performing services or furnishing materials for the Work. The Contractor shall bear said risk of loss or damage until Final Acceptance of the Work by the Owner or until completion or removal of said plant, equipment, tools, materials or property from the Site and the vicinity thereof, whichever event occurs last. In the event of said loss or damage, the Contractor immediately shall repair, replace or make good any said loss or damage.

.2 The risk of claims, just or unjust, by third persons against the Contractor or the Owner, the Architect and the Construction Manager on account of wrongful death, bodily injuries and property damage, direct or consequential, loss or damage of any kind whatsoever arising or alleged to arise out of or as a result of or in connection with the performance by the Contractor of the Work, whether actually caused by or resulting from the performance of the Work, or out of or in connection with the Contractor's operations or presence at or in the vicinity of the Site. The Contractor shall bear the risk for all deaths, injuries, damages or losses sustained or alleged to have been sustained prior to the Final Acceptance of the Work. The Contractor shall bear the risk for all deaths, injuries, damages or losses sustained or alleged to have been sustained resulting from the Contractor's negligence or alleged negligence which is discovered, appears, or is manifested after acceptance by the Owner.

.3 The Contractor assumes entire responsibility and liability for any and all damage or injury of any kind or nature whatsoever, including death resulting therefrom, to all person, whether employees of the Contractor or otherwise, and to all property, caused by, resulting from, arising out of, or occurring in connection with the execution of the Work. If any person shall make said claim for any damage or injury, including death resulting therefrom, or any alleged breach of any statutory duty or obligation on the part of the Owner, the Architect, the Construction Manager, servants and employees, the Contractor shall assume the defense and pay on behalf of the Owner, the Architect, the Construction Manager, servants and employees, any and all loss, expense, damage or injury that the Owner or Construction Manager may sustain as the result of any claim. The Contractor agrees to assume, and pay on behalf of the Owner, the Architect, and Construction Manager, servants and employees, the defense of any action at law or equity which may be brought against the Owner, the Architect and the Construction Manager, servants and employees. The assumption of defense and liability by the Contractor

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include, but is not limited to, the amount of any legal fees associated with defending, all costs of investigation, expert evaluation and any other costs including any judgment or interest or penalty that may be entered against the Owner, the Architect and the Construction Manager, servants and employees, in any said action.

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

§ 10.2.10.1 The Contractor shall sustain any loss or damage arising from the nature of the work to be done under this Contract or from any unforeseen or unusual obstructions or difficulties which may be encountered in prosecuting the work or from the actions of the elements including water, wind and frost. The Contractor shall maintain suitable adequate safeguards to protect all property and personnel, public or private.

§ 10.2.10.2 The Contractor's obligations under this Article shall not be deemed waived, limited or discharge by the enumeration or procurement of any insurance for liability for damages. The Contractor shall notify its insurance carrier within twenty-four (24) hours after receiving a notice of loss or damage or claim from the Owner or Construction Manager. The Contractor shall make a claim on its insurer specially under the provisions of the contractual liability overages and any other overages afforded the Owner or the Construction Manager including those of being an additional insured where applicable.

§ 10.2.11 The Contractor shall take all necessary precautions to insure against fire during construction and be responsible to ensure that the area within contract limits is kept orderly and clean and that combustible rubbish shall be stored on the site in such a manner and at such locations as designated by Owner to:

1. Provide and maintain adequate fire protection. The fire protection shall be adequate at all times, and shall be subject to applicable codes and regulations.

2. Comply with regulations, OSHA standards, and codes of local Fire Marshall, agencies, and departments having jurisdictions.

§ 10.2.11.1 The Contractor shall be required to keep fire alarm operational at all times or provide fire watch approved by Fire Marshal.

§ 10.2.11.2 The Contractor shall provide shielding for heat and keep smoke detectors from accidentally going off. Contractor will be back charged for all fines imposed for fire alarms.

§ 10.2.11.3 The Contractor shall at all times provide the proper housekeeping to minimize potential fire hazards, and shall provide approved spark arresters on all steam engines, internal combustion engines and flues.

§ 10.2.11.4 No fires shall be built on the premises nor shall open flame devices of any kind be employed within the building except for field welding with supervised fire watch.

§ 10.2.12 Neither Final Acceptance of the Work nor making any payment shall release the Contractor from the Contractor's obligations under this Article. The enumeration elsewhere in the Contract of particular risks assumed by the Contractor or of particular claims for which the Contractor is responsible shall not be deemed to limit the effect of the provisions of this Article to or imply that the Contractor assumes or is responsible for only risks or claims of the type enumerated; and neither the enumeration in this Article nor the enumeration elsewhere in the Contract of particular risks assumed by the Contractor of particular claims for which the Contractor is responsible shall be deemed to limit the risks which the Contractor would assume or the claims for which the Contractor would be responsible in the absence of said enumerations.

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§ 10.2.13 Free access to fire hydrants and standpipe connections shall be maintained at all times during construction operations, and portable fire extinguishers shall be provided by the Contractor and made conveniently available throughout the construction site. The Contractor shall notify its employees and subcontractors of the location of the nearest fire alarm box at all locations where the work is in progress.

§ 10.2.13.1 The Contractor agrees that any unsatisfied claim of the Owner and/or Construction Manager arising from obligations in this Article 10 shall be set off or deducted from payments due the Contractor.

§ 10.2.14 No equipment, other than equipment with rubber tires, will be allowed on any existing or new pavement within the limits of the contract, UNLESS THE PAVEMENT HAS BEEN FIRST PROTECTED WITH PLANKING OR BY OTHER MEANS APPROVED BY THE CONSTRUCTION MANAGER.

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

§ 10.2.16 The Contractor shall be responsible for all costs incurred by the Owner caused by false security alarms set off by the Contractor. Costs shall include custodial response charges, Construction Manager's charges, etc.

§ 10.2.17 Temporary partitions are to be constructed where shown on drawings or where otherwise required for safety of the public or to prevent dust from entering occupied areas. Partitions shall be dustproof from floor to ceiling (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 partition to have plastic on the work area side. 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 prime contractors, Owner and Construction Manager.

§ 10.2.18 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, Construction Manager 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.

§ 10.2.19 The Contractor and their Subcontractors shall indemnify and hold harmless the Owner, Architect, Construction Manager and any of their employees 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 any above suits, obligations, charges and/or expenses imposed upon the Construction Manager 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.

§ 10.3 Hazardous Materials

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

§ 10.3.2 Upon receipt of the Contractor's notice, the Owner shall obtain the services of a licensed laboratory to verify the presence or absence of the material or substance reported by the Contractor and, in the event such material or substance is found to be present, to cause it to be rendered harmless. Unless otherwise required by the Contract Documents, the Owner shall furnish in writing to the Contractor, Construction Manager and Architect the names and qualifications of persons or entities who are to perform tests verifying the presence or absence of the material or substance or who are to perform the task of removal or safe containment of the material or substance. The Contractor, the Construction Manager and the

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Architect will promptly reply to the Owner in writing stating whether or not any of them has reasonable objection to the persons or entities proposed by the Owner. If the Contractor, Construction Manager or Architect has an objection to a person or entity proposed by the Owner, the Owner shall propose another to whom the Contractor, the Construction Manager and the Architect have no reasonable objection. When the material or substance has been rendered harmless, Work in the affected area shall resume upon written agreement of the Owner and Contractor. By Change Order, the Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable additional costs of shutdown, delay, and start-up.

§ 10.3.3 To the fullest extent permitted by law, the Owner shall indemnify and hold harmless the Contractor, Subcontractors, Construction Manager, Architect, their consultants, and agents and employees of any of them from and against claims, damages, losses, and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work in the affected area if in fact the material or substance presents the risk of bodily injury or death as described in Section 10.3.1 and has not been rendered harmless, provided that such claim, damage, loss, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), except to the extent that such damage, loss, or expense is due to the fault or negligence of the party seeking indemnity.

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

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

§ 10.3.6 If, without negligence on the part of the Contractor, the Contractor is held liable by a government agency for the cost of remediation of a hazardous material or substance solely by reason of performing Work as required by the Contract Documents, the Owner shall reimburse the Contractor for all cost and expense thereby incurred.

§ 10.4 Emergencies

In an emergency immediately affecting safety of persons or property, the Contractor shall act, at the Contractor's discretion, to prevent threatened damage, injury, or loss. Additional compensation or extension of time claimed by the Contractor on account of an emergency shall be determined as provided in Article 15 and Article 7. The word "immediately" for the purposes of this paragraph shall mean a time period which is less than the time it would take to notify the Owner's Representative of the emergency.ARTICLE 11 INSURANCE AND BONDS

§ 11.1 Contractor's Insurance and Bonds

§ 11.1.1 The Contractor shall purchase and maintain insurance of the types and limits of liability, containing the endorsements, and subject to the terms and conditions, as described in the Agreement or elsewhere in the Contract Documents. The Contractor shall purchase and maintain the required insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located. The Owner, Construction Manager and Construction Manager's consultants, and the Architect and Architect's consultants, shall be named as additional insureds under the Contractor's commercial general liability policy or as otherwise described in the Contract Documents.

§ 11.1.2 The Contractor shall provide surety bonds of the types, for such penal sums, and subject to such terms and conditions as required by the Contract Documents. The Contractor shall purchase and maintain the required bonds from a company or companies lawfully authorized to issue surety bonds in the jurisdiction where the Project is located.

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

§ 11.1.4 Notice of Cancellation or Expiration of Contractor's Required Insurance. Within three (3) business days of the date the Contractor becomes aware of an impending or actual cancellation or expiration of any insurance required

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by the Contract Documents, the Contractor shall provide notice directly to the Owner, and separately to the Construction Manager, of such impending or actual cancellation or expiration. Upon receipt of notice from the Contractor, the Owner shall, unless the lapse in coverage arises from an act or omission of the Owner, have the right to stop the Work until the lapse in coverage has been cured by the procurement of replacement coverage by the Contractor. The furnishing of notice by the Contractor shall not relieve the Contractor of any contractual obligation to provide any required coverage.

§ 11.2 Owner's Insurance

§ 11.2.1 The Owner shall purchase and maintain insurance of the types and limits of liability, containing the endorsements, and subject to the terms and conditions, as described in the Agreement or elsewhere in the Contract Documents. The Owner shall purchase and maintain the required insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located.

§ 11.2.2 Failure to Purchase Required Property Insurance. If the Owner fails to purchase and maintain the required property insurance, with all of the coverages and in the amounts described in the Agreement or elsewhere in the Contract Documents, the Owner shall inform both the Contractor and the Construction Manager, separately and in writing, prior to commencement of the Work. Upon receipt of notice from the Owner, the Contractor may delay commencement of the Work and may obtain insurance that will protect the interests of the Contractor, Subcontractors, and Sub-Subcontractors in the Work. When the failure to provide coverage has been cured or resolved, the Contract Sum and Contract Time shall be equitably adjusted. In the event the Owner fails to procure coverage, the Owner waives all rights against the Contractor, Subcontractors, and Sub-subcontractors to the extent the loss to the Owner would have been covered by the insurance to have been procured by the Owner. The cost of the insurance shall be charged to the Owner by a Change Order. If the Owner does not provide written notice, and the Contractor is damaged by the failure or neglect of the Owner to purchase or maintain the required insurance, the Owner shall reimburse the Contractor for all reasonable costs and damages attributable thereto.

§ 11.2.3 Notice of Cancellation or Expiration of Owner's Required Property Insurance. Within three (3) business days of the date the Owner becomes aware of an impending or actual cancellation or expiration of any property insurance required by the Contract Documents, the Owner shall provide notice directly to the Contractor, and separately to the Construction Manager, of such impending or actual cancellation or expiration. Unless the lapse in coverage arises from an act or omission of the Contractor: (1) the Contractor, upon receipt of notice from the Owner, shall have the right to stop the Work until the lapse in coverage has been cured by the procurement of replacement coverage by either the Owner or the Contractor; (2) the Contract Time and Contract Sum shall be equitably adjusted; and (3) the Owner waives all rights against the Contractor, Subcontractors, and Sub-subcontractors to the extent any loss to the Owner would have been covered by the insurance had it not expired or been cancelled. If the Contractor purchases replacement coverage, the cost of the insurance shall be charged to the Owner by an appropriate Change Order. The furnishing of notice by the Owner shall not relieve the Owner of any contractual obligation to provide required insurance.

§ 11.3 Waivers of Subrogation

§ 11.3.1 The Owner and Contractor waive all rights against (1) each other and any of their subcontractors, sub-subcontractors, agents, and employees, each of the other; (2) the Construction Manager and Construction Manager's consultants; (3) the Architect and Architect's consultants; (4) other Contractors and any of their subcontractors, sub-subcontractors, agents, and employees; and (5) Separate Contractors, if any, and any of their subcontractors, sub-subcontractors, agents, and employees, for damages caused by fire, or other causes of loss, to the extent those losses are covered by property insurance required by the Agreement or other property insurance applicable to the Project, except such rights as they have to proceeds of such insurance. The Owner or Contractor, as appropriate, shall require similar written waivers in favor of the individuals and entities identified above from the Construction Manager, Construction Manager's consultants, Architect, Architect's consultants, other Contractors, Separate Contractors, subcontractors, and sub-subcontractors. The policies of insurance purchased and maintained by each person or entity agreeing to waive claims pursuant to this Section 11.3.1 shall not prohibit this waiver of subrogation. This waiver of subrogation shall be effective as to a person or entity (1) even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, (2) even though that person or entity did not pay the insurance premium directly or indirectly, or (3) whether or not the person or entity had an insurable interest in the damaged property.

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§ 11.3.2 If during the Project construction period the Owner insures properties, real or personal or both, at or adjacent to the site by property insurance under policies separate from those insuring the Project, or if after final payment property insurance is to be provided on the completed Project through a policy or policies other than those insuring the Project during the construction period, to the extent permissible by such policies, the Owner waives all rights in accordance with the terms of Section 11.3.1 for damages caused by fire or other causes of loss covered by this separate property insurance.

§ 11.4 Loss of Use, Business Interruption, and Delay in Completion Insurance

The Owner, at the Owner's option, may purchase and maintain insurance that will protect the Owner against loss of use of the Owner's property, or the inability to conduct normal operations, due to fire or other causes of loss. The Owner waives all rights of action against the Contractor, Architect, and Construction Manager for loss of use of the Owner's property, due to fire or other hazards however caused.

§ 11.5 Adjustment and Settlement of Insured Loss

§ 11.5.1 A loss insured under the property insurance required by the Agreement shall be adjusted by the Owner as fiduciary and made payable to the Owner as fiduciary for the insureds, as their interests may appear, subject to requirements of any applicable mortgagee clause and of Section 11.5.2. The Owner shall pay the Construction Manager, Architect and Contractor their just shares of insurance proceeds received by the Owner, and by appropriate agreements the Construction Manager, Architect and Contractor shall make payments to their consultants and Subcontractors in similar manner.

§ 11.5.2 Prior to settlement of an insured loss, the Owner shall notify the Contractor of the terms of the proposed settlement as well as the proposed allocation of the insurance proceeds. The Contractor shall have 14 days from receipt of notice to object to the proposed settlement or allocation of the proceeds. If the Contractor does not object, the Owner shall settle the loss and the Contractor shall be bound by the settlement and allocation. Upon receipt, the Owner shall deposit the insurance proceeds in a separate account and make the appropriate distributions. Thereafter, if no other agreement is made or the Owner does not terminate the Contract for convenience, the Owner and Contractor shall execute a Change Order for reconstruction of the damaged or destroyed Work in the amount allocated for that purpose. If the Contractor timely objects to either the terms of the proposed settlement or the allocation of the proceeds, the Owner may proceed to settle the insured loss, and any dispute between the Owner and Contractor arising out of the settlement or allocation of the proceeds shall be resolved pursuant to Article 15. Pending resolution of any dispute, the Owner may issue a Construction Change Directive for the reconstruction of the damaged or destroyed Work.

ARTICLE 12 UNCOVERING AND CORRECTION OF WORK

§ 12.1 Uncovering of Work

§ 12.1.1 If a portion of the Work is covered contrary to the Construction Manager's or Architect's request or to requirements specifically expressed in the Contract Documents, it must, if requested in writing by either, be uncovered for their examination and be replaced at the Contractor's expense without change in the Contract Time.

§ 12.1.2 If a portion of the Work has been covered that the Construction Manager or Architect has not specifically requested to examine prior to its being covered, the Construction Manager or Architect may request to see such Work and it shall be uncovered by the Contractor. If such Work is in accordance with the Contract Documents, the Contractor shall be entitled to an equitable adjustment to the Contract Sum and Contract Time as may be appropriate. If such Work is not in accordance with the Contract Documents, the costs of uncovering the Work, and the cost of correction, shall be at the Contractor's expense.

§ 12.2 Correction of Work

§ 12.2.1 Before Substantial Completion

The Contractor shall promptly correct Work rejected by the Construction Manager or Architect or failing to conform to the requirements of the Contract Documents, discovered before Substantial Completion, and whether or not fabricated, installed or completed. Costs of correcting such rejected Work, including additional testing and inspections, the cost of uncovering and replacement, and compensation for the Construction Manager's and Architect's services and expenses made necessary thereby, shall be at the Contractor's expense.

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§ 12.2.2 After Substantial Completion

§ 12.2.2.1 In addition to the Contractor's obligations under Section 3.5, if, within one year after the date of Substantial Completion of the Work or designated portion thereof, or after the date for commencement of warranties established under Section 9.9.1, or by terms of any applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor shall correct it promptly after receipt of notice from the Owner to do so, unless the Owner has previously given the Contractor a written acceptance of such condition. The Owner shall give such notice promptly after discovery of the condition. During the one-year period for correction of Work, if the Owner fails to notify the Contractor and give the Contractor an opportunity to make the correction, the Owner waives the rights to require correction by the Contractor and to make a claim for breach of warranty. If the Contractor fails to correct nonconforming Work within a reasonable time during that period after receipt of notice from the Owner, Construction Manager or Architect, the Owner may correct it in accordance with Section 2.5. In the judgment of the Owner should any material, equipment or systems require corrective work because of defects in material or workmanship within the two (2) year warranty period, or extended warranty periods, the Contractor shall complete all required corrective work within 45 days of notice. In the event the Contractor does not, in accordance with the terms and provisions of the Contract, complete all corrective work within 45 days, or comply with and fulfill his warranty obligations, the Owner will notify the bonding company to have such work and/or obligations performed at no additional cost to the Owner at the expense of the bonding company and/or the Contractor. The obligations of the Contractor under the terms and provisions of the Contract shall not however be limited to the surety retained by the Owner pursuant to the provisions of the Contract.

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

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

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

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

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

§ 12.3 Acceptance of Nonconforming Work

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

ARTICLE 13 MISCELLANEOUS PROVISIONS

§ 13.1 Governing Law

The Contract shall be governed by the law of the place where the Project is located excluding that jurisdiction's choice of law rules. If the parties have selected arbitration as the method of binding dispute resolution, the Federal Arbitration Act shall govern Section 15.4.

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

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§ 13.1.3 The parties expressly agree that any claim, dispute, or other controversy of any nature arising out of the contract or performance of the Work shall be commenced and maintained in New York State Supreme Court located in Putnam County, New York.

§ 13.2 Successors and Assigns

§ 13.2.1 The Owner and Contractor respectively bind themselves, their partners, successors, assigns, and legal representatives to covenants, agreements, and obligations contained in the Contract Documents. Except as provided in Section 13.2.2, neither party to the Contract shall assign the Contract as a whole without written consent of the other. If either party attempts to make an assignment without such consent, that party shall nevertheless remain legally responsible for all obligations under the Contract. The Contractor shall not assign any monies due or to become due to him under the Contract without the previous consent of the Owner.

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

§ 13.3 Rights and Remedies

§ 13.3.1 Except as expressly provided in the Contract Documents, duties and obligations imposed by the Contract Documents and rights and remedies available thereunder shall be in addition to and not a limitation of duties, obligations, rights, and remedies otherwise imposed or available by law or in equity or by other agreement, and such rights and remedies shall survive acceptance of the Work and/or termination of the Contract Documents..

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

§ 13.4 Tests and Inspections

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

§ 13.4.2 If the Construction Manager, Architect, Owner, or public authorities having jurisdiction determine that portions of the Work require additional testing, inspection, or approval not included under Section 13.4.1, the Construction Manager and Architect will, upon written authorization from the Owner, instruct the Contractor to make arrangements for such additional testing, inspection, or approval, by an entity acceptable to the Owner, and the Contractor shall give timely notice to the Construction Manager and Architect of when and where tests and inspections are to be made so that the Construction Manager and Architect may be present for such procedures. Such costs, except as provided in Section 13.4.3, shall be at the Owner's expense.

§ 13.4.3 If procedures for testing, inspection, or approval under Sections 13.4.1 and 13.4.2 reveal failure of the portions of the Work to comply with requirements established by the Contract Documents, all costs made necessary by such failure, including those of repeated procedures and compensation for the Construction Manager's and Architect's services and expenses, shall be at the Contractor's expense. The Contractor agrees that the cost of testing services required for the convenience of the Contractor in his scheduling and performance of the Work, and the cost of testing services relating to remedial operations performed to correct deficiencies in the Work shall be borne by the Contractor.

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

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

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

§ 13.4.7 Upon request the Contractor shall deliver test samples of any of the materials specified in these specifications to an independent testing agency. The Owner shall pay for the test of samples, which are found to conform to the specifications. The Contractor shall pay for the tests of samples, which do not conform to the specifications. This shall not relieve the Contractor of his obligations to perform specific tests described elsewhere in these specifications.

§ 13.4.8 Where the specifications require part of the work to be specially tested and approved, it shall not be tested or covered up without timely notice thereof or consent thereto. Should any part of the work be covered up without notice, approval or consent, such part of the work shall be uncovered for examination at the Contractor's expense if the Owner shall so require.

§ 13.4.9 Where operating tests are specified, the Contractor shall test the work as it progresses, on his own account, and shall make satisfactory preliminary tests in all cases before applying for official tests.

§ 13.4.10 Tests shall be made in the manner specified, for the different branches of the work. Each test shall be made on the entire system for which such test is required, wherever practical. In case it is necessary to test portions of the work independently, the Contractor shall do so.

§ 13.4.11 Should defects appear, they shall be corrected by the Contractor and the test repeated until the installation is acceptable.

§ 13.4.12 When notice of tests is to be given to the Architect, it shall also be given to the Owner's Representative.

§ 13.4.13 All paragraphs wherein the Architect is entitled to additional compensation from the Contractor shall be revised to reflect that the Owner's Representative is also so entitled.

§ 13.5 Interest

§ 13.6 Written Notice

§ 13.6.1 All notices to be given hereunder shall be in writing and may be given, served, or made (1) by depositing the same in the United States mail addressed to the authorized representative (a**s specified in Subparagraph 13.6**.1**.1** hereof) of the party to be notified, postpaid and registered or certified with return receipt requested; (2) by depositing the same for overnight delivery (prepaid by or billed to the party giving notice) with Federal Express or other nationally recognized overnight delivery service addressed to the authorized representative of the party to be notified; or (3) by delivering the same in person to the said authorized representative of such party. Notice deposited in the mail in accordance with the provisions hereof shall be effective, unless otherwise stated in the Agreement, 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. Notice given in any other manner shall be effective only if and when received by the party to be notified. All notices to be given to the parties hereto shall be sent to or made at the address set forth in this Section 13.6. By giving the other parties at least seven (7) day's written notice thereof, the parties hereto shall have the right to change their respective addresses and specify as their respective addresses for the purpose hereof and other address in the United States of America. The parties hereto are:

.1 The Owner: "Putnam Valley Central School District"
Attention: Jill Figarella, District Treasurer

.2 The Contractor;
Attention:

.3 The Architect: "KG+D Architects, PC"

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Attention: Walter Hauser,

.4 The Construction Manager, "Triton Construction"
Attention:

§ 13.6.2 The parties identified in Paragraph 13.6.1 hereby designate and appoint those persons identified as their representatives, respectively, to receive all notices and communications hereunder and, to the extent of their obligations hereunder, to act for them in all respects. Either party may designate from time to time, by appropriate written notice to the other parties.**§ 13.7** Discrimination in Employment

§ 13.7.1 In accordance with Section 220-E of the Labor Law of the state of New York, it is agreed that:

.1 In the hiring of employees for the performance of this contract of any sub-contract hereunder, nor Contractor, sub-contractor, nor any person acting on behalf of such Contractor or sub-contractor shall be 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, national origin or any other classification of persons set forth in the New York State Human Rights Law under employment discrimination provisions set forth therein..

.3 There may be deducted from the amount payable to the Contractor a penalty of five hundred 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 cancelled 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.

.5 The aforesaid provisions of this section shall be limited to operations performed within the territorial limits of the State of New York.

§ 13.7.1.1 Preference in Employment – This Contract shall be void if preference in employment is not given to residents of New York State in accordance with the provisions of Section 222 of the NYS Labor Law.

§ 13.7.2 In the event of any breach of this warranty, the Contractor shall restore the Work to the same level of performance as warranted herein, or repair or replace the Work with conforming product so as to minimize interruption to Owner's ongoing business processes, time being of the essence, at Contractor's sole cost and expense. This warranty does not extend to correction of Owner's errors in data entry or data conversion.

§ 13.7.3 This warranty shall survive beyond termination or expiration of the Contract.

§ 13.7.4 Nothing in this warranty shall be construed to limit any rights or remedies otherwise available under this Contract.

§ 13.7.5 The Contractor, subcontractors, suppliers, vendors, any of their employees or other authorized entity shall indemnify and hold the Architect, the Engineers, their respective officers, directors, partners, consultants and employees harmless from, and shall pay, all costs, liabilities, damages and expenses (including attorney's fees and expenses) arising out of any claim related to the failure of the Work and/or equipment to be Year 2000 compliant.

§ 13.8 Contractor shall comply with Prevailing Wage Rates as issued by the NYS Department of Labor for the location and duration of this project.

§ 13.8.1 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 and penalties, fees, costs, liabilities, suites, 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.

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§ 13.9 General Provisions

§ 13.9.1 All personal pronouns used in this Contract, whether used in the masculine, feminine, or neuter gender, shall include all other genders; and the singular shall include the plural and vice versa. Titles of articles, paragraphs, and subparagraphs are for convenience only, and neither limits nor amplifies the provisions of this Contract in it. The use herein of the work "including:, when following any general statement, term, or matter, shall not be construed to limit such statement, term, or matter to the specific items or matters set forth immediately following such work or to similar items or matters, whether or not non-limiting language (such words as "without limitation" or "but not limited to"), or words of similar import is used with reference thereto, but rather shall be deemed to refer to all other items or matters that could reasonably fall within the broadest possible scope of such general statement, term or matter.

§ 13.9.2 Whenever possible, each provision of this Agreement shall be interpreted in a manner as to be effective and valid under applicable law. If, however, and provision of this Agreement, or portion thereof, is prohibited by law or found invalid under any law, only such provision or portion thereof shall be ineffective, without in any manner invalidating or affecting the remaining provisions of this Agreement or valid portions of such provision, which are hereby deemed severable.

§ 13.9.3 Each party hereto agrees to do all acts and things and to make, execute and deliver such written instruments, as shall from time be reasonably required to carry out the terms and provisions of the Contract Documents.

§ 13.10 Dust Hazards 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 22-1 of the Labor Law of the State of New York.

§ 13.11 Each Contractor is obligated, by virtue of entering into a contract with the Owner, to insure that absolutely no asbestos containing material is used in conjunction with this work. It is the individual prime contractor's sole responsibility to provide assurance that no asbestos containing material is built into the construction, nor does any equipment used in the construction contain 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 prime contractor who installed said material to remove it and replace it with new non-asbestos containing material, as per federal, state and local mandates, all their employees, agents, or servants or any third parties including but not limited to the Owner and the Architect, servants or employees on account of personal injury or death or property damage caused by, arising out of, or in any way incidental to, or in connection with the performance of the work hereunder. This provision will be limited only to the extent required by law.

ARTICLE 14 TERMINATION OR SUSPENSION OF THE CONTRACT

§ 14.1 Termination by the Contractor

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

.1 Issuance of an order of a court or other public authority having jurisdiction that requires all Work to be stopped; or

.2 An act of government, such as a declaration of national emergency, that requires all Work to be

(Paragraphs deleted)

stopped.

§ 14.1.2 (Paragraph Omitted)

§ 14.1.3 If one of the reasons described in Section 14.1.1 exists, the Contractor may, upon 30 days' notice to the Owner, Construction Manager and Architect, terminate the Contract and recover from the Owner payment for Work executed, as well as reasonable overhead and profit on Work not executed, and costs incurred by reason of such termination for such executed work which has not otherwise been compensated..

§ 14.1.4 If the Work is stopped for a period of 60 consecutive days through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, or their agents or employees, or any other persons performing portions of the Work because the Owner has repeatedly failed to fulfill the Owner's obligations under the Contract Documents with respect to matters important to the progress of the Work, the Contractor may, upon 30 additional days' notice to the

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Owner, Construction Manager and Architect, terminate the Contract and recover from the Owner as provided in Section 14.1.3.

§ 14.2 Termination by the Owner for Cause

§ 14.2.1 The Owner may terminate the Contract if the Contractor

.1 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;;

.2 fails to make prompt payment to Subcontractors or suppliers in accordance with the respective agreements between the Contractor and the Subcontractors or suppliers;

.3 disregards applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of a public authority;

.4 disregards the instructions of the Architect or the Owner, when such instructions are based on the requirements of the Contract Documents;

.5 breaches any warranty made by the Contractor under or pursuant to the Contract Documents;

.6 fails to furnish the Owner with assurances satisfactory to the Owner evidencing the Contractor's ability to complete the Work in compliance with all of the requirements of the Contract documents;

.7 fails after commencement of the Work to proceed continuously with the construction and completion;

.8 fails to keep the Project free from strikes, work stoppages, slowdowns, lockouts or other disruptive activity as required by Paragraph 3.4.3 hereof; or

.9 otherwise does not fully comply with the Contract Documents..

§ 14.2.2 When any of the reasons described in Section 14.2.1 exist, after consultation with the Construction Manager, the Owner 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, unless otherwise prohibited by applicable statutory law, subject to any prior rights of the surety:

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

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

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

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

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

§ 14.2.4.1 The costs of finishing the Work include, without limitation, all reasonable attorney's fees, additional title costs, insurance, additional interest because of any delay in completing the Work, and all other direct and indirect and consequential damages incurred by the Owner by reason of the termination of the Contractor as stated herein.

§ 14.2.5 It is recognized that: (1) if an order for relief is entered on behalf of the Contractor pursuant to Title 11 of the United States Code, (2) if any other similar order is entered under any other debtor relief laws, (3) if Contractor makes general assignment for the benefit of its creditors, (4) if a receiver is appointed for the benefit of its creditors, or (5) if a receiver is appointed on account of its insolvency and such event could impair or frustrate Contractor's performance of the Contract. Accordingly, it is agreed that upon the occurrence of any such event, 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 the Contract. Failure to comply with such request within ten (10) days of delivery of the request shall entitle Owner to terminate the Contract and to the accompanying rights set forth in subparagraphs 14.2.1 through 14.2.3 hereof. In all events, pending receipt of adequate assurance or performance and actual performance in

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accordance therewith, Owner shall be entitled to proceed with the 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 Contract Sum.

§ 14.3 Suspension by the Owner for Convenience

§ 14.3.1 In addition to Owner's right to suspend, delay, or interrupt Contractor from any part of the Work pursuant to the Contract Documents, Owner may at any time, at will and without cause suspend, delay, or interrupt any part of the Work or any subcontract or all Work for any reason whatsoever for such period of time as the Owner may determine by giving three (3) day's prior written notice to Contractor, specifying the part of the Work or subcontract to be suspended, delayed, or interrupted, and the effective date of such suspension, delay, or interruption, as the case may be. Contractor shall continue to prosecute the part of the Work not suspended, delayed, or interrupted, and shall properly protect and secure the part of the Work so suspended, delayed, or interrupted, so far as is necessary in Owner's reasonable opinion. Notwithstanding Paragraph 8.3 hereof, if the Work or any subcontract is so suspended, delayed, or interrupted, Owner shall incur no liability to Contractor by reason of such suspension, delay, or interruption except that Contractor shall be entitled to payment of reasonable standby fees (or at Owner's option, payment for demobilization and subsequent remobilization) and of costs directly associated with protecting and securing the affected Work, provided said costs are authorized in advance by Construction Manager and Owner. No payments shall be made by Owner, however, to the extent that such Work or subcontract is, was, or could have been suspended, delayed, or interrupted under the Contract Documents or an equitable adjustment is made or denied under another provision of the Contract. In case of such suspension, delay or interruption, 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 Contract Sum. For the remainder of the Work, the Contract Documents shall remain in full force and effect.

§ 14.3.2

(Paragraphs deleted)

(Paragraph Omitted)§ 14.4 Termination by the Owner for Convenience

(Paragraph deleted)

§ 14.4.1 In addition to Owner's right to remove Contractor from any part of the work pursuant to the Contract Documents, Owner may at any time, at will and without cause, terminate any part of the Work or any subcontract or all remaining Work for any reason whatsoever by giving three (3) days' notice to Contractor, specifying the part of the Work or subcontract to be terminated and the effective date of termination. Contractor shall continue to prosecute the part of the Work not terminated. If the Work or any subcontract is so terminated, Owner shall incur no liability to Contractor by reason of such termination except that Contractor shall be entitled to payment for Work properly executed in accordance with the Contract Documents 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 or subcontract, provided said Work is authorized in advance by Construction Manager and Owner. No payment shall be made by Owner, however, to the extent that such Work or subcontract is, was, or could have been terminated under the Contract Documents or an equitable adjustment is made or denied under another provision of the Contract. In case of such termination, 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 Contract Sum. For the remainder of the Work, the Contract Documents shall remain in full force and effect.

§ 14.4.1.1 Notwithstanding any other provision to the contrary in this Agreement, the Owner reserves the right at any time and in its absolute discretion to terminate the services of the Contractor and/or the Work by giving written notice to the Contractor. This termination for the convenience of the Owner provision allows and authorizes the Owner to terminate this Agreement at any time and for any reason whatsoever. This right may be exercised by the Owner in its complete discretion. In such event, the Contractor shall be entitled to, and the Owner shall reimburse the Contractor for, an equitable portion of the Contractor's fee based on the portion of the Work completed before the effective date of termination and for any other reasonable costs attributable to such termination. Contractor's entitlement to payment for all such work shall be predicated on its performance of such work in accordance with the Contract Documents as certified by the Architect and Construction Manager. Contractor shall be entitled to no other payment and waives any claim for damaged.

§ 14.4.2 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:

.1 cease operation as specified in the notice;

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.2 place no further orders and enter into 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.

.3 terminate all subcontracts and orders to the extent they relate to the Work terminated;

.4 proceed to complete the performance of the Work not terminated; and

.5 take actions that may be necessary, or that the Owner may direct, for the protection and preservation of terminated Work.

§ 14.4.3 Upon such termination, the Contractor shall recover as its sole remedy payment for Work 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, anticipated profits.

§ 14.4.4 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.

§ 14.4.5 In the event the Owner commences legal proceedings against the Contractor, or same is commenced against the Owner by the Contractor, the Contractor shall be liable to the Owner for the expenses incurred by the Owner in connection with said proceedings. Said expenses shall include reasonable attorney's fees, costs, interest, penalties, and/or witness fees.

§ 14.4.6 Upon a determination by legal means (e.g. court action, etc.) that termination of Contractor pursuant to Subparagraph 14.2.1 was wrongful, such termination will be deemed converted to a termination for convenience pursuant to subparagraph 14.1.5 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 Subparagraph 14.1.5.

§ 14.4.7 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 cancelled as a result of the order of any court, department entity or individual having jurisdiction, or in the event the work is suspended or cancelled due to the fact that a court, agency, department, entity or individual having jurisdiction has issued an order, the result of which is the aforesaid obligations or bond are no longer available for payment for the work, Contractor expressly agrees that it shall be solely entitled to pay for work accomplished until a notice of suspension or cancellation is served upon Contractor. 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.

§ 14.5 Limitation of Owner's Liability

§ 14.5.1 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 it.

§ 14.5.2 The Owner shall not be liable to the Contractor for punitive damages on account of its termination of the Contractor and the Contractor hereby expressly waives its right to claim such damages against the Owner.

ARTICLE 15 CLAIMS AND DISPUTES

§ 15.1 Claims

§ 15.1.1 Definition. A Claim is a demand or assertion by one of the parties seeking, as a matter of right, payment of money, a change in the Contract Time, or other relief with respect to the terms of the Contract. The term "Claim" also includes other disputes and matters in question between the Owner and Contractor arising out of or relating to the Contract. The responsibility to substantiate Claims shall rest with the party making the Claim.

§ 15.1.2 Time Limits on Claims

The Owner and Contractor shall commence all Claims and causes of action against the other and arising out of or related to the Contract, whether in contract, tort, breach of warranty or otherwise, in accordance with the requirements of the binding dispute resolution method selected in the Agreement and within the period specified by applicable law,

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but in any case not more than 10 years after the date of Substantial Completion of the Work. The Owner and Contractor waive all Claims and causes of action not commenced in accordance with this Section 15.1.2.

§ 15.1.3 Notice of Claims

§ 15.1.3.1 Claims by either the Owner or Contractor, where the condition giving rise to the Claim is first discovered prior to expiration of the period for correction of the Work set forth in Section 12.2.2, shall be initiated by notice to the other party and to the Initial Decision Maker with a copy sent to the Construction Manager and Architect, if the Architect is not serving as the Initial Decision Maker. Claims by either party under this Section 15.1.3.1 shall be initiated within 21 days after occurrence of the event giving rise to such Claim or within 21 days after the claimant first recognizes the condition giving rise to the Claim, whichever is later.

§ 15.1.3.2 Claims by either the Owner or Contractor, where the condition giving rise to the Claim is first discovered after expiration of the period for correction of the Work set forth in Section 12.2.2, shall be initiated by notice to the other party. In such event, no decision by the Initial Decision Maker is required.

§ 15.1.4 Continuing Contract Performance

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

§ 15.1.4.2 The Contract Sum and Contract Time shall be adjusted in accordance with the Initial Decision Maker's decision, subject to the right of either party to proceed in accordance with this Article 15. The Architect will issue Certificates for Payment in accordance with the decision of the Initial Decision Maker.

§ 15.1.5 Claims for Additional Cost. If the Contractor wishes to make a Claim for an increase in the Contract Sum, notice as provided in Section 15.1.3 shall be given before proceeding to execute the portion of the Work that is the subject of the Claim. Prior notice is not required for Claims relating to an emergency endangering life or property arising under Section 10.4.

§ 15.1.6 Claims for Additional Time

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

§ 15.1.6.2 If adverse weather conditions are the basis for a Claim for additional time, such Claim shall be documented by data substantiating that weather conditions were abnormal for the period of time, could not have been reasonably anticipated and had an adverse effect on the scheduled construction.

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

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

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

This mutual waiver is applicable, without limitation, to all consequential damages due to either party's termination in accordance with Article 14.

§ 15.2 Initial Decision

§ 15.2.1 Claims, excluding those where the condition giving rise to the Claim is first discovered after expiration of the period for correction of the Work set forth in Section 12.2.2 or arising under Sections 10.3, 10.4, and 11.5, shall be referred to the Initial Decision Maker for initial decision. The Architect will serve as the Initial Decision Maker, unless otherwise indicated in the Agreement. Except for those Claims excluded by this Section 15.2.1, an initial decision shall be required as a condition precedent to mediation of any Claim. If an initial decision has not been rendered within 30 days after the Claim has been referred to the Initial Decision Maker, the party asserting the Claim may demand

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mediation and binding dispute resolution without a decision having been rendered. Unless the Initial Decision Maker and all affected parties agree, the Initial Decision Maker will not decide disputes between the Contractor and persons or entities other than the Owner.

§ 15.2.2 The Initial Decision Maker will review Claims and within ten days of the receipt of a Claim take one or more of the following actions: (1) request additional supporting data from the claimant or a response with supporting data from the other party, (2) reject the Claim in whole or in part, (3) approve the Claim, (4) suggest a compromise, or (5) advise the parties that the Initial Decision Maker is unable to resolve the Claim if the Initial Decision Maker lacks sufficient information to evaluate the merits of the Claim or if the Initial Decision Maker concludes that, in the Initial Decision Maker's sole discretion, it would be inappropriate for the Initial Decision Maker to resolve the Claim.

§ 15.2.3 In evaluating Claims, the Initial Decision Maker may, but shall not be obligated to, consult with or seek information from either party or from persons with special knowledge or expertise who may assist the Initial Decision Maker in rendering a decision. The Initial Decision Maker may request the Owner to authorize retention of such persons at the Owner's expense.

§ 15.2.4 If the Initial Decision Maker requests a party to provide a response to a Claim or to furnish additional supporting data, such party shall respond, within ten days after receipt of the request, and shall either (1) provide a response on the requested supporting data, (2) advise the Initial Decision Maker when the response or supporting data will be furnished, or (3) advise the Initial Decision Maker that no supporting data will be furnished. Upon receipt of the response or supporting data, if any, the Initial Decision Maker will either reject or approve the Claim in whole or in part.

§ 15.2.5 The Initial Decision Maker will render an initial decision approving or rejecting the Claim, or indicating that the Initial Decision Maker is unable to resolve the Claim. This initial decision shall (1) be in writing; (2) state the reasons therefor; and (3) notify the parties, the Construction Manager, and the Architect, if the Architect is not serving as the Initial Decision Maker, of any change in the Contract Sum or Contract Time or both. The initial decision shall be final and binding on the parties but subject to mediation and, if the parties fail to resolve their dispute through mediation, to binding dispute resolution.

§ 15.2.6 Either party may file for mediation of an initial decision at any time, subject to the terms of Section 15.2.6.1.

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

§ 15.2.7 In the event of a Claim against the Contractor, the Owner may, but is not obligated to, notify the surety, if any, of the nature and amount of the Claim. If the Claim relates to a possibility of a Contractor's default, the Owner may, but is not obligated to, notify the surety and request the surety's assistance in resolving the controversy.

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

§ 15.3 Mediation

§ 15.3.1 Claims, disputes, or other matters in controversy arising out of or related to the Contract, except those waived as provided for in Sections 9.10.4, 9.10.5, and 15.1.7, shall be subject to mediation as a condition precedent to binding dispute resolution.

§ 15.3.2 The parties shall endeavor to resolve their Claims by mediation which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Mediation Procedures in effect on the date of the Agreement. A request for mediation shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the mediation. The request may be made concurrently with the filing of binding dispute resolution proceedings but, in such event, mediation shall proceed in advance of binding dispute resolution proceedings, which shall be stayed pending mediation for a period of 60 days from the date of filing, unless stayed for a longer period by agreement of the parties or court order.

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§ 15.3.3 Either party may, within 30 days from the date that mediation has been concluded without resolution of the dispute or 60 days after mediation has been demanded without resolution of the dispute, demand in writing that the other party file for binding dispute resolution. If such a demand is made and the party receiving the demand fails to file for binding dispute resolution within 60 days after receipt thereof, then both parties waive their rights to binding dispute resolution proceedings with respect to the initial decision.

§ 15.3.4 The parties shall share the mediator's fee and any filing fees equally. The mediation shall be held in the place where the Project is located, unless another location is mutually agreed upon. Agreements reached in mediation shall be enforceable as settlement agreements in any court having jurisdiction thereof.

§ 15.4 **Proceeding in Court**
§15.4.1. In the event that mediation fails to achieve a resolution to the claim, dispute or other matter in controversy, the parties' may institute litigation in a state court of competent jurisdiction in Putnam County, New York.

§ 15.4.1 (Paragraphs Omitted)
(Paragraphs deleted)
§ 15.4.4 Consolidation or Joinder
§ 15.4.4.1 (Paragraphs Omitted)

ARTICLE 16 ADDITIONAL CONDITIONS
§ 16.1 No Damages for Delay
§ 16.1.1 Notwithstanding any other terms or conditions set forth in the Contract Documents, the Contractor agrees to make no claim for damages for delay in the performance of the work occasioned by any act or omission of the Owner or any of its representatives, and agrees that any such claim shall be fully compensated for by an extension of time to complete the work.

§ 16.1.2 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 afore said obligations or bonds are no longer available for payment for the work, contractor expressly agrees that it shall be solely entitled to payment for work accomplished until a notice of suspension or cancellation is served upon contractor. 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 16.1.

§ 16.2 Prohibited Interests
§ 16.2.1 No official of the Owner who is authorized in such capacity and on behalf of the Owner to negotiate, make, accept, approve of, or take part in negotiating, making, accepting, or approving any architectural, engineering, inspection, construction, or material supply contract, or any subcontract in connection with the construction of the project, shall become directly or indirectly interested personally in the contract or in any part thereof.

§ 16.2.2 No officer, employee, architect, attorney, engineer, or inspector of the Owner who is authorized in such capacity and on behalf of the Owner to exercise any legislative, executive, supervisory, or other similar functions in connection with the construction of the project shall become directly or indirectly interested personally in this Contract or in any part thereof, any material supply contract, subcontract, insurance contract, or any other contract pertaining to this project.

(Paragraph deleted)
§ 16.3 Performance and Specification Standards
§ 16.3.1 Applicable codes and standards for material furnished and work installed shall include all state laws, local ordinances, requirements of governmental agencies have 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.

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3. State Education Department Manual of Planning Standards.

4. New York State Department of Transportation, Office of Engineering, Standard Specification, Construction and Materials, dated January 2, 1990, and latest addendum thereto.

5. Life Safety Code – NFPA 101-91.

§ 16.3.2 Where specific performance requirements are listed herein, it is the intent of this specification that all manufacturers, fabricators, suppliers, installers, contractors, subcontractors, specialty and sub-subcontractors will provide services satisfying these requirements whether mentioned by trade or manufacturer's name or submitted for approval as a substitute.

§ 16.3.3 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 Insurance" shall be accepted as establishing the technical requirements which shall be complied with, unless date of publication is recorded in this specification.

§ 16.3.4 Where no explicit quality or standards for materials or workmanship are established for work, such work shall be of quality consistent with industry standards and of the construction quality established for the Project generally.

§ 16.4 Blasting Operations
§ 16.4.1 Use of explosives on Site is not allowed.

§ 16.5 Welding
§ 16.5.1 Each Prime 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.

§ 16.5.2 All welding materials and equipment shall be removed promptly from the premises upon completion of the welding and cutting work.

§ 16.5.3 Appropriate fire extinguishing equipment shall be provided where welding or cutting is to be performed. Sprinklers subject to fusing from heat due to welding or cutting shall be temporarily shielded, with valves to remain open. Contractors will be back charged for all fines imposed for false fire alarms.

§ 16.5.4 Welding or cutting shall not be performed in or near rooms or locations where flammable gases, liquids or vapors, lint, dust or loose combustible stocks are present unless suitably protected when sparks or hot metal from welding or cutting operations may cause ignition or explosion of such materials.

§ 16.5.5 Combustible construction or material shall be wetted down or protected by noncombustible shields or covers from possible sparks, hot metal or oxide.

§ 16.6 Ventilation During Construction
§ 16.6.1 The General 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.

§ 16.6.2 Ventilation shall be by natural or artificial means as required by conditions involved.
§ 16.7 Broken Glass
§ 16.7.1 Each Prime Contractor shall be responsible for all broken, scratched, or damaged glass, which shall be replaced upon completion of the Work.

Said Prime contractor shall reimburse the General Contractor for replacement costs of all such damaged glass upon completion of the Work.

§ 16.7.2 The responsibility shall terminate upon acceptance of the Work by the Owner, except as provided in the Specifications with respect to defective materials, workmanship, and guarantee/warranty provisions.

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REQUISITION FOR PARTIAL PAYMENT - WAIVER OF LIENS

PROJECT	**OWNER**
GENERAL CONTRACTOR	**SUBCONTRACTOR/VENDOR**
CONTRACT	**WORK COMPLETE**
PROJECT:	CONTRACT - $
TRADE:	CHANGE ORDERS - $
CONTRACT - $	TOTAL COMPLETE - $
CHANGE ORDERS - $	RETAINAGE (___%) - $
TOTAL CONTRACT - $	LESS PRE. REQ. - $
	THIS REQUISITION - $

Waiver of Lien

The undersigned, upon receipt of the above requisition payment hereby releases and discharges the Owner of and from any liability or obligation in any way related to or arising out of this project up to and including the date of this document.

The undersigned further covenants and agrees that it shall not in any way claim or file a mechanic's or other lien against the premises of the above designated project, or any part thereof, or against any fund applicable thereto for any of the work, labor, materials heretofore furnished by it in connection with the improvement of said premises.

The undersigned further warrants that, in order to induce the Owner to release this partial payment, they have paid all claims for labor, material, insurance, taxes, equipment, etc., employed in the prosecution of the work above, to date of this requisition.

The undersigned hereby releases and agrees to hold the Owner harmless from any and all claims in connection with the furnishing of such labor and materials, etc., for the construction of the aforementioned project.

The undersigned further guarantees that all portions of the work furnished and/or provided by them are in accordance with the contract and that the terms of the contract with respect to these guarantees will hold for the period specified in said contract.

IN WITNESS WHEREOF, we have executed under seal this release on the date below and to be legally bound hereby:

WITNESS: _____ FIRM: _____
BY: _____ DATE: _____

CORPORATE ACKNOWLEDGEMENT

State of
)SS.
)
County of

On the _____ day of _____, before me came _____ to me known and who by me being duly sworn did depose and say that he resides at _____ _____; that he is the officer of the said corporation executing the foregoing instrument, that he knows the seal of said corporation, that the seal affixed to said instrument is such corporate seal, that it was so affixed by order of the Board of Directors of said corporation and that he signed his name thereto by like order.

_____
Notary Public

INDIVIDUAL ACKNOWLEDGEMENT

State of
)SS.
)
County of

On the _____ day of _____, before me came _____ to me known and who by me being duly sworn did depose and say that he resides at _____ _____ that he is the individual who executed the foregoing instrument.

_____
Notary Public

PARTNERSHIP ACKNOWLEDGEMENT

State of
)SS.
)
County of

On the _____ day of _____, before me came _____ to me known and who by me being duly sworn did depose and say that he resides at _____ _____; that he is the partner in the firm of _____ doing business under the name of _____ and that he executed the foregoing instrument on behalf of said partnership.

_____
Notary Public

Section 00 70 02

Insurance Rider
(Supplement to Article 11 of Section 00 70 00, AIA A201-07 for
Insurance Requirements for this Project)

Name of Insurance Producer:	
Name of Insured:	

The Contractor shall purchase and maintain during the life of the contract insurances as listed herein. This insurance must be purchased from a New York State licensed, A.M. Best Rated "A" or "A+" carrier. The Owner, the Architect, their Consultants and Subconsultants shall, with the exception of Worker's Compensation and Employer's Liability Insurance, be named as additional named insureds on a primary and non-contributory basis. Contractor must submit additional insured endorsements to the District for approval.

At least ten (10) working days prior to the commencement of the Work, the Contractor and all Subcontractors shall submit to the Owner, through the Architect, a Certificate of Insurance (AIA Form G705) or Accord 25-s showing evidence of insurance coverage as required by these documents. The standard Accord Form of Certificate of Insurance or insurance carrier certificate will be acceptable for employer's liability and statutory Disability. Submit all Workers' Compensation Certificates on form C-105.2, or if funded though the New York State Insurance Fund, on form U-26.3.

All Certificates of Insurance must be signed by a licensed agent or authorized representative of the insurance carrier.

The certificate shall be issued to the Owner with a provision that in the event the policies are either canceled or diminished, at least 30 days prior notice thereof shall be given to the Owner.

The insurance required for this project shall be written for not less than limits of liability specified in this attachment or otherwise within the Contract Documents or required by law, whichever coverage is greater. Coverages, whether written on an occurrence or claims-made basis, shall be maintained without interruption from date of commencement of the Work until date of final payment and termination of any coverage required to be maintained after final payment.

.1 General Liability: (Occurrence Form) – Limits Per Project using ISO Form CG 00 01 07 98 or later date

$2,000,000	General Aggregate
$1,000,000	Products/Completed Operations
$1,000,000	Personal and Adv. Injury
$1,000,000	Occurrence
$ 50,000	Fire Damage
$ 5,000	Medical Expense

Coverage to include Broad Form Property Damage, Contractual Liability, Independent Contractors, and Personal Injury. No exclusion for XCU or hazards shall be endorsed to the Policy.

Products and Completed Operations Coverage to be kept in force for 12 months after final payment; a renewal certificate is to be submitted for the project if the coverage renews in less than 12 months following the completion of the project.

Coordinate requirements for additional insurance covering contractual obligations assumed by Contractor as established in Articles 3.18 and 10.3 of these Conditions by using Endorsement ISO Form B, CG2010 11/85 or CG 20 10 10/01 plus CG 20 37 10/01 or equivalent. This endorsement must also reflect that the coverage provided is Primary and Non-Contributory. Waiver of Subrogation applies to all policies for all additional insureds.

.2 Auto Liability to cover ALL autos; or Owned, Hired, Leased and Non-Owned Autos.

$1,000,000	Combined Single Limit or
$ 500,000	Bodily injury (per person)
$1,000,000	Bodily injury (per accident)
$ 500,000	Property Damage
$ 5,000	Medical Payments

.3 Excess Liability: Insurance is to cover all stated insurance coverages listed within this Attachment

$2,000,000	Each Occurrence
$2,000,000	Aggregate
$ 10,000	Retention (Maximum)

.4 Workers' Compensation

Statutory	Part A
Statutory	Disability
Employer's Liability	Part B
$ 500,000	Each Accident
$1,000,000	Disease Policy Limit
$ 500,000	Disease Each Employee

.5 Hazardous Material Coverage

Hazardous material liability insurance as follows:	$1,000,000 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 M CS 90.
Coverage shall fulfill all requirements of the Contract and General Conditions and shall extend for a period of three (3) years following acceptance by the Owner of the Certificate of Completion.

.6 Testing Company Errors and Omission Insurance

$1,000,000	Each Occurrence
$2,000,000	Aggregate

for the testing and other professional acts of the Contractor performed under the contract with the Owner.

Further, Contractor shall require all Subcontractors to carry similar insurance coverages and limits of liability as set forth above and adjusted to the nature of Subcontractors' operations and submit same to Owner for approval prior to start of any Work.

Further, it is not the intention of these insurance requirements to require each Subcontractor, vendor or material man involved in the work to provide “excess” coverage in the amounts stated herein but the “excess” limit shall be at least 2 times the contract sum entered into between the individual Contractor and the particular Subcontractor, vendor or material man but not less than $1,000,000.00, each occurrence, $3,000,000 aggregate and $10,000 retention (Maximum).

In the event 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 Owner, Architect, Engineers, Consultants and Subconsultants 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.

The following shall be included as Additional Insureds

- School District (NAME), Members of the Board of Education, any officer, member of its staff, employee, or representative of school district.
- KG+D Architects, PC, and ALL consultants listed on the cover of the PROJECT/SPECIFICATIONS MANUAL

Proof of Insurance shall show the following Insureds and Holder:		
(a)	Certificate Holder:	
(b)	Additional Named Insureds, on a primary basis:	
	Owner	
	Architect	
	Construction Manager, if applicable	
	Consultants	

SECTION 01 10 00

DESCRIPTION OF WORK

1.01 GENERAL PROJECT DESCRIPTION

A. Bids shall be received in accordance with the New York State Public Bidding Laws; this project will be executed under Single Prime Contract as noted in the "Special Instructions to Bidders."

B. Scope Statement - For purposes of establishing the specific items of Work a listing of the "general scope" is included below.

This "scope" listing is to be considered as for information only; failure to list any item of work therein required to complete the Work will not relieve any Contractor from providing that work and all ancillary items necessary to complete same in accordance with the Contract Documents.

The general items of work applicable to the Project are included in the companion Technical Specifications and as depicted on the accompanying Contract Drawings.

The accompanying technical sections establish all governing requirements set forth in Part 1 as well as supplemental general items of Scope; Part 2, for all material requirements and Part 3, for all execution and workmanship requirements.

C. Existing conditions are shown on the drawings to the best knowledge of the Architect. The Architect, however, cannot guarantee the correctness of the existing conditions shown and assumes no responsibility therefore. It shall be the responsibility of the Contractor to visit the site and verify all existing conditions.

D. The Contractor's attention is directed to Articles 6.1.4 through 6.2.1.2 of Section 007000, which required coordination of this Contractor's work with the work and progress of other separate contracts.

E. SECURITY PROVISIONS

1. All Contractors' employees shall use a single means of access and egress, except in the case of emergency, to be designated by the General Contractor.
2. Each Contractor and each Subcontractor shall require his employees, while on the job site, to wear, in a conspicuous location, a Photo I.D. badge bearing the name of the individual and the Contractor for whom working. The badges of each Contractor shall be numbered consecutively. An up-to-date list of all I.D. badges, indicating the name and number along with a copy of the photograph for each employee, shall be furnished to the Owner.

G. Regarding special inspections, the registered design professional in responsible charge shall be the Architect. The Owner shall hire the special inspectors and shall be responsible for the cost of special inspections but the contractor is responsible for the cost of any re-inspections or retesting. The inspections required are outlined on the Statement of Special Inspection and Tests Form (attached). The Architect shall be responsible for determining the qualifications of the special inspectors, receiving and retaining all reports and assuring that any discrepancies are corrected.

Special inspectors must keep records of inspections and furnish inspection reports to the Architect of record. The reports must indicate that the work inspected was done in conformance with the approved construction documents. Discrepancies must be brought to the attention of the contractor and non-corrected discrepancies must be brought to the attention of the Architect of record. A final report of inspections documenting required special inspections and correction of any discrepancies noted must be submitted to the registered design professional in responsible charge at the completion of the project. The design professional shall forward a copy of the final report to the school district for their records.

1.02 REQUIREMENTS INCLUDED IN THIS SECTION

A. Asbestos and lead paint awareness requirements.
B. Construction requirements
C. Proof of orders and delivery dates
D. Intent of Documents
E. Field Measurements
F. Initial Submittal Requirements
G. Quality Requirements
H. Testing and Inspection Laboratory Services
I. Manufacturers Field Services and Reports
J. Coordination.
K. Field Engineering.
L. Job and Progress Meetings – See Section 013119.
M. Design Responsibility - NONE
N. Schedules and Milestones
O. Additional Requirements
P. Mold Mitigation Requirements
Q. Waste Management
R. Use of Premises
S. Owner Occupancy Requirements
T. Payrolls and Payroll Records – Coordinate with Sections 012900, 012901 and 017700

1.03 ASBESTOS AND LEAD PAINT AWARENESS REQUIREMENTS

A. Contractor agrees not to use or permit the use of any asbestos containing material in or on any property belonging to the Owner.
B. For purposes of this requirement, asbestos free shall mean free from all forms of asbestos including - actinolite, amosite, anthrophyhllite, chrysotile, cricidolite and tremolite both in friable and non-friable states and without regard to the purposes for which such material is used.

1.04 CONSTRUCTION TIME AND PHASING REQUIREMENTS

A. The Contractor is advised the "time is of the essence" of the Contract as defined in Article 8 of the "Conditions". Further, safe and legal ingress and egress shall be maintained at all times to and through the occupied portions of the construction site. Attention is directed to Article 3.13 of Section 007000 for use of site, temporary new work and maintenance of legal egress at all times.
B. Work shall proceed in such a manner as to cause the least amount of disruption to the ongoing operations as possible. COORDINATE CLOSELY WITH SCHOOL OPERATING PERSONNEL.

C. All work and storage areas shall be completely enclosed by a fence or barricade at all times so that no student or the public can approach the area or the equipment. The Contractor shall maintain fences and barricades at all times and shall -
   ° Provide signs posted on fence 50 feet on center that read "Work Area - Keep Out".
   ° Maintain at all times, all exits and walkways from the Building.

   Where the barricade is removed for work, the Contractor performing such work shall provide adequate safety personnel to prevent unauthorized persons from approaching the work area.
   1. The Contractor is advised that areas of the existing buildings which are to be added to and/or altered under this Contract will remain in use during construction, coordinate with Section 015000 for temporary facilities.
   2. Electrical and mechanical services to functioning spaces shall be maintained at all times.
   3. The Contractor shall provide and maintain all required separations between old and new construction to prevent:
      a. Entrance to construction areas by unauthorized individuals.

1.05 PROOF OF ORDERS AND DELIVERY DATES - Coordinate w/Sections 013300 and 013200.
   A. Within 2 weeks after the approval of shop drawings, samples, product data and the like, the Contractor shall provide copies of purchase orders for all equipment and materials which are not available in local stock. The Contractor shall submit written statements from suppliers confirming the orders and stating promised delivery dates.
   B. This information shall be incorporated within the progress schedules so required as part of Section 013200 and shall be monitored so as to insure compliance with promised dates.

1.06 INTENT OF DOCUMENTS - See Article 1, Subparagraph 1.2.1 of Section 007000 for resolution of conflicts between drawings and specifications.

Regardless of hierarchy listed in reference paragraph, in cases of conflict as to the type or quality of materials to be supplied, the Specifications shall govern.

1.07 FIELD MEASUREMENTS
   A. Each Respective Contractor shall take all necessary field measurements prior to fabrication and installation of work and shall assume complete responsibility for accuracy of same.
   B. This project is an ALTERATION and therefore necessitates additional attention to existing conditions receiving newly fabricated and installed equipment, i.e. note the requirements for field dimensioning of shop fabricated items whether or not so required by each technical section.

1.08 INITIAL SUBMITTAL REQUIREMENTS
   A. As outlined in Sections 005000, 007000, 013300, 013200 and 015000 Contractor shall provide items noted including - bonds, insurance, emergency telephone numbers, progress scheduling, schedules of submittals, subcontractor listings, and the like prior to the start of any work.
   B. Schedule of Values

1. Submit schedule on AIA Form G703.
2. Submit Schedule of Values in duplicate within 15 days after date of Owner-Contractor Agreement or as established in Notice to Proceed, whichever is earliest.

1.04 QUALITY REQUIREMENTS

A. Monitor quality control over suppliers, manufacturers, Products, services, site conditions, and workmanship, to produce Work of specified quality.
B. Comply with manufacturer's instructions.
C. Comply with specified standards as minimum quality for the Work except when more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
D. Monitor fabrication and installation tolerance control of installed Products over suppliers, manufacturers, Products, site conditions, and workmanship, to produce acceptable Work. Do not permit tolerances to accumulate.
E. Comply fully with manufacturer's tolerances.

1.05 MANUFACTURER'S FIELD SERVICES AND REPORTS

A. When specified in individual specification sections, require material or Product suppliers or manufacturers to furnish qualified staff personnel to observe site conditions and to initiate instructions when necessary.
B. Report observations and site decisions or instructions that are supplemental or contrary to manufacturer's written instructions.

1.11 COORDINATION

A. Coordinate scheduling, submittals, and Work of various sections of specifications to ensure efficient and orderly sequence of installation of interdependent construction elements.
B. Verify utility requirement characteristics of operating equipment are compatible with building utilities.
C. Coordinate space requirements and installation of mechanical and electrical work indicated diagrammatically on Drawings. Follow routing shown for pipes, ducts, and conduit, as closely as practicable.
D. In finished areas, conceal pipes, ducts, and wiring within construction.

1.12 FIELD ENGINEERING – Coordinate with Section 017123 of Division #1.

A. Contractor shall establish elevations, lines, and levels and certify elevations and locations of the Work conform with Contract Documents.

1.13 DESIGN RESPONSIBILITY – Contractor is responsible for design of the following components of construction:

A. Steel Stair and Railing Systems – Layout, configuration, and details per architectural and structural drawings and Sections 05 50 00 and 05 51 13.
B. Engineered Metal Backup Wall behind masonry veneer per Section 05 40 00.
C. Lateral Support Systems for Excavation per Section 31 50 00.
D. Interior Masonry Wall Reinforcing – per Section 04 20 00 and IBC requirements.

1.14 SCHEDULES

A. General
1. The objective of this project is to complete the overall work in the shortest

period of time and to protect the building and occupants from damages caused by weather and construction activity during the progress of the work.

2. To meet these objectives, the Contractor shall plan the work, obtain materials, and execute the construction on the most expeditious manner possible in accordance with the requirements listed below.
3. If the Contractor fails to expedite and pursue any part of the work, the Owner may terminate the contract as per Article 14.2 or may carry out the work as per Article 2.4 of the General Conditions.
4. The Contractor shall work in coordination with work of other Contractors and with School activities with special attention to noise, dust, safety and other contract requirements for work in and around the occupied building.

B. Work Period and Milestones

Putnam Valley Middle School	
Award of Contract / Notice to Proceed	April 16, 2021
Start Construction	June 28, 2021
Substantial Completion	August 13, 2021
Final Completion	August 27, 2021

1.16 ADDITIONAL REQUIREMENTS

A. If it appears that some of the work cannot be completed by the scheduled date, the Contractor shall increase the work force or increase the hours of work, including evenings and weekends or necessary, at no additional cost to the Owner. If the work is complete but the area is not cleaned and debris or equipment is not removed, the Owner shall have the right to prepare the area for occupancy with his own forces and deduct the costs from the Contract Amount.

B. If the Contractor fails to staff the job adequately to meet the completion date, the Owner reserves the right to assume possession of the material and complete installation with the Owner's forces or other Contractors or to require the Contractor to work evenings and weekends.

C. The school can be made available on weekends and evenings to allow the Contractor adequate time to complete the work before final completion date. Any custodial cost resulting in this after hours scheduling will be the Contractor's responsibility.

D. In addition to the above-stated requirements for phasing of the work, the Contractors shall not do any noisy work in the areas where examinations will be conducted as per the published school calendar.

E. The Contractor is responsible for temporary protection of all work until acceptance.

F. The school will be closed on Saturdays, Sundays, regularly scheduled district holidays, and at night after cleaning crews have finished. If any Contractor wishes to work at any time when the school is normally closed, that Contractor shall arrange and pay for custodial services for the building at the applicable district pay rates.

1.17 MOLD MITIGATION REQUIREMENTS (As applicable to Project Construction)

A. All return air ductwork and all exhaust air ductwork be sealed tight with mastic.

B. Do not allow open plenum returns above dropped ceilings unless the plenum is sealed tightly with respect to the exterior walls and roof.

C. The buildings HVAC system shall not be operated during construction.

D. All gypsum wallboard be installed with a fire sealant bead of 3/8 in. (9 mm) between the floor and the bottom edge of the gypsum, coordinate with Sections 078400 and 092900.

E. The moisture content (or water vapor emission rate) of all concrete block walls be measured and documented by the general contractor, and that no gypsum board be hung on those walls until the moisture content of the blocks in the wall measures the same as the identical type of block that has been stored away from any rain exposure, coordinate with Sections 042000 and 092900.

F. The moisture content of the taped and sanded gypsum board walls be measured and documented by the general contractor at two locations on each wall: the bottom edge and halfway between floor and ceiling. Interior finish may not be applied until the moisture content of the wallboard is below 0.4% on a gypsum moisture meter or below 12% on a wood meter, coordinate with Division 9 sections as applicable.

G. The moisture content of the concrete floor slab shall be measured as soon as the building has been closed in and as soon as the slab temperature can be brought within the 65°F to 75°F (18.3°C to 23.9°C) temperature required for the measurement. If the moisture content is excessive, the air above the concrete shall be held below 30% relative humidity until the material is dry enough to meet the specification established by the respective flooring manufacturers, coordinate with Division 9 sections as applicable.

H. Attention is directed to Sections 062000, 095100 and 099000 for temperature and humidity restrictions prior to start of work and maintenance of work conditions.

1.18 WASTE MANAGEMENT PROCEDURES AND DEFINITIONS

A. Waste Management Coordination: Coordinate recycling of materials with Owner and as required to conform to the Construction Waste Management Plan defined in Section 017419.

B. Contractor shall conduct Construction Waste Management meetings as outlined in Section 013119 - Project Meetings. At a minimum, waste management goals and issues shall be discussed at the following meetings:
   1. Pre-bid meeting.
   2. Pre-construction meeting.
   3. Regular job-site meetings.
   4. Job safety meetings.

C. Use on-site waste as primers, sealers, underlayments, supports, backing, blocking, furring, suspension systems, and accessories as required for any purpose in patching work damaged as a result of construction activities.

D. Waste Management Definitions
   1. Clean: Untreated and unpainted; not contaminated with oils, solvents, caulk, or the like.
   2. Construction and Demolition Waste: Solid wastes typically including building materials, packaging, trash, debris, and rubble resulting from construction, remodeling, repair and demolition operations.
   3. Hazardous: Exhibiting the characteristics of hazardous substances, i.e., ignitability, corrosivity, toxicity or reactivity.
   4. Nonhazardous: Exhibiting none of the characteristics of hazardous substances, i.e., ignitability, corrosivity, toxicity, or reactivity.
   5. Nontoxic: Neither immediately poisonous to humans nor poisonous after a long period of exposure.

6. Recyclable: The ability of a product or material to be recovered at the end of its life cycle and remanufactured into a new product for reuse by others.
7. Recycle: To remove a waste material from the Project site to another site for remanufacture into a new product for reuse by others.
8. Recycling: The process of sorting, cleansing, treating and reconstituting solid waste and other discarded materials for the purpose of using the altered form. Recycling does not include burning, incinerating, or thermally destroying waste.
9. Return: To give back reusable items or unused products to vendors for credit.
10. Reuse: To reuse a construction waste material in some manner on the Project site.
11. Salvage: To remove a waste material from the Project site to another site for resale or reuse by others.
12. Sediment: Soil and other debris that has been eroded and transported by storm or well production run-off water.
13. Source Separation: The act of keeping different types of waste materials separate beginning from the first time they become waste.
14. Toxic: Poisonous to humans either immediately or after a long period of exposure.
15. Trash: Any product or material unable to be reused, returned, recycled, or salvaged.
16. Volatile Organic Compounds (VOCs): Chemical compounds common in and emitted by many building products over time through outgassing including - solvents in paints and other coatings; wood preservatives; strippers and household cleaners; adhesives in particleboard, fiberboard, and some plywoods; and foam insulation.
17. Waste: Extra material or material that has reached the end of its useful life in its intended use. Waste includes salvageable, returnable, recyclable, and reusable material.
18. Waste Management Plan: A Project-related plan for the collection, transportation, and disposal of the waste generated at the construction site. The purpose of the plan is to ultimately reduce the amount of material being landfilled.

1.19 USE OF PREMISES

A. Use of Buildings and Sites:
1. Limits: Confine constructions operations to areas within contract limits indicated. Do not disturb portions of the site beyond the areas in which the Work is indicated. All areas of the site with the exception of the project area where the Work is being performed are off limits to Contractor and his employees
2. Owner Occupancy: Allow for Owner occupancy of adjacent buildings and sites and use by the public. Conduct the Work to provide the least possible interference to the activities of the Owner’s personnel and use of the buildings and sites by the public
3. Driveways and Entrances: Keep driveways and entrances serving premises clear and available to Owner, Owner's employees, the public and emergency vehicles at all times. Do not use these areas for parking or storage of materials.

a. Schedule deliveries to minimize use of driveways and entrances.
b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.
c. Coordinate staging, parking and storage areas with the Owner's Representative.

4. Damages: Promptly repair damages caused to adjacent facilities by work of the Contract to a good-as-new condition acceptable to the Owner.
5. Existing Facilities: The following facilities are specifically noted as **not** to be used by Contractor or his employees:
   a. Toilet facilities.
   b. Food service facilities, including kitchen and dining areas.
   c. Telephones.
6. Utility Shutdowns: Coordinate all utility shut downs and cross overs with the Owner's Representative, schedule during off hours and non-occupied times only.

1.20 OWNER OCCUPANCY REQUIREMENTS

A. Owner will occupy site and existing buildings during entire construction period. Cooperate with Owner during construction operations to minimize conflicts and facilitate Owner usage. Perform the Work so as not to interfere with Owner's operations. Occupancy level will be reduced during summer months when school is not in session. Coordinate with Owner's Representative for schedule of working hours and work restrictions during period when school is in session.

B. Architect will prepare a Certificate of Substantial Completion for each specific portion of the Work to be occupied before Owner occupancy. Obtain a Certificate of Occupancy from authorities having jurisdiction before Owner occupancy. Before partial Owner occupancy, mechanical and electrical systems shall be fully operational, and required tests and inspections shall be successfully completed. On occupancy, Owner will provide, operate, and maintain mechanical and electrical systems serving occupied portions of building. On occupancy, Owner will assume responsibility for maintenance and custodial service for occupied portions of building and site.

C. Comply with standards for construction projects as follows:
   1. Interaction with employees and the public is strictly forbidden.
   2. Use of offensive or inappropriate language is strictly forbidden.
   3. The use of radios, tape and CD players is prohibited on the site and in the buildings.
   4. Smoking is prohibited on the site and in the buildings.

1.21 PAYROLLS AND PAYROLL RECORDS – See Section 012900 and 012901

A. In accordance with Article 8, Section 220 of the New York State Labor Law and applicable Article in the General Conditions, every contractor and subcontractor must keep original payrolls or transcripts subscribed and affirmed as true under penalty of perjury. Payrolls must be maintained for at least three years from the project's date of completion. At a minimum, payrolls must show the following information for each person employed on a public work project:
   1. Name
   2. Classification(s) in which the worker was employed
   3. Hourly wage rate(s) paid
   4. Supplements paid or provided

5. Daily and weekly number of hours worked in each classification.

B. Every contractor and subcontractor shall submit, within thirty (30) days after issuance of its first payroll and every thirty (30) days thereafter, a transcript of the original payrolls, subscribed and affirmed as true under penalty of perjury.

End of Section

SECTION 01 15 00

SPECIAL PROJECT REQUIREMENTS

Excerpts from 8 NYCRR Section 155.5 as they address "General Safety and Security Standards for Construction Projects".

STATEMENT OF PURPOSE: "The occupied portion of any school building shall always comply with the minimum requirements necessary to maintain a certificate of occupancy"

1.01 GENERAL

A. Requirements set forth herein are in addition to and shall be considered as complementary to the Conditions of the Contract and the balance of Division #1 and Technical Specifications.

B. All Contractors, Subcontractors, Sub-subcontractors, Vendors and the like shall be required to familiarize themselves with said provisions.

C. All contractors, subcontractors, Sub-subcontractors, vendors and the like shall monitor their workers and require that they adhere to the following safety provisions during all construction and maintenance activities for the duration of the project.

1.02 REQUIREMENTS INCLUDED IN THIS SECTION AS APPLICABLE TO THE PARTICULAR PROJECT SCOPE OF WORK

A. Safe and Secure Storage of Construction Materials
B. Fencing – Project; Material storage areas; Container/Refuse areas
C. Gates – Manned during working hours; locked and secure off hours.
D. Sidewalk bridges, security barriers, etc. reference "Exterior Renovations"
E. Worker identification system
F. Temporary partitions – separation of construction areas from occupied spaces; construction, materials, inspection and maintenance.
G. Worker access both horizontal and vertical in occupied buildings
H. Debris removal.
I. Ventilation of work spaces
J. Exiting
K. Fire and hazard prevention
L. No Smoking
M. Fire extinguishers
N. Temporary sprinklers (if any)
O. Smoke detectors (temporary)
P. Fire watch and maintenance of existing fire alarm systems
Q. Storage of gas and welding equipment
R. Noise abatement procedures
S. Construction fume controls
T. Off-Gassing/bake out procedures
U. Material Safety Data Sheet log
V. Asbestos Code Rule 56
W. Asbestos TEM
X. Lead Abatement/Lead paint
Y. Indoor Air Quality

1.03 SAFE AND SECURE STORAGE OF CONSTRUCTION MATERIALS – Coordinate with Sections 015000 and 016100 each as included with these documents.

A. Materials stored on the Site shall be neatly arranged and protected, and shall be stored in an orderly fashion in locations that shall not interfere with the progress of the Work.

NOTE: If approval is given to store materials in any part of the building area, they shall be so stored as to cause no overloading of the structure.

1.04 FENCING – PROJECT; MATERIAL STORAGE AREAS; CONTAINER/REFUSE AREAS – Coordinate with Section 015000

A. Barrier fencing constructed as outlined in Section 015000 shall be provided surrounding all work areas, material storage locations and around dumpsters and/or chutes when involved with demolition/removal operations.

B. Fencing shall be maintained in good sound condition throughout the entire course of construction by the Owner's Representative and/or Contractor and removed only when directed by the Architect and/or Owner's Representative.

1.05 GATES

A. Gates in construction fencing shall be of construction outlined in Section 015000 and shall be under either the Owner's Representative or Contractors' supervision throughout the work day and shall be secured in a locked condition at the close of any single business day and on all non work days. Gates shall be manned at all times work is in progress.

1.06 SIDEWALK BRIDGES, SECURITY BARRIERS, ETC. REFERENCE "EXTERIOR RENOVATIONS"

A. As applicable to the project involved, provide overhead protective devices for the work consisting of tubular framed scaffold bridges, joist trusses and solid decking. Provide guard rails, lights and warning signs.

1.07 WORKER IDENTIFICATION SYSTEM – Coordinate with Section 011000, Article 1.01.

A. All Contractors' employees shall use a single means of access and egress, except in the case of emergency, to be designated by the General Contractor.

B. The Contractor shall, for all work covered under the Contract, establish a security control system for personnel and material involved with the work herein.

C. The control system shall include photo identification badges and the like so as to insure against unauthorized entry to the site and resultant entry to the building proper.

1.08 TEMPORARY PARTITIONS – SEPARATION OF CONSTRUCTION AREAS FROM OCCUPIED SPACES; CONSTRUCTION, MATERIALS, INSPECTION AND MAINTENANCE – Coordinate with Section 015000 as applicable to project type.

A. Provide temporary partitions from floors to underside of structure above, in sash and any other openings created by new construction, additions and alterations.

B. **Such partitions shall be constructed dust-tight using steel studs and acoustically and/or thermally insulated, Level 1 taped fire rated gypsum board as specified in Section 092900.**

C. Locate enclosures as directed by the Architect and/or as shown on the drawings.

D. In addition to partitions and closures, provide tight fitting filters over all return air grilles and/or open ducts in order to properly protect central air handling equipment.
E. Take all necessary precautions to avoid unnecessary dust spreading to adjoining rooms and spaces.
F. Keep all doors to spaces closed and provide positive seals around cracks, frames, doors and other openings within work areas.
G. WHERE EXTERIOR CLOSURES ARE REQUIRED, INSULATE SAME TO MAINTAIN A TEMPERATURE OF SIXTY-FIVE (65) DEGREES F. WITHIN THE PLANT WITHOUT THE USE OF SPECIAL HEATING EQUIPMENT.
H. All temporary enclosures/partitions/containment barriers shall be periodically inspected and maintained in good repair so as to prevent exposure to dust and contaminants outside the work and/or containment areas.

1.09 WORKER ACCESS BOTH HORIZONTAL AND VERTICAL IN OCCUPIED BUILDINGS
A. A specific stairwell and/or elevator shall be assigned for construction worker use during work hours. Workers may not use corridors, stairs or elevators designated for students or school staff.

1.10 DEBRIS REMOVAL – Coordinate with Sections 015000, 017700 and 024119/20.
A. Large amounts of debris must be removed by use of enclosed chutes or similar systems. There shall be no movement of debris through corridors of occupied spaces of the building. No materials shall be dropped or thrown outside the walls of the building.
B. All occupied parts of the building or buildings affected by renovation activity shall be cleaned at the close of each work day.
C. School buildings occupied during any construction period shall maintain required health, safety and educational capabilities at all times that classes are in session.

1.11 VENTILATION OF WORK SPACES
A. The General Contractor shall provide indoor air quality management as follows:
1. Provide at exhaust air system for the project indoor areas which could produce fumes, VOC's off-gasses, gasses, dusts, mists, or other emissions both during construction activities ***and*** during required curing periods, coordinate with manufacturer's requirements for all materials used.
2. Exhaust air system for the project areas which could produce emissions listed in Paragraph 1 shall be utilized. Work area exhaust shall terminate at the building exterior.
3. Provide temporary partitions and air seals to prevent the migration of airborne contaminants from unoccupied areas to occupied areas when applicable.
4. Quality assurance:
a. Maintain a negative pressure between the work area and the space surrounding the work area.
b. Before start of work, submit a design for the exhaust air system. Do not begin work until approval of the Construction Manager is obtained. The design shall include, but not be limited to:
1. The number of machine required.
2. Location of the machines in the work space.
3. Description of the methods used to test air flow and pressure differential.

5. System operation:
   a. A sufficient quantity of exhaust fans in existing window openings or other approved locations shall be operated in accordance with the following standards:

      Provide one work place air change every 15 minutes.

      To calculate total air flow requirements:

      TOTAL FT/3MIN – VOLUME OF WORK AREA (IN FT3)
      15 MINUTES

      To calculate the number of units needed for the work area.

      NUMBER OF UNITS NEEDED – TOTAL FT3/MIN
      (CAPACITY OF UNIT IN FT3/MIN)

   b. Exhaust air system shall operate for a minimum of 72 hours after work is completed, or until all materials have cured sufficiently as to stop out gassing of fumes or odors and area has been ventilated to remove all detectable traces of odors and fumes.
   c. Maintain 25 feet clearance from all temporary exhaust outlets to all active building outdoor air intakes.
6. **During reroofing operations, air intakes shall be "shut-down" or made safe in other approved manners.**

B. The HVAC Specialty Contractor is to be completely responsible for maintaining all required ventilation in the occupied areas of the building during construction as follows:
   1. Prior to construction, the HVAC Specialty contractor will examine the existing ductwork in the occupied areas of the building.
   2. The layout of existing ductwork is shown, to the extent that it was originally documented, on the HVAC drawings.
   3. The HVAC Specialty contractor will reroute, disconnect or cap nay duct, which because of its proximity to the construction area, may carry contaminants from the construction area to the occupied area.
   4. This alteration of the existing ventilation system must prevent contaminants from entering the occupied areas, but must not prevent the maintenance of necessary ventilation in the occupied area.

Additionally, as the HVAC Specialty contractor provides and connects new ductwork it will continue to evaluate the effect of such ducts and connections on contaminant migration. It will reroute, disconnect or cap this ductwork as needed to prevent contaminants from the construction area from entering the occupied section of the building.

At each point in the construction where such evaluation and rerouting, disconnecting or capping is required, the HVAC Specialty contractor will confer with the Architect and Construction Manager (as appropriate) in determining its course of action and will obtain the Architect’s approval prior to executing this work.”

1.12 EXITING

A. At all times, the General Contractor is responsible for maintenance of safety and egress requirements from work areas.

NOTE: All legal forms of egress must be maintained at all times.

B. Provide temporary exit passage system(s) with guard and hand rails and ramps and such other measures indicated on the drawings and as specified.

1.13 FIRE AND HAZARD PREVENTION – See Section 015000 for requirements for fire watches, storage and maintenance of welding gasses and temporary heating and the like.

1.14 NO SMOKING – No smoking is permitted on the grounds or within the construction area of any project.

1.15 FIRE EXTINGUISHERS – Fire extinguishers shall be provided within the work area and shall be monitored on a scheduled maintenance basis and so tagged to indicate same.

1.16 TEMPORARY SPRINKLERS (IF ANY) – See Section 015000 for applicable text and requirements.

1.17 SMOKE DETECTORS – The Electrical contractor shall provide a temporary battery powered smoke detection system for all areas under construction.

1.18 FIRE WATCH AND MAINTENANCE OF EXISTING FIRE ALARM SYSTEMS – See Sections 01 35 16 and 01 50 00

A. All Contractors 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.

B. 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.

C. The Electrical Specialty Contractor will provide for and maintain the proper operation of fire alarm and smoke detection systems in all areas throughout the course of the project. The Electrical Specialty Contractor will provide all labor and material required to accomplish this in occupied areas of the school buildings and in areas under construction.

1.19 STORAGE OF GAS AND WELDING EQUIPMENT – See Section 015000 for specific requirements and controls.

1.20 NOISE ABATEMENT PROCEDURES

A. Develop and maintain a noise abatement program and enforce strict discipline over all personnel to keep noise to a minimum. Equipment and work shall not produce noise in excess of 60db in occupied areas or shall be scheduled for off hours or acoustical abatement procedures 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.

B. Execute construction work by methods and by use of equipment which will reduce excess noise.
C. Equip air compressors with silencers, and power equipment with mufflers.
D. As established in Section 011000, all contractors shall abide by the “no work” periods designated by the Owner.

1.21 CONSTRUCTION FUME CONTROLS – See Article 1.11 herein.

1.22 OFF-GASSING/BAKE OUT PROCEDURES – See Section 017700
A. Heat all areas of new construction to 95 degrees for a minimum of 72 hours.
B. At the end of this period ventilate area with 100 percent outside air and exhaust air for a minimum of 24 hours to eliminate off gassing that occurs during bake out period.
C. Change all air filters upon completion.
D. 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 well-ventilated heated warehouse before they are 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.

1.23 MATERIAL SAFETY DATA SHEET LOG – Coordinate with Section 013300
A. Contractor shall maintain "MSDS" file on site, accessible to workers and otherwise in compliance with jurisdiction's "Right To Know" legislation.
B. The submittal of the required MSDS information shall be segregated from the required material/shop drawing/sample submittals in a separate binder and not co-mingled with the technical submittals, failure to so conform will be cause for rejection of any submittal.

1.24 ASBESTOS CODE RULE 56 AND ASBESTOS CONTAMINATED MATERIALS (ACM)
A. Abatement projects as defined by Rule 56 shall not be performed while the building is occupied.
B. In the event asbestos-contaminated materials are encountered during the work Contractor shall immediately notify the Architect and/or Owner for instructions as to procedures to be taken.
C. 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, New York 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.

1.25 LEAD ABATEMENT/LEAD PAINT

A. In the event lead based paint is encountered during the work Contractor shall immediately notify the Architect and/or Owner for instructions as to procedures to be taken.

B. Attention is directed to technical Section 099100 for “protocols” concerning lead paint removals and preparation.

C. Any construction or maintenance operations which will disturb lead based paint shall be abated 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, DC 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

End of Section

SECTION 01 22 00

UNIT PRICES

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for unit prices.

1.2 DEFINITIONS

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

1.3 PROCEDURES

A. Unit prices include all necessary material, plus cost for delivery, installation, insurance, overhead, and profit.

B. Measurement and Payment: See individual Specification Sections for work that requires establishment of unit prices. Methods of measurement and payment for unit prices are specified in those Sections.

C. Owner reserves the right to reject Contractor's measurement of work-in-place that involves use of established unit prices and to have this work measured, at Owner's expense, by an independent surveyor acceptable to Contractor.

D. List of Unit Prices: A schedule of unit prices is included in Part 3. Specification Sections referenced in the schedule contain requirements for materials described under each unit price.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 SCHEDULE OF UNIT PRICES

A. Unit price for removal of existing wall tile as asbestos containing material.
Unit: per square foot

END OF SECTION 01 22 00

SECTION 01 23 00

ALTERNATES

PART 1 - GENERAL

1.1 SUMMARY

1. Section includes administrative and procedural requirements for alternates.

1.2 DEFINITIONS

1. Alternate: An amount proposed by bidders and stated on the Bid Form for certain work defined in the bidding requirements that may be added to or deducted from the base bid amount if the Owner decides to accept a corresponding change either in the amount of construction to be completed or in the products, materials, equipment, systems, or installation methods described in the Contract Documents.

    1. Alternates described in this Section are part of the Work only if enumerated in the Agreement.
    2. The cost or credit for each alternate is the net addition to or deduction from the Contract Sum to incorporate alternates into the Work. No other adjustments are made to the Contract Sum.

1.3 PROCEDURES

1. Coordination: Revise or adjust affected adjacent work as necessary to completely integrate work of the alternate into Project.

    1. Include as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not indicated as part of alternate.

2. Execute accepted alternates under the same conditions as other work of the Contract.

3. Schedule: A schedule of alternates is included at the end of this Section. Specification Sections referenced in schedule contain requirements for materials necessary to achieve the work described under each alternate. See Drawings for extent of Alternates.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 SCHEDULE OF ALTERNATES

No.	Description

1. ADD Alternate 1: Alterations of toilet rooms Boys Toilet 198, Toilet Room 198A, Girls Toilet 199, Toilet Room 199A, Boys toilet 298, Girls Toilet 299, Toilet Room 299A

This alternate request covers the amount TO BE ADDED for the alteration of the toilet rooms listed above.

END OF SECTION 01 23 00

SECTION 01 25 00

PRODUCT OPTIONS AND SUBSTITUTIONS

1.01 GENERAL

A. Requirements set forth herein are in addition to and shall be considered as complementary to the Conditions of the Contract and the balance of Division #1 and Technical Specifications.

B. All Contractors, Subcontractors, Sub-subcontractors, Vendors and the like shall be required to familiarize themselves with said provisions.

1.02 REQUIREMENTS INCLUDED IN THIS SECTION

A. Approved Equal Clause
B. Substitution Requests
C. Options
D. Contractor's Representation
E. Reimbursements

1.03 APPROVED EQUAL CLAUSE

A. Throughout the Specifications, types of material may be specified by manufacturer's name and catalog number in order to establish standards of quality and performance and not for the purpose of limiting competition.

Inclusion by name, of more than one manufacturer or fabricator, does NOT necessarily imply acceptability of standard products of those named. All manufacturers, named or proposed, shall conform, with modification as necessary, to criteria established by Contract Documents for performance, efficiency, materials and special accessories.

B. Contractor may assume the phrase "or approved equal" except that the burden is upon the Contractor to prove such equality and to satisfy Architect that proposed substitute is equal to, or superior to, the item specified.

1.04 SUBSTITUTION REQUESTS

A. If the Contractor elects to prove such equality, he must request the Architect's and the Owner's approval in writing for substitution of such items for the specified items, stating the differences involved with and submitting supporting data and samples, if required, to permit a fair evaluation of the proposed substitution with respect to -

1. Performance;
2. Delivery times and effect on schedules, if any;
3. Safety;
4. Function;
5. Appearance;
6. Quality and durability;
7. Any required license fees or royalties;
8. Warranty terms and conditions;

The contractor shall submit a separate request for each product, supported with complete data, with drawings and samples as are appropriate to substantiate the above.

B. The Architect, as set forth in the Post Bid Requirements in Section 002100, will

review requests for substitutions with reasonable promptness, and notify the Contractor, in writing, of the decision to accept or reject the requested substitution.

1.05 OPTIONS

A. Where Technical Specifications permit Contractor to select optional materials, items, systems, or equipment, the selection of such options is subject to the following conditions:

1. Once an option has been selected and approved, it shall be used for the entire contract.
2. The Contractor shall coordinate his selection with the drawings and specifications and make all necessary adjustments without additional cost to the Owner.

1.06 CONTRACTOR'S REPRESENTATION

A. A request for a substitution constitutes a representation that the Contractor:

1. Has investigated the proposed product and determined that it is equal to or superior in all respects to that specified;
2. Will provide the same warranties or bonds for the substitution as for the product specified;
3. Will coordinate the installation of an accepted substitution in the work, and make such other changes in the work as may be required for installation to make the work complete in all respects;
4. Will waive all claims for additional costs, under its responsibility, which may subsequently become apparent.
5. **Will have coordinated installation with all affected trade contractors, specialty contractors and the like and will be responsible for any and all costs which may arise as a result of this substitution.**

1.07 REIMBURSEMENTS

A. As outlined in Section 013300, when resubmittals of materials, equipment and accessories to be incorporated in the project are necessary due to failure of Contractors to properly coordinate submittals, the submitting Contractor shall compensate the Design Professionals for required re-reviews of said submittals in accordance with the following fee schedule:

Principal's Time	$ 225.00 per hour
Associate's Time	$ 155.00 per hour
Employees Time	Direct Personnel Expenses X 3.0
Engineer's Time	$ 175.00 per hour

The charges incurred will be deducted from the ensuing requisition at the direction of the Owner.

End of Section

SUBSTITUTION REQUEST FORM

To: _____ **Project:** _____

_____

_____

_____

Section	Page	Paragraph	Specified Item

THE UNDERSIGNED REQUESTS CONSIDERATION OF THE FOLLOWING SUBSTITUTION:

Attached data shall include, in a tabular format to provide a line by line comparison - product description, specifications, drawings, photographs, performance and laboratory tests and the like with applicable portions of said data clearly identified.

FURTHER, The Proposed Substitution WILL (OR WILL NOT) Affect:

Dimensions indicated on the drawings?_____
Wiring, piping, ductwork, or other building services indicated on the drawings?_____
Other trades and abutting or interconnection work? _____
Manufacturer's guarantees and warranties? _____
The construction schedule?
_____
Maintenance and service parts locally available? _____

(NOTE - If Substitution WILL affect any item above, explain in detail.)

In addition to the above, the undersigned agrees to pay for -

1. Any and all changes to the building design, including structural, civil or electro/mechanical systems engineering (if any), detailing; and
2. Any and all additional construction costs caused by the requested substitution.

The undersigned further states that the function, appearance and quality of the Proposed Substitution are equivalent or superior to the Specified Item.

SUBMITTED:	DESIGN PROFESSIONAL'S COMMENTS	
By:	Accepted	Accepted as Noted
Firm: _	Not Accepted	Received Too Late
Address:		
		By:
Date:		Date:
Telephone/Fax:		Remarks:
Approved For Subcontractor Submittal:		
By:	Contractor:	Date:

SECTION 01 29 00

APPLICATIONS FOR PAYMENT

1.01 GENERAL

A. Requirements set forth herein are in addition to and shall be considered as complementary to the Conditions of the Contract and the balance of Division #1 and Technical Specifications.

B. This Section specifies administrative and procedural requirements governing the Contractor's Applications for Payment, and supplements provisions of Article 9, Payments and Completion, of the General Conditions of the Contract.

1.02 REQUIREMENTS INCLUDED IN THIS SECTION

A. Schedule of Values

B. Applications for Payment

1.03 SCHEDULE OF VALUES – Article 9.2, General Conditions and Supplements thereto.

A. Coordination: Each prime Contractor shall coordinate preparation of its Schedule of Values for its part of 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 alternates.
   e. Schedule of allowances
   f. List of products.
   g. List of principal suppliers and fabricators.
   h. Schedule of submittals.
2. Submit the Schedule of Values to the Architect at the earliest possible date but no later than seven (7) days before the date scheduled for submittal of the initial Applications for Payment.
3. Subschedules: Where Work is separated into phases requiring separately phased payments, provide subschedules showing values correlated with each phase of payment.

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 line item for each Specification Section. For major trades with total line items exceeding $25,000, provide a separate, back-up breakdown of each such trade with line items for identifiable units of work within such trade each of which has a value not exceeding $25,000. Provide a computed unit price for each line total.

1. Identification: Include the following Project identification on the Schedule of Values:
   a. Project name and location.
   b. Name of the Architect
   c. 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.
   h. Percentage of Contract Sum to nearest one-hundredth percent, adjusted to total 100 percent.
   i. Phase Area (as applicable).

   NOTE: 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.

3. Provide a breakdown of the Contract Sum by Phase Area 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.
4. Round amounts to nearest whole dollar; the total shall equal the Contract Sum.
5. Provide a separate line item in the Schedule of Values for each part of the Work where Application for Payment may include materials or equipment, purchased or fabricated and stored, but not installed. Differentiate between items stored on-site and items stored off-site. Include requirements for insurance and bonded warehousing, if required.
6. 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.
7. Unit Price Work: Show the line-item value of unit-cost allowances, as a product of the unit multiplied by the measured quantity. Estimate quantities from the best indication in the Contract Documents.
8. Temporary facilities, clean up and other major cost items and correction of existing conditions are not direct cost of actual work-in-place may be shown either as separate line items in the Schedule of Values or distributed as general overhead expense, at the Contractor's option.
9. Project Closeout Expenses including any and all expenses involving project documentation, warranty assembly, inspection costs and fees and the like
10. Schedule Updating: Update and resubmit the Schedule of Values prior to the next Application for Payment when Change Orders result in a change in the Contract Sum.

1.04 APPLICATIONS FOR PAYMENT - See Article 9.3 of the General Conditions and Supplements thereto.

A. Each Application for Payment shall be consistent with previous applications and payments as certified by the Architect and paid for by the Owner. 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 or in absence thereof the previous month.

C. Payment-Application Forms: Use AIA Document G732 (CM version) and Continuation Sheets G703 as the form of Applications for Payment.

D. Application Preparation: Complete every entry on the form. Include notarization and execution of person authorized to sign legal documents on behalf of the Contractor. The Architect will reject, and return, incomplete applications without action.
   1. Entries shall match data on the approved Schedule of Values and the Contractor's Construction Schedule. Update schedules if revisions were made.
   2. Include amounts of Change Orders and Construction Change Directives issued prior to the last day of the construction period covered by the application.
   3. Provide copies of payrolls which are signed and notarized documenting compliance with prevailing wage laws as applicable to particular project.

E. Transmittal: Submit three (3) signed and notarized original copies of each Application for Payment to the Architect by a method ensuring receipt within 24 hours. One copy shall be complete, including waivers of lien and similar attachments, when required. Transmit each copy with a transmittal form listing attachments and recording appropriate information related to the application, in a manner acceptable to the Architect.

F. 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.

      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 and/or as included as attachment to Section 007000.

G. Initial Application for Payment: Administrative actions and submittals, that must precede or coincide with submittal of the first Application for Payment, shall include the following prerequisites to processing:
   1. List of subcontractors, approved.
   2. List of principal suppliers and fabricators, approved.
   3. Schedule of Values, approved.
   4. Contractor's Construction Schedule, approved.
   5. Schedule of principal products.

6. Schedule of unit prices, approved.
7. Submittal Schedule, approved.
8. List of Contractor's staff assignments.
9. List of Contractor's principal consultants.
10. Copies of building permits as applicable to project requirements.
11. Copies of authorizations and licenses from governing authorities for performance of the Work.
12. Initial progress report.
13. Report of pre-construction 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 by particular project.
18. Safety plan

H. Monthly Application for Payment Administrative actions and submittals, that must precede or coincide with submittal of the periodic Application for Payment, shall include the following:
1. As-built Record documents, required documents and submittal records on site.
2. Contractor's construction schedule, updated, with corrective action plan as applicable.
3. Material Status Report.
4. Stored Materials forms.
5. Submittal Schedule and submittal status reports.
6. RFI submittal and status log.
7. Monthly Progress report, and Notarized Progress Report Statement from each Contractor’s manager/superintendent stating that the work is on schedule, and that Contractor will meet the Substantial Completion date for the Work, and the Substantial Completion dates for every portion established under Construction Phasing Schedule Section.

I. Application for Payment at Substantial Completion: Following issuance of the Certificate of Substantial Completion, submit an Application for Payment.
1. This application shall reflect Certificates of Partial Substantial Completion issued previous to Owner occupancy of designated portions of the Work.
2. Administrative actions and submittals that shall precede or coincide with this application include:
    a. Occupancy permits and similar approvals.
    b. Warranties (guarantees) and maintenance agreements.
    c. Test/adjust/balance records.
    d. Maintenance instructions.
    e. Meter readings.
    f. Startup performance reports.
    g. Changeover information related to Owner's occupancy, use, operation, and maintenance
    h. Final cleaning.
    i. Application for reduction of retainage and consent of surety.
    j. Advice on shifting insurance coverages.
    k. Final progress photographs.
    l. List of incomplete Work, recognized as exceptions to Architect's Certificate of Substantial Completion.

J. Final Payment Application: Administrative actions and submittals that must precede or coincide with submittal of the final Application for Payment include the following:
   1. Completion of Project closeout requirements.
   2. Completion of items specified for completion after Substantial Completion.
   3. Ensure that unsettled claims will be settled.
   4. Ensure that incomplete Work is not accepted and will be completed without undue delay.
   5. Transmittal of required Project construction records to the Owner.
   6. Certified property survey as and/if required by project documents.
   7. Proof that taxes, fees, and similar obligations were paid.
   8. Removal of temporary facilities and services.
   9. Removal of surplus materials, rubbish, and similar elements.
   10. Change of door locks to Owner's access.
   11. Consent of Surety to final payment.

End of Section

SECTION 01 29 03

LABOR AND/OR MATERIALS AFFIDAVIT

STATE OF: _____)

COUNTY OF: _____)

_____
(Name)

being duly sworn, deposes and says that he/she is the _____
(Officer)

of _____
(Name of Company)

furnishing Labor and or Materials in connection with a public improvement for

_____
(Description of Improvement)

That, to his/her knowledge, all subcontractors for Labor and/or Materials Dealers have been paid the amount of money due them or not less than the amount paid by Owner to the Contractor as shown by previous requisitions.

_____
(Signature)

_____
(Title)

(Corporate Seal)

State of)
)ss:
County of)

Sworn to Before Me
This _____ Day of _____, 20__.

_____
Notary Public

(Stamp)

SECTION 01 29 04

DAILY AND WEEKLY WAGE AFFIDAVIT

STATE OF: _____)

COUNTY OF: _____)

_____
(Name)

being duly sworn, deposes and says that he/she is the_____
(Officer)

of _____
(Name of Company)

furnishing Labor and or Materials in connection with a public improvement for

_____
(Description of Improvement)

That, to his/her knowledge, all laborers for Daily and Weekly Wages employed by

_____, on such improvement, have been paid in full

except _____
(Name and Amount Due, If Any)

This statement read, subscribed and sworn to by me to induce the said Owner to make payment under Contract for such improvement.

_____
(Signature)

_____
(Title)
(Corporate Seal)

State of)
)ss:
County of)

Sworn to Before Me
This _____ Day of _____, 20___.

_____
Notary Public
(Stamp)

SECTION 01 31 13

PROJECT COORDINATION

1.01 GENERAL

A. Requirements set forth herein are in addition to and shall be considered as complementary to the Conditions of the Contract and the balance of Division #1 and Technical Specifications.

B. All Contractors, Subcontractors, Sub-subcontractors, Vendors and the like shall be required to familiarize themselves with said provisions.

C. Definitions as apply to "Contractors" involved with the work of this Project shall be as set forth in Section 011000, Article 1.01.

1.02 REQUIREMENTS INCLUDED IN THIS SECTION

A. Coordination of Work

B. Trade Contractor Obligations

1.03 COORDINATION OF WORK

A. As required by the General Conditions, and restated herein, each Trade and/or Specialty Contractor or Subcontractor shall compare the architectural, structural, civil/site, mechanical and electrical Drawings and Specifications with those for all other trades and shall report any discrepancies between them to the Architect, thru the General Contractor, and obtain from him written instructions for changes necessary to the work. All work shall be installed in cooperation with other trades installing interrelated work. Before installation, each Trade Contractor shall make proper provisions to avoid interference in a manner approved by the Architect. All changes required in the work caused by neglect to so advise the Architect shall be made by the offending Contractor at his own expense.

B. Each Trade Contractor shall be responsible for exact location of anchor bolts, sleeves, inserts, supports, chases, conduits and openings that may be required for the work.

Attention is directed to Section 013114. Each Trade Contractor shall prepare layout drawings for incorporation of items to be built-in the work, pass through the work and the like in sufficient time so as not to cause any undue delay in the execution of the work.

Built-in items shall be furnished under the same Section of the Specifications as the respective items to be supported, and they shall be installed, except as otherwise specified, by the trade furnishing and installing the material in which they are to be located. The trade responsible for the installation of anchor bolts shall also insure that they are properly installed. Chases, conduits and openings shall be laid out in advance to permit provision in work. Sleeves and inserts shall not be used in any portion of the building, where their use would impair strength or construction features of the building. Sleeves, conduits and inserts shall be set in forms before concrete is poured. Extra work required where anchor bolts, supports, sleeves, chase openings, conduits or inserts have been omitted or improperly placed shall be performed at expense of trade which made error or omission.

C. Slots, chases, openings and recesses through floors, walls, ceilings and roofs as specified will be provided for the various trades in their respective materials under

general construction work, but the trade requiring them shall see that they are properly located and shall do any cutting and patching caused by the neglect to do so.

D. Locations of pipes, ducts, electrical raceways, switches, panels, equipment, fixtures, etc. shall be adjusted to accommodate the work to interferences anticipated and encountered. Each Trade Contractor shall determine, and submit for approval, the exact route and location of each pipe, duct and electrical raceway prior to fabrication.

Approval by the Architect is required prior to any such modifications.

E. Lines which pitch shall have the right of way over those which do not pitch.

For example, plumbing and condensate piping drains shall normally have right of way.

Lines whose elevations cannot be changed shall have the right of way over lines whose elevations can be changed.

F. Offsets, transitions and changes in direction in pipes, ducts and electrical raceways shall be made as required to maintain proper headroom and pitch of sloping lines whether or not indicated on the Drawings. Each Trade Contractor shall provide air vents, sanitary vents, pull boxes, etc.; as required to effect these offsets, transitions and changes in direction.

G. Each Trade Contractor shall install all mechanical and electrical work to permit removal (without damage to other parts) of coils, heat exchanger bundles, fan shafts and wheel, draw-out circuit breakers, filters, belt guards, sheaves and drives and all other parts requiring periodic replacement or maintenance. Each Trade Contractor shall arrange pipes, ducts, raceways, traps, starters, motors, control components, and the like, to clear the openings of swinging and overhead doors and of access panels.

H. In all locations where subjected to public access, or in any occupied spaces, any and all piping systems servicing mechanical delivery systems which run on the face of construction shall be encased in a permanent encasement such as steel studs and drywall; steel framing, lathing and plaster; or other suitable and approved materials.

I. AS REQUIRED BY COORDINATED SCHEDULING, The General Contractor shall provide temporary weathertight and protected openings in structure to facilitate placement of equipment.

1.04 TRADE CONTRACTOR OBLIGATIONS

A. The Trade Contractors are required to supply all necessary supervision and coordination information to any other trades who are supplying work to accommodate the electrical and mechanical installations.

B. Where a trade is required to install items which it does not purchase, it shall include for such items:

1. The coordination of their delivery.
2. Their unloading from delivery trucks driven in to any designated point on the property line at grade level.
3. Their safe handling and field storage up to the time of permanent placement in the project.

4. The correction of any damage, defacement or corrosion to which they may have been subjected.
5. Their field assembly and internal connection as may be necessary for their proper operation.
6. Their mounting in place including the purchases and installation of all dunnage supporting members and fastenings necessary to adapt them to architectural and structural conditions unless support members are shown on structural or architectural drawings.
7. Their connection to building systems including the purchase and installation of all terminating fittings necessary to adapt and connect them to the building systems.

C. Items which are to be installed but not purchased as part of the work of a particular trade shall be carefully examined by this trade upon delivery to the project.

Claims that any of these have been received in such condition that their installation will require procedures beyond the reasonable scope of the work of the installing trade will be considered only if presented in writing within one week of the date of delivery to the project of the items in question.

The work of the installing trade shall include all procedures, regardless of how extensive, necessary to put into satisfactory operation, all items for which no claims have been submitted as outlined above.

End of Section

SECTION 01 31 14

COORDINATION DRAWINGS AND PROCEDURES

1.01 GENERAL

A. Requirements set forth herein are in addition to and shall be considered as complementary to the Conditions of the Contract and the balance of Division #1 and Technical Specifications.

B. All Contractors, Subcontractors, Sub-subcontractors, Vendors and the like shall be required to familiarize themselves with said provisions.

C. Definitions as apply to "Contractors" involved with the work of this Project shall be as set forth in Section 011000, Article 1.01.

D. Coordination of the work shall be performed as outlined below.

1.02 REQUIREMENTS INCLUDED IN THIS SECTION

A. Scheduling (Coordinate with Section 013200)

B. Coordination Drawings and Procedures - Electrical Work

C. Meetings

D. Penalties

1.03 SCHEDULING

A. Development of coordination drawings shall begin immediately upon award and shall not be dependent upon structural shop drawings; development shall be based upon structural information included on the Contract Documents.

B. During the “final” review of the coordination drawings, the approved structural shop/fabrication drawings shall be checked and any conflicts identified. General Contractor shall coordinate and insure structural shop drawings are processed so as to meet this requirement. Failure to prosecute same in a timely manner will be cause for implementation of penalties as outlined in 1.07 herein.

C. Progress of coordination drawings must be reported at every project meeting until accepted.

1.04 COORDINATION DRAWINGS AND PROCEDURES - GENERAL CONSTRUCTION WORK

Attention is directed to this Section for coordination drawing requirements for this project. These drawings are critical to the proper execution of the Work and failure to honor these requirements may become the basis for denial of any and all claims for either or both “time” and “money”.

1.05 COORDINATION DRAWINGS AND PROCEDURES - MECHANICAL/ELECTRICAL WORK

A. Electrical work shall be coordinated as indicated by the following procedure. Review of coordination drawings shall not diminish responsibility under this Contract for final coordination of installation with Architectural work.

NOTE: Electronic documents (CAD files) can be used for these operations based upon agreement between all parties and in accordance with terms and conditions set for obtaining of CAD files as per attachment to Section 013300.

B. Coordination Drawings include but are not necessarily limited to:
   1. Partition/room layout.
   2. Ceiling tile and grid.
   3. Light fixtures.
   4. Major electrical conduit runs, panelboards, feeder conduit and racks of branch conduit.
   5. Above ceiling miscellaneous metal.
   6. Fire Protection Systems.

C. All coordination drawings shall be delivered to the Architect at the end of the project as part of the record drawing requirements set forth in Article 3.11 of the General Conditions.

1.06 MEETINGS – Coordinate with Section 013119

A. Coordination meetings to resolve interferences in the work will be held at the project site under the direction of the Architect and Owner's Representative.

Representatives of each Contractor shall be present at each meeting.

Each Contractor shall provide the necessary manpower and/or overtime to insure that the coordination process described herein does not delay the Project Schedule.

1.07 PENALTIES

A. FAILURE OF ANY INDIVIDUAL PRIME CONTRACTOR TO PARTICIPATE IN THE PREPARATION OF SAID COORDINATION DRAWINGS AND TO OBTAIN ARCHITECT'S REVIEW AND CONCURRENCE THEREOF WILL RESULT IN FORFEITURE OF THEIR RIGHT OF PAYMENT UNTIL SAID DRAWINGS ARE ACCEPTED.

B. REPEATED VIOLATIONS OF THIS CONTRACTUAL REQUIREMENT MAY RESULT IN TECHNICAL DEFAULT OF THE AGREEMENT BETWEEN THE OWNER AND THE OFFENDING PRIME CONTRACTOR;

HOWEVER, THE FAILURE OF THE OWNER TO SO TERMINATE SHALL NOT RELIEVE THE CONTRACTOR FROM FUTURE COMPLIANCE WITH THE TERMS AND CONDITIONS OF THIS SECTION.

End of Section

SECTION 013119 - PROJECT MEETINGS

1.01 GENERAL

A. Requirements set forth herein are in addition to and shall be considered as complementary to the Conditions of the Contract and the balance of Division #1 and Technical Specifications.

B. All Contractors, Subcontractors, Sub-subcontractors, Vendors and the like shall be required to familiarize themselves with said provisions.

C. Definitions as apply to "Contractors" involved with the work of this Project shall be as set forth in Section 011000, Article 1.01.

1.02 REQUIREMENTS INCLUDED IN THIS SECTION

A. Initial (Kick-Off or Orientation) Meeting
B. Regular Project Meetings
C. Job Progress Meetings
D. Job Coordination Meetings
E. Pre-Installation Conferences
F. Recording

NOTE: As part of all individual meetings outlined above there shall be a Waste Management program discussion held with all responsible parties in attendance.

1.03 INITIAL (KICK-OFF OR ORIENTATION) MEETING

A. The Owner's Representative will schedule the initial job meeting, prior to the start of any work, at the project site and will notify all parties concerned of the time and place of the meeting.

B. Attendance:
   1. Prime Contractor (s) or Construction Manager if involved
   2. Owner’s Representative or Owner.
   3. Architect and principal consultants.
   4. Major subcontractors and suppliers as deemed appropriate.
   5. Representative of Testing Laboratory if independent.

C. Review and Discuss:
   1. Relation and coordination of various parties, and responsible personnel for each party.
   2. Use of premises, including office and storage areas, temporary controls, and security procedures.
   3. Waste management requirements as outlined in Section 017419.
   4. Construction schedule and critical work sequencing.
   5. Processing of:
      a. Contract modifications.
      b. Shop Drawings, Product Data, and Samples.
      c. Applications for Payment.
      d. Substitutions.
      e. Requests for Information.
      f. Other required submittals.
   6. Adequacy of distribution of Contract Documents.
   7. Procedures for maintaining contract closeout submittals.
   8. Installation and removal of temporary facilities.

D. Notification procedures and extent of testing and inspection services

E. The meeting will be conducted by the Architect and Owner's Representative and shall address the conduct of the job, lines of communications, and the like. Discussions on waste management requirements as outlined in Section 017419 shall be part of the agenda.
F. All Contractors are required to attend.

1.04 REGULAR PROJECT MEETING AGENDA
A. Coordinate the Work of the Project (Reference Section 013114).
B. Establish a sound working relationship among the Contractors, the Architect and the Owner.
C. Review and update progress, submittal and delivery schedules.
D. Review job progress.
E. Review progress payment requests; change proposals and change orders.
F. Expedite the work to completion within the project schedule.
G. Provide a 2 week look ahead schedule.

1.05 JOB PROGRESS MEETINGS
A. Unless otherwise directed, bi-weekly job meetings will be held by the Owner's Representative. Present at these meetings shall be EACH CONTRACTOR or a representative authorized to make commitments for action on behalf of the Contractor and the Owner.
B. EACH CONTRACTOR shall arrange for the participation of its Subcontractors when their presence is required by the Owner's Representative and/or the Architect.
C. The minimum agenda will cover:
1. Review minutes of previous meetings.
2. Note field observations, problems, and decisions.
3. Identify present problems and resolve them.
4. Plan work progress during next work period and its effect on the related work of others.
5. Review shop drawings and submittal schedules.
6. Review change order status.
7. Review status of construction progress schedule.
8. Coordinate occupancy arrangements and access requirements with Owner.
9. Discussions on waste management requirements as outlined in Section 017419 shall be part of the agenda.

1.06 JOB COORDINATION MEETINGS (Reference Section 013114)
A. On a bi-weekly basis, either on the day of the schedule job progress meeting, or such other time established, a "working" coordination meeting will be held at the project site. Present at these meetings shall be **each contractor's site supervisor** with men working, or **scheduled to work within the ensuing 2 weeks**, and the Owner's site Representative.

Further, prior to the start of any major trade work, a coordination meeting following the guidelines established herein shall be held subject to the same parties' presence as for general meetings.

B. Meeting shall be used to coordinate work between contracts for the ensuing 2 weeks. At the close of the meeting, each supervisor shall, in an agreed format,

provide a summarized 2 week work plan to the other contractors and the Owner's Representative.

C. The time and place for the meetings will be as established in the preconstruction meeting.

D. Minutes will be taken by the party designated and distributed to all parties involved and the Owner's Representative or the General Contractor will provide, at the next regular progress meeting, a verbal report of the date and time of the last coordination meeting and a listing of those present.

1.07 PRE-INSTALLATION CONFERENCES

A. Where required in individual specification Section, convene a pre-installation conference at project site or other designated location.

B. Require attendance of parties directly affecting or affected by work of the specific Section.

C. Review conditions of installation, preparation and installation procedures, and coordination with related work.

1.08 RECORDING: The Owner's Representative or the Architect, as agreed to by contract, shall write minutes of all meetings and distribute them to all parties present and to those on the distribution list given out at the orientation meeting within 48 hours of the meeting.

PART 2 PRODUCTS

Not used

PART 3 EXECUTION

Not used

End of Section

SECTION 01 32 00

SCHEDULING AND PROGRESS

1.01 GENERAL

A. Requirements set forth herein are in addition to and shall be considered as complementary to the "Conditions of the Contract" and the balance of Division #1 and Technical Specifications.

B. All Contractors, Subcontractors, Sub-subcontractors, Vendors and the like shall be required to familiarize themselves with said provisions.

C. Definitions as apply to "Contractors" involved with the work of this Project.

1. "Contractor for General Construction (CGC)" meaning the party responsible for the preparation of, and monitoring of, the coordinated project progress schedule (CPPS) prepared in consort with the "Prime Contractors" as defined below;
2. "The Contractor" or "Contractor" meaning that Prime Contractor normally responsible for that work referenced;
3. "Prime/Trade Contractor" meaning either the - General, Plumbing, HVAC or Electrical Contractors normally responsible for the referenced work;
4. "Coordinated Project Progress Schedule (CPPS)" meaning that schedule prepared by the "Contractor for General Construction" with all required input from each of the "Prime Contractors" as defined in Paragraph 1.01.C.3 above.

and such other terms relating to Contractors to be taken in context with respect to referenced work.

D. The requirements set forth within this section are directed to all Contractors involved in the work and shall be considered mandated requirements subject to penalties as defined elsewhere in this Section.

1.02 REQUIREMENTS INCLUDED IN THIS SECTION

A. Preliminary Requirements
B. Commencement, Prosecution and Completion of the work
C. Coordinated Submittal Schedules
D. Proposed Product List and Status Report on Material Orders - See Article 1.11 of Section 013300; failure to comply with these requirements shall result in rejection of schedules and withholding of any requisitions.
E. Coordinated Project Progress Schedule
F. Breach of Contract
G. Time of Completion

1.03 PRELIMINARY REQUIREMENTS (Coordinate with Post-Bid Requirements set forth in Section 002100)

A. Within seven (7) days after bids are opened, and before the Contract is executed, the three (3) apparent low bidder for each trade/contract must submit to the Architect, in writing, a list of duration’s and a sequence, in the form of a bar chart, for all activities that are the responsibility of the bidder. Contractor's proposed work force and other resource loading for each activity of the bar chart, broken down by trades, must also be provided. Failure to comply with this requirement may be cause for rejection of the bid.

B. The apparent low bidders, concurrent with the submission of bar chart for each school, shall also submit to the Architect, in writing, the following information:
   1. Shop drawing and material sample schedules keyed to the duration's submitted in the bar chart. (See Section 013300)
   2. Schedules for the award of subcontractor and equipment contracts keyed to the duration's submitted for the bar chart.
   3. The name of the person who, as Scheduling Coordinator for the apparent low bidder, is authorized to act on behalf of the apparent low bidder on all matters of scheduling included in this Section. Once named, the Scheduling Coordinator may only be replaced after written notice is given to the Owner's Representative and Architect. The Contractor agrees, upon the request of either of the two parties, to replace the Scheduling Coordinator.

C. Failure to comply with this subsection 1.03 of this Section of the General Requirements may be cause for rejection of the bid and forfeiture of security. (See the "Post-Bid Procedures" in the Instructions to Bidders.)

1.04 COMMENCEMENT, PROSECUTION AND COMPLETION OF THE WORK

A. Contractor shall commence work under this contract upon receipt by him of Letter of Intent to Award, Notice to Proceed, and/or Execution of the Contract, and shall prosecute said work diligently and complete the work within the stated calendar days for each portion of the work as set forth in Section 011000.

B. The time stated for completion for contract work includes final cleanup of area. Upon completion of total Contract work, ALL AREAS SHALL BE CLEAN.

C. The Contractor is to carry on responsibility for services and maintenance of such items as temporary roads, walks, ramps, field offices, parking areas, environmental controls and the like until work under this contract is complete, unless otherwise directed by the Owner. Coordinate work herein with Section 01 10 00, Description of Work.

1.05 COORDINATED SUBMITTAL SCHEDULES

A. Within two (2) weeks after receipt of Letter of Intent to Award, Notice to Proceed, and/or Execution of the Contract, each Contractor shall submit, to each other for review and comment prior to submittal to the Contractor for General Construction, a detailed listing of all items to be incorporated within the work, including all items of mechanical and electrical.

   This agreed upon information will then be incorporated in the "CPPS" as prepared by the "CGC" in accordance with Paragraph 1.05 of this Section.

   Listing should generally include the following:
   1. Overall project milestones;
   2. Proposed products list and status report on material orders.
   3. Dates of shop drawing/sample submittals;
   4. Guaranteed delivery dates after shop drawing and/or sample approvals;
   5. Date of installation start;
   6. Date of installation completion.

1.06 COORDINATED PROJECT PROGRESS SCHEDULE

A. Within two (2) weeks after receipt of Letter of Intent to Award, Notice to Proceed, and/or Execution of the Contract, but prior to the actual start of the field work, the

Contractor for General Construction shall submit to the Architect for his approval the proposed Coordinated Project Progress Schedule giving the information listed below.

In order to complete the "CPPS" each Contractor shall submit to each other for review, comment and time coordination prior to submittal to the Contractor for General Construction, their requirements so as to allow for said schedule to be drawn.

EACH CONTRACTOR SHALL SIGNIFY ACCEPTANCE OF SAID COORDINATED PROJECT PROGRESS SCHEDULE BY SIGNING PRIOR TO SUBMITTAL.

FAILURE OF THE "CGC" TO SUBMIT SAID COORDINATED PROJECT PROGRESS SCHEDULE AND TO OBTAIN APPROVAL THEREOF WILL RESULT IN FORFEITURE OF RIGHT OF PAYMENT UNTIL SAID SCHEDULE IS APPROVED.

SHOULD SUCH FAILURE BE CAUSED BY THE LACK OF COOPERATION ON THE PART OF ANY CONTRACTOR, SAID CONTRACTOR WILL BE PENALIZED BY FORFEITURE OF RIGHT OF PAYMENT AS WELL AS BEING HELD RESPONSIBLE FOR ANY DELAYS AND RESULTANT COSTS AS OUTLINED IN THE GENERAL CONDITIONS THAT MAY ACCRUE UNTIL SUCH PARTICIPATION IS FORTHCOMING AND SAID SCHEDULE IS APPROVED.

The minimum information contained within the required project progress schedule shall consist of -

1. The estimated dates the various classes of work included in the Schedule of Values will be started and completed.
2. The estimated percentages of completion to be obtained and the total dollar value of the various classes of said work projected to the end of each calendar month until substantial completion.

   Calculations shall be based upon - work in place; materials on site and not installed; materials fabricated and stored under suitable conditions and insured to full value in a manner satisfactory to Architect and Owner; and such other items as may be agreed to among the Contractor, Architect and Owner.

3. The estimated delivery and installation dates of the major pieces of equipment to be furnished and installed by the Contractor.
4. The estimated projected progress of work that will be performed away from the job site.
5. A delineation of the work that will be performed by the Contractor's own forces and by his Subcontractors.
6. The estimated calendar dates on which all the work under the contract will be completed and ready for substantial completion and final inspections.

B. The Coordinated Project Progress Schedule shall be based on an orderly progression of the Work, allowing adequate time for each operation, and leading to a reasonable certainty of Substantial Completion by the date established in Section 011000.

The "CPPS" will be reviewed by the Architect and Owner's Representative for compliance with the requirements of this article and will be accepted by them or returned to the "CGC" for revision and resubmittal.

In the event that said schedule is returned, each contractor shall participate in the revision, as required, to prepare same for resubmittal.

Unless specifically required by law, no payment under this Contract shall be due until the Progress Schedule has been submitted to the Architect and Owner's Representative and approved by both parties.

C. As the work progresses, an up-to-date copy of the "CPPS" with the actual percent completion of the various classes of the work indicated in red shall be submitted by the "CGC", with input from each Prime Contractor, to the Architect and/or Owner's Representative during the first week of each calendar month. (Distribution to be established as part of "preconstruction meeting".

Each Prime Contractor shall sign the monthly schedules as a prerequisite to the requisitioning process.

The "CPPS" may be adjusted and revised to meet unforeseen job conditions, but such changes shall, at all times, be approved by the Architect and the Owner's Representative.

D. A copy of the "CPPS" shall be available at all times at the job site for the inspection and guidance of other Contractors, Subcontractors and Vendors engaged on any construction phase of the project.

It shall be the responsibility of Each Contractor to ascertain that all his Subcontractors, Vendors and Material men periodically consult the Schedule so that their work schedule shall be maintained in conformance with his own.

It shall also be the responsibility of Each Contractor to periodically consult the Job Progress Schedules of any other Contractors that may be engaged on any separate construction of the project, so that undue delay in progress on their part shall not delay the work of the other Contractors.

E. AN UP TO DATE COPY OF COORDINATED PROJECT PROGRESS SCHEDULE MUST BE ATTACHED TO MONTHLY REQUISITION IN ORDER FOR PROCESSING TO BEGIN.

INCOMPLETE REQUISITIONS WILL BE REJECTED.

1.07 BREACH OF CONTRACT

A. The Contractor's failure to comply with any requirement called for in subsections 1.04, 1.05 and 1.06 above shall constitute a material breach of the Contract, and the Owner shall have the right to and may terminate the Contract, provided, however, that the failure of the Owner to so terminate shall not relieve the Contractor from future compliance.

1.08 TIME OF COMPLETION – Coordinate with Article 8, Sections 007000 and 011000

A. Notwithstanding the implementation of the Construction Schedule, it is the sole responsibility of the Contractor to complete the Work within a Contract Time which will assure the substantial completion of the Project by the required date.

End of Section

SECTION 01 33 00

SUBMITTAL REQUIREMENTS

1.01 GENERAL

A. Requirements set forth herein are in addition to and shall be considered as complementary to the Conditions of the Contract and the balance of Division #1 and Technical Specifications.

B. All Contractors, Subcontractors, Sub-subcontractors, Vendors and the like shall be required to familiarize themselves with said provisions.

C. Definitions as apply to "Contractors" involved with the work of this Project shall be as set forth in Section 011000, Article 1.01.

D. Where practical, submittals shall be made in groupings where installations are complimentary, i.e. steel, steel decking, steel stairs, stair railings; roof systems/flashings; etc. ***Failure to comply with this requirement will be cause for rejection of any or all submittals***.

Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.

Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.

E. The Contractor is encouraged to submit for approval products made from recycled and/or environmentally responsible material. Every effort will be made by the Design Professional Team to approve these materials; the substitution request procedure shall still be enforced.

1.02 REQUIREMENTS INCLUDED IN THIS SECTION

A. Related Work Specified Elsewhere.
B. Approved Equal Clause/Substitutions/Options
C. Certification.
D. Manufacturer's Instructions
E. Submittal Instructions
F. Shop Drawings
G. Samples
H. Material Safety Data Sheet (MSDS) Submittals
I. Proposed Products List and Status Report on Material Orders
J. Scheduling of Submittals
K. Job Progress Schedule - See Section 013200
L. Coordination Drawings
M. Progress Photographs
N. Certificates
O. Construction Waste Management Procedures and Certifications – See Section 017419.
P. V.O.C. Compliance certification – See individual technical sections.

1.03 RELATED WORK SPECIFIED ELSEWHERE

A. 01 29 00 - Applications for Payment and the Schedule of Values .
B. 01 31 13/14 - Project Coordination and Coordination Drawings.
C. 01 32 00 - Scheduling and Progress.
D. 01 43 26 - Testing Laboratory test and inspection reports.
E. 01 77 00 - Project Closeout requirements.
F. 01 77 19 - Project Record Documents.
G. 01 78 23 - Operation and Maintenance.
H. Divisions 2 through 33 Sections for specific requirements for submittals in those Sections.

1.04 APPROVED EQUAL CLAUSE/SUBSTITUTIONS/OPTIONS - Section 012500

1.05 CERTIFICATION

A. Certification of compliance with specification performance standards and manufacturers' specifications and directions shall be furnished for any portion of this work for which specific performance requirements and/or manufacturers' specifications are listed. It shall be the responsibility of the Contractor to secure two (2) copies of each certification when required and transmit same to the Architect.

B. Sample Certification Form (2 pages) Section 013306 as an exhibit at the close of this Section. Each item requiring certification shall be so noted and affidavits shall be filed singly to cover each specified material, installation, application and the like. CERTIFICATIONS SHALL BE SUBMITTED AS PART OF THE CLOSE OUT DOCUMENT REQUIREMENTS SET FORTH IN SECTION 017700.

C. Decorations, Furnishings and Interior Finish - The Contractor's attention is directed to the New York State Fire Code as it relates to regulations controlling decoration, furnishings and interior finishes as they affect the work of this Contract.

It is deemed the sole responsibility of the vendors furnishing fabrics, floor coverings, ceiling finishes, wall coverings and finishes and the like as covered by the regulations to submit applications and obtain approvals for same without additional charges to the Owner. Failure to obtain, and submit, approvals in accordance with requirements of this section will result in rejection of any submittal for this phase of the work.

D. Packaged Equipment: Where packaged (factory assembled) mechanical and electrical equipment is furnished, a certificate shall be included with the submission of shop drawings or catalog data stating that the equipment complies with OSHA, National Electric Code, and applicable Underwriter's Laboratories Standards in respect to motor protection, grounding and protection against hazards, and is approved by all Regulatory Agencies.

1.06 MANUFACTURER'S INSTRUCTIONS

A. Where in these specifications an item is called for to be installed in accordance with the manufacturer's directions, specifications or recommendations, the Contractor shall furnish the Architect with two (2) printed copies of said directions, specifications or recommendations, before the item is installed.

1.07 SUBMITTAL INSTRUCTIONS

A. Transmit each submittal, except sample installations and sample panels to the Architect. Transmit submittals with Submittal Cover Sheet attached as Section 013302. On the Cover Sheet identify Contractor, indicate date of submittal, and include information prescribed by form and required in paragraph entitled, "Submittal Requirements" of the individual technical Section and as follows. Process transmittal forms to record actions regarding sample installations and panels.
   1. Name, address, and telephone number of subcontractor, supplier, manufacturer and any other subcontractor associated with the submittal.
   2. Name of Owner.
   3. Name of Project and location.
   4. Construction contract number/designation.
   5. Product Identification.
   6. Manufacturer.
   7. Subcontractor/Supplier.
   8. Spec Section No.
   9. Spec Paragraph/Article.
   10. Drawing No(s).
   11. Drawing Date(s).
   12. Room or Detail No(s).
   13. When a resubmission, add alphabetic suffix on submittal description, for example, submittal 18 would become 18A, to indicate resubmission.

1.08 SHOP DRAWINGS

A. The following serves as a further definition of the requirements for shop drawing submittals as covered in Article 3.12 of the General Conditions:
   1. The Contractor shall submit to the Architect with such promptness as to cause no delay in the work, layout, detail, schedule, setting, product data and shop drawings for each part of the work as specified or required.
      a. Submission of data for review by the Structural and Mechanical/Electrical Engineers shall be sent directly to those Engineers with duplicate transmittals sent to the Architect.
   2. BEFORE SUBMITTING ANY DATA FOR APPROVAL, THE CONTRACTOR SHALL CHECK THE SUBMITTALS OF ALL SUBCONTRACTORS FOR ACCURACY AND CONTRACT COMPLIANCE. ALL SUBMITTALS SHALL BE UNDER THE COVER SHEET ATTACHED HERETO. SUBMITTALS NOT COMPLYING WITH THE ABOVE SHALL BE RETURNED TO THE SUBMITTING CONTRACTOR WITHOUT EXAMINATION BY THE ARCHITECT. Contractor shall see that all work contiguous with and having bearing on work indicated on drawings is accurately and distinctly illustrated and that work shown is in conformity with contract requirements.

      EACH CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING THEIR WORK AND SUBMITTAL WITH OTHER CONTRACTORS PERFORMING WORK ON THE PROJECT.

      SHOULD ANY CONTRACTOR CAUSE THE NEED FOR RE-SUBMISSION OR RE-REVIEWS OF PREVIOUSLY APPROVED INFORMATION OF ANOTHER CONTRACTOR, ALL COSTS INVOLVED WITH SAID REVIEW WILL BE BACKCHARGED AT THE RATES SET FORTH IN SECTION 01

25 00 TO THE CONTRACTOR CREATING THE NEED FOR ADDITIONAL REVIEWS.

3. Shop drawings shall be numbered consecutively and shall represent:
   a. All working and erection dimensions.
   b. Arrangement and sectional views.
   c. Necessary details, including information for making connections to other work.
   d. Kinds of materials and finishes. Colors, where applicable
4. Shop drawings shall be dated, and shall generally contain:
   a. Name and Number of project.
   b. Name, address and telephone number of submitting Contractor.
   c. Description of required equipment, materials, and classification item numbers.
   d. Locations at which materials or equipment are to be installed in the Work.
   e. Identification of drawings, schedules, notes and/or details and specification sections and related paragraphs/articles to which they apply.
   f. Equipment or fixture identification corresponding to that used in Contract Documents.
   g. Accessories and special or non-standard features and materials which are being furnished.
   h. Properly marked with external connection identification as related to the project where they consist of standard factory assembly or field installation drawings.

   In addition to the general data required above, mechanical and electrical submissions shall contain:

   a. Manufacturer's specifications including materials of construction, metal gauge, thickness and finish.
   b. Certified dimensional drawings including clearances required for maintenance or access (coordinate with Section 013114)
   c. Performance data, ratings, operating characteristics, and operating limits.
   d. Electrical ratings and characteristics.
   e. Wiring and control diagrams, where applicable.
   f. Certifications requested, including UL label or listing.
   g. List of accessories which are required but are NOT being provided by the product manufacturer or are NOT being furnished under this Section. Identify the Section(s) under which the accessories are being furnished.
5. Submission of data for approval shall be accompanied by letter of transmittal, in duplicate, containing the name of the project, Contractor's name, number of drawings, titles and other pertinent data.
6. Procedure for Submitting Shop Drawings and Product Data:

   The contractor shall submit five (5) copies of data, for standard manufactured items, in the form of manufacturer's catalog sheets, showing illustrated cuts

of the items to be furnished, scale details, sizes, dimensions, performance characteristics, operating clearances, capacities, wiring diagrams and all other pertinent information.

Two copies of reviewed submissions will be returned to the contractor.

For all other shop drawings, Contractor shall submit one transparency for each drawing until final approval is obtained.

Each drawing transparency shall have a clear space approximately 4 inches by 10 inches on the right hand side for stamps showing "Date Received" and disposition of submittal.

In addition to the transparency, three (3) prints shall be required.

a. After completion of checking, the Architect, and Engineer (as appropriate) will retain one print for his record and return the transparencies to the submitting Contractor.

The average "turn around time" of any one in-house submittal by the Architect shall not exceed 15 business days for review and at least 20 business days when another consultant is involved.

b. For drawings returned "Resubmit", "Amend & Resubmit", "Disapproved" or "Rejected-Resubmit", the original drawings shall be corrected, a new transparency made, and resubmitted until final approval.

NOTE: The Owner reserves the right to backcharge the Contractor for the additional costs beyond the review of any resubmittal as outlined in Section 012500.

c. For drawings returned "Approved", "No Exceptions Taken", "Approved as Noted", and "Make Corrections Noted", the Contractor shall obtain and provide sufficient prints as required for the field.

NOTE: It is the responsibility of the contractor to confirm all dimensions, quantities, and the coordination of materials and products supplied by him with other trades. Approval of shop drawings containing errors does not relieve the contractor from making corrections at his expense.

7. No work as called for by shop drawings shall be done until Architect's approval.
8. IF SUBMITTALS SHOW VARIATIONS FROM CONTRACT REQUIREMENTS BECAUSE OF STANDARD SHOP PRACTICES, OR OTHER REASONS, CONTRACTOR SHALL MAKE SPECIFIC MENTION OF SUCH VARIATION IN HIS LETTER OF TRANSMITTAL.
9. APPROVAL OF SHOP DRAWINGS IS GENERAL. IT SHALL NOT RELIEVE CONTRACTOR OF THE RESPONSIBILITY FOR ACCURACY OF SUCH DRAWINGS, NOR FOR THE FURNISHING OF MATERIALS OR

PROVISION OF WORK REQUIRED BY THE CONTRACT AND NOT SHOWN ON THE SHOP DRAWINGS.

Unless it is an interpretation of design intent, approval of shop drawings shall not be construed as approval of departures from Contract.

10. If the Contractor should alter any information on previous submittals, besides the notations called for by the Architect, he must circle this new information to bring it to the Architect's attention.

11. Where practical, in submitting data for approval, all associated drawings, product data and the like, relating to a complete assembly shall be submitted at one and the same time so that each may be checked in relation to the entire proposed assembly.

PARTIAL SUBMISSIONS WILL BE RETURNED WITHOUT ACTION TAKEN.
EXTRANEOUS MATERIAL ON PRODUCT DATA SHEETS SHALL BE STRUCK PRIOR TO SUBMITTAL.

Resubmittals of any data shall be “complete”, i.e. – Lighting Fixture resubmittal shall include all fixtures whether or not some have been approved so that when the entire submittal is approved, a full record copy is on file.

12. Contractor shall have copies of all approved shop drawings as listed in Paragraph 1.08.A.6 above on the job at all times and shall make them available to the Architect or the Owner's representatives.

1.09 SAMPLES

A. The following serves as a further definition of the requirements for sample submittals as covered in Article 3.12 of the General Conditions:
   1. Names of proposed manufacturers, materialsmen and dealers who are to furnish materials, fixtures, appliances or other fittings shall, where practical, be submitted to the Architect for early approval to afford proper investigation and check.
   2. No manufacturer will be approved for any materials to be furnished under this contract unless he shall be of good reputation and shall have plant of ample capacity and shall have successfully produced similar products.
   3. All transactions with manufacturers and subcontractors shall be through the Prime Contractor.
   4. Unless otherwise specified, samples shall be in duplicate (2) and of adequate size to show quality, type, color, range, finish, texture, etc.

INTERRELATED COLOR SELECTIONS WILL NOT BE MADE UNTIL ALL PERTINENT SAMPLES ARE MADE AVAILABLE TO ARCHITECT.

Deliver one (1) sample to field office and one (1) sample to Architect's office unless otherwise directed.

5. Each sample shall be labeled, bearing material and quality names, submitting Contractor's name, and project name, and other pertinent data.

   In accordance with OSHA regulation Number 1910.1200, a Material Safety Data Sheet (MSDS) shall be submitted for each product to be incorporated in the work.

   The sole purpose for requiring submittal of MSDS sheets as outlined herein and respective technical sections is to advise the General Contractor that health and safety is of primary importance to the execution of the work and for the future occupants of the project under construction. It is to be assumed, and will be enforced, that the submission of MSDS sheets be made as a separate package, covered by it's own transmittal and marked "for evidence of legal compliance". This submission will be noted and returned with a stamp indicating "SUBMITTED INFORMATION ONLY, NOT REVIEWED". **Failure to observe these submittal requirements will be cause for rejection of the entire submittal.**

   The safe handling of products by the applicator according to MSDS warnings is a safety issue, like any other, entirely within the purview of the Respective Prime Contractor.

6. Where Specifications require manufacturer's printed installation directions, such directions and diagrams shall accompany samples. Coordinate with Paragraph 1.05 herein
7. A duplicate letter of transmittal from the submitting Contractor requesting approval of the sample shall accompany the samples.
8. Transportation charges to designated locations must be prepaid on all samples.
9. Materials shall not be ordered until approval is received in writing from the Architect.
10. ***All materials shall be furnished equal in all respects to the samples which were approved.***

1.10 MATERIAL SAFETY DATA SHEET (MSDS) SUBMITTALS

A. As specified in Paragraph 1.09 of this Section and within the technical sections forming this Specification, the Contractor is directed to the following requirements concerning "MSDS" submissions.
   1. Submit MSDS's for all products used during construction whether incorporated within the work or used in the performance of the work.
   2. Identify which products may be harmful to construction workers or other building occupants.
   3. Develop means and methods for protection of construction workers and other building occupants from potentially harmful products. **Submit said means and methods to the Owner for review and approval**.

B. Further, the General Contractor with assistance from each individual contractor shall maintain a "MSDS" file on site, accessible to workers and otherwise in compliance with jurisdiction's "Right To Know" legislation.

C. **Attention is directed Section 017700, Article 1.04.A.12 for final closeout submittal of MSDS compilation to the Owner**.

1.11 PROPOSED PRODUCTS LIST AND STATUS REPORT ON MATERIAL ORDERS - Coordinate with Section 013200.

A. Within two (2) weeks after date of Notice to Proceed or execution of the Contract (whichever is the earliest), submit a complete list of products proposed for use, with name of manufacturer/vendor/fabricator, trade name, and model number of each product.

B. For products specified only by reference standards, give manufacturer, trade name, model or catalog designation, and reference standards.

C. Report to include list, in chronological order by need date, materials orders necessary for completion of the contract. The following information will be required for each material order listed:

1. Material name, supplier, and invoice number.
2. Bar chart line item or CPM activity number affected by the order.
3. Delivery date needed to allow directly and indirectly related work to be completed within the contract performance period.
4. Current delivery date agreed on by supplier.
5. When item 4 exceeds item 3, the effect that delayed delivery date will have on contract completion date.
6. When item 4 exceeds item 3, a summary of efforts made by the Contractor to expedite the delayed delivery date to bring it in line with the needed delivery date, including efforts made to place the order (or subcontract) with other suppliers.

NOTE: This information shall be updated for each requisition, failure to complete and certify accuracy will be cause for non-payment of requisition.

1.12 SCHEDULING OF SUBMITTALS

A. Within two (2) weeks after execution of the Contract, the Contractor shall submit a detailed listing of all items to be incorporated within the work, including all items of mechanical and electrical.

1. Submittals for Review.
2. Quality Control Submittals.
3. Sustainable Design Submittals.
4. Closeout Submittals.

Listing should state the following:

1. Specification section number.
2. Description of submittal.
3. Type of submittal.
4. Date of shop drawing/sample submittals.
5. Guaranteed delivery date after shop drawing and/or sample approvals.
6. Date of installation start.
7. Date of installation completion.

1.13 JOB PROGRESS SCHEDULE - See Section 013200

1.14 COORDINATION DRAWINGS

A. Each Contractor's attention is directed to Section 013114 for required coordination drawings and the responsibility therefore.

1.15 PROGRESS PHOTOGRAPHS

A. This Article includes requirements for periodic construction photography by the General Contractor, utilizing digital camera equipment, to demonstrate construction progress and to serve as a communicative device when describing a given condition to others at a remote location, by means of the internet.

B. Photography shall be taken using a digital camera and electronic program which will download the digital photos in a JPEG format to a computer with resolution adequate to demonstrate the item under discussion.

C. One set of record prints will be required and filed with the monthly requisition. The JPEG files shall be transmitted to the appropriate parties who shall then have the option to view the picture(s) on screen or print them out using their own equipment.

D. It is the intention of this Section to provide a tool to enhance communications and reduce the amount of time required to address questions arising at the Project site. In this end, the Contractor shall utilize good judgment in providing photographs that are informative, and not merely repeating what is shown in the other photographs.

E. Provide factual representation of construction extent and conditions. Provide correct exposure and focus, high resolution and sharpness, maximum depth of field, and minimum distortion, utilizing a normal lens.

F. Before starting work, the General Contractor shall take photographs of the Work Areas from different points of view sufficient in number to show all present conditions.

G. The minimum requirements, per requisition period are three (3) photographs of the Work, from different points of view designated by the Architect

1.16 CERTIFICATES

A. Submit a Summary of Solid Wastes Generated, manifests, weight tickets, and the like in accordance with requirements of Section 017419 - Construction Waste Management.

B. Submit, as required by each technical section a certification for V.O.C. compliance.

Part 2 - PRODUCTS

Not used

Part 3 - EXECUTION

Not used

End of Section

CONTRACTOR REQUEST FOR ELECTRONIC DRAWING FILES

The Architect, for the convenience of the Client/Owner, has electronic copies or representations of Drawings, Specifications and Project Manuals. Requests for electronic copies of such Drawings, Specifications and Project Manuals by the Contractor, for the Contractors use or the use of Subcontractors, shall be made in writing to the Client/Owner as outlined herein below and shall outline the benefit derived from such a request. The Contractor shall be prepared to reimburse the Client/Owner for any costs involved in preparing such electronic documents for the Contractors use.

Architect's Project Number:	
Project Name:	
Architect:	
Client/Owner:	
Contractor/Recipient's Name:	
Attention to:	
Contractor/Recipient's Address:	
Date of Request:	
Date of Release:	

As requested, attached is a list of electronic drawing files in DWG/DWF format (Drawings may be compressed). For the release of these electronic drawing files to the recipient, the following items shall be understood, acknowledged and signed by the authorized personnel of the recipient with the fee included as may be required.

A. The electronic drawing files are the property of the Architect and the Contractor is granted a license to use the electronic files only in connection with the subject project.

B. The electronic drawing files do not necessarily represent the Contract Documents associated with the referenced project. These files are solely for the use of the recipient and are not a representation of the scope of work for the project. Any use by contractors, subcontractors or fabricators shall be on all of the same terms and conditions being applicable to such users who shall acknowledge the same in writing. The Recipient may use the electronic drawing files only. Electronic drawing files or portions thereof, shall not be provided to anyone else without the written approval of the Client/Owner. The use of the electronic drawing files, documents and any reprographics shall not identify any member of the Architect or Architect's consultants or sub-consultants or the Client/Owner without the written approval from the parties.

C. The entire risks as to the results and performance of the package including the electronic drawing files, are assumed by the Contractor/recipient. The Client/Owner, the Architect and the Architect's consultants and sub-consultants, including directors, employees, representatives, and licensors of the company, shall not have any liability to the Contractor/recipient or any other person or entity for any direct, indirect, incidental special or consequential damages whatsoever, including, but not limited to, the loss of revenue or profit, lost data, or any other personnel, commercial or economic loss, and claims by third parties. Even if the Client/Owner and Architect and the Architect's consultants and sub-consultants has been advised of the possibility of such damages; said Client/Owner

and Architect and the Architect's consultants and sub-consultants shall not be held liable as stated above.

D. The Contractor/recipient hereby agrees to indemnify and hold the Client/Owner, the Architect and the Architect's consultants and sub-consultants harmless from and against any cost, damage, liability, loss or claim arising from violation of this license. The Contractor/recipient and all subcontractors of all tiers also agrees that, in addition to all other remedies hereunder, the Contractor/recipient and such parties grant the Client/Owner the right to seek injunctive or other equitable relief to prevent the violation or require the performance of any of the Contractor's/recipient's obligations under this license, and the Contractor/recipient hereby consents to the issuance of such relief by any court of competent jurisdiction without the need to post any bond or security.

E. The electronic files requested are as follows:

Electronic file name	Corresponding Drawing (close approximation)
1.	
2.	
3.	
Etc.	
Total number of files:	

CONTRACTOR'S/RECIPIENT'S AGENT SIGNATURE: _____

NAME IN BLOCK LETTERS: _____

AUTHORIZED POSITION HELD: _____

DATE OF SIGNATURE: _____

End of Attachment

SUBMITTAL COVER SHEET

Contractor:_____

Address:_____ **Telephone:** (__)_____

Owner: _____

Name of Project:_____

TYPE OF SUBMITTAL:

☐Shop Drawings ☐Schedule ☐Physical Sample
☐Technical Data ☐Certificate ☐Color Sample
☐Test Report ☐Warranty ☐_____

Submission #: **1st , 2nd, 3rd, 4th** (circle one)

Description:

Product Identification: _____

_____

Manufacturer: _____

Subcontractor/Supplier:_____

DOCUMENT REFERENCES: (Must be fully filled out)

Spec Section No.:_____ Drawing No(s):_____

Paragraph: _____ Rm. Or Det. No(s):_____

Contractor Remarks:

Contractor Submittal Review Stamp

THE ATTACHED MATERIAL HAS BEEN REVIEWED BY THE UNDERSIGNED AND IS BELIEVED TO COMPLY WITH ALL REQUIREMENTS OF THE CONTRACT DOCUMENTS. THE UNDERSIGNED UNDERSTANDS VERIFICATION OF FIELD DIMENSIONS, AND COORDINATION WITH OTHER TRADES, REMAINS THE RESPONSIBILITY OF THE CONTRACTOR.

DATE: _____ BY (SIGN): _____

Consultant use below this line:

Architect Submittal Review Stamp

☐NO EXCEPTIONS ☐MAKE CORRECTIONS NOTED
☐REJECTED ☐REVISE AND RESUBMIT
☐EXAMINED ☐SUBMIT SPECIFIED ITEM

CHECKING IS ONLY FOR GENERAL CONFORMANCE WITH THE DESIGN CONCEPT OF THE PROJECT AND GENERAL COMPLIANCE WITH THE INFORMATION GIVEN IN THE CONTRACT DOCUMENTS. ANY ACTION SHOWN IS SUBJECT TO THE REQUIREMENTS OF THE PLANS & SPECIFICATIONS. CONTRACTOR IS RESPONSIBLE FOR DIMENSIONS WHICH SHALL BE CONFIRMED & CORRELATED AT THE JOB SITE; FABRICATION PROCESSES AND TECHNIQUES OF CONSTRUCTION; COORDINATION OF HIS WORK WITH THAT OF ALL OTHER TRADES & THE SATISFACTORY PERFORMANCE OF HIS WORK

KAEYER, GARMENT + DAVIDSON ARCHITECTS, P.C.

DATE_____ BY_____

SECTION 01 33 06

CERTIFICATION OF SPECIFICATION COMPLIANCE

I/WE, the MANUFACTURER/SUPPLIER and INSTALLER of _____
as specified in Section Number _____ of the Contract Documents prepared by KG+D Architects, PC; 285 Main Street; Mt. Kisco, NY 10549

Putnam Valley Central School District 2018 Capital Projects

SED #48-05-03-04-0-004-016, Putnam Valley Middle School Toilet Room Alterations

do (does) herein certify that -

1. All materials furnished for said project do fully comply with all specification requirements as stated within the Contract Documents;

2. That no asbestos containing materials of any nature are used in the work;

3. That execution of the Work covered by this certification has been performed in accordance with the drawings prepared by the design professional team.

CONTRACTOR: _____

CERTIFICATION BY: _____ TITLE: _____

ADDRESS: _____

CERTIFICATION DATED:

Distribution:

Original and One Copy to: KG+D Architects, PC
285 Main Street
Mt. Kisco, NY 10549

Att: Mr. _____

One Copy to:

CERTIFICATION OF SPECIFICATION COMPLIANCE

CORPORATE ACKNOWLEDGEMENT

)SS.
)

On the _____ day of _____, before me came _____ to me known and who by me being duly sworn did depose and say that he resides at _____ that he is the officer of the said corporation executing the foregoing instrument, that he knows the seal of said corporation, that the seal affixed to said instrument is such corporate seal, that it was so affixed by order of the Board of Directors of said corporation and that he signed his name thereto by like order.

_____
Notary Public

INDIVIDUAL ACKNOWLEDGEMENT

State of

)SS.
)

County of

On the _____ day of _____, before me came _____ to me known and who by me being duly sworn did depose and say that he resides at _____ that he is the individual who executed the foregoing instrument.

_____
Notary Public

PARTNERSHIP ACKNOWLEDGEMENT

State of

)SS.
)

County of

On the _____ day of _____, before me came _____ to me known and who by me being duly sworn did depose and say that he resides at _____ that he is the partner in the firm of _____ doing business under the name of _____ and that he executed the foregoing instrument on behalf of said partnership.

_____
Notary Public

SECTION 013529 - HEALTH AND SAFETY PLAN

1.01 GENERAL

A. Requirements set forth herein are in addition to and shall be considered as complementary to the Conditions of the Contract and the balance of Division #1 and Technical Specifications.

B. All Contractors, Subcontractors, Sub-subcontractors, Vendors and the like shall be required to familiarize themselves with said provisions.

C. Definitions as apply to "Contractors" involved with the work of this Project shall be as set forth in Section 011000, Article 1.01.

1.02 REQUIREMENTS INCLUDED IN THIS SECTION

A. Provide all labor, equipment and materials and perform all operations in connection with monitoring air quality, decontaminating equipment and providing worker health and safety protection for all Contractor and Subcontractor personnel.

B. Develop a site specific Health and Safety Plan (HASP) specifically addressing the potential hazards that may be encountered. This plan shall meet all Occupational Safety and Health Administration (OSHA) requirements.

C. Review the requirements and data presented and supplement the program with any additional measures deemed necessary to fully comply with regulatory requirements and adequately protect personnel on the site.

1.03 REFERENCES

A. OSHA Regulation 29 CFR 1910.120

B. OSHA Regulation 29 CFR 1926.62

1.04 DEFINITIONS

A. Site Safety Official (SSO): The individual who is responsible to the Contractor and has the authority and knowledge necessary to implement the site safety and health plan and verify compliance with applicable safety and health requirements.

B. SSO shall possess full and complete authority to order stoppage of any work which he deems unsafe.

1.05 SUBMITTALS

A. Provide within seven (7) days after execution of the Agreement.

1. Site-specific HASP including the Emergency Response Plan to the Owner, Owner’s Representative and Architect for review, including provisions for decontamination and a contingency plan for unforeseen emergencies. The review is only to determine if the HASP meets basic regulatory requirements and the minimum requirements of this Section. The review will not determine the adequacy of the HASP to address all potential hazards, as that remains the sole responsibility of the Contractor.
2. Current certification of employee's health and safety training and certification of employee's baseline medical exam status.
3. Certification of additional required health and safety training for Supervisors.
4. Qualifications and experience of the SSO for approval.

B. Submit minutes of weekly safety meetings at periodic progress meetings.

C. Refer to related submittal requirements in Section (s) 028200 - Asbestos Abatement for project.

1.06 CONTRACTOR'S RESPONSIBILITIES

A. Contractor is solely responsible for the health and safety of workers employed by the Contractor, any Subcontractor and anyone directly or indirectly employed by any of them.

B. Develop and follow a site specific Health & Safety Plan (HASP) in accordance with the requirements of paragraph 1.07.

C. Provide a full-time SSO regardless of whether or not the Work is at a defined Uncontrolled Hazardous Waste Site.

D. Pre-arrange emergency medical care services at a nearby hospital, including establishment of emergency routes of travel.

E. Meetings:

1. Conduct daily job briefings with all site personnel to discuss relevant health and safety issues including but not limited to hazards, monitoring, procedures and controls. Document attendance and topics covered.
2. At a minimum, conduct weekly safety meetings with all site personnel, documenting attendance and topics covered.

F. Train all workers assigned to areas where contaminated media are likely to be encountered in accordance with 29 CFR 1910.120.

G. Include those workers involved with the abatement of Asbestos containing materials in a medical surveillance program and respiratory protection program that meet the requirements of 29 CFR 1910.120 and 29 CFR 1910.134, respectively.

H. In areas where contaminated media are likely to be encountered, monitor air quality in and around work area using appropriate air monitoring equipment/analysis, as indicated in Part 2. Record all readings and maintain record on site. Stop work and/or upgrade respiratory protection or personal protective equipment levels if action levels established in the HASP are exceeded. Ensure that degree and type of respiratory protection provided is consistent with the monitored concentrations and individual chemical parameters. Lawfully dispose of all contaminated clothing and equipment that cannot be decontaminated.

1.07 HEALTH & SAFETY PLAN (HASP) REQUIREMENTS

A. The following items shall be addressed in the HASP:

1. safety and health hazard assessment;
2. procedures for emergency medical treatment and first aid;
3. map indicating route to hospital for emergency medical care;
4. Lead Exposure Control Plan (29 CFR 1926.62);
5. equipment decontamination procedures;
6. air monitoring procedures and action levels;
7. personal protective equipment and decontamination;
8. physical hazard evaluation and abatement including:
    a. equipment operation;
    b. confined space entry;
    c. slips and falls;
    d. building collapse;
    e. falling debris;
    f. encountering unmarked utilities;
    g. cold and heat stress;
    h. hot work (cutting and welding);
    i. excavation entry;
9. training requirements;

10. recordkeeping requirements;
11. emergency response plan that includes:
    a. names of three (3) Emergency Response Contractors, experienced in the removal and disposal of oils and hazardous chemicals, that the Contractor intends to use in the event of an emergency;
    b. evacuation routes and procedures;
    c. emergency alerting and response procedures.

1.08 CONTINGENCY MEASURES & NOTIFICATIONS

A. The potential for encountering hazardous buried objects or materials that could pose a threat to human health or the environment exists at the Project Site. In the event that potentially hazardous materials are encountered during the work under this contract, the responsibilities of the Contractor and the Owner's Representative are described herein.

B. The procedures and protocols to be used by the SSO in defining materials that are potentially hazardous include screening with a photoionization detector, odor, visual appearance of a material, and obvious oil or chemical contaminated materials.

C. Upon encountering suspected hazardous buried objects or materials as described above, cover the excavation immediately if no imminent danger, as defined by the SSO, is present. If there is an imminent danger, as defined by the SSO, evacuate the area immediately. The SSO shall then notify the Owner's Representative of the situation.

D. Establish, properly barricade, and mark the area as an exclusion zone under the direction of the SSO. The SSO shall establish the exclusion zone boundaries based upon air quality monitoring using a photoionization detector and other equipment as appropriate. The exclusion zone shall be established at a minimum 50-foot radius around the location where the potentially hazardous material is encountered. Work within the exclusion zone shall be discontinued until the hazardous condition has been remediated and testing indicates that a hazard does not exist. Other activities of the site, outside the limits of the exclusion zone shall continue. Ambient air quality monitoring shall be performed by the SSO to demonstrate that ambient air quality in other portions of the site is not adversely impacted by the exclusion zone condition.

E. Notify Owner's Representative regarding the presence of potentially hazardous materials. Owner's Representative may direct the Contractor to notify regulators and to obtain necessary regulatory approvals for remediation.

F. Mobilize the appropriate equipment and personnel to sample and test the hazardous material within the exclusion zone to determine the remedial action required, subject to the Owner's Representative's direction. Contractor may be directed to remove and legally dispose of the material. Compensation for the removal and disposal of hazardous material will be as a Change in Work and Change in Contract Price in accordance with the Subcontract Agreement, if not covered under a specific bid item.

Part 2 - PRODUCTS

2.01 AIR MONITORING EQUIPMENT

A. Provide and maintain portable photoionization detector or organic vapor analyzer capable of detecting organic vapors or total hydrocarbons. Equipment shall be sensitive to the 0.5 PPM level.

B. Provide and maintain an oxygen analyzer to measure oxygen concentration in any trench or confined space prior to entry, as determined by the SSO.
C. Provide and maintain an explosimeter whenever the potential for accumulation of explosive gases exists, as determined by the SSO.
D. Provide and maintain air monitoring equipment as required for the collection/monitoring of airborne asbestos fibers. All air samples related to abatement work shall be analyzed by a laboratory accredited by the American Industrial Hygiene Association.
E. All air monitoring equipment shall remain the property of the Contractor.

Part 3 – EXECUTION

NOT USED

End of Section

SECTION 01 41 00

PERMITS AND COMPLIANCE

Part 1 - GENERAL

1.01 GENERAL

A. Requirements set forth herein are in addition to and shall be considered as complementary to the Conditions of the Contract and the balance of Division #1 and Technical Specifications.

B. All Contractors, Subcontractors, Sub-subcontractors, Vendors and the like shall be required to familiarize themselves with said provisions.

C. Definitions as apply to "Contractors" involved with the work of this Project shall be as set forth in Section 011000, Article 1.01.

1.02 REQUIREMENTS INCLUDED IN THIS SECTION

A. Preconstruction Meeting

B. Permits and Licenses

C. Compliance

D. Additional Compliance

1.03 PRECONSTRUCTION MEETING

A. After award of Contract and prior to the commencement of the Work, schedule and conduct meeting with Owner and Architect to discuss the applicable environmental regulations and requirements; coordinate with Sections 015713, 015719 and 017419.

B. For Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with environmental regulations bearing on performance of the Work.

1.04 PERMITS AND LICENSES

A. The Contractor shall obtain, maintain and pay for all permits and licenses necessary for the execution of the work and for the use of such work when completed.

1.05 COMPLIANCE

A. The Contractor shall give all notices, pay all fees and comply with all laws, rules and regulations applicable to the work.

1.06 ADDITIONAL COMPLIANCE

A. The Contractor, Subcontractors, and the employees of the Contractor and Subcontractors, shall comply with all regulations governing conduct, access to the premises, operation of equipment and systems, and conduct while in or near the premises and shall perform the work in such a manner as not to unreasonably interrupt or interfere with the conduct of business of the Facility.

B. **Further, attention is directed to requirements of Section 011501.**

Part 2 – PRODUCTS

Part 3 - EXECUTION

End of Section

SECTION 014219 - CODES AND STANDARDS

1.01 QUALITY ASSURANCE

A. Applicability of Standards: Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.

B. Publication Dates: Comply with standards in effect as of date of the Contract Documents, unless otherwise indicated.

C. Conflicting Requirements: Where compliance with two or more standards is specified, and the standards may establish different or conflicting requirements for minimum quantities or quality levels comply with the most stringent requirement. Refer uncertainties and requirements that are different, but apparently equal, to Architect for a decision before proceeding.

1.02 REFERENCE STANDARDS - The abbreviations, which may be used in the construction specifications, refer to the organizations and specifications of the organizations listed below.

AABC	Associated Air Balance Council
AAN	American Association of Nurserymen
AI	Asphalt Institute
AISC	American Institute of Steel Construction
AMCA	Air Movement and Control Association
ARMA	Asphalt Roofing Manufacturers Association
ASC	Adhesive and Sealant Council
ASLA	American Society of Landscape Architects
ASHRAE	American Society of Heating, Refrigerating and Air Conditioning Engineers, Inc.
ASTM	American Society for Testing and Materials International
CLFMI	Chain Link Fence Manufacturers Institute
CRI	Carpet and Rug Institute
GANA	Glass Association of North America
GS	Green Seal
IEEE	Institute of Electrical and Electronics Engineers
IESNA	Illuminating Engineering Society of North America
IGMA	Insulating Glass Manufacturers Alliance
LSGA	Laminators Safety Glass Association
NAIMA	North American Insulation Manufacturers Association
NFPA	National Fire Protection Association
NFRC	National Fenestration Rating Council
NHLA	National Hardwood Lumber Association
NPCA	National Paint and Coatings Association
NPA	National Particleboard Association
NSF	National Sanitation Foundation International
NTMA	The National Terrazzo and Mosaic Association
RFCI	Resilient Floor Covering Institute
SFPA	Southern Forest Products Association
SIGMA	Sealed Insulating Glass Manufacturers Association

SPC	Southern Pine Inspection Bureau (Grading Rules)
SSPC	Steel Structures Painting Council
WDMA	Window & Door Manufacturers Association
WRI	Wire Reinforcement Institute, Inc.
WWPA	Woven Wire Products Association

B. Federal Agencies:

CE	Army Corps of Engineers)
CPC	Consumer Product Safety Commission
EPA	Environmental Protection Agency
DOE	Department of Energy
NIST	National Institute of Standards and Technology
OSHA	Occupational Safety & Health Administration

Further attention is directed to industry guide complied by Sweet's division of McGraw-Hill denoted as "PROJECT INFORMATION AND SERVICES" as well as in the web site www.4specs.com wherein a comprehensive list of international organizations representing building product manufacturers, associations, institutes, governmental agencies and testing bureaus is put forth.

1.03 APPLICABLE CODES: The following is a listing of applicable codes within the jurisdiction of the Work as embodied within the ***2020*** New York State Uniform Fire Prevention and Building Code.

A. ***2020 Building Code New York State***
B. ***2020 New York State Energy Conservation Code (includes amendments to ASHRAE 90.1-2016)***
C. ***2020 Plumbing Code of New York State***
D. ***2020 Mechanical Code of New York State***
E. ***2020 Fuel Gas Code of New York State***
F. ***2020 Fire Code of New York State***
G. ***2020 Property Maintenance Code of New York State***
H. ***2020 Residention Code New York State***
I. Accessibility Code - ANSI A117.1 New York State Building Code
J. Elevator Code - ASME A17.1-2006 New York State Building Code
K. Boiler Code - ASME Boiler & Pressure Vessel Code; NBIC
L. ***2020 Existing Building Code New York State***

End of Section

SECTION 014326

TESTING LABORATORY SERVICES

1.01 GENERAL

A. Requirements set forth herein are in addition to and shall be considered as complementary to the Conditions of the Contract and the balance of Division #1 and Technical Specifications.

B. All Contractors, Subcontractors, Sub-subcontractors, Vendors and the like shall be required to familiarize themselves with said provisions.

C. Definitions as apply to "Contractors" involved with the work of this Project shall be as set forth in Section 011000, Article 1.01.

D. Pursuant to the provisions of Section 013300, Submittal Requirements, it is further required that unless otherwise specified, tests called for in the Specifications applicable to the work and/or required to implement the work shall be paid for by the Owner.

E. Where tests are required by the Architect to substantiate conformance to the specifications the Owner will pay all costs of such tests and engineering services unless said tests indicate that the workmanship or materials used by the Contractor are not in conformance with the Drawings, Specifications, Approved Shop Drawings or the approved materials.

In such event, the Contractor shall pay for the tests, remove all work and material so failing to conform, REPLACE with work and materials which are in full conformity.

F. Requirements related to testing services and specified elsewhere in these documents include:
1. Inspections and testing as required by laws, ordinances, rules, regulations or orders of public authorities having jurisdiction over the work.
2. Certification of compliance as required by individual specification sections.
3. Testing, adjusting and balancing of mechanical equipment and systems.
4. Project record documents, including operation and maintenance manuals, record drawings and the like.
5. Tests and standards governing work and/or materials as may be specified throughout these specifications and/or as shown on the drawings.

G. The Owner will employ, and pay for, the services of an Independent Testing Laboratory to perform all specified services.

H. Inspection, sampling and testing is required for the following as applicable to the particular project:
- ❑ Concrete, formwork, reinforcing and the like.
- ❑ Masonry and mortar.
- ❑ Roofing and flashing systems
- ❑ Structural steel systems, joists, decking, light metal framing and the like.
- ❑ Welding

however this listing is to be considered as partial only with the burden placed on the Contractor to advise, and the Laboratory to provide, all such inspections, sampling and testing as may be specified and/or required by these Contract Documents and the applicable laws and ordinances of the jurisdiction.

I. Employment of the Testing Laboratory shall not relieve the Contractor of his obligation to perform Work in accordance with the Contract.

1.02 REQUIREMENTS INCLUDED IN THIS SECTION

A. Laboratory Qualifications
B. Laboratory Duties
C. Contractor's Responsibilities
D. Tests Required

1.03 LABORATORY QUALIFICATIONS

A. Laboratory shall meet -
   1. The "Recommended Requirements for Independent Laboratory Qualifications", latest edition as published by the American Council of Independent Laboratories.
   2. Basic requirements of ASTM E 329, latest edition, governing "Standards of Recommended Practice for Inspection and Testing Agencies for Concrete and Steel as Used in Construction".
B. Laboratory shall submit copy of inspection of facilities as made by Materials Reference Laboratory of the National Bureau of Standards during most recent tour of inspection; with memorandum of remedies of any deficiencies reported by inspection.
C. Testing equipment shall be calibrated at maximum 12 month intervals by devices of accuracy traceable to either - National Bureau of Standards or accepted values of natural physical constants; submit copy of certificate of calibration as executed by an accredited calibration agency.

1.04 LABORATORY DUTIES

A. Cooperate with Architect and Contractor; provide qualified personnel promptly on notice.
B. Perform specified inspections, sampling and testing of materials and methods of construction in conformance with specified standards, recognized authorities and the like so as to ascertain compliance with the requirements of the Contract Documents.
C. Promptly notify Architect and Contractor of irregularities or deficiencies of Work which are observed during performance of services.
D. Promptly submit sufficient copies (minimum 5) of reports and tests to Architect for distribution. Reports shall contain -
   1. Issue date
   2. Project title and number
   3. Testing laboratory name and address
   4. Name and signature of inspector
   5. Date of inspection or sampling
   6. Temperature and weather observations
   7. Test date
   8. Identification of product and specification section
   9. Location in project
   10. Type of inspection or test
   11. Observations regarding Contract Document compliance.
E. Perform additional services as required by the Owner and/or Architect.
F. The laboratory is not authorized to - release, revoke, alter or enlarge on, requirements of the Contract Documents; approve or accept any portion of Work; perform any duties of the Contractor.

1.05 CONTRACTOR'S RESPONSIBILITIES

A. The Contractor shall to the best of his ability -

1. Cooperate with laboratory personnel, provide access to the Work and to Manufacturer's operations as may be necessary.
2. Provide to the laboratory preliminary representative samples of materials to be tested in required quantities.
3. Furnish copies of mill test reports.
4. Provide casual labor and facilities as required to provide access to Work to be tested; to obtain and handle samples at the Site; to facilitate inspections and tests; for laboratory's exclusive use for storage and curing of test samples.
5. Notify laboratory sufficiently in advance of operations to allow for his assignment of personnel and scheduling of tests.
6. Arrange with laboratory and PAY FOR, additional sampling and testing required for the Contractor's convenience.
7. Employ, AND PAY FOR, services of a separate, equally qualified Independent Testing Laboratory to perform additional inspections, sampling and testing required when initial tests indicate Work does not comply with Contract Documents. Coordinate with Paragraph 1.05.A.4 above.

1.06 TESTS REQUIRED

A. General Construction Tests: More detailed testing requirements are given in individual Specification Sections. The Owner shall retain the right to make any additional tests the Architect deem necessary or appropriate. The Contractor is responsible for providing his own tests to determine that materials meet specified requirements. The scope of tests required and paid for by the Owner (unless otherwise noted below) shall include as a minimum the following:

1. Concrete Paving and General Concrete Work: Concrete mix design testing shall be paid for by Contractor. Owner reserves the right to retain and pay for his own testing for checking purposes.
2. Concrete Paving and General Concrete Work: Concrete test cylinders as specified in Section 03 30 00, Cast-in-Place Concrete. All concrete cylinder testing will be performed by the Owner’s testing laboratory at the cost of the Owner.
5. Masonry Mortar: Three cubes tested for compressive strength at 10 days; ASTM C 91 tests.
6. Metals: Strength dimension; coating thickness; bolt torque; welding X-ray or ultrasonic tests.

B. Plumbing: At least the following tests will be performed. Conform to requirements specified in individual Division 22 Specification Sections. The test shall be performed and paid for by the subcontractor and witnessed by the Contractor and Owner's on-site representative:

1. Water supply piping hydrostatic pressure test.
2. Sanitary piping test before fixture installation: Cap pipes and fill to highest point in system.
3. Plumbing fixture operation.

C. Fire Protection System: At least the following tests will be performed. Conform to requirements specified in individual Division 21 Specification Sections. The test shall be performed and paid for by the subcontractor and witnessed by the

Contractor and Owner's on-site representative:

1. Fire protection system flushed and pressure tested.

D. HVAC Testing: All HVAC work shall be tested by an independent testing and balancing agency. Conform to requirements specified in individual Division 23 Specification Sections. All costs of these tests will be paid by the subcontractor. Adjustments shall be made by the subcontractor as directed by the Owner. At least the following tests will be performed:
   1. Piping hydrostatic tests.
   2. Air and water balancing.
   3. Thermostat control monitoring and testing.
   4. Boiler efficiency testing.

E. Electrical Power System Testing: At least the following tests will be performed. Conform to requirements specified in individual Division 26 Specification Sections. The test shall be performed and paid for by the subcontractor and witnessed by the Contractor and Owner's on-site representative:
   1. Polarity tests.
   2. Operation of all circuits.
   3. Testing of emergency system.
   4. Security systems.
   5. Generation system.
   6. Grounding systems.

F. Electrical Lighting System Testing: Conform to requirements specified in individual Division 26 Specification Sections. At least the following tests shall be performed and paid for by the subcontractor.
   1. Operation of every component of entire system.

G. Fire Alarm System Testing: At least the following tests will be performed. Conform to requirements specified in individual Division 28 Specification Sections. The test shall be performed and paid for by the subcontractor and witnessed by the Contractor and Owner's on-site representative:
   1. All smoke and heat detectors.
   2. Proper operation as required by authorities having jurisdiction.

H. Contractor's Responsibilities: The Contractor shall notify the Owner, Architect, and Testing Laboratory personnel at least 48 hours prior to performance of work requiring testing. The Contractor shall fully cooperate with testing agencies and permit free access to all areas at all times. The Contractor shall permit taking samples at any time during construction, either before or after installation. Prior to notice to proceed with construction, the Contractor shall submit a Testing Log of planned tests and scheduled test dates. Tests shall be numbered based on type of work, type of test, and sequence. The Testing Log shall be maintained by the Contractor and updated weekly.
   1. Coordination: The Contractor shall coordinate all testing, including all testing and inspections to be paid for by the Owner. The Contractor will arrange testing and sampling performed by the Owner's testing agency and will have prepared test record forms. Upon receipt of test results, the Owner will distribute 2 copies to the Contractor and 2 copies to the Architect with test results.

I. Follow-up and Corrective Action: The Contractor and the Owner will note the test record on the Testing Log to acknowledge test procedures and results. If the follow-up or corrective action is needed, the Contractor shall submit to the Owner 2 written copies of proposed follow-up or corrective plans and obtain the Owner's written

approval before proceeding.

1. Cost of Testing: If tests indicate that materials or work do not comply with requirements, the contractor shall pay for all retesting, and shall remove and replace non-complying work at no additional cost to the Owner.

J. Local Owner Inspections: The Contractor is also responsible for coordinating and cooperating with local requirements for inspections.

End of Section

NYS EDUCATION DEPARTMENT Office of Facilities Planning 89 Washington Avenue, Room 1060 EBA Albany, NY 12234	STATEMENT OF SPECIAL INSPECTIONS AND TESTS As required by the Building Code of NYS (BCNYS)

BCNYS § 1704.1.1 requires the project Design Professional to complete the Statement of Special Inspections and Tests. Completion of the Statement of Special Inspections & Tests and submission to the Office of Facilities Planning with the Construction Permit Application is a condition for issuance of the Building Permit.

School District	Building
Putnam Valley CSD	**Putnam Valley Middle School**
Project Title	
2018 Capital Projects Phase 2- Putnam Valley Middle School Toilet Room Alterations	
SED Project #	Project Address
48-05-03-04-0-004-016	**142 Peekskill Hollow Road, Putnam Valley, NY 10579**
Architect/Engineer	
KG+D Architects	
Name of Person Completing this Statement	Phone / Date
Teresa S. May, AIA	914.666.5900 / 2/1/2021
Comments	

INSPECTION AND TESTING (Continuous & Periodic is as Defined by the BCNYS)	CONTINUOUS	PERIODIC	REFERENCE STANDARD	BCNYS REFERENCE	CHECK IF REQUIRED	IDENTIFY SPEC SECTION AND PROVIDE CLARIFYING NOTES IF NECESSARY
A. Steel Construction						
1. Material verification of high-strength bolts, nuts and washers.		X	Applicable ASTM material specifications. AISC 360, Section A3.3	1705.2	☐	
2. Inspection of high-strength bolting.	X	X	AISC 360, N5.6-3	1704.3, 1704.3.3	☐	
3. Material verification of structural steel.			AISC 360 Ch. N	1704.3, 1708.4	☐	
4. Material verification of weld filler materials.			AISC 360 Ch. N	1704.3	☐	
5. Inspection of welding:				1704.3	☐	
a. Structural steel	X	X	AISC 360, N5.4-1	1705.2	☐	
b. Reinforcing steel	X	X	AISC 360, N5.4-1	1705.2	☐	
6. Inspection of steel frame joint details.		X	AISC 360, N6.1	1704.3, 1704.3.2	☐	
B. Concrete Construction						
1. Inspection of reinforcing steel, including prestressing tendons, and placement.		X	ACI 318: Ch 20, 25.2, 25.3, 26.6.1 - 26.6.3	1705.3 1908.4	☐	
2. Inspection of reinforcing steel welding.			AWS D1.4; ACI 318: 26.6.4	1705.3	☐	

INSPECTION AND TESTING (Continuous & Periodic is as Defined by the BCNYS)	CONTINUOUS	PERIODIC	REFERENCE STANDARD		BCNYS REFERENCE	CHECK IF REQUIRED	IDENTIFY SPEC SECTION AND PROVIDE CLARIFYING NOTES IF NECESSARY
3. Inspection of bolts to be installed in concrete prior to and during placement.	X		ACI 381: 17.8.2 Ch. N: Sect. N5.6; Tables N5.6-1, N5.6-2 & N5.6-3		1705.3	☐	
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	☐	
5. Sampling fresh concrete: slump, air content, temperature, strength test specimens.	X		ASTM C 172, C 31; ACI 318: 5.6, 5.8		1705.2 1908.10	☐	
6. Inspection of placement for proper application techniques.	X		ACI, 318: 26.5		1904.1 1904.2 1908.2 1908.3	☐	
7. Inspection for maintenance of specified curing temperature and techniques.		X	ACI, 318: 26.5.3-26.5.5		1908.9	☐	
8. Inspection of prestressed concrete.	X		ACI 318: 26.10		1705.3	☐	
9. Erection of precast concrete members.		X	ACI 318: Ch. 26.8		1705.3	☐	
10. Verification of in-situ concrete strength prior to stressing of tendons and prior to removal of shores and forms from beams and slabs.		X	ACI 318: 26.11.2		1705.3	☐	
11. Inspection of formwork		X	ACI 318: 26.11.1.2 (b)		1705.3	☐	
C. Masonry Construction							
L1 = Level 1 Inspection required for nonessential facilities.			ACI 530/ ASCE 5/TMS 402	ACI 530.1/ ASCE 6/TMS 602	1705.4	☐	
L2 = Level 2 Inspection required for essential facilities. In general, schools are not considered essential facilities unless they are a designated emergency shelter			ACI 530/ ASCE 5/TMS 402, Ch. 35	ACI 530.1/ ASCE 6/TMS 602, Ch. 35	1705.4	☑	Spec 042000

INSPECTION AND TESTING (Continuous & Periodic is as Defined by the BCNYS)	CONTINUOUS	PERIODIC	REFERENCE STANDARD		BCNYS REFERENCE	CHECK IF REQUIRED	IDENTIFY SPEC SECTION AND PROVIDE CLARIFYING NOTES IF NECESSARY
1. Verify to ensure compliance:							
a. Proportions of site prepared mortar and grout.		L1 & L2	Tbl.3.1.2.2.a Tbl.3.1.2.3.d	2.1, 2.6A, 2.6B	1705.4	☑	Spec 042000
b. Placement of masonry units and construction of mortar joints.		L1 & L2	Tbl.3.1.2.4.a	3.3F	1705.4	☑	Spec 042000
c. Location and placement of reinforcement, connectors, tendons, anchorages.		L1 L2	Sec.1.13 Tbl.3.1.2.2.d Tbl.3.1.2.3.c	3.2E, 3.4	1705.4	☐ ☐	
d. Prestressing technique. Grout space prior to grouting.	 L2	L1				☐ ☐	
e. Grade and size of prestressing tendons and anchorages. Placement of grout.	 L2	L1				☐ ☐	
f. Grout specs prior to grouting.	L2					☑	Spec 042000
2. Inspection program shall verify:							
a. Size and location of structural elements.		L1 & L2		3.3F	1705.4	☐	
b. Type, size, and location of anchors.	L2	L1	Sec.1.2.1(e), 6.1.4.3, 6.2.1 Tbl.3.1.2.4.b		1705.4	☐	
c. Specified size, grade, and type of reinforcement.		L1 & L2	Sec. 1.13	1.5	1705.4	☐	
d. Welding of reinforcing bars.	L1 & L2					☐	
e. Cold/hot weather protection of masonry construction.		L1 & L2	Tbl.3.1.2.4.d	1.8C, 1.8D	1705.4	☐	
f. Prestressing force measurement and application.	L2	L1				☐	
3. Verification prior to grouting.	 L2	L1	1.13			☑ ☐	Spec 042000
4. Grout placement.	L1		Tbl.3.1.2.3.a Tbl.3.1.2.4.f	3.2D, 3.2F, 3.5	1705.4	☑	Spec 042000

INSPECTION AND TESTING (Continuous & Periodic is as Defined by the BCNYS)	CONTINUOUS	PERIODIC	REFERENCE STANDARD		BCNYS REFERENCE	CHECK IF REQUIRED	IDENTIFY SPEC SECTION AND PROVIDE CLARIFYING NOTES IF NECESSARY
5. Preparation of grout specimens, mortar specimens, and/or prisms.	L1 & L2					☐	
6. Compliance with documents and submittals.		L1 & L2	Tbl.3.1.2.4.a	3.3f	1705.4	☑	Spec 042000
D. Wood Construction							
1. Fabrication process of prefabricated wood structural elements and assemblies.					1704.2.5	☐	
2. High-load diaphrams designed in accordance with Table 2306.3.2					1705.5	☐	
E. Soils					1705.6	☐	
F. Pile Foundations					1705.7	☐	
G. Pier Foundations					1705.8	☐	
H. Sprayed Fire-Resistant Materials							
1. Structural member surface conditions.					1705.14.2	☐	
2. Application.					1705.14.3	☐	
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	☐	
I. Mastic and Intumescent Fire-Resistant Coatings					1705.15	☐	
J. Exterior Insulation and Finish Systems (EIFS)					1705.16	☐	
K. Special Cases					1705.17	☐	
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. Pier Foundations.		X			1705.8	☐	
5. Storage racks and access floors.		X			1705.12.5 1705.12.7	☐	

INSPECTION AND TESTING (Continuous & Periodic is as Defined by the BCNYS)	CONTINUOUS	PERIODIC	REFERENCE STANDARD	BCNYS REFERENCE	CHECK IF REQUIRED	IDENTIFY SPEC SECTION AND PROVIDE CLARIFYING NOTES IF NECESSARY
6. Architectural components.		X		1705.12.5	☐	
7. Mechanical and electrical components.		X		1705.12.6	☐	
8. Designated seismic system verifications				1705.13.3	☐	
9. Seismic isolation system.		X		1705.13.4	☐	
N. Structural Testing for Seismic Resistance						
1. Testing and verification of masonry materials and assemblies prior to construction.				1705.13.2	☐	
2. Testing for seismic resistance.				1705.13	☐	
3. Reinforcing and prestressing steel.			ACI 318	1705.13	☐	
4. Structural steel.			AISC 341	1705.13	☐	
5. Seismic qualification of mechanical and electrical equipment.				1705	☐	
6. Seismically isolated structures.			Section 17.8 of ASCE 7	1705.13.4	☐	
O. Structural Observations						
1. Seismic resistance.				1704.6	☐	
2. Wind requirements.				1704.6	☐	
P. Test Safe Load				1707	☐	
Q. In-Situ Load Tests				1708	☐	
R. Preconstruction Load Tests				1709	☐	
S. Other (list)					☐	

SECTION 014339 - MOCKUP REQUIREMENTS

1.01 GENERAL

A. Requirements set forth herein are in addition to and shall be considered as complementary to the Conditions of the Contract and the balance of Division #1 and Technical Specifications.

B. All Contractors, Subcontractors, Sub-subcontractors, Vendors and the like shall be required to familiarize themselves with said provisions.

C. Definitions as apply to "Contractors" involved with the work of this Project shall be as set forth in Section 011000, Article 1.01.

1.02 REQUIREMENTS INCLUDED IN THIS SECTION

A. General Purpose of Mockups

B. Miscellaneous Mockups

1.03 GENERAL PURPOSE OF MOCKUPS

A. Contractors are advised that various sections of the Specifications require construction of mockups. Where mockups are required the Contractor erecting the mockup shall notify the Architect one week prior to its completion.

B. The purpose of each mockup will be to establish minimum standards of materials and workmanship and to assure that completed installations based on the mockups will be fully functional and will serve the purpose for which they have been designed.

C. Approved mockups may be left in place and incorporated into the permanent installation.

D. The Contractor shall not proceed with the purchase or fabrication of any "mockup" items until the procedure of mockup erection, inspection and approval is completed and documented.

E. Contractor shall coordinate work at each mockup with other trades construction that mockup.

1.04 MISCELLANEOUS MOCKUPS

A. Field mockups for work are required as noted within the technical specifications and generally include work identified within said sections.

Failure to list any required mockup will not relieve the Contractor from executing said mockup.

End of Section

SECTION 01 45 00

PIPE SCAFFOLDING AND SIDEWALK SHEDS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Applicable provisions of the Conditions of the Contract and Division 1, General Requirements, govern work in this Section.

1.02 DESCRIPTION OF WORK

A. The work of this Section consists of the provision of all plant, materials, labor and equipment and the like necessary and/or required for the complete execution of all Pipe Scaffolding And Sidewalk Shed Work for this project as required by the schedules, keynotes and drawings and as generally outlined in Section 01 10 00, including, but not limited to the following:

1. Install and maintain sidewalk sheds at locations shown and as required to maintain safe egress at all Building entrances and exits from the day work starts until final completion and the scaffold is removed.

2. Install and maintain pipe scaffolding to extent required to complete the full scope of project work and as required for inspection and approval of work in place by Architect.

a. Install scaffold access stairs for each area of façade work and as requred.

b. Enclose the stairs with 12 foot high 1/2 inch think plywood walls. Provide a door with locks at each stair.

c. Enclose the bottom of the entire scaffold with an 8 foot high 1/2 inch thick plywood barrier.

3. Remove scaffolding only after the work is complete, inspected, and approved in writing by the Architect.

4. Install and maintain warning signs, and snow fence and saw horse barricades to alert persons on or about the site, and direct them away from the work areas.

5. Perform Waste Management, coordinate with Section 01 74 19

1.03 RELATED WORK SPECIFIED ELSEWHERE

A. Masonry - Section 04 01 00

B. Carpentry - Section 06 10 00

C. Asphalt Shingles - Section 07 31 13

D. EPDM Roofing - Section 07 53 00

E. Sheet Metal Flashings & Accessories - Section 07 60 00

F. Roof Specialties - Section 07 70 00

1.04 QUALITY ASSURANCE

A. Furnish and install all scaffolds, including supports, fastenings, connections, and details that are designed, sealed and signed by a New York State licensed Professional Engineer, utilizing a minimum safety factor of not less than four times the maximum weight intended to be placed thereon when in use.

B. Post signage on the scaffold, to indicate the safe permissible scaffold design load. Do no load the scaffold or sidewalk bridges in excess of the safe design loads.

C. Obtain all components of pipe scaffolding and sidewalk sheds from a single source supplier or manufacturer.

D. Install the scaffolding and sidewalk sheds using personnel thoroughly skilled and competent in the work.

E. Perform the work causing as little inconvenience to the public and building occupants as possible.

1.05 SUBMITTALS

- As set forth in Article 14 of the General Conditions, prepare and submit a fully developed submittal schedule; review times for approval are 15 working days for primary review and 20 working days when a consultant is involved; note review times set forth above are deemed “average”, for large submissions allow longer review times.
- The Contractor is encouraged to submit for approval products made from recycled and/or environmentally responsible material. Every effort will be made by the Design Professional Team to approve these materials; the substitution request procedure shall still be enforced.

A. Product data in the form of manufacturer’s technical data, specifications, and installation instructions for all components of pipe scaffolding and sidewalk sheds.

B. Shop drawings showing locations, dimensions, and details for all components and assemblies of the pipe scaffolding and sidewalk sheds, signed, sealed and stamped by a professional engineer licensed in NY State.

C. Evidence that all wood products (planking, etc.) are fire retardant.

1.06 PROJECT CONDITIONS

A. Bidders must visit the work site to determine the existing conditions and take whatever measurements are needed before submitting bids.

PART 2 - PRODUCTS

2.01 PIPE SCAFFOLDING

A. Pipe scaffolding shall be constructed of tubular metal sections, or other non-combustible material, to meet at a minimum NYS Building Code and OSHA requirements.

B. Lumber shall be at least equal in strength and quality to construction grade Douglas fir and fire retardant.

C. Fasteners to secure lumber and timber shall be nails or bolts of a suitable size to produce a secure joint capable of withstanding the design load.

D. Mud sills shall be 2 by 10 inch wood planks.

2.02 SIDEWALK SHEDS

A. Posts - 3-1/2 inch standard pipe spaced 8 feet apart.

B. Beams - 6 I to 10 I structural steel beams, dependent upon sidewalk width and live load.

C. Joists - 3 I to 6 I structural steel beams, or 3 by 6 inch to 4 by 8 inch timber, dependent upon joist spacing and live load.

D. Decking - 2 to 3 inch thick planking, dependant upon joist framing and live load.

E. Parapet - 1/2 inch plywood on 2 inch by 4 inch framing.

F. Bracing - 1-1/2 inch standard pipe for girts and railings, 3/4 standard pipe for X bracing.

G. Mud Sills - 2 by 10 inch wood planks.

H. Lumber shall be at least equal in strength and quality to construction grade Douglas fir and fire retardant.

I. Fasteners to secure lumber and timber shall be nails or bolts of a suitable size to produce a secure joint capable of withstanding the design load.

PART 3 - EXECUTION

3.01 INSTALLATION OF PIPE SCAFFOLDING

A. Install and maintain pipe scaffolding waist height at all gutter eaves.

B. Except as otherwise indicated, install planks to overhang their end supports at least 6 inches, and fasten them securely to prevent dislodgment. Do not allow planks to overhang in excess of 18 inches. Lay planks tight together, to form a full scaffold width platform.

C. Install guardrails and toe boards on the sides and ends of every scaffold platform.

D. Install polyethylene screening on the exterior side of the scaffold to prevent debris and material from falling off.

E. Install cross bracing supports in all scaffold bays.

3.02 INSTALLATION OF SIDEWALK SHEDS

A. Install sidewalk sheds to maintain public egress pathways from the building. Plank over the sidewalk sheds the full width of the egress path.

B. Brace the sidewalk sheds longitudinally and horizontally in each bay. Make connections with clamps.

3.03 UTILITY ACCESS

A. Install scaffolds and sidewalk sheds such that they do not block lighting fixtures, fuel oil intakes, exhaust vents and doors. Relocate and extend light fixtures and other utility connections affected by the sheds and/or scaffolds so access and security lighting is continuously maintained.

3.04 MAINTENANCE

A. Maintain work areas free of waste materials, debris and rubbish. Maintain the site in a clean and orderly condition.

B. Immediately provide temporary measures to safe guard any scaffold or sidewalk shed, and persons on or about the site, which is damaged or otherwise adversely affected for any reason, and repair or replace the effected portion within 48 hours, but before any further use.

3.05 OWNER & ARCHITECT ACCESS

A. Permit representatives of the Owner, Architect, Construction Manager or any Consultant involved with this project, access to the scaffold and/or personnel lift (if one is used), at all times.

3.06 DISMANTLING AND REMOVAL

A. Carefully dismantle and remove scaffolding and sidewalk sheds only after the work, and all Punch List work is complete and approved in writing by the Architect.

B. Remove scaffold material from the site the same day it is disassembled. Do not store material at the site except with the specific prior permission of the Owner.

C. Post signs, erect barricades and station flagman around the site to prevent accidents and to insure the protection of the public.

D. Clean and repair damage caused by the installation and removal of the scaffolding and sidewalk sheds. Restore existing facilities used during construction to original condition.

3.07 WASTE MANAGEMENT - Coordinate with Section 01 74 19

A. Separate and recycle materials and material packaging in accordance with Waste Management Plan and to the maximum extent economically feasible and place in designated areas for recycling.

B. Set aside and protect materials suitable for reuse and/or remanufacturing.

C. Separate and fold up metal banding; flatten and place along with other metal scrap for recycling in designated area.

* * END OF SECTION * *

SECTION 01 50 00

TEMPORARY FACILITIES

1.01 GENERAL

A. Requirements set forth herein are in addition to and shall be considered as complementary to the Conditions of the Contract and the balance of Division #1 and Technical Specifications.

B. In general this Section includes requirements for construction facilities and temporary controls, including temporary utilities, support facilities, and security and protection.

C. All Contractors, Subcontractors, Sub-subcontractors, Vendors and the like shall be required to familiarize themselves with said provisions.

D. Provide environmental protection as required by authorities having jurisdiction and as indicated in the Contract Documents.

1.02 REQUIREMENTS INCLUDED IN THIS SECTION

A. Field Office
B. Temporary and Permanent Services, General
C. Temporary Light and Power
D. Temporary Heating/Cooling Facilities
E. Temporary Toilet Facilities
F. Temporary Water
G. Storage Facilities
H. Scaffolding and Staging
I. Construction Fencing and Barriers – See drawings for scope of work; barriers shall be constructed of steel studs and fire rated gypsum with level 1 tape finish. Fire safe all temporary partitions.
J. Janitorial Service/Daily Cleanup
K. Burning
L. Dust Control
M. Fire Prevention Control
N. Temporary Fire Protection
O. Discontinuance, Changes and Removal

1.03 FIELD OFFICE

A. The Contractor, until all work covered by the Contract is accepted by the Owner, will be assigned an area or areas within the existing building to be used as an office for his use, and use of the Architect, Owner and their representatives and shall equip same with furniture, files and accessories as necessary to service the project; coordinate requirements for Architect and Owner with said parties.

B. Contractor shall provide telephone service for all calls.

C. The Contractor shall provide daily housekeeping for all office spaces.

D. Maintain, in the Contractor's field office, all articles necessary for First Aid treatment; further, the Contractor shall 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 of the work.

1.04 TEMPORARY AND PERMANENT SERVICES, GENERAL

A. The Contractor shall provide and maintain, either directly or through its' subcontractors, all temporary services and utilities, including all labor, materials, equipment and the like necessary to adequately furnish, deliver and maintain said services at all times when required during the term of the Contract.
B. Temporary work shall generally include, but not be limited to - temporary light and power; temporary heat; temporary toilets; temporary water; hoisting systems; rubbish chutes; temporary stairs, rails and shaft protection; storage; temporary fences; roof protection; temporary enclosures and the like required to conduct the work in a proper manner.
C. The Contractor's use of any permanent system or service of the building or portions thereof shall be subject to the Owner's approval.
D. 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.

1.05 TEMPORARY LIGHT AND POWER

A. The energy will be supplied, **and paid for**, by the Owner for all work within the present building. Abuse of service will be cause for termination of service. No reimbursement will be made by Owner in the event of disconnect.
B. Where feasible locations for temporary power shall be from the nearest adequate duplex or simplex outlet to the work of this Contract.
C. Because of the high concentration of computers within the building, electrically powered welding equipment shall not be connected to the Owner's wiring system. Self-generated welding equipment shall be used. It shall be the responsibility of the General Contractor that any electric welding equipment used on the project will not have any harmful effect on existing computers, computer storage systems or other computer equipment.

1.06 TEMPORARY HEATING/COOLING FACILITIES

A. The Contractor shall provide and pay for all temporary heating, coverings and enclosures necessary to properly protect all work and materials against damage by dampness and cold, to dry out the work and to facilitate the completion thereof. 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.

Attention is directed to specific temperature requirements for painting, carpentry, flooring and such other temperature sensitive operations connected with the execution of the Work.

B. Before and during the placing of wood finish and the application of other interior finishing, 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 between 65 and 85 degrees F. Coordinate with Division 9 of the Technical Specifications.

1.07 TEMPORARY TOILET FACILITIES

A. The Contractor will be assigned toilet facilities within the existing building for his use at designated locations.

B. All maintenance and restoration of facilities is the responsibility of the General Contractor upon completion at no cost to the Owner.

1.08 TEMPORARY WATER

A. The Owner will provide water service to the Contractor without charge, but reserves the right to terminate, without incurring additional cost, said service in the event of abuse of such service.

B. The Contractor shall make all necessary connections and extend piping to areas required at no additional cost to the Owner.

C. The Contractor shall have all equipment for the temporary water removed at the completion of the Project or when directed by the Architect or Owner.

1.09 STORAGE FACILITIES

A. The Contractor shall provide tool houses and other facilities as required for his own use.

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, the Contractor shall coordinate delivery of materials with the building operating personnel, who will determine when large deliveries shall be made and shall designate storage locations on site for delivered materials.

1.10 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.

1.11 RUBBISH CONTAINER

A. Provide suitable rubbish container device (s), properly maintained and serviced, replaced as required and protected from access by the public by fencing as may be specified herein or approved by the Architect.

1.12 JANITORIAL SERVICE/DAILY CLEANUP

A. The Contractor shall furnish daily janitorial services for the project and perform any required maintenance of facilities as deemed necessary by the Architect during the entire life of the contract.

Toilet facilities shall be kept clean and sanitary at all times. Services shall be accomplished to the satisfaction of the Architect.

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 Architect.

B. The Contractor shall place foot wiping carpet at all entrances, exits to the work areas and provide daily cleaning for all dust and footprints from the corridors, stairs, and the like, caused by construction.

1.13 BURNING: Burning will not be permitted.

1.14 DUST CONTROL: The Contractor shall, at all times, provide adequate dust control measures. He shall accomplish this without interference with the operations of the Owner or the safe progress of the work.

1.15 FIRE PREVENTION CONTROL

A. All Contractors 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.

1.16 TEMPORARY FIRE PROTECTION

A. Each Contractor shall take all possible precautions for the prevention of fires. Where flame cutting torches, blow torches, or welding tools are required to be used within the building, their use shall be as approved by the Architect at the site.

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 Underwriter's laboratory approved containers. Storage of gas shall be in locations as approved by the Owner and subject to Fire Department regulations and requirements.

C. 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.

D. The 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 is 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 LP-Gas is required for Temporary Heat (including Construction Heat), the number of the cylinders within the structure or building shall be limited to the least amount required; in general, one (1) cylinder per heater. Cylinders and heaters shall be connected with two (2) braid neoprene hoses fitted at each end with threaded unions and capable of withstanding a pressure of 250 P.S.I. The length of those shall not exceed 30 feet and shall be protected from mechanical injury, kinking and abrasion. Heaters shall not be less than 6 feet from any cylinder and not less 10 feet from any tarpaulins or type closure. All debris and rubbish shall be removed to prevent fire hazards.
5. 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 firewatch shall be certified by the Local Fire Department having jurisdiction.
6. LP-Gas Heating will not be permitted in enclosed areas below grade.
7. Any cylinder not having the proper ICC markings or reinspection 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.

E. The 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 firefighting 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 as close as practical to the operation. Tanks, actives or spares, shall be protected from excess heat and shall not be placed in stairways, hallways or exits. When not in use, protective valve cap shall be screwed on the cylinder.
6. Adequate fire extinguishing equipment shall be maintained at all welding or cutting operations.
7. The Contractor shall secure all required inspections.
8. All equipment, hoses, gauges, pressure reducing valves, torches, etc., shall be maintained in good working order and all defective equipment shall immediately be removed from the job.
9. No person shall be permitted to do any welding or cutting until his name, address and current license number have been submitted in writing to the Owner.

F. 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.

1.17 DISCONTINUANCE, CHANGES AND REMOVAL

A. All Contractors shall:

1. Discontinue all temporary services required by the Contract when so directed by the Owner or the 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 Owner or the Architect without additional cost to the Owner, and shall restore the site and the work to a condition satisfactory to the Owner.

End of Section

SECTION 01 57 13

TEMPORARY EROSION AND SEDIMENT CONTROL

Part 1 - GENERAL

1.01 GENERAL
- A. Requirements set forth herein are in addition to and shall be considered as complementary to the Conditions of the Contract and the balance of Division #1 and Technical Specifications.
- B. All Contractors, Subcontractors, Sub-subcontractors, Vendors and the like shall be required to familiarize themselves with said provisions.

1.02 REQUIRMENTS INCLUDED
- A. Responsibility
- B. Description
- C. Submittals
- D. Definitions
- E. Reference Standards
- F. Federal Permit Notifications
- G. Authority
- H. Coordination and Scheduling
- I. Sustainability

1.03 RESPONSIBILITY
- A. Assume responsibility for the temporary control of soil erosion and water pollution resulting from performance of the work of this contract.
- B. Measures to avoid and minimize waterborne soil erosion during construction and to minimize off-site discharge or tracking of sediment during construction.
- C. The Contractor shall be responsible to perform all tasks and to erect, manage, maintain, move, extend, and remove at the proper time all physical erosion and sediment control measures from beginning of construction activities through final completion. Unless otherwise noted in the contract documents, such activities are considered as part of the base bid.
- D. In the event of conflict between these specifications and the regulation of other Federal, State, or local jurisdictions, the more restrictive regulations shall apply.
- E. The Contractor shall engage services of a Certified Professional in Erosion and Sediment Control (EPESC) or a licensed professional engineer to conduct regular inspections at least once every seven calendar days and within 24 hours after each storm producing 0.5 inches of rainfall or greater.

1.04 DESCRIPTION
- A. The Work shall consist of temporary control measures as required to provide temporary control of soil erosion or water pollution and work in conjunction with technical specifications, specifically:.
  1. Division 31 - Earthwork
  2. Division 32 - Exterior Improvements
  3. Division 33 - Utilities

B. Temporary measures shall include silt fences, inlet protections, berms, sedimentation basins, silt screens, mulches, grasses, or other erosion control devices or methods as required.

1.05 SUBMITTALS

A. Outline description of erosion and sediment containment program complete with implementation drawings if requested; coordinate with requirements set forth in Section 01 57 19.
B. Material samples and product data as applicable to the particular products.
C. Material safety data sheets on all products, as necessary.

1.06 DEFINITIONS

A. Erosion: The action of loosening and waterborne transport of soil particles from bare soil surfaces on construction sites as a result of rainfall or runoff. Erosion can occur as splash erosion, sheet erosion, rills, gullies, or channel erosion.
B. Sediment: The accumulation of eroded soil particles in streams, ponds, ditches, and other areas downstream from the construction site.
C. Stabilization: Disturbed earthen surfaces are considered stable when 75% of the intended vegetation has been established, in the opinion of the Engineer.

1.07 REFERENCE STANDARDS

A. "Developing Your Stormwater Pollution Prevention Plan - A Guide for Construction Sites", by U.S. EPA.
B. "Field Manual on Sediment and Erosion Control Best Management Practices for Contractors and Inspectors", by Jerald S. Fifield, Ph.D., CPESC.
C. National Menu of Stormwater Best Management Practices on USEPA website,http://cfpub.epa.gov/npdes/stormwater/menuofbmps/index.cfm.
D. Item #4 entitled "Construction - BMPS for MS4's and construction site operators to address stormwater runoff from active construction sites."

1.08 FEDERAL PERMIT NOTIFICATION

A. For all construction sites involving disturbance of one acre or more, the Contractor must complete and file a "Notice of Intent for Stormwater Discharges Associated with Construction Activity Under a NPDES Permit" form (NOI) with the U.S. Environmental Protection Agency (EPA).
B. As a condition of the federal permit, the Contractor must prepare, maintain, and continually update a Storm Water Pollution Prevention Plan (SWPPP) throughout the construction process. The Plan and associated documentation must be on-site during all periods of construction.
    1. A meeting with the Contractor, Owner, and Engineer shall be held prior to start of work to review the requirements for construction phase stormwater management. This may be concurrent with the overall preconstruction conference.
        a. If the Contractor employs a consultant to prepare the SWPPP, the consultant shall also be in attendance.
    2. The SWPPP must be specific to the particular project, and not a "generic" concept. It must be consistent with the Contractor's proposed schedule for the project.
    3. The SWPPP must show the location of current temporary erosion and sediment control measures, including but not limited to: site perimeter

protection, surface and slope protection, channel protection, inlet and outlet protection, construction traffic exit protection, stockpile protection, etc. It must also show flow arrows, discharge points, and construction phasing. It is expected that as construction proceeds, the SWPPP will be updated continually to depict the current locations of all erosion and sediment control measures.

C. As a further condition of the federal permit, the Contractor must regularly inspect all erosion and sediment control measures and the site in general, and keep a record of inspections on-site. The inspections must be performed by the Contractor's superintendent or responsible designee. It must note conditions and maintenance measures performed. Dated photographs are encouraged as part of the log.
   1. Inspections must be performed weekly and within 24 hours after each rainfall event exceeding one-half inch.
   2. Contractor shall employ a rain gauge on-site and record daily results for the duration of construction.
   3. Contractors are encouraged to use the form "Stormwater Control Site Inspection Report", referenced in Appendix B of the EPA manual in Paragraph 1.03.A, above.
   4. The Contractor shall be prepared to show the current SWPPP, the inspection record, and a copy of the NOI form to authorized EPA inspection personnel if the site is visited by them, and to escort the inspector around the construction site. Such inspections may occur unannounced at any time.

D. At completion of construction and/or when all earth surfaces are stabilized from erosion, the Contractor shall complete a "Notice of Termination" (NOT) form with EPA.

E. The Contractor must maintain a file of all SWPPP activities and records for three (3) years after filing the NOT, or as required by EPA, whichever is longer.

1.09 AUTHORITY

A. The Owner's Representative and/or Architect has the authority to limit the surface area of erodible earth exposed by earthwork operations and to direct the Contractor to provide immediate temporary or permanent erosion or pollution control measures to minimize damage to property and contamination of watercourses and water impoundments.

1.10 COORDINATION AND SCHEDULING

A. Schedule the work so as to minimize the time that raw earth areas will be exposed to erosive conditions.

B. Coordinate the use of temporary controls with the permanent erosion control features or finish materials shown.

C. Incorporate permanent control features into the work at the earliest practical time.

1.11 SUSTAINABILITY

A. In the selection of the products and materials of this section as well as for the entire project, preference will be given to those with the following characteristics:
   1. Water based.
   2. Water-soluble.
   3. Can be cleaned up with water.

4. Non-flammable.
5. Biodegradable.
6. Low or preferably no Volatile Organic Compound (VOC) content.
7. Manufactured without compounds that contribute to ozone depletion in the upper atmosphere.
8. Manufactured without compounds that contribute to smog in the lower atmosphere.
9. Do not contain methylene-chloride.
10. Do not contain chlorinated hydrocarbons.
11. Contains the least possible of post-consumer or post-industrial waste.

Part 2 - MATERIALS

2.01 SILT FENCE

A. Filter fabric for silt fence shall consist of pervious sheets of woven polypropylene, nylon, or polyester with or without wire mesh reinforcing. Material shall meet the following requirements:

PHYSICAL REQUIREMENTS FOR FABRIC SILT FENCE		
Property	Test Method	Requirement
Grab Tensile Strength	ASTM D-4632	100 lbs. min.
Grab Tensile Elongation	ASTM D-4632	25% max.
Puncture Strength	ASTM D-4833	60 lbs. min.
Mullen Burst Strength	ASTM D-3786	210 psi min.
Trapezoid Tear Strength	ASTM D-4533	60 lbs. min.

NOTE: The filter fabric shall contain a stabilizer and/or inhibitors to make the filaments resistant to deterioration resulting from exposure to sunlight or heat to provide a minimum of twelve (12) months of expected usable construction life at a temperature range of 0 deg. to 120 deg. F. The filter fabric shall be a minimum of 36 inches wide, cut from a continuous roll to finish fence length to avoid the use of seams. Splice filter fabric together only when absolutely necessary and only at a support post, with a minimum 6-inch overlap and securely sealed. The filter fabric shall be free of defects or flaws which significantly affect its physical and/or filtering properties.

B. Posts shall be of wood or steel of length in conformance to state regulations. Wood posts shall be sound quality hardwood, nominal 1 x 1 inch. Steel posts shall be round or U, T, or C-shaped with a minimum weight of one pound per foot, and have projections for fastening the wire to the fence. Max post spacing shall be in conformance with state regulations.

C. Prefabricated silt fencing, including pre-attached posts, etc. shall be permissible and shall be one of the following or approved equal:
   1. Marafi Inc/Carlisle – “Envirofence System"
   2. Akzo Nobel – “Enkamat System"
   3. Webtec, Inc. – “EconoFence"

2.02 MULCH

A. Temporary mulch may be straw, hay, wood fiber or wood cellulose, wood chips or bark chips reasonably clean and free of noxious weeds and materials toxic to plant growth.

2.03 STONE FOR CHECK DAMS AND CONSTRUCTION EXITS

A. Stone for check dams in channels and ditches and for construction exits shall be well graded angular 2-in. to 3-in. crushed stone.

2.04 EROSION CONTROL BLANKET FOR SLOPE PROTECTION

A. Type A erosion control blanket shall be a 100% straw matrix stitch-bonded with degradable thread to a single standard photodegradable polypropylene netting. North American Green S75, or equal.

B. Type B erosion control blanket shall be a 100% straw matrix stitch-bonded with degradable thread between two standard photodegradable polypropylene nettings. North American Green S150, or equal.

C. Type C erosion control blanket shall be a matrix of 70% straw and 30% coconut fibers stitch-bonded between a UV-stabilized polypropylene top netting and standard polypropylene bottom netting. North American Green SC150, or equal.

D. Type D erosion control blanket shall be a 100% coconut fiber matrix stitched between two UV stabilized polypropylene nettings. North American Green C125, or equal.

E. Equal products to those named above shall be manufactured by:
   1. Erosion Control Systems (1020).
   2. Synthetic Industries ("Polyjute").
   3. Webtec, Inc. (TerraJute).
   4. American Excelsior (Curlex).

2.05 CATCH BASIN SEDIMENT TRAPS (FILTER BAGS) FOR INLET PROTECTION

A. Sediment traps shall be manufactured to fit into the opening of a catch basin or drop inlet and hang down below the grate. Traps shall be manufactured from geotextile and stitched webbing. They shall be designed to trap grit, debris, and soil particles, yet pass water freely.

B. Sediment traps shall be equipped with lifting straps and loops for 1" rebar to set in place. They shall not rely on the grate to stay in place.

C. Physical requirements shall be as follows:

Property	Requirement
Grab Tensile Strength, ASTM D-4632	300 lb. min.
Grab Tensile Elongation, ASTM D-4632	20% max.
Puncture, ASTM D-4833	120 lb. min.
Mullen Burst, ASTM D-3786	800 psi min.
Apparent Size Opening, ASTM D-4751	#40
Flow Rate, ASTM D-4491	40 gpm/sf

D. Sediment traps shall be designed to be cleaned and re-issued multiple times.

E. Catch basin sediment traps shall be "Silt Sack", or equal.

F. Placing a flat piece of geotextile under the grate is not acceptable.

2.06 FILTER LOGS (WATTLES)

A. Filter logs (also known as wattles) shall be used to slow runoff, promote vegetation, retard erosion, and hold sediments. Filter logs may be used for

check dams in swales, on fresh embankment, as an alternate to catch basin sediment traps, or other similar functions.

B. Filter logs shall be flexible and roughly cylindrical in shape, 9" nominal diameter, and 25' nominal length.

C. Filter logs shall be made from decorticated flax fiber in either photodegradable polypropylene netting or high strength biodegradable netting.

D. Filter logs shall be staked in place with 1" x 1" x 24" wood stakes.

2.07 HAY BALES

A. Hay bales shall consist of hay from acceptable grasses and legumes, free from weeds, reeds, twigs, chaff, debris, other objectionable material or excessive amounts of seeds and grain. Hay shall be free from rot or mold and the moisture content shall not exceed fifteen (15) percent by weight at the time of weighing.

B. The hay shall be securely baled with wire of adequate size to allow for possible rusting while in use and to permit re-handling when the bale is in a saturated condition.

C. Individual bales shall be of a longitudinal shape not exceeding one hundred (100) pounds when weighed.

2.08 GRASSES: Grasses: Seed mixture as specified in Section 32 92 00 or other species suitable for temporary cover which will not compete with the grasses sown later for permanent cover.

Part 3 - EXECUTION

3.01 WORK AREAS

A. The Architect may limit the area of clearing and grubbing and earthwork operations in progress commensurate with the Contractor's demonstrated capability in protecting erodible earth surfaces with temporary or permanent erosion control measures.

3.02 SEDIMENTATION AND EROSION CONTROL

A. The Contractor shall plan and execute all operations, particularly those associated with excavation and backfilling, in such a manner as to minimize the amount of excavated and exposed fill or other foreign material that is washed or otherwise carried into wetlands and waterways.

B. The Contractor shall furnish and place silt fence, mulch, check dams, matting, sediment traps, wattles, hay bales, and other materials necessary for sedimentation and erosion control in accordance with the accepted SWPPP.

C. Install erosion control measures as shown on the details and sections in the plans, and follow manufacturer's recommendations.

D. In the event the measures used by the Contractor prove to be inadequate as determined by the Engineer or regulatory agents, the Contractor shall adjust his operations to the extent necessary.

E. The Contractor shall keep streams, brooks and other water crossings clear of mud, silt, debris and other objectionable materials resulting from construction operations.

F. The Contractor shall minimize the amount of bare earth exposed at any one time during construction, and minimize the duration of exposure. In general, permanent vegetation shall be established as soon as possible, including

temporary vegetation as needed. Excavated material to be stockpiled for reuse shall be stored away from brooks, streams and wetland areas and protected.

G. On sloping terrain, if necessary in addition to erosion control matting, install wattles or hay bales to retard erosion paths until vegetation has become established. Do not backdrag or smear sloping surfaces. Roughen soil on slopes by mechanical means. Track marks from tracked vehicles must be perpendicular to the slope, to avoid formation of rills.

H. Sediment laden water that is being pumped from the trenches or excavations shall not be pumped directly into water courses. Employ temporary sediment traps as per the accepted SWPPP.

I. Divert flow from upland areas away from fresh slopes until stabilized.

J. Follow specifications for turf establishment through the stabilization period. Remove any erosion control measures as they become unnecessary, or interfere with turf maintenance and mowing.

3.03 PERIMETER PROTECTION

A. The Contractor shall install barriers to prevent sediment transport beyond the perimeter of each successive work area involving disturbed soil or stockpiling of erodible materials.

B. Generally, barriers shall be silt fences, but many also include hay bales, filter logs, and other measures.

C. Install and embed silt fence as per details on the drawings.

D. Replace deteriorated or damaged silt fencing, and remove sediment when it reaches the one-third point.

3.04 SURFACE AND SLOPE PROTECTION

A. Finished grade for all portions of the project will be protected from erosion immediately upon loaming and seeding.

B. All surfaces flatter than 4:1 shall be protected with a generous layer of mulch. Material shall be held in place via repeated passes with a tracked vehicle and/or a suitable non-toxic tackifier. Machine or hand placement is acceptable.

C. Install erosion control blanket on slopes in accordance with the following table:

Slope Range	**Blanket Type**
3.9:1 to 3.0:1	A
2.9:1 to 2.0:1	B
1.9:1 to 1.5:1	C
1.4:1 to 1:1	D

3.05 CHANNEL PROTECTION

A. For constructed vegetated channels and ditches, protect from erosion with stone check dams until growth of vegetation.

B. Height of dam should be less than the level at which ponded water will overtop the channel.

C. Place stone check dams at spaces such that the top of the downstream dam is level with the toe of the upstream dam.

D. Supplement check dams with Type C or D erosion control matting if necessary to stop erosion.

E. Remove check dams upon stable growth of vegetation.

3.06 OUTLET PROTECTION

A. Prior to allowing flow through storm drains, install permanent stone outlet aprons at all point discharges as shown on the plans.

B. Protect outlets of minor pipes which do not have permanent outlet aprons with hay bales, wattles, and/or stone until soil stabilization.

3.07 INLET PROTECTION

A. Install means to intercept any muddy runoff from fouling existing and constructed storm drain inlets which are downstream from construction activities (e.g., catch basins, culvert inlets, etc.). Use any or all of the following methods, sufficient to prevent escape of sediment.

1. Fabric and Stone Filter Method: This method employs a wire mesh placed over an inlet grate to support a layer of crushed stone wrapped in geotextile. See detail on plans.
2. Filter Log Method: Place one or more rings of filter logs around the perimeter of grate or culvert inlet. Secure with stakes or pins. See detail on plans.
3. Filter Bag Method: Install removable, cleanable filter bag under grate of catch basin. Use this method particularly for existing catch basins in pavement. See detail on plans. Geotextile fabric stuffed under the grate is not acceptable.

3.08 CONSTRUCTION EXITS (Coordinate with Section 31 00 00)

A. Construct means to retard off-site tracking of mud or dirt at all points where vehicles leave the site onto paved drives, streets, and highways.

B. Basic method shall employ geotextile fabric for stabilization under a layer of crushed stone, with a mountable berm near the exit end. See detail on plans.

C. Contractor shall lengthen the installation beyond the minimum if necessary to prevent off-site tracking.

D. Replenish stone as required for the duration of the project.

3.09 STOCKPILE PROTECTION

A. Stockpiles of excavated material, borrow material, or any other material subject to waterborne erosion shall be protected from eroding and provided with means to block discharge of sediment.

B. Small stockpiles of loam, etc. shall be covered with tarps.

C. In general, stockpiles should be broad and gradually sloped, to retard tendency to erode.

D. Establish temporary vegetation on all stockpiles which will not be re-used within three (3) weeks.

E. Provide silt fencing or other perimeter protection to prevent migration of sediment.

3.10 MAINTENANCE

A. Inspect all erosion control devices daily. Immediately repair, adjust, and replace devices if damaged, displaced, or rendered ineffective in any way. When the area is subjected to a rainfall of 1 inch or more within 24 hours, all erosion control facilities shall be inspected and repairs shall be made within 48 hours after the storm. Disposal of materials removed from the control facilities shall be the responsibility of the Contractor as part of site restoration and cleanup.

3.11 REMOVAL AND DISPOSAL

A. At least 70 percent of the disturbed area of the site must be established with erosion resistant cover before interim stabilization measures and temporary erosion and sedimentation control measures may be removed.

B. Do not remove erosion control devices and materials without prior approval of the Architect.

C. Prior to removal of devices, remove all retained silt or other materials and dispose of as specified in Section 31 23 00.

3.12 WASTE MANAGEMENT – Coordinate with Section 01 74 19

A. Separate and recycle materials and material packaging in accordance with Waste Management Plan and to the maximum extent economically feasible and place in designated areas for recycling.

B. Set aside and protect materials suitable for reuse and/or remanufacturing.

C. Separate and fold up metal banding; flatten and place along with other metal scrap for recycling in designated area.

End of Section

SECTION 01 61 00

MATERIAL AND EQUIPMENT

1.01 GENERAL

A. Requirements set forth herein are in addition to and shall be considered as complementary to the Conditions of the Contract and the balance of Division #1 and Technical Specifications.

B. All Contractors, Subcontractors, Sub-subcontractors, Vendors and the like shall be required to familiarize themselves with said provisions.

1.02 REQUIREMENTS INCLUDED IN THIS SECTION

A. General Standards
B. Products
C. Sustainability
D. Transportation and Handling
E. Storage and Protection

1.03 GENERAL STANDARDS APPLICABLE TO ALL SPECIFICATION SECTIONS

A. These provisions, standards, and tolerances shall apply to all work under this Contract. Where stricter standards and tolerances are specified elsewhere in these Specifications or in references specified in these Specifications, they shall take precedence over these standards and tolerances.

B. Build and install parts of the Work level, plumb, square, and in correct position unless specifically shown or specified otherwise.
   1. No part shall be out of plumb, level, square, or correct position so much as to impair the proper functioning of the part or the Work as judged by the Architect.
   2. No part shall be out of plumb, level, square, or correct position so much as to impair the aesthetic effect of the part or the Work as judged by the Architect.

C. Make joints tight and neat. Provide uniform joints in exposed work. Arrange joints to achieve the best visual effect. Refer choices of questionable visual effect to the Architect.

D. Under potentially damp conditions, provide galvanic insulation between different metals which are not adjacent on the galvanic scale.

E. Manufacturers, subcontractors, and workmen shall be experienced and skillful in performing the work assigned to them; coordinate with Article 5 of Section 00 70 00.

F. All paint used on all products shall conform to ANSI Z66.1, Specifications for Paints and Coatings Accessible to Children to Minimize Dry Film Toxicity.

G. The Drawings do not attempt to show every item of existing work to be demolished and every item of repair required to existing surfaces. Perform work required to remove existing materials which are not to be saved and to restore existing surfaces to condition equivalent to new as judged by Architect. If possible, repairs shall be indistinguishable from adjacent sound surfaces. Where it is impossible to achieve repairs which are indistinguishable from adjacent sound surfaces to remain, notify Architect, and proceed according to his instructions.

1.04 PRODUCTS

A. Products include material, equipment and systems.
B. Comply with Specifications and referenced standards as minimum requirements.
C. Components required to be supplied in quantity within a Specification Section shall be the same, and shall be interchangeable.
D. In the case of an inconsistency between Drawings and the Specifications, or within either document which is not clarified by addendum, the product of greater quality or greater quantity of work shall be provided in accordance with the Designer's interpretation.
E. Provide environmentally preferable products to the greatest extent possible. To the greatest extent possible, provide products and materials that have a lesser or reduced effect on the environment considering raw materials acquisition, production, manufacturing, packaging, distribution, reuse, operation, maintenance, and/or disposal of the product.

1.05 SUSTAINABILITY

A. In the selection of the products and materials of this section as well as for the entire project, preference will be given to those with the following characteristics:
   1. Water based.
   2. Water-soluble.
   3. Can be cleaned up with water.
   4. Non-flammable.
   5. Biodegradable.
   6. Low or preferably no Volatile Organic Compound (VOC) content.
   7. Manufactured without compounds that contribute to ozone depletion in the upper atmosphere.
   8. Manufactured without compounds that contribute to smog in the lower atmosphere.
   9. Do not contain methylene-chloride.
   10. Do not contain chlorinated hydrocarbons.
   11. Contains the least possible of post-consumer or post-industrial waste.

1.06 TRANSPORTATION AND HANDLING

A. Arrange deliveries of materials in accordance with construction schedules in order to avoid delay in, conflict with, or the impeding of the progress of the Work and conditions at the site.

   Deliveries shall be made during regular work hours, unless approved otherwise by the Owner.

B. Deliver materials in undamaged condition, in manufacturer's original containers or packaging, with identifying labels intact and legible.

1.07 STORAGE AND PROTECTION

A. Store materials in accordance with manufacturer's instructions, with seals and labels accessible for inspection.

   Contractor shall be responsible for work and equipment until fully inspected, tested and accepted. Carefully store materials and equipment which are not immediately installed after delivery to site. Close open ends of work with temporary covers or

plug during construction to prevent entry of obstructing material or damaging water.

B. Materials stored on the Site shall be neatly arranged and protected, and shall be stored in an orderly fashion in locations that shall not interfere with the progress of the Work or with the operations of the Owner.

C. Interior Storage: Maintain temperature and humidity within the ranges required by manufacturer's instructions.

D. If it becomes necessary to remove and restack materials to avoid impeding the progress of any part of the Work or interfering with the work to be done by any other contractor employed on the Work, or interfering with the Owner's activities, the Contractor shall remove and restack such materials at no additional cost to the Owner.

E. Protection After Installation
   1. Provide adequate coverings to protect installed materials from damage resulting from natural elements, traffic, and subsequent construction.
   2. Remove when no longer needed.

End of Section

SECTION 01 73 29

CUTTING AND PATCHING
(Coordinate with Section 01 35 16)

Part 1 - GENERAL

1.01 GENERAL

A. Requirements set forth herein are in addition to and shall be considered as complementary to the Conditions of the Contract and the balance of Division #1 and Technical Specifications.

B. All Contractors, Subcontractors, Sub-subcontractors, Vendors and the like shall be required to familiarize themselves with said provisions.

C. Definitions as apply to "Contractors" involved with the work of this Project shall be as set forth in Section 01 10 00, Article 1.01.

D. Provide materials, labor, equipment and services necessary and/or required to execute the work of this Section as shown on the drawings, specified herein and/or required by job conditions.

E. All cutting, removing, relocation, fitting, altering and rough patching for the installation and completion of his work in other than finished surfaces noted below shall be performed by the Trade or Subcontractor requiring said cutting and patching.

FINISH PATCHING SHALL BE BY THE RESPECTIVE TRADE OR SUBCONTRACTOR THAT NORMALLY DOES THAT FINISH WORK.

F. All finish patching of finished surfaces including - exposed concrete, concrete masonry, brick masonry, glazed masonry and the like shall be performed by the trade customarily involved with the finished work.

G. All coring and finish patching shall be performed by the Contractors requiring such coring work.

1.02 REQUIREMENTS INCLUDED IN THIS SECTION

A. Definitions
B. Cutting and Patching Requirements
C. Specific Requirements - All Trades

1.03 DEFINITIONS

The following definitions shall apply to all work of this Contract involving cutting, patching, filling and the like.

A. Cutting - those operations required to expose existing construction, or required to permit the installation of work under this contract, or passage of new or relocated work through existing construction.

B. Patching - Those operations required to bring surfaces to a level to permit the application of a finish treatment.

The Contractor responsible for performing the patching shall be responsible for the restoration of the substrate to match adjacent areas, whether new or existing, except for the following conditions:

Coordinate with Paragraph 1.05 of this Section

1. Exposed masonry, concrete or similar surfaces which do not require or call for painting.
2. Those patched surfaces which are wholly contained within an area which is to receive a new finish treatment as called for elsewhere in the Contract Documents.

C. Replace - Shall mean to furnish and install an entirely new element which matches the original element's material, color, dimension and design.

D. Repair - Shall mean to make the existing element as nearly "new", as possible, by the means and methods indicated for each element.

E. Fill - Shall mean to carefully and thoroughly remove, by approved methods, loose and deteriorated surface material and to install "new" material in the element so that the original contour is completely restored and color matched if exposed as a finished element. Follow manufacturers' instructions as applicable.

F. Match Original - Where indicated, this type of replacement will match the best available representative element, in design, dimension, and installation, with improvements which represent the best standards of fabrication, so that even if an existing best example of an element is gouged or pitted, or otherwise worn, the new element shall be unworn and without defects and fabricated of new material. The Architect will provide identifications of all original elements.

1.04 CUTTING AND PATCHING REQUIREMENTS

A. Where cutting, drilling or removals are required in existing and/or newly constructed wall, floor or roof construction, the work shall be done in a manner that will safeguard and not endanger the structure, and shall, in all cases, be as approved by the Architect.

B. Prior to any cutting, drilling or removals, the Contractor shall investigate both sides of the surface involved, shall determine the exact location of adjacent structural members by visual examination, and shall avoid interference with such members.

C. No structural members such as joists, beams, columns supporting work that is to remain shall be cut, drilled or removed unless such conditions are shown in detail on the Contract Documents and reinforcing of members affected or new members to compensate for such drilling, cutting and removals are shown. Positive instructions shall be obtained from the Architect before cutting beams or other structural members, arches, lintels and the like and the Contractor shall be guided by such instructions.

D. Each Trade Contractor shall provide all sleeves, inserts, hangers and the like required for the execution of their respective work; failing to provide such, said responsible Contractor shall reimburse the General Contractor who shall do all necessary cutting and patching required for the execution of his work.

Coordinate with individual trade sections for sleeve types, packing of sleeves, pipe penetrations and duct openings for fire safing material and/or caulking; coordinate with Section 07 84 00 for firestopping systems.

E. No Contractor shall:

1. endanger any work by cutting or drilling or otherwise;
2. cut or alter the work of any other contractor except with the written consent of the Architect.

3. cut or drill above the minimum needed to install work.

F. All holes cut through masonry exposed to view in the finished work and concrete slabs shall be core drilled except for specific holes that have been structurally detailed per Contract Documents. The Contractor shall locate adjacent structural members before core drilling to insure that structural members are not damaged. No jack hammering will be permitted in the work within any occupied portions of a structure.

G. Exposed patches and repairs shall be as inconspicuous as possible. Where new work does not match exactly the color, finish, dimension, size and the like of the existing, the new work shall be carried across the surface to which it is applied and be continued to a natural stopping point or corner.

H. All cutting and patching shall be performed using skilled mechanics of the trade or craft involved. Where two or more contractors are involved with work within same penetration, safing shall be performed by the trade with the largest share of the opening being used.

I. Each Contractor shall perform specific work for installation of new mechanical, plumbing, electrical, telecom and AV in existing exterior and interior masonry, concrete, stone, plaster and drywall walls. Patching where existing conduit and devices were surface mounted and required to be removed shall be performed by the specialty trade customarily responsible for that type of work.

1.05 SPECIFIC REQUIREMENTS BY CONTRACTS

A. The General Contractor, or Subcontractors directly related to the "general construction operations", shall perform -

1. All cutting and patching required to install their work under the Contract and as indicated on the Architectural, Structural and Site drawings.
2. Cutting and patching of existing concrete slabs on grade in connection with underground utility work for all plumbing, heating, electric and other services; work shall be ascertained from the companion plumbing, heating and fire protection drawings; all such excavations needed shall further be accomplished by the General Contractor. Attention is directed to Section 02 41 19 wherein modifications to this requirement will be set forth as applicable to the project scope.

B. The HVAC Contractor shall perform -

1. All cutting and rough patching required to install his work under the Contract.
2. Cutting, rough and finish patching of existing walls, floors and ceilings, including refinishing of all disturbed surfaces, for the installation of new ductwork, piping and equipment, which are beyond the extent of work areas that will be removed/replaced by the General Contractor as indicated on the Architectural, Structural and Site drawings. This work statement shall be deemed to include any required trenching, bedding and backfill operations made necessary.
3. Cutting and patching of existing slabs within the General Contractors immediate work areas for the installation of new ductwork and piping shall be accomplished by the General Contractor in accordance with statement set forth in Section 02 41 19.
4. HVAC CONTRACTOR SHALL PERFORM WORK INVOLVED WITH ROOF EQUIPMENT OR PENETRATIONS including - ALL REQUIRED CUTTING AND PATCHING OF ROOF MEMBRANE AND INSULATION

SYSTEMS FOR REFRAMING, CURBS, FLASHINGS.

C. Electrical Contractor shall perform -
   1. All cutting and rough patching required to install his work under the Contract.
   2. Cutting and rough and finish patching of existing walls, floors and ceilings, including refinishing of disturbed surfaces, for the installation of new conduits, busduct, feeders, fixtures and equipment, which are beyond the extent of work areas that will be removed/replaced by the General Contractor as indicated on the Architectural, Structural and Site drawings. This work statement shall be deemed to include any required trenching, bedding and backfill operations made necessary. **Coordinate with Section 02 41 19.**
   3. Cutting and patching of existing slabs within the General Contractors immediate work areas for the installation of new ductwork and piping shall be accomplished by the General Contractor in accordance with statement set forth in Section 02 41 19.

D. Plumbing Contractor shall perform -
   1. All cutting and rough patching required to install his work under the Contract.
   2. Cutting and rough and finish patching of existing walls, floors and ceilings, including refinishing of disturbed surfaces, for the installation of new piping and equipment, which are beyond the extent of work areas that will be removed/replaced by the General Contractor as indicated on the Architectural, Structural and Site drawings. This work statement shall be deemed to include any required trenching, bedding and backfill operations made necessary. **Coordinate with Section 02 41 19.**
   3. Cutting and patching of existing slabs within the General Contractors immediate work areas for the installation of new ductwork and piping shall be accomplished by the General Contractor in accordance with statement set forth in Section 02 41 19.

End of Section

SECTION 01 74 19

CONSTRUCTION WASTE MANAGEMENT

Part 1 - GENERAL

1.01 GENERAL

A. Requirements set forth herein are in addition to and shall be considered as complementary to the Conditions of the Contract and the balance of Division #1 and Technical Specifications.

B. All Contractors, Subcontractors, Sub-subcontractors, Vendors and the like shall be required to familiarize themselves with said provisions.

C. Any and all “Waste Handlers and Haulers” shall be licensed by the Authority having jurisdiction over “Solid Waste Management” and a copy of said license shall be submitted in accordance with Article 1.05 herein.

1.02 DESCRIPTION OF WORK

A. This Section specifies requirements for a complete program for implementation of waste management controls and systems for the duration of the Work and to –

1. Protect the environment, both on-site and off-site, during construction operations.
2. Prevent environmental pollution and damage.
3. Maximize source reduction, reuse and recycling of solid waste.

1.03 INTENT

A. The Owner has established that this Project shall generate the least amount of waste practical and that processes that ensure the generation of as little waste as possible due to error, poor planning, breakage, mishandling, contamination, or other factors shall be employed.

B. Of the waste that is generated, as many of the waste materials as economically feasible shall be reused, salvaged, or recycled. Waste disposal in landfills shall be minimized to the greatest extent practical. With regard to these goals the Contractor shall develop, for Owner's Representative’s and Architect’s review, a Waste Management Plan for this Project. The Contractor shall be responsible for ensuring that debris will be disposed of at appropriately designated licensed solid waste disposal facilities, as defined by governing laws of the jurisdiction of the Work.

1.04 WASTE MANAGEMENT PLAN

A. After award of Contract and prior to the commencement of the Work, schedule and conduct meeting with Owner and Architect to discuss the proposed Waste Management Plan and to develop mutual understanding relative to details of environmental protection.

B. Waste Management Plan: The Contractor shall provide a plan containing the following:

1. Analysis of the proposed jobsite waste to be generated, including types and rough quantities.
2. Landfill Options: The name of the landfills where trash and building debris will be disposed of, the applicable landfill tipping fees, and the projected cost of disposing of all Project waste in the landfills.

3. Landfill Certification: Contractor's statement of verification that landfills proposed for use are licensed for types of waste to be deposited and have sufficient capacity to receive waste from this project.
4. Alternatives to Landfilling: A list of each material proposed to be salvaged or recycled during the course of the Project. Include the following and any additional items proposed:
   a. Cardboard.
   b. Clean dimensional wood.
   c. Beverage containers.
   d. Land clearing debris.
   e. Concrete.
   f. Bricks and masonry.
   g. Asphalt.
   h. Gypsum boards.
   i. Acoustical ceiling material (grid separate).
   j. Metals from framing, banding, stud trim, ductwork, piping, rebar, roofing, other trim, steel, iron, galvanized sheet steel, stainless steel, aluminum, copper, zinc, lead, brass, and bronze.
   k. Glass, colored glass allowed.
   l. Plastic.
      1. Type 1: Polyethylene Terephthalate (PET, PETE).
      2. Type 2: High Density Polyethylene (HDPE).
      3. Type 3: Vinyl (Polyvinyl Chloride or PVC).
      4. Type 4: Low Density Polyethylene (LDPE).
      5. Type 5: Polypropylene (PP).
      6. Type 6: Polystyrene (PS).
      7. Type 7: Other. Use of this code indicates that the package in question is made with a resin other than the six listed above, or is made of more than one resin listed above, and used in a multi-layer combination.
   m. Paint and paint cans.
   n. Carpet.
   o. Insulation.
   p. Light Fixtures and other electrical apparatus.
   q. Others as appropriate.
5. Meetings: A description of the regular meetings to be held to address waste management.
6. Materials Handling Procedures: A description of the means by which any waste materials identified above will be protected from contamination, and a description of the means to be employed in recycling the above materials consistent with requirements for acceptance by designated facilities.
7. Transportation: A description of the means of transportation of the recyclable materials (whether materials will be site-separated and self-hauled to designated centers, or whether mixed materials will be collected by a waste hauler and removed from the site) and destination of materials.

1.05 SUBMITTALS

A. Construction Waste Management Plan: Submit 3 copies of plan within 21 days of date established for the Notice to Proceed.
B. Calculations and supporting documentation to demonstrate end-of-project recycling rates meeting the requirements for Construction Waste Management Plan of Item above.

C. For materials separated for recycling off-site, establish a method for tracking the weight of the recycled material. The method shall be included in the CWM Plan for the Architect's review and approval.
D. Waste Reduction Progress Reports: Concurrent with the Applications for Payment, submit three copies of report. Include monthly tabulations for demolition and construction waste sent off-site for disposal or recycling.
E. Waste haulers solid waste management license.

Part 2 - PRODUCTS - NOT USED

Part 3 - EXECUTION

3.01 RECYCLING
A. Metal, including but not limited to aluminum stairs, structural beams and sections, and reinforcing steel shall be recycled.
B. Wood that is not painted and does not contain preservatives (i.e. creosote, arsenic, and chromium-containing preservatives) shall be segregated and recycled.

3.02 WASTE MANAGEMENT PLAN IMPLEMENTATION – All sorting will be done “off site” by a recognized construction and demolition processing facility who will be responsible for provision of all documentation as to where loads were processed and the recycling rate achieved.

**End of Section **

SECTION 01 77 00

PROJECT CLOSE OUT

Part 1 - GENERAL

1.01 GENERAL

A. Requirements set forth herein are in addition to and shall be considered as complementary to the General Conditions of the Contract and the balance of Division #1 and Technical Specifications.

B. All Contractors, Subcontractors, Sub-subcontractors, Vendors and the like shall be required to familiarize themselves with said provisions.

C. Definitions as apply to "Contractors" involved with the work of this Project shall be as set forth in Section 01 10 00, Article 1.01.

1.02 REQUIREMENTS INCLUDED

A. Final Cleanup
B. Required Close Out Documentation
C. Orientation Instruction
D. Project Close Out Inspections
E. Bake Out Procedures

1.03 FINAL CLEANUP

A. The Contractor shall leave the work ready for use and occupancy without the need of further cleaning of any kind.

B. The Contractor shall remove all tools, appliances, project signs, material and equipment from the phased areas as soon as possible upon completion of the work.

C. The work is to be turned over to the Owner in new condition, in proper repair and in perfect adjustment.

1.04 REQUIRED CLOSE OUT DOCUMENTATION

A. Prior to final payment the Owner shall receive, in addition to those documents required by the General Conditions, the following:

1. Project record documents as per Section 01 77 18.
2. The Contractor's general guarantees.
3. Specific guarantees of material, equipment and systems installed in the work.
4. A copy of all test data taken in connection with the work.
5. Three (3) copies of all operation and maintenance manuals which shall include:
   a. Parts List, including illustrations, assembly drawings and diagrams required for maintenance, predicted life of parts subject to wear, and recommendations for stocking spare parts.
   b. Copies of accepted shop drawings, charts and diagrams.
   c. Names, addresses and telephone numbers of manufacturer’s representative and service company.
   d. Letters from each manufacturer certifying that his equipment was properly installed and is operating in accordance with manufacturer’s intent.
6. All keys, tools, screens, spare construction material and equipment required

to be furnished to the Owner as part of the work.

7. Copies of all Certification of Specifications Compliance as per Section 01 33 00.
8. Final survey if required by Municipality AND/OR Owner.
9. Record of Material Safety Data Sheets (MSDS).
10. Certified Payroll Records.

1.05 ORIENTATION INSTRUCTION

A. Prior to final payment appropriate maintenance personnel of the Owner shall be oriented and instructed by the Contractor in the operation of all systems and equipment as required by the Contract.

1.06 PROJECT CLOSE OUT INSPECTIONS

A. When the Work has reached such a point of completion that the building or buildings, equipment, apparatus or phase of construction or any part thereof required by the Owner for occupancy or use can be so occupied and used for the purpose intended, the Contractor, prior to notification to the Architect, shall make a preliminary inspection of the Work to insure that all the requirements of the Contract have been met and the Work is substantially complete and is acceptable.

B. Upon such notification, the Owner or the Architect and the Construction manager shall make a detailed inspection of the Work to insure that all the requirements of the Contract have been met and that the Work is complete and is acceptable.

C. A copy of the report of the inspection shall be furnished to the Contractor as the inspection progresses so that the Contractor may proceed without delay with any part of the Work found to be incomplete or defective.

D. When the items appearing on the report of inspection have been completed or corrected, the Contractor shall so advise the Construction Manager and the Architect. After receipt of this notification, the Construction Manager or the Architect shall inform the Contractor of the date and time of final inspection.

E. A copy of the report of the final inspection containing all remaining contract exceptions, omissions and incompletions shall be furnished to the Contractor.

F. After the receipt of notification of completion and all remaining contract exceptions, omissions and incompletions from the Contractor, the Owner and Architect and the Construction Manager will reinspect the Work to verify completion of the exception items appearing on the report of final inspection.

G. Upon completion of reinspection, the Architect will prepare a certificate of final acceptance or will furnish to the Contractor a copy of the report of the Architect's reinspection detailing Work that is incomplete or obligations that have not been fulfilled but are required for final acceptance.

H. The Contractor shall pay the Architect and Construction Manager for services performed in inspection beyond the original inspection and two reinspections of the same area, through a "credit" change order to the Owner in accordance with Schedule outlined in Section 01 25 00.

1.07 BAKE OUT PROCEDURES HVAC CONTRACT - Coordinate with Section 01 15 01

A. Heat all areas of new construction to 95 degrees for a minimum of 72 hours.

B. At the end of this period ventilate area with 100 percent outside air and exhaust air for a minimum of 24 hours to eliminate off gassing that occurs during bake out period.

C. Change all air filters upon completion.

End of Section

SECTION 01 77 19

PROJECT RECORD DOCUMENTS
(Coordinate with Article 6 of the General Conditions)

Part 1 - GENERAL

1.01 GENERAL

A. Requirements set forth herein are in addition to and shall be considered as complementary to the General Conditions of the Contract and the balance of Division #1 and Technical Specifications.

B. All Contractors, Subcontractors, Sub-subcontractors, Vendors and the like shall be required to familiarize themselves with said provisions.

C. Definitions as apply to "Contractors" involved with the work of this Project shall be as set forth in Section 01 10 00, Article 1.01.

1.02 REQUIREMENTS INCLUDED

A. Project Record Drawings

B. Record Drawing Certification

1.03 PROJECT RECORD DRAWINGS

A. The purpose of the project drawings is to record the actual location of the work in place including but not limited to underground lines, concealed piping within buildings, concealed valves and control equipment, and to record changes in the work.

In addition to the above, these drawings shall be "color-coded", by each trade, on a daily basis to indicate progress of the work. Color legend will be assigned by the Architect.

B. In addition to the sets of contract drawings that are required by the Contractor on the site to perform the work, the Contractor shall maintain, at the site, one (1) copy of all drawings, specifications and addenda that are part of the Contract as awarded.

Each of these documents should be clearly marked "Project Record Copy", maintained in a clean and neat condition available at all times for inspection by the Owner, Construction Manager or the Architect, and shall not be used for any other purpose during the progress of the work.

The Construction Manager will be the custodian of the project record documents until the end of the Project.

C. Project Record Requirements

1. The Contractor shall mark-up the "Project Record Copy" to show:
   a. Approved changes in the work.
   b. Location of underground work and concealed work.
   c. Details not shown in the original Contract Documents.
   d. Any relocation of work including piping, conduits, ducts and the like.
   e. All changes in dimensions.
   f. All access doors and "tack" locations access points in accessible

ceilings.

g. Location of all plumbing, heating, ventilating, air conditioning or electrical assemblies, whether existing to remain or newly installed.

h. Revisions to any electrical circuitry.

2. Such information shall include, but shall not be limited to:

a. Footing depth in relation to finished grade elevations.

b. Any change in floor elevations.

c. Any structural changes.

d. Any substitutions.

e. Elevations and locations of all underground utilities, services, or structures referenced to permanent above ground structures or monuments.

f. Designation of all utilities as to the size and use of such utilities.

g. All invert elevations of manholes.

h. The location of all utilities, services and appurtenances concealed in building structures that have been installed differently from that required by the Contract.

i. Any approved change order.

and other such data as required by the Architect and/or Owner so as to establish a complete record of "As-Constructed" conditions.

D. The Contractor shall keep the project record documents up-to-date from day to day as the work progresses. Appropriate documents are to be updated promptly and accurately; no work is to be permanently concealed until all required information has been recorded.

E. The project record drawings are to be submitted by the Contractor to the Architect through the Construction Manager when all the work is completed and is approved by the Owner and the Architect before the Contractor may request final payment.

If the project record drawings as submitted are found to be unacceptable due to incompleteness or inaccurate information, the drawings shall be returned to the offending Contractor for corrective action and resubmitted for approval prior to the release of final payment.

FINAL PAYMENT IS CONTINGENT UPON PREPARATION OF FINAL PROJECT RECORD DRAWINGS ON A SET OF "PRINTS" and CAD DISKETTES IN "DXF" or “DWG” FORMAT AS APPROVED BY THE OWNER (A SET OF BASE DISKETTES WILL BE FURNISHED BY THE ARCHITECT) AND SUBMITTAL OF SAME TO THE OWNER, THROUGH THE ARCHITECT.

F. In addition to the drawings required as mentioned above, the Contractor shall submit a list of all approved Shop Drawings of the Work as installed.

From this list the Architect will select the drawings desired for permanent records. The Contractor shall furnish these in a bound set to the Owner as part of the closeout requirements.

1.04 RECORD DRAWING CERTIFICATION

A. The record drawings required under the terms and conditions of this Section shall be reviewed and processed by each of the Prime Contractors as part of their overall contractual responsibility.

B. This certification may be issued for individual trades or as a collective document to cover the entire record drawing requirements of the project.

The format of this certification shall be as follows:

These record drawings prepared by:

_____
__

for _____ have been reviewed by the undersigned and:

Appear to be an accurate representation of the work incorporated within the project and are accepted as submitted in accordance with the technical documents.

This record document review made by this office is for determination of compliance to the requirements of the contract documents.

Firm Name: _____

Review Date:_____ By:_____

End of Section

SECTION 01 78 23

OPERATION AND MAINTENANCE REQUIREMENTS
(Coordinate with Division 26, Most Restrictive Provisions Apply)

Part 1 - GENERAL

1.01 GENERAL
- A. Requirements set forth herein are in addition to and shall be considered as complementary to the General Conditions of the Contract and the balance of Division #1 and Technical Specifications.
- B. All Contractors, Subcontractors, Sub-subcontractors, Vendors and the like shall be required to familiarize themselves with said provisions.
- C. Definitions as apply to "Contractors" involved with the work of this Project shall be as set forth in Section 01 10 00, Article 1.01.

1.02 REQUIREMENTS INCLUDED
- A. Start Up and Demonstration
- B. Parts List
- C. Operation and Maintenance Data

1.03 START UP AND DEMONSTRATION
- A. The work required herein consists of starting up and demonstrating all systems and equipment to operating personnel and includes training of said operating personnel.
- B. The respective Trade or Subcontractor shall make arrangements, via the Owners' Representative (with notification to the Architect), as to whom the instructions are to be given in the operation of the basic and auxiliary systems and the period of time in which they are to be given.
- C. As specified in individual sections, furnish the services of instructors to train designated personnel in adjustment, operation, maintenance, and safety requirements of equipment and systems. If procedures are not specified for specific items of equipment, follow that recommended by the item Manufacturer.
- D. Instructors shall be thoroughly familiar with the equipment and systems and shall be trained in operating theory as well as practical operation and maintenance work. Instruction shall be given after the equipment or system has been accepted and turned over to the Owner. The duration of instruction shall be as specified in individual sections but shall be not less than two (2) days on each portion of operating mechanical/electrical systems. Use Operating and Maintenance Data as a training guide.
- E. The Architect shall be completely satisfied that the representative of the Owner has been thoroughly and completely instructed in the proper operation of all systems and equipment before final payment is made. If the Architect determines that complete and thorough instructions have not been given by the contractor to the Owners' Representative, then the offending Contractor shall be directed by the Architect to provide whatever instructions are necessary until the intent of this paragraph of the Specification has been complied with as determined by the Architect.

1.04 PARTS LIST
- A. As required the respective Trade or Subcontractor shall furnish three (3) typed sets

of instructions for the ordering and stocking of spare parts for all equipment installed. The lists shall include parts numbered and suggested supplier. Each set shall also include an itemized list of component parts that should be kept on hand and where such parts can be purchased.

1.05 OPERATION AND MAINTENANCE DATA

A. The Contractor shall submit to the Architect for approval three (3) typed sets, bound neatly in hard backed loose leaf binders, of all instructions for the installation, operation, care and maintenance of all equipment, fixtures and systems.

1. Provide typed or printed label identifying binder as operating and maintenance data. List title of project, contract number, and location of equipment.
2. Furnish manufacturer's printed data or sheets neatly typewritten on 8-1/2 inch by 11 inch, 20 pound minimum white paper. Provide indexed tabs.
3. Drawings: Bind in with text. Provide reinforcement rings. Fold larger drawings to the size of the text pages.

Information shall indicate possible problems with equipment and suggested corrective action.

B. CONTENT OF MANUAL FOR EQUIPMENT AND SYSTEMS

The instructions shall contain information deemed necessary by the Architect and include but not be limited to the following:

1. Introduction:
   a. Explanation of Manual and its use.
   b. Summary description of all mechanical and electrical and equipment operating systems.
   c. Purpose of systems.
   d. Maintenance scheduling summary analysis, sheets and software operating instructions and diskette(s).
2. System:
   a. Detailed description of all systems.
   b. Illustrations, schematics, block diagrams, photographs and other exhibits.
   c. Complete wiring diagrams, tabulations and installation drawings.
   d. Valve tag charts and control diagrams.
   e. 1/2 size reduced copy of "Record Drawings".
3. Operations:
   a. Complete detailed, step-by-step, sequential description of all phases of operation for portion of the systems, including startup, shutdown, adjusting and balancing, and emergency procedures. Include all posted instruction charts.
4. Maintenance:
   a. Parts list and parts number.
   b. Maintenance, lubrication and replacement charts and Contractor's recommendations for preventative maintenance.
   c. Trouble shooting charts for systems and components.
   d. Instructions of testing each type of part.
   e. Recommended list of on-hand spare parts.
   f. Complete calibration instructions for all parts and entire systems.

g. Instruction for charging, filling, draining and purging.
h. General or miscellaneous maintenance notes.

5. Manufacturer's Literature:
   a. Complete listing for all parts with names, addresses and telephone numbers.
   b. Care and operation.
   c. All and only pertinent brochures, illustrations, drawings, cuts, bulletins, technical data, certified performance charts and other literature with the model actually furnished to be clearly and conspicuously identified.
   d. Internal wiring diagrams and engineering data sheets for all items and/or equipment to be furnished.
   e. Guarantee and warranty data.
6. Instructions for lubricating each piece of equipment installed. Instructions shall state type of lubricant, where and how frequently lubrication is required.

   Frame all instructions under glass and hang in the Mechanical Room or other location as directed by Architect.

C. MANUALS FOR PRODUCTS, MATERIALS, AND FINISHES:
1. Submit three (3) copies of complete manual.
2. Content: Provide complete information for architectural products, applied materials, and finishes.
   a. Manufacturer's data, including catalog number, size, composition, color and texture designations, and information for reordering.
   b. Instructions for care and maintenance, including manufacturer's recommendations for cleaning agents and methods; cautions against detrimental cleaning agents and methods; and recommended schedule for cleaning and maintenance.

End of Section

TECHNICAL SPECIFICATIONS

ASBESTOS ABATEMENT PROJECT AT:

PUTNAM VALLEY MIDDLE SCHOOL
TOILET ROOM ALTERATIONS
142 PEEKSKILL HOLLOW ROAD
PUTNAM VALLEY, NY 10579

Prepared for:

146 Peekskill Hollow Road
Putnam Valley, NY 10579

Prepared by:

WSP USA Solutions, Inc.
500 Summit Lake Drive, Suite 450
Valhalla, NY 10595

February 1, 2021
Project No. 31403000.000

Vincent E. Ricevuto
NYS Project Designer
02-06290

February 1, 2021

Dave Spittal
Director of Operations, Technology & Transportation
Chief Emergency Office
Putnam Valley Central School District
146 Peekskill Hollow Road
Putnam Valley, NY10579

Subject: **Report of Asbestos Abatement Design Services**
Abatement Project at:
Putnam Valley Middle School
Toilet Room Alterations
142 Peekskill Hollow Road
Putnam Valley, NY 10579

Dear Mr. Spittal:

WSP has completed an asbestos abatement design for the Abatement Project at Putnam Valley Middle School. The design includes asbestos abatement removal drawings and removal specifications.

If you have any questions concerning this report or if we may be of further assistance to you, please contact us.

Sincerely,

WSP USA SOLUTIONS, INC.



Craig Napolitano, CHMM
Vice President, Hazmat & IH Services

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ASBESTOS REMOVAL SPECIFICATION 02081

TECHNICAL SPECIFICATIONS

ASBESTOS ABATEMENT PROJECT AT:

PUTNAM VALLEY MIDDLE SCHOOL
TOILET ROOM ALTERATIONS
142 PEEKSKILL HOLLOW ROAD
PUTNAM VALLEY, NY 10579

Prepared for:

146 Peekskill Hollow Road
Putnam Valley, NY 10579

Prepared by:

WSP USA Solutions, Inc.
500 Summit Lake Drive, Suite 450
Valhalla, NY 10595

February 1, 2021

Vincent E. Ricevuto
NYS Project Designer
02-06290

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SECTION 02081

ASBESTOS ABATEMENT

PART 1 – GENERAL

1.1 DESCRIPTION OF WORK

A. The asbestos abatement contractor shall perform the following work as described below and indicated on the drawings. The drawings are only a diagrammatic representation of the Work Areas and do not constitute the actual quantities of material. Asbestos abatement contractor is responsible for the confirmation of the actual total quantities of the Work. The Asbestos Contractor shall provide all plant, labor, equipment and materials complete for performance of the Work in accordance with the Contract Documents. All asbestos material is to be disposed of as asbestos-containing material (ACM) waste. Quantities indicted below are confirmed asbestos.

PUTNAM VALLEY MIDDLE SCHOOL
142 Peekskill Hollow Road, Putnam Valley NY 10579

1. Drawing H002.00: 1st Floor & 2nd Floor Partial Plan

a. Remove and dispose of asbestos-Concealed Ceramic Wall Tile Backing and Concealed Pipe Insulation/Elbows (Risers & Plenums) within **Work Area 1** utilizing New York State Department of Labor (NYS DOL) Part 56 of Title 12 of the Official Compilation of Codes, Rules and Regulations of the State of New York (12 NYCRR Part 56) Full Containment Procedures.

b. Remove and dispose of asbestos-Concealed Ceramic Wall Tile Backing and Concealed Pipe Insulation/Elbows (Risers & Plenums) within **Work Area 2** utilizing NYS DOL 12 NYCRR Part 56 Full Containment Procedures.

Work Area #	Location	Asbestos-Containing Material	Approximate Quantity	Removal Procedure
1	1st Floor, H/C Toilet 195, Toilet Room 196, Storage 197, Boys Toilet 198, Toilet Room 198A Girls Toilet 199 & Toilet Room 199A	Ceramic Wall Tile Backing	1,536 SF	NYS DOL 12 NYCRR Part 56 Full Containment Procedure
		Concealed Pipe Insulation/Elbows (Risers & Plenums)	230 LF	

Work Area #	Location	Asbestos-Containing Material	Approximate Quantity	Removal Procedure
2	2nd Floor, Girls Toilet 295, Toiler Room 296, Boys Toilet 297, Boys Toilet 298, Girls Toilet 299 &Toilet Room 299A	Ceramic Wall Tile Backing	1,664 SF	NYS DOL 12 NYCRR Part 56 Full Containment Procedure
		Concealed Pipe Insulation/Elbows (Risers & Plenums)	275 LF	

B. The Contractor is responsible for completing all notifications and variances required to meet the determined start date (if applicable).

C. If asbestos containments are required, the Contractor shall establish the asbestos containments so as to not interfere with operation of or access to the temporary equipment that shall be installed by others.

D. The Contractor shall field verify the amount of ACM and familiarize him/her-self with all variable field conditions in the building before the submission of his/her quote. The quantities presented in this specification are approximate only and should not be used solely as the basis for any quote. Any discrepancies or difference in the approximate and actual quantities shall be resolved before the award of any Contract. No change order relative to ACM material quantity will be permitted after the award of the Contract. In the event that suspect materials not included in this Specification are encountered while the work is in progress, such material shall be tested and, if confirmed ACM, removed as ACM, in accordance with the procedures contained herein. The discovery of any new material(s) should not delay the progress of the work as contained in this specification. Payment for any additional work will be considered on a case-by- case basis by the Environmental Consultant and Putnam Valley Central School District (CSD). It is the responsibility of the Contractor to determine and negotiate the full cost of any such payment prior to performance of any additional work.

E. ACM shall be properly handled, packaged, and transported for disposal in a landfill in accordance with all Federal, State and Local regulations. After September 4, 2006, the Contractor shall follow Part 56 of Title 12 of the Official Compilation of Codes, Rules and Regulations of the State of New York (Cited as 12 NYCRR Part 56) as amended effective March 21, 2007. All related manifests and shipping logs shall be provided to Putnam Valley CSD upon or before the end of the project.

F. All work shall be accomplished in strict adherence to the project Specification, applicable Federal, State, and Local Regulations. Whenever there is a conflict or overlap of the above references, the more stringent provision shall apply.

G. The Contractor's industrial hygiene practices during asbestos abatement will be monitored by Putnam Valley CSD's Environmental Consultant. The Contractor shall be responsible for monitoring his/her own construction safety work practices for compliance with the Occupational Safety and Health Administration (OSHA) regulations.

H. The Asbestos Contractor shall provide the best available technology, and state-of-the-art procedures and methods of execution, clean-up, disposal, and safety.

I. The Contractor will be required, if approved by Putnam Valley CSD and/or its Representative, to obtain at his/her own expense appropriate variances from regulatory agencies as required to complete the safe removal of asbestos-containing material as described in this specification.

J. Putnam Valley CSD's environmental consultant will sample all suspect materials that may be identified during the course of demolition, if applicable. The Contractor shall provide access to the consultant to perform the testing and no additional costs will be paid for the time it takes to perform the testing. The contractor shall provide itemized cost proposal to Putnam Valley CSD which must include separate costs for the abatement of the individual materials revealed to be ACM (if applicable). Additional asbestos-containing materials shall not be abated without written authorization from Putnam Valley CSD or environmental consultant. The contractor will not be compensated for any additional materials that can be encountered during the abatement project, without prior written authorization from Putnam Valley CSD or environmental consultant.

1.2 **PHASING OF WORK**: This work shall include asbestos abatement associated with upcoming interior, exterior and roof upgrades project. The Asbestos Contractor shall perform and complete the abatement of asbestos-containing materials during regular working hours, Monday through Friday between 8:00 am and 4:00 pm or as directed by the facility. It is the Contractor's responsibility to ensure that acceptable visual inspection and air monitoring results are obtained with fiber count of <70 Structures/mm2 of air using Asbestos Hazard Emergency Response Act (AHERA) analysis method (40 CFR 763 APX a No. III) and are completed prior to the return of building occupants or other trades. All work shall be coordinated with Putnam Valley CSD and Putnam Valley CSD's Environmental Consultant prior to start of any work. The Putnam Valley CSD's Environmental Consultant shall be present whenever any asbestos abatement work is being conducted.

1.3 **AUTHORITY TO STOP WORK**: Putnam Valley CSD and the Environmental Consultant shall have the authority to stop the abatement work at any time the contractor's work is not in conformance with the Specifications and applicable regulations. The stoppage of work shall continue until conditions have been corrected to the satisfaction of Putnam Valley CSD and the Environmental Consultant. Standby time to resolve the problems shall be at the contractor's expense.

1.4 SITE REQUIREMENTS:

A. Noise Control: Provide mufflers or other acceptable means of noise reduction for all equipment to be used by the Contractor. Observe local laws regarding noise control.

B. Wastewater: All water used by the Contractor during asbestos abatement activities shall be collected and passed through a water filtration system capable of filtering particles down to 5 microns prior to being discharged into the sanitary sewer. The Contractor shall contact the Westchester County engineering department to determine the acceptable location(s) to access the sanitary sewer. The Contractor shall be responsible for connection to the sanitary sewer, and for providing piping, pumps, water filtration systems, and other items necessary to collect, transport, filter, and dispose of the wastewater.

C. Log In/Out: The Asbestos Contractor must ensure all workers log in and out daily at the site.

D. The location of the Decontamination Unit shall be as per abatement design drawings. All variations must be coordinated and approved by the site manager and Putnam Valley CSD's Environmental Consultant.

1.5 HEALTH AND SAFETY:

A. Toxic Effects: The Contractor shall assume all responsibility for any toxic effects to workers from the air supplied to respirators, or from toxic or damaging vapors or residues resulting from the use of encapsulant and/or wetting agents or other substances used by the Contractor during construction.

B. Chemical/Biological Hazards: The known chemical/biological hazards on site include asbestos-containing material and debris. The Contractor shall provide materials, equipment and training to its workers to ensure their protection from these and any other chemical/biological hazards which may be identified during the course of this work.

C. Physical Hazards: The Contractor shall provide safety equipment and training to his/her workers to ensure their protection from any physical hazards including but not limited to trip/fall hazards, working at elevation, heat stress, contact with energized (hot) active equipment, noise, overhead bump hazards, and electrical shock that may be present during the Work.

D. Safety Act: The Occupational and Safety Health Act (OSHA) of 1970, as amended, shall be strictly complied with during the course of this project. This Act shall govern the conduct of the Contractor's workmen, tradesmen, material-men, and subcontractors, and visitors to the project site.

E. Accident Prevention: In order to protect the lives and health of his/her employees, the Contractor shall comply with all pertinent provisions of the latest edition of the "Manual of Accident Prevention in Construction" issued by the Associated General Contractors of America, Inc. and shall maintain an accurate record of all accidents which occur during the project. An injury or loss of life must be immediately reported by the Contractor to the Putnam Valley CSD and/or its Representatives, and a copy of the Contractor's report to his/her insurer of an accident must be provided to the Putnam Valley CSD and/or its Representatives.

F. Emergency Response: The Contractor shall establish an Emergency Response Team made up of members of his/her work force. Team members shall be trained, organized, and capable of responding in the event of an accident, fire, or other emergency. The Contractor shall designate a site Safety Coordinator to train team members regarding the location and use of site-specific fire/life safety equipment. As a minimum requirement, members of the Emergency Response Team shall be knowledgeable in standard first aid and CPR techniques, fire extinguisher use, and evacuation procedures.

G. Workmen Protection: The Contractor shall provide and maintain all safety measures necessary to properly protect workmen.

H. Emergency Actions: In an emergency affecting the safety of life, the work, or adjoining property, the Contractor, to prevent such threatened loss or injury without special instruction or authorization from the Putnam Valley CSD and/or its Representatives, is hereby permitted to act at his/her discretion.

I. Hazard Communication Act: The Contractor shall comply with the Hazard Communication Standard promulgated by the Occupational Safety and Health Administration (OSHA No. 29 CFR 1910.1200). This program ensures that all employers provide the information they need to inform and train employees properly and to design and put in place employee protection program. It also provides necessary hazard information to employees so they can participate in, and support, the protective measures needed at their workplace. The contractor shall ensure that labels or other forms of warning are legible in English. Employer having employees who speak other languages must add the information in their languages. See OSHA 29 CFR 1910.1200 for more details.

1.6 WORK SUPERVISION AND COORDINATION:

A. Abatement Contractor's Supervisor: From the start of work through to the project completion the Contractor shall have on-site a responsible and competent supervisor who posses valid New York State Department of Labor (NYSDOL) Supervisor certifications. As a minimum, the Asbestos Contractor's Supervisor shall meet the qualifications as required by Article 1.12, for a job supervisor. The Supervisor shall be on site during all working hours. When the Supervisor must leave site during work, a temporary Supervisor shall be appointed.

B. Quality of Work: The Supervisor shall supervise, inspect and direct the Work competently and efficiently, devoting such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. The Supervisor shall be responsible to see that Work complies accurately with the Contract Documents, and that all Work installed is of good quality and workmanship.

1.7 SUBMITTALS: Unless otherwise noted the Contractor shall submit three (3) copies of each APPLICABLE submittal to the Putnam Valley CSD's Environmental Consultant and its Representatives for review and/or approval. The Contractor shall provide the following:

A. Pre-Project Submittal:

1. Certificates of Insurance naming Putnam Valley CSD as additional insured.

2. All required bonds. All bonds shall be underwritten by a United States based, preferably New York State, A or B rated bonding company.

3. List of Subcontractors.

4. Health and Safety Plan: Provide a written Health and Safety Plan addressing procedures for workplace safety. As a minimum, the following topics shall be addressed in the plan:

a. Hazard Communication. Procedure on how physical and health hazards associated with the work are identified and communicated to employees, and name of the person responsible for implementation of the Hazard Communication Program.

b. Guidelines for assessment and prevention of heat stress.

c. Procedures for using ladders safely.

d. Electrical safety procedures.

e. Emergency Action Plan: The Contractor shall submit for review a written Emergency Action Plan. This Plan shall outline the contingency actions to be performed for emergencies including fire, accident, power failure, supplied air system failure, breach of work area containment, unexpected asbestos contamination in the site area and on the adjoining grounds, or spilling of asbestos material being hauled to storage and/or disposal. This Plan shall identify the manner in which emergencies are announced, emergency escape procedures and routes, and procedures to account for all employees after evacuation. The Plan shall identify those persons responsible for fire/life safety duties including the Site Safety Coordinator, persons responsible for fire prevention equipment and the control of fuel source hazards, and the members

of the Emergency Response Team (see Paragraph "Emergency Response" of this Section). This Plan shall be readily available for review by all workers.

f. Fall Protection Plan: The Contractor shall submit for review a written Fall Protection Plan. This plan shall outline the actions to be performed to protect personnel when they are working at elevation. The plan shall detail specific fall protection devices and/or protocols to be utilized, training provided to personnel for same and training of designated competent person in charge of and responsible for the elevated work site.

4. Proof of written notifications required by Paragraph "Codes, Permits and Standards" of this Section. Proof that all required permits and variances have been obtained.

5. Proof of written notification to the local police department, fire department and Facility (include a copy of required by NYS DOL ICR 56 section 56-3.6a ten-day notice) that asbestos abatement work is being conducted. As a minimum, the notification letter shall include the address of the Facility, dates work is to be performed, and drawings indicating the areas to undergo abatement.

6. Documentation of compliance with all requirements of paragraph "Requirements and Qualifications" of this Section. Submittal shall include:

a. Proof that the job supervisors, foremen, and asbestos abatement workers meet State certification and license requirements.

b. Proof of a current medical surveillance program for all Contractor's personnel to work on this project.

c. Completed and notarized Certificate of Worker's Release for each asbestos abatement worker, workers of other trades, or supervisory personnel who enter the work area or otherwise contact ACM.

7. Proof of a respiratory protection program. Submit level of respiratory protection intended for each operation required by the project.

8. Proof of historic airborne fiber data. Submit airborne asbestos fiber monitoring data from an independent air monitoring firm to substantiate selection of respiratory protection proposed. Data shall include the following for each procedure required by the work: 1. date of measurement; 2. type of work task monitored; 3. methods used for sample collection and analysis, and; 4. number, duration and results of samples taken.

9. Proof that a landfill site has been located, and arrangements for transport and disposal of asbestos-containing or asbestos-contaminated materials have been made. Provide the name and location of the landfill, and waste transport company, if applicable.

10. Manufacturer's literature on all proposed job-related equipment and products to be used on this project. Include Safety Data Sheets (SDS) for encapsulant, fire retardant plastics, mastic remover and other chemicals to be used on this project.

11. A detailed Asbestos Removal and Disposal Work Plan which describes all aspects of the work to be performed for this project. The Plan shall include the following:

    a. A detailed description of the work area enclosure. Provide shop drawings (with dimensions and locations) of proposed decontamination facilities and work areas. These drawings shall indicate the following: 1) areas to be sealed off and work area boundaries; and 2) proposed layout and location of the decontamination enclosure systems. Include a detailed description of any modifications or changes to be made to the specified negative pressure work area enclosure.

    b. Specimen of the daily log proposed for use. Minimally, the log should include the date(s) and time(s) when all personnel enter and leave the work area(s).

B. During Work Submittal:

1. Schedule of Work Changes: Any changes in the Schedule of Work proposed by the Contractor shall be submitted for approval to Putnam Valley CSD no later than seven days prior to the commencement date of the proposed change. A revised Schedule shall be submitted at the end of each week.

2. Notarized copy of payroll showing that prevailing wage rates have been paid shall be submitted to the Putnam Valley CSD on a weekly basis. Contractor shall use DOL form for wage payment.

3. A "Request For Services" form shall be submitted at least 24 hours in advance of required air monitoring tests and inspections to be performed by the Putnam Valley CSD's Environmental Consultant.

4. Results of all air monitoring performed by the Contractor shall be posted within 24 hours for regular abatement project after collection for all workers to see. A copy of the results shall be given to the Putnam Valley CSD's Environmental Consultant at the same time.

5. A certified, signed, and completed copy of each "Waste Shipment Record" form used, and receipts from the landfill operator which acknowledge the Contractor's delivery(s) of material, shall be submitted to the Consultant and Engineer within thirty days following removal of ACM from building.

6. A copy of the bound logbook.

C. Post Project Submittal:

1. A notarized "Release of Liens" in a form acceptable to the Putnam Valley CSD. Use the standard American Institute of Architects (AIA) form A101. Such notarized release of all liens shall certify that all subcontractors, labor suppliers, etc., have been paid their pro rate share of all payments to date, that the contractor has no basis for further claim, and will not make further claim for payment in any account after the first payment is made to him.

2. Proof of payment of prevailing wage rate to direct employees and subcontractor.

3. Notarized copies of a daily log showing the date(s) and time(s) of entrance to and exit from the work area(s) for all persons.

4. Compilation in chronological order of all air monitoring records pertaining to this project.

5. Compilation of all completed and signed Waste Shipment Record forms, bills of lading, or disposal receipts pertaining to this project.

6. Copies of notifications and checks to applicable agencies (see Subparagraph "Pre-Project Submittal Information" of this Section) that the asbestos abatement project has been completed.

7. Contractor shall submit the following items as part of his final submittals: Paid invoice verifications for sub-contractor (for Time and Material job), service contract agreement, insurance certificates, copies of the workers licenses (NYSDOL), and other submittal required for the Specification.

1.8 **FIRE PROTECTION AND EMERGENCY EGRESS:** The Contractor shall be responsible to the security and safeguarding of all areas turned over by the facility to the Contractor. The Contractor shall designate to his/her workers and other building occupants a means of egress in case of emergency.

A. The Contractor shall establish emergency and fire exits from the work area. First aid kit, 2 full sets of protective clothing and respirators shall be provided for use by qualified emergency personnel in the clean room of the decontamination facility.

B. For full containment only, the Contractor shall provide a secure work area to protect against unauthorized entry into and around the work area. Any hazardous conditions shall be reported to the contractor's Supervisor and the contractor shall correct the hazard immediately. Any intrusion or incident shall be documented in a bound logbook which shall be maintained at the project site.

1.9 CLEAN-UP:

A. Asbestos Related Clean-up: All clean-up work related to asbestos abatement work shall be in strict accordance with general technical requirements and this specification.

B. Final Site Cleaning: Upon completion of the work, the Contractor shall remove all temporary construction, decontamination facilities, and unused materials placed on site by the Contractor; put the premises in a neat and clean condition; and provide all sweeping, cleaning, and washing required to restore the site to its original condition.

1.10 CODES, PERMITS, AND STANDARDS:

A. The Contractor shall be solely responsible for compliance with all applicable federal, state (12 NYCRR Part 56 Adopted March 21, 2007), and local laws, ordinances, codes, rules, and regulations which govern asbestos abatement work or hauling and disposal of asbestos waste material. The current issue of each document shall govern. All work shall comply with all applicable codes and regulations as amended including: EPA Title 40CFR, Part 763, OSHA Title 29CFR, part 1910(including sections 1001,134,1926.2 and 1926.1200); EPA Title 40 CRF Part 61; NYSDEC Title 6, Part 364 and NYSDOH Title 10, Part 73

B. Before starting the work, the Contractor shall examine the Technical Specification for compliance with codes and regulations applicable to the work and shall immediately report any discrepancy to the Putnam Valley CSD's Environmental Consultant.

C. Where conflict among requirements or with these Specifications exists, the more stringent requirements shall apply.

D. Permits, State Licenses, and Notifications: The Contractor shall be responsible for obtaining necessary permits, variances, state licenses, and certifications of personnel in conjunction with asbestos removal, hauling, and disposition and shall provide timely notification of such actions as may be required by federal, state, regional, and local authorities. Fees and/or charges for these licenses, permits, and notifications shall be paid by the Contractor. Contractor shall use all notification forms where applicable.

1. Agency Notification: At least 10 days prior to commencement of any asbestos removal, the Contractor shall prepare written notification to EPA Region 2, to the New York State Department of Labor (NYSDOL), and all other applicable agencies having jurisdiction. In addition, the Contractor shall be required to obtain any other permits for work covered under this specification including permits required for air sampling.

1.11 **TERMINOLOGY:** The following commonly used terms are defined in the context of these Specifications:

A. Asbestos Project: Work that involves the removal, encapsulation, enclosure, repair or disturbance of friable or non-friable asbestos, or any handling of asbestos material that may result in the release of asbestos fibers. For the purpose of compliance with this part, an asbestos project shall include any disturbance of asbestos fibers, and the planning, asbestos survey (as per Subpart 56-5.1), design, background air sampling, inspection, air sampling and oversight of abatement work, cleanup, and the handling of all asbestos material subject to abatement, as well as the supervising of such activities. Installation of friable ACM shall also be considered an asbestos project. An asbestos project starts with Phase I when the planning, asbestos survey, and design work begins or is required to begin.

B. Asbestos-Containing Material (ACM): Any material or product which contains more than 1 percent asbestos.

C. Aggressive Air Sampling: Air monitoring samples collected while a leaf blower, fans, or other such devices are used to generate air turbulence within the work area.

D. Air Filtration Device (AFD) - A portable local exhaust system equipped with High-efficiency particulate air (HEPA) filtration, capable of maintaining a constant low velocity air flow into contaminated areas from adjacent, uncontaminated areas and capable of maintaining a negative air pressure with respect to the adjacent, uncontaminated areas.

E. Air Lock: A system for permitting ingress or egress to the work area while permitting minimal air movement between a contaminated area and an uncontaminated area, typically consisting of two curtained doorways placed a minimum of three feet apart.

F. Air Monitoring: The process of measuring the fiber content of a specific volume of air in a stated period of time. Personal air sampling results shall be calculated to reflect the employee's eight-hour time weighted average (TWA) exposure. Area sampling results are reported directly, without calculating the TWA.

G. Amended Water: Water to which a surfactant has been added.

H. Asbestos Removal Encapsulant: A chemical solution used in place of amended water during asbestos removal to penetrate, bind, and encapsulate the asbestos-containing material.

I. Authorized Visitor: Putnam Valley CSD's Environmental Consultant or representatives of any regulatory or other agency having jurisdiction over the project.

J. Putnam Valley CSD's Environmental Consultant: Putnam Valley CSD's agent who is authorized to exercise general contract administration and industrial hygiene inspection of the work.

K. Certified Industrial Hygienist (CIH): One certified in the comprehensive practice of industrial hygiene by the American Board of Industrial Hygiene.

L. Class II asbestos work: Activities involving the removal of ACM which is not thermal system insulation or surfacing material. This includes, but is not limited to, the removal of asbestos-containing wallboard, floor tile and sheeting, roofing and siding shingles, and construction mastic. Class I asbestos work includes the removal of thermal system or surfacing materials.

M. Competent Person: Definition and responsibilities as set down in 29 CFR 1926.1101(b) and as outlined herein.

N. Curtained Doorway: A device to allow ingress or egress from one room to another while permitting minimal air movement between the rooms.

O. Decontamination Enclosure System: A series of connected rooms for the decontamination of workers (a Personnel Decontamination Enclosure System) or of materials and equipment (Equipment Decontamination Enclosure System).

P. Equipment Decontamination Enclosure System: A decontamination system for waste materials and equipment, typically consisting of a designated area of the work area, a washroom, and a holding area, with an air lock between any two adjacent rooms and a curtained doorway between the holding area and the non-work area. Not to be used for personnel entry/exit.

Q. Encapsulant (Sealant): A liquid material which can be applied to ACM and which controls the possible release of asbestos fibers from the material, either by creating a membrane over the surface (bridging encapsulant) or by penetrating into the material and binding its components together (penetrating encapsulant).

R. Encapsulation: Application of an encapsulant to asbestos-containing building materials to control the possible release of asbestos fibers into the ambient air.

S. Enclosure: Procedures necessary to completely enclose ACM behind air-tight, impermeable, permanent barriers.

T. Excursion Limit (EL): The EL is an airborne concentration of asbestos to which no employee shall be exposed when not using respiratory protection. The EL is 1.0 fibers per cubic centimeter (f/cc) as averaged over a 30-minute period.

U. Fixed Object: A unit of equipment or furniture in the work area which cannot be removed from the work area.

V. Friable: Any material which, when dry, may be crumbled, pulverized, or reduced to powder by hand pressure, or is capable of being released into the air by hand pressure.

W. Full Facepiece High Efficiency Respirator (FFHER): A respirator which covers the wearer's entire face from the hairline to below the chin and which is equipped with a HEPA filter.

X. Half Mask High Efficiency Respirator (HMHER): A respirator which covers one-half of the wearer's face, from the bridge of the nose to below the chin and is equipped with HEPA filters.

Y. HEPA Filter: A high efficiency particulate air (HEPA) filter capable of trapping and retaining 99.97 percent of the fibers of 0.3 micrometer or larger in diameter.

Z. HEPA Vacuum Equipment: High efficiency particulate air (HEPA) filtered vacuuming equipment having a UL 586 filter system capable of collecting and retaining asbestos fibers.

AA. Large Asbestos Project: Large asbestos project shall mean an asbestos project involving the disturbance, enclosure, encapsulation, repair or handling of 160 square feet or more of ACM, Presumed Asbestos-Containing Material (PACM) or asbestos material or 260 linear feet or more of ACM, PACM or asbestos material.

AB. Lockdown: Procedure of applying an encapsulant as a protective coating or sealant to a surface from which ACM has been removed in order to control and minimize airborne asbestos fiber generation that might result from residual asbestos-containing debris.

AC. Minor Asbestos Project: Minor project shall mean an asbestos project involving the disturbance, enclosure, encapsulation, repair or handling of 10 square feet or less of ACM, PACM or asbestos material or 25 linear feet or less of ACM, PACM or asbestos material.

AD. Movable Object: A unit of equipment or furniture which can be removed from the work area.

AE. Plasticize: To cover floors and walls with plastic sheeting as herein specified.

AF. PE: Professional Engineer.

AG. Permissible Exposure Limit (PEL): The PEL is an airborne concentration of ACM to which no employee shall be exposed when not using respiratory protection. The OSHA PEL is 0.1 f/cc expressed on an 8-hour time weighted average (TWA).

AH. Personnel Decontamination Enclosure System: A decontamination system for personnel and limited equipment, typically consisting of an equipment room, shower room, and clean room, with an air lock between any two adjacent rooms, and a curtained doorway between the equipment room and the work area, and a curtained doorway between the clean room and the non-work area. The decontamination system serves as the only entrance/exit for the work area.

AI. Powered Air Purifying Respirator (PAPR): Either a full face-piece, helmet, or hooded respirator that powers breathing air to the wearer after the air has been purified through a HEPA filter.

AJ. Regulated Abatement Work Area: The portion of the restricted area where abatement work actually occurs. For tent work areas, the interior of each tent is a regulated abatement work area. For OSHA Class I and Class II asbestos abatement, the interior of the restricted area containment enclosure is the regulated abatement work area. For exterior non-friable asbestos abatement conducted without the establishment of negative air ventilation systems or containment enclosures, the entire restricted area surrounding the abatement location is considered to be the regulated abatement work area.

AK. Removal: The act of removing and transporting asbestos-containing or asbestos-contaminated materials from the work area to a suitable disposal site.

AL. Small Asbestos Project: Small asbestos project shall mean an asbestos project involving the removal, disturbance, repair, encapsulation enclosure or handling of more than 10 and less than 160 square feet of ACM, PACM or asbestos material or more than 25 and less than 260 linear feet of ACM, PACM or asbestos material.

AM. Surfactant: A chemical wetting agent added to water to improve penetration, thus reducing the quantity of water required for a given operation or area.

AN. Tent Procedure: A fire retardant polyethylene enclosure that includes walls, ceiling and a floor as required to remove ACM, PACM or asbestos material.

AO. Type C Respirator: A respirator which supplies air to the wearer from a source outside the work area by means of a compressor.

AP. Wet Cleaning: The process of eliminating asbestos contamination from building surfaces and objects by using cloths, mops, or other cleaning tools which have been dampened with amended water or asbestos removal encapsulant

and by afterwards disposing of these cleaning tools as asbestos-contaminated waste.

AQ. Work Area: Designated rooms, spaces, or areas of the project where asbestos abatement actions are to be undertaken or which may become contaminated as a result of such abatement actions. A contained work area has been sealed, plasticized, and equipped with an airlock entrance or a decontamination enclosure system. A non-contained work area is an isolated or controlled-access area which has not been plasticized.

1.12 REQUIREMENTS AND QUALIFICATIONS:

A. Minimum Experience: The Contractor shall have experience with abatement work, as evidenced through participation in at least ***two*** asbestos abatement projects of complexity comparable to this project.

B. Experience and Training: The Contractor's job supervisors, foremen, and workers shall be adequately trained and knowledgeable in the field of asbestos abatement. All personnel engaged in asbestos abatement or related activities shall have New York State DOL certifications. All phases of the work shall be executed by skilled craftsmen experienced in each respective trade. Proof of such experience shall be submitted upon request by the Putnam Valley CSD. Improperly trained, untrained, or inexperienced personnel shall not be allowed in the work area(s). Personnel shall meet minimum training and experience requirements outlined in this Section.

1. The Contractor's on-site job supervisor shall have successfully completed, within the last twelve months, the NYSDOH-approved course "Supervision of Asbestos Abatement Projects", and shall be qualified as a NYSDOL-certified Contractor/Supervisor. Course must be provided by an NYSDOH-approved training provider. The supervisor shall have experience with abatement work, as evidenced through participation in at least two asbestos abatement projects of complexity comparable to this project.

2. The job supervisors and foremen shall be thoroughly familiar with and experienced in asbestos removal and related work and shall meet the requirements of a competent person set down in OSHA Standard 29 CFR 1926.1101.

3. All asbestos abatement workers shall be knowledgeable, qualified, and trained in the removal, handling, and disposal of asbestos material and in subsequent cleaning of the affected environment. All asbestos abatement workers shall be certified as having attended and satisfactorily completed asbestos worker training in accordance with OSHA Standard 29 CFR 1926.1101(k)(3). Course must be provided by an New York State Department of Health (NYSDOH)-approved training provider.

4. The Contractor's job supervisors, foremen, and asbestos abatement workers shall be certified and licensed as required by the NYSDOL.

5. Prior to commencement of work, all personnel who are to enter the work area shall be instructed in and shall be knowledgeable of the appropriate procedures for personnel protection and asbestos abatement. On-site training in the use of equipment and facilities unique to this job site shall be performed. Emergency evacuation procedures from the work area shall also be included in worker training.

C. Supervision Requirements: The Contractor shall provide adequate job supervision for all phases of the asbestos abatement work.

1. The Contractor shall have a NYSDOL job supervisor present on site whenever work described in this Section is in progress. If the job supervisor leaves the site for any reason a qualified and certified supervisor, who meets the requirements of this Section and is familiar with the current status of the work, shall be designated in writing. Putnam Valley CSD's Designated Representative shall be informed of the substitution. The supervisor must be familiar and experienced with asbestos removal and its related work, safety procedures, and equipment.

D. Worker Medical Examinations: The Contractor shall provide medical examinations for all employees engaged in asbestos removal and disposal operations, in accordance with OSHA Standards 29 CFR 1910.134(b), 1926.1101, and applicable state regulations. The Contractor shall ensure that all employee examination results are on file in his office and available for review and are maintained in accordance with OSHA Standard 29 CFR 1926.1101 (n) (3).

E. Certificate of Worker's Release: Each asbestos abatement worker, workers of other trades, or any supervisory personnel who enter the work area, or otherwise contact ACM, shall submit a Certificate of Worker's Release, as required in the Section "Submittal".

1.13 TESTING AND INSPECTION REQUIREMENTS AND RESPONSIBILITIES: Visual inspections and air monitoring will be performed before, during, and after asbestos abatement to document airborne asbestos fiber concentrations as defined in this specification.

A. Putnam Valley CSD's Responsibilities:

1. Putnam Valley CSD will employ an Environmental Consultant to perform Project Monitoring and air testing. The project monitor will have the authority to approve the contractor’s work, stop the contractor’s work and direct the contractor to take corrective actions where required.

2. Area air samples will be collected and analyzed using National Institute for Occupational Safety and Health (NIOSH) Method 7400. Air samples will be collected during each shift as required by the regulations.

3. Clearance testing by Transmission Electron Microscopy (TEM) will be conducted as per AHERA regulations. Air samples will be collected to demonstrate final re-occupancy clearance for work areas within the building. The fiber concentration must comply with the specified clearance level as per AHERA and this specification. Putnam Valley CSD will provide for collection and analysis of one round of samples required to demonstrate clearance in each discrete work area.

4. Putnam Valley CSD's Environmental Consultant will perform inspections of the work area, as specified, upon request of the Contractor.

B. Contractor's Responsibilities:

1. TEM air samples which fail to meet the re-occupancy clearance standard shall be paid for by the Contractor. Should a delay occur, due to failure(s) of clearance air testing, all associated expenses such as TEM analysis, and the Environmental Consultant’s time for additional cleaning and air testing, shall be paid by the Asbestos Contractor. If results of the inside work area group of air samples are unsatisfactory, recleaning of regulated abatement work area surfaces using wet methods, followed by another drying time period and then collection and analysis of an additional set (both inside and outside work area samples) of clearance air samples is required. If only the results of the outside work area group of air samples is unsatisfactory, clean-up of surfaces outside of the regulated abatement work area using HEPA-vacuums and wet-cleaning methods shall be performed prior to collection and analysis of an additional group of outside work area clearance air samples as required by Industrial Code Rule (ICR) 56 Section 56-9.2. This recleaning/clean-up and sampling process shall be repeated until satisfactory clearance air sampling results have been achieved for all asbestos project non-exempt regulated abatement work areas throughout the entire work site.

2. The Contractor, at his/her expense, shall provide OSHA monitoring and all other all tests required by specified applicable regulations, codes, and standards and any other tests for his/her use. The use of a testing laboratory by Putnam Valley CSD does not release the Contractor from providing tests required for the protection and safety of his/her employees.

3. The Contractor shall employ an independent testing laboratory for analysis of OSHA personal air monitoring samples. The laboratory used for air sample analysis shall be successfully participating in the "Proficiency Analytical Testing (PAT) Program for Laboratory Quality Control for Asbestos." The monitoring shall be supervised by an Industrial Hygienist certified by the American Board of Industrial Hygiene (A.B.I.H.). Each

testing laboratory shall be ELAP (Environmental Laboratory Accreditation Program) and NVLAP (National Voluntary Laboratory Accreditation Program) certified. Putnam Valley CSD shall approve the contractor's testing laboratory.

4. From each work area the Contractor, at his/her expense, shall collect and analyze OSHA personal air monitoring samples. Sampling shall be repeated during each different work activity. Sample collection and analysis shall be performed using the OSHA Reference Method as outlined in 29 CFR 1926.1101, Appendix A.

5. Results of all air monitoring performed by the Contractor shall be posted within 24 hours for regular abatement project after collection for all workers to see. A copy of the results shall be given to the Putnam Valley CSD's Environmental Consultant at the same time.

6. The Contractor shall be advised whenever questions arise concerning compliance with standards of quality and completeness of the work and shall use his/her best efforts to resolve any such questions to the satisfaction of the Putnam Valley CSD's Environmental Consultant.

7. Where air monitoring tests and/or inspections are specified, the Contractor shall notify Putnam Valley CSD's Environmental Consultant, in writing, 24 hours, in advance of the required test and/or inspection.

8. The Contractor is responsible for ensuring the Work is complete to the level that meets the criteria of the inspection. The Contractor shall perform an inspection of the Work to evaluate completeness prior to requesting an inspection by the Putnam Valley CSD's Environmental Consultant.

C. Time Requirements for Putnam Valley CSD's Environmental Consultant's Inspections and Testing: Where visual inspections or air testing is required to be performed by the Putnam Valley CSD's Environmental Consultant, the Contractor shall allow for the following response/analytical time for completion of the inspection/test.

1. Where visual inspections are required, allow 24 hours, beginning from the time the Contractor's request is received by the Putnam Valley CSD's Environmental Consultant, for the performance of the inspection.

2. Where TEM clearance air monitoring tests are required, allow 24 hours, beginning from the time the Contractor's written request is received by the Putnam Valley CSD's Environmental Consultant, to the beginning of the air test.

PART 2 - PRODUCTS

2.1 **MATERIALS:** Materials provided under this section shall be standard products of manufacturers regularly engaged in the production of the items and shall conform to OSHA Standard 29 CFR 1926.1101; EPA Standard 40 CFR 61, Subpart M; Department of Transportation Standards 49 CFR 171, 172, and 173; applicable state regulations; and requirements specified herein. Materials listed under this section "or equal" shall be provided for work under contract.

A. Plastic: Provide fire retardant plastic of 6-mil thickness shall be provided in rolls of sizes which will minimize the frequency of joints. Fire retardant plastic sheet shall be used for plasticizing the enclosed work area, for preparation of the decontamination enclosure system, and for waste packaging.

B. Reinforced Fire-Retardant Plastic: Provide reinforced polyethylene sheet for the floor area of the decontamination enclosure system. Reinforced plastic sheet provided for this project shall be a 19- mil, 3-ply, high density flame resistant-reinforced-polyethylene sheet. Plastic color shall be opaque.

C. Duct Tape: Duct tape shall be capable of sealing joints of adjacent sheets of plastic and of attaching plastic sheeting to finished surfaces without damage to existing finish and shall be capable of adhering under both dry and wet conditions, including use of amended water

D. Surfactant: Surfactant (Wetting Agent) shall consist of resin materials in a water base, which have been tested to ensure materials are non-toxic and non-hazardous. Surfactants shall be installed according to the manufacturer's written instructions.

E. Lockdown Encapsulants: Encapsulants used after asbestos removal to lockdown fugitive fibers shall carry a Class "A" fire resistance rating and shall have an American Society for Testing and Materials (ASTM) E-162 flame spread index of 15 or less. A tint shall be given to the encapsulant by means of the addition of non-toxic, nonflammable colorings before application. The encapsulant shall be installed according to the manufacturer's written instructions.

F. Caulking Sealant: Caulking sealant shall be single component, non-sag elastomer with 1600% elongation capacity. Sealant shall meet the requirements of Federal Specification TT-S-00230C, Class A Type II. Sealant shall be used to form an airtight seal around plywood barriers or temporary partitions, to seal along the seams of the decontamination enclosure system's plywood sheathing, and to seal around piping or other small penetrations of the work area. Sealant application shall be according to the manufactures written instructions.

G. Foam Sealant: Foam Sealant shall be expanding urethane Class 1 foam sealant with an Underwriters Laboratories, Inc. (U.L. 723) flame spread index of 25 or less, smoke developed index of 0, and a minimum operating temperature range between -30^{O}F and 250^{O}F.

H. Plywood: Plywood used for temporary partitions, decontamination enclosure systems, and tunnels shall be an exterior grade and a minimum 3/8-inch thick.

I. Spray Adhesive: Spray Aerosol Adhesive shall be specially formulated to stick to sheet polyethylene (3M 76, 3M 77, or equivalent).

J. Other Materials: All other materials, such as lumber, plywood, tools, scrapers, brushes, cleaning materials, adhesive, nails, hardware, etc., which are required to perform the work described in this Section shall be provided. Materials and equipment shall be new or used, uncontaminated by asbestos, in serviceable condition, and appropriate for the intended purpose.

K. Disposal Bags: Plastic Disposal Bags shall be a minimum of 6-mil in thickness. Bags shall be labeled in accordance with this Section.

L. Shipping Containers: Impermeable Containers shall be suitable to receive and retain any asbestos-containing or asbestos-contaminated materials until they are disposed of at an approved landfill. The containers shall be labeled in accordance with this Section. Containers shall be both airtight and watertight and conform to Department of Transportation (DOT) Standard 49 CFR 178.224. Each container shall be constructed of fiber, hard plastic, or metal, with locking, airtight lids.

M. Markings and Labels: Disposal bags and shipping containers shall bear danger labels, transportation packaging labels, and generator identification information. Labels shall be permanently affixed to all bags and shipping containers containing ACM, in accordance with OSHA Standard 29 CFR 1926.1101(k)(2), DOT Standard 49 CFR Part 171 and 172, and EPA Standard 40 CFR Part 61.150(a)(1)(v).

1. Danger label format and color shall conform to OSHA Standard 29 CFR 1926.200. Danger labels shall display the following legend/information:

DANGER CONTAINS
ASBESTOS FIBERS
AVOID CREATING DUST
CANCER AND LUNG
DISEASE HAZARD

2. Department of Transportation (DOT) Marking and Labels: Markings and labels shall be permanently affixed to all bags and containers containing ACM, in accordance with DOT 49 CFR 172.304 and 172.407.

a. Markings shall display the following text:

RQ, ASBESTOS, NA 2212

b. Labels shall be diamond shape and shall be located near the marking text. Labels will consist of a diamond a minimum of 100 millimeters (mm) on each side with each side having a solid line inner boarder 5.0 to 6.3 mm from the edge. The label shall be white with seven black vertical stripes on the top half. Black stripes and white spaces shall be equally spaced. The lower half of the label shall be white with the class number "9" underlined and centered at the bottom. Refer to DOT 40 172.446 for label format.

3. Generator identification information shall be affixed to each DOT label format and color shall conform to DOT Standard 49 CFR 172.304. Generator identification information labels shall display the following legend/information:

GENERATOR'S NAME GENERATOR'S
24-HOUR PHONE GENERATOR'S
FACILITY ADDRESS

N. Reuse of Containers: If impermeable containers used to transport bagged asbestos waste to the landfill are to be reused, the empty containers shall display the following label:

RESIDUE:
LAST CONTAINED ASBESTOS RQ

O. Warning Signs: Warning Signs shall be posted at the perimeter of the work area prior to abatement operations in accordance with OSHA Standard 29 CFR 1926.1101. Danger sign format and color shall conform to OSHA Standard 29 CFR 1926.200. The signs shall display the legend indicated below:

DANGER
ASBESTOS
CANCER AND LUNG DISEASE HAZARD
AUTHORIZED PERSONNEL ONLY
RESPIRATORS AND PROTECTIVE
CLOTHING ARE REQUIRED IN THIS AREA

P. Mastic remover. The contractor shall use an odorless mastic remover. Manufacture and brand of mastic remover shall be approved by the Facility prior to commencing removal work.

2.2 EQUIPMENT: Equipment provided under this section shall conform to applicable federal and state regulations, local codes, and the requirements specified herein.

A. Spraying Equipment: Equipment used to apply amended water or removal encapsulant shall be of a low-pressure type to prevent disturbance of the asbestos prior to physical controlled removal. Airless spray equipment shall be provided for the application of asbestos encapsulant.

B. Vehicles: Trucks or Vans used for the transportation of asbestos waste shall be enclosed and suitable for loading, temporary storage, transit, and unloading of asbestos-contaminated waste without exposure to persons or property.

C. Fall Protection Equipment: Certified and approved equipment to be used by trained personnel when working at elevation to protect against falling from an elevated work area.

D. Fire Extinguisher: Type "ABC" dry chemical extinguisher or a combination of several extinguisher of National Fire Protection Association (NFPA) recommended types for the fire hazard exposures in each extinguisher location shall be provided. Minimum size of extinguisher shall be 4-A, and 40-B:C. Supply a minimum of one extinguisher for every 1,000 square feet of floor area, with a maximum travel distance to an extinguisher of 75-feet. Supply at least one extinguisher in each decontamination enclosure equipment room, and clean room. Supply 2 additional extinguishers inside the work area

E. Smoke Detectors: Smoke detectors of the battery powered ionization type will be required at a rate of one per 5,000 square feet, with a minimum of one smoke detector in the decontamination enclosure clean room, and one in the work area.

F. Water Filtration System: A system capable of filtering and retaining particles larger than 5.0 microns in size shall be provided.

G. Carts: Provide watertight wheeled carts with tight fitting lids suitable for movement of non-contaminated waste or bagged asbestos waste from the decontamination enclosure system to the waste storage container or transport vehicle.

H. Power Tools: Provide power tools necessary to complete the Work. Power tools used directly for asbestos removal shall be equipped with a dust collection system. Attach a shroud connected to a HEPA vacuum system for capture of dust.

2.3 WORKER PROTECTIVE CLOTHING AND EQUIPMENT: Protective clothing and equipment shall conform to OSHA Standard 29 CFR 1926.1101

A. Protective Clothing: Workers shall be provided with sufficient sets of properly fitting, full-body, disposable coveralls, head covers, gloves, and 18-inch high boot-type foot covers. Disposable coveralls, head covers, and 18-inch high boot-type foot covers shall be constructed of material equal to DuPont "TYVEK-Type 14" or Kimberly-Clark "Kleenguard", as a minimum requirement.

1. The Contractor shall provide authorized visitors and the Putnam Valley CSD's Environmental Consultant suitable properly fitting protective disposable clothing, headgear, hard hats, eye protection, respiratory protection, and footwear (up to four sets per 8-hour shift) whenever they are required to enter the work area.

B. Equipment: Eye protection and hard hats required for job conditions or by applicable safety regulations shall be provided.

C. Respiratory Protection: The Contractor shall be solely responsible for providing adequate respiratory protection at all times for all individuals in the work area. Types of respirators used shall be approved by Mine Safety and Health Administration (MSHA)/NIOSH for asbestos in accordance with OSHA Standard 29 CFR 1926.1101 and 29 CFR 1910.134. The Contractor shall provide a level of respiratory protection which supplies an airborne fiber level inside the respirator below 0.01 fibers per cubic centimeter (f/cc), as the minimum level of protection allowed. Determine the proper level of protection by dividing the actual airborne fiber count in the work area by the "protection factors" given below for each respirator type:

Respirator Type	Protection Factor
Air purifying: Negative-pressure respirator, High efficiency HEPA filter, Half-facepiece	10
Air purifying: Negative-pressure respirator, High efficiency HEPA filter, Full-Facepiece	50 (quantitative)
Powered air purifying (PAPR): Positive pressure respirator High efficiency HEPA filter, Full-facepiece	1000
Type C supplied air: Positive-pressure respirator, Pressure-demand, Full-facepiece HEPA escape	1000

Type C supplied air: Positive-pressure respirator, Pressure-demand, Full-facepiece HEPA escape	1000
Type C supplied air: Pressure-demand, Full-facepiece equipped with an auxiliary SCBA	1000

1. The Contractor shall provide workers with individually issued and marked respiratory equipment. Respiratory equipment shall be suitable for the asbestos exposure level(s) in the work area(s), as specified in OSHA Standard 29 CFR 1926.1101, and as more stringently specified otherwise, herein.

2. During the use of supplied air systems, the Contractor shall provide authorized visitors, Putnam Valley CSD's Environmental Consultant, and the testing laboratory representative with individually issued and marked respiratory equipment (up to six units). Respiratory equipment shall be compatible with the supplied air system in use, and shall be suitable for the asbestos exposure level(s) in the work area(s), as specified in OSHA Standard 29 CFR 1926.1101, and as more stringently specified otherwise, herein.

3. Where respirators with disposable filter parts are employed, the Contractor will provide sufficient filter parts for replacement as necessary or as required by the applicable regulation.

4. Breathing air supply systems shall conform to the United States Environmental Protection Agency (USEPA) NIOSH Document EPA-560-OPTS-86-001 (September 1986) entitled "A Guide to Respiratory Protection for the Asbestos Abatement Industry."

5. The Contractor shall have a minimum of two spare air hoses with connectors to permit the Putnam Valley CSD's Environmental Consultant or testing laboratory's representative to connect his/her assigned Type C respirator to the air system at any time without having to wait for personnel to exit the work area in order to obtain a spare hose.

PART 3 - EXECUTION

3.1 DECONTAMINATION ENCLOSURE SYSTEMS:

A. Personal decontamination system enclosures shall be constructed and functional prior to commencing the regulated abatement work area preparation activities. Waste decontamination system enclosures shall be constructed and functional at the completion of preparation activities. After installation of the personal decontamination system enclosure, all access to the regulated abatement work area shall be via the installed personal decontamination system enclosure.

B. Personal Decontamination System Enclosure - Large Project.

(1) Enclosure – General. A personal decontamination system enclosure shall be provided outside the regulated abatement work area and in close proximity to all locations where personnel shall enter or exit the regulated abatement work area. One personal decontamination enclosure system for each regulated abatement work area shall be required. This system may utilize adequate existing lighting sources separate from the decontamination system enclosure or shall be supplied with a GFCI protected temporary lighting system. The personal decontamination system enclosure shall be sized to accommodate the number of workers and equipment required for the intended purpose. Such system may consist of existing attached rooms outside of the regulated abatement work area, if the layout is appropriate, that can be plasticized and are accessible from the regulated abatement work area. When this situation does not exist, personal decontamination enclosure systems may be constructed of metal, wood or plastic supports covered with fire-retardant plastic sheeting. A minimum of one (1) layer of six (6)-mil fire-retardant plastic sheeting shall be installed on the ceiling, and walls of the enclosure system. At least two (2) layers of six (6)- mil fire-retardant reinforced plastic sheeting shall be used for flooring protection of this area. This system must be kept clean, sanitary and climate controlled at all times in conformance with all federal, state and local government requirements. This system shall remain on-site, operational and be used until completion of Phase II C of the asbestos project.

(2) Rooms and Configuration. The personal decontamination system enclosure shall consist of a clean room, a shower room and an equipment room connected in series but separated from each other by airlocks. There shall be a curtained doorway separation between the equipment room and the regulated abatement work area, and there shall be a lockable door to the outside. (See Figure 1 within ICR 56) Minimum dimensions for each airlock, shower room and equipment room shall be three (3) feet wide by six (6) feet in height, to allow for adequate access to and from the regulated abatement work area.

(3) Curtained Doorway. An assembly which consists of at least three (3) overlapping sheets of six (6)-mil fire retardant plastic over an existing or temporarily framed doorway. One sheet shall be secured at the top and left side, the second sheet at the top and right side, and the third sheet at the top and left side. All sheets shall have weights attached to the bottom to insure that the sheets hang straight and maintain a seal over the doorway when not in use.

(4) Framing. Enclosures systems accessible to the public shall be fully framed, hard-wall sheathed and utilize a lockable door for safety and security.

(5) Sheathing. A plywood or oriented strand board (OSB) sheathing material of at least 3/8-inch thickness.

(6) Plastic Sheeting. Enclosure systems constructed at the work site shall use at least one (1) layer of six (6)-mil fire-retardant plastic sheeting on walls and ceiling. At least two (2) layers of six (6)-mil fire-retardant reinforced plastic sheeting shall be used for floor protection of this area.

(7) Prefabricated or Trailer Units. A completely watertight fiberglass or marine painted prefabricated unit does not require plasticizing. Rooms shall be configured as per paragraph (2) of this Section. All prefabricated or trailer decontamination units shall be kept in good condition and shall be completely decontaminated after final cleaning and immediately prior to clearance air sampling. Upon receiving satisfactory clearance air results, the prefabricated units shall be sealed then separated from the regulated abatement work area and removed from the site.

(8) Clean Room. The clean room shall be sized to accommodate a full work shift of asbestos abatement contractor personnel, as well as the air sampling technician and the project monitor. The clean room shall be aminimum of six (6) feet in height. A minimum of thirty-two (32) square feet of floor space shall be provided for every six (6) full shift abatement workers, calculated on the basis of the largest work shift. If the largest work shift consists of three (3) or less full shift abatement workers, the minimum clean room size requirement is reduced to twenty-four (24) square feet of floor space. Benches, lockers and hooks shall be provided for street clothes. Shelves for storing respirators shall be provided. Clean clothing, replacement filters for respirators, towels and other necessary items shall be provided. The clean room shall not be used for storage of tools, equipment or materials. It shall not be used for office space. A lockable door shall be provided to permit access to the clean room from outside the regulated abatement work area or enclosure and shall be used to secure the regulated abatement work area and decontamination enclosure during non-work hours.

(9) Shower Room. The shower room shall contain one (1) shower per every six (6) full shift abatement workers, calculated on the basis of the largest work shift. Multiple showers shall be simultaneously accessible (installed in parallel) to certified personnel. Each showerhead shall be supplied with hot and cold water adjustable at the tap. The shower enclosure shall be constructed to ensure against leakage of any kind. Uncontaminated soap, shampoo and towels shall be available at all times. Shower water

shall be drained, collected and filtered through a system with at least 5.0-micron particle size collection capability. Submersible pumps shall be installed, maintained and utilized in accordance with pertinent OSHA regulations and manufacturer's recommendations. A multi-stage filtering system containing a series of several filters with progressively smaller pore sizes shall be used to avoid rapid clogging of the filtering system by larger particles. Filtered wastewater shall be discharged in accordance with applicable codes. Contaminated filters shall be disposed of as asbestos-contaminated waste.

(10) Equipment Room. The equipment room shall be used for the storage of decontaminated equipment and tools. A one (1)-day supply of replacement filters for HEPA-vacuums and negative pressure ventilation equipment in sealed containers, extra tools, containers of surfactant and other materials and equipment that may be required during the abatement project may also be stored here. A container lined with a labeled, at least six (6)-mil plastic bag for collection of clothing shall be located in this room. Contaminated footwear and work clothes shall be stored in this area.

(11) Airlocks. Airlock construction shall consist of two (2) curtained doorways with three (3) alternating six (6)- mil fire retardant polyethylene curtains per doorway, separated by a distance of at least three (3) feet, such that one passes through one doorway into the airlock, allowing the doorway sheeting to overlap and close off the opening before proceeding through the next doorway. Minimum airlock size shall be three (3) feet wide, by three (3) feet long, by six (6) feet in height.

C. Personal Decontamination System Enclosure - Small Project

(1) Enclosure Requirements. A personal decontamination system enclosure for a Small asbestos project shall consist of, at a minimum, an equipment room, a shower room and a clean room separated from each other and from the regulated abatement work area and other areas by curtained doorways as defined in ICR 56 Section 56-2.1. All other provisions for personal decontamination system for a Large asbestos project shall apply. Equipment storage, personal gross decontamination and removal of clothing shall occur in the equipment room just prior to entering the shower. (See Figure 4 in the ICR 56) The full personal decontamination system enclosure specified for Large asbestos projects is recommended.

D. Remote Personal Decontamination System Enclosure. If a personal decontamination system cannot be attached to the regulated abatement work area, due to available space restrictions or other building and fire code restrictions, a remote personal decontamination system enclosure may be used for limited Special Projects as per subpart 56-11, negative pressure tent enclosure work areas with glove-bag only abatement, or if non-friable ACM is being removed in a manner which will not render the ACM friable.

Limitation. If it is found during removal, that the non-friable ACM or asbestos material will become friable during the removal process, and it is logistically

possible to attach the decontamination system enclosure, abatement work must stop immediately while the remote personal decontamination system is relocated to be attached and contiguous to the regulated abatement work area.

The following requirements apply for all remote personal decontamination systems:

(1) Protective Clothing. Workers shall don two (2) sets of disposable protective clothing and a supply of protective clothing shall be kept in the airlocks attached to the regulated abatement work area.

(2) Location. The remote personal decontamination system shall be constructed as close to the regulated abatement work area as physically possible. If the remote personal decontamination system must be located at the exterior of the building/structure due to space or code restrictions, it shall be constructed within fifty (50) feet of the building/structure exit used for access by the asbestos abatement contractor personnel. The decontamination unit shall be cordoned off at a distance of twenty-five (25) feet to separate it from public areas.

(3) Airlocks. At a minimum, two (2) extra airlocks as defined in ICR 56 Section 56-2.1 shall be constructed as per ICR 56 Section 56-7.5(b)(11). One shall be constructed at the entrance to the equipment room or equipment/washroom. The other extra airlock shall be constructed at the entrance to the containment or regulated abatement work area(s). These airlocks shall have lockable doorways at the entrance to the airlock from uncontaminated areas. These airlocks shall be cordoned off at a distance of twenty-five (25) feet and appropriately signed in accordance with ICR 56 Section 56-7.4(c). Airlocks shall not be used as a waste decontamination area and shall be kept clean and free of asbestos-containing material.

(4) Designated Pathway. The walkway from the regulated abatement work area to the personal decontamination system or next regulated abatement work area shall be cordoned off and signage installed as per ICR 56 Section 56-7.4(c), to delineate it from public areas while in use during Phase IIA through IID.

(5) Travel Through Uncontaminated Areas. If at any time a worker must travel through an uncontaminated area to access the personal decontamination area, the worker shall HEPA-vacuum and/or wet wipe his/her outer protective clothing while in the regulated abatement work area, then proceed into the airlock, which serves as a changing area, where he/she shall remove the outer clothing and don a clean set of protective clothing. The worker may then proceed to the personal decontamination system enclosure only along a designated pathway as described above. Travel in any other area shall not be allowed.

(6) Removal. The remote personal decontamination unit shall be removed only after satisfactory clearance air sampling results have been achieved.

E. Waste Decontamination System Enclosure - Large and Small Asbestos Projects.

(1) Enclosure – General. A waste decontamination system enclosure shall be provided outside the regulated abatement work area and shall be attached to the regulated abatement work area. One (1) waste decontamination enclosure for each regulated abatement work area shall be required. This system may utilize adequate existing lighting sources separate from the decontamination system enclosure, or shall be supplied with a GFCI protected temporary lighting system. The waste decontamination system enclosure shall be sized to accommodate the number of workers and equipment for the intended purpose. Such system may consist of existing attached rooms outside of the regulated abatement work area, if the layout is appropriate, that can be plasticized and are accessible from the regulated abatement work area. When this situation does not exist, enclosure systems may be constructed of metal, wood or plastic supports covered with fire-retardant plastic sheeting. A minimum of one (1) layer of six (6) mil fire-retardant plastic sheeting shall be installed on the ceiling, and walls of the enclosure system. At least two (2) layers of six (6)-mil fire-retardant reinforced plastic sheeting shall be used for flooring protection of this area. This system must be kept clean, sanitary and climate controlled at all times in conformance to all federal, state and local government requirements. This system shall remain and be used until completion of Phase II C of the asbestos project.

(2) Rooms and Configuration. A waste decontamination system enclosure shall consist of a washroom and a holding area connected in series but separated from each other by an airlock. There shall be a lockable door to the outside, and there shall be a curtained doorway between the washroom and the regulated abatement work area. (See Figure 2 in the ICR 56)

(3) Curtained Doorway. An assembly which consists of at least three (3) overlapping sheets of six (6)-mil fire retardant plastic over an existing or temporarily framed doorway. One (1) sheet shall be secured at the top and left side, the second sheet at the top and right side, and the third sheet at the top and left side. All sheets shall have weights attached to the bottom to insure that the sheets hang straight and maintain a seal over the doorway when not in use.

(4) Washroom. A room/chamber between the regulated abatement work area and the holding area in the waste decontamination system enclosure, where equipment and waste containers are wet cleaned or HEPA-vacuumed. Adequate drainage and bag/container wash water shall be provided within the room/chamber, as well as a sufficient quantity of clean waste bags/containers.

(5) Equipment/Washroom Alternative. Where there is only one (1) exit from the regulated abatement work area, the holding area of the waste decontamination system enclosure may branch off from the equipment room of the personal decontamination system enclosure. The equipment room will also be used as a waste washroom. (See Figure 3 in the ICR 56)

(6) Plastic Sheeting. Waste decontamination system enclosures constructed at the work site shall use at least one (1) layer of six (6)-mil fire-retardant plastic sheeting on walls and ceiling. At least two (2) layers of six (6)-mil fire-retardant reinforced plastic sheeting shall be used for flooring protection of these areas.

(7) Enclosure Security. The waste decontamination system enclosure and regulated abatement work area airlock(s) (when remote decontamination systems are used) shall be constructed with lockable doors to prevent unauthorized entry. Enclosures systems located within twenty-five (25) feet of an area of public access shall be fully framed and hard-wall sheathed for safety.

(8) Drains. The waste washroom shall be equipped with a wash bin of sufficient size to perform waste container washing operations and shall have a submersible pump installed to collect wastewater and deliver it to the shower wastewater filtration system where it shall be filtered in accordance with paragraph (b)(9) of this Section.

(9) Shower/Washroom Alternative - Small Asbestos Project. For Small asbestos projects with only one (1) exit from the regulated abatement work area, the shower room may be used as a waste washroom. The clean room shall not be used for waste storage but shall be used for waste transfer to carts, which shall be immediately removed from the enclosure. Waste shall be transferred only during times when the showers are not in use. (See Figure 4 in this Section)

F. Waste Decontamination System Enclosure – When Remote Personal Is Allowed. When a remote personal decontamination system enclosure is allowed and utilized for a regulated abatement work area, the following requirements shall apply:

(1) Minor Size Regulated Abatement Work Area. No specific waste decontamination system enclosure is required for minor size regulated abatement work areas. The waste generated shall be immediately bagged/containerized within the regulated abatement work area.

(2) Small & Large Size Regulated Abatement Work Areas.

(i) Washroom. An additional chamber shall be constructed within the regulated abatement work area, attached to the existing airlock used to access the work area. The washroom/airlock combination shall be utilized as the contiguous waste decontamination enclosure for waste bagging/containerization and waste transfer activities. The washroom shall be constructed and supplied with equipment/materials consistent with waste decontamination system enclosure washroom requirements for contiguous personal and waste decontamination system enclosures.

(ii) Removal. The washroom chamber shall be removed only after satisfactory clearance air sampling results have been achieved.

3.2 PERSONNEL PROTECTION AND DECONTAMINATION PROCEDURES:

A. General: The Contractor shall take all safety measures and precautions necessary to protect his/her employees and building occupants in accordance with OSHA Standard 29 CFR 1926, EPA Standard 40 CFR, Part 61, Subpart M, and applicable state and city regulations. The Contractor shall be solely responsible for enforcing personnel protection requirements.

1. After the installation of the personal decontamination system, full Personal protective equipment (PPE) in compliance with current OSHA regulations shall be worn in regulated abatement work areas during preparation activities, for all friable OSHA Class I or Class II asbestos projects. Asbestos abatement contractor's respirator selection, filter selection, medical surveillance and respiratory training must be consistent with current OSHA regulations. Appropriate respiratory protection is also required of all authorized visitors.

2. Workers or authorized visitors shall not eat, smoke, drink, or chew gum or other substances while in the work area(s) or decontamination area(s).

3. Contaminated worker footwear, eye protection, and hard hats shall be stored in the equipment room when not in use in the work area and, upon completion of asbestos abatement, disposed of as asbestos-contaminated waste or decontaminated for reuse.

4. Entry to the personal and waste decontamination system enclosures shall be restricted to the Asbestos Contractors involved with the asbestos project, appropriately certified employees of the Asbestos Contractors, authorized visitors, police, fire and other public safety personnel.

5. Asbestos workers shall not wear any jewelry; e.g. watch, necklace, etc. while in the work area or decontamination area.

B. Worker Respiratory Protection: With approval from the Putnam Valley CSD's Environmental Consultant, historical airborne fiber level data may serve as the basis for selection of the level of respiratory protection to be used for the time interval prior to the Contractor establishing the eight-hour time weighted average (TWA) for an abatement task. Historical data provided by the Contractor shall be based on OSHA personal air monitoring of the "breathing zone" of his/her employees for other asbestos abatement projects, and the data were obtained during work operations conducted under work place conditions closely resembling the processes, type of material, control methods, work practices, and environmental conditions used and prevailing in the Contractor's current operations. Documentation of aforementioned results shall be presented to the Putnam Valley CSD's Environmental Consultant for review of applicability. (See "Submittal, Pre-Project Information." This will not relieve the Contractor in

providing personal air monitoring to determine the TWA for the work under contract. The TWA shall be determined in accordance with 29 CFR 1926.1101. After the TWA is established, the Contractor may provide respirators as presented in the Specification. The minimum level of protection for Thermal System Insulation (TSI) and/or Surfacing Materials abatements is full face-piece Powered Air Purifying Respirator (PAPR).

1. Review safety data sheets (SDS) for products to be used during the work. Follow recommendations as given by the product manufacturer for personnel protection required to be worn during product application.

2. Personal Air Monitoring Requirements: The Contractor's CIH shall be responsible for development and implementation of a personal air monitoring program in accordance with OSHA Standard 29 CFR1926.1101, good industrial hygiene practices, and the requirements herein. Personal air monitoring shall be performed by an independent testing laboratory and supervised by the Contractor's CIH. Documentation of air sampling shall include as a minimum, calculations of minimum sample volume to achieve necessary detection limits; sampling time; sampling location (or subject); evidence of periodic inspection of sampling equipment; documentation of daily pre- and post-calibration of sampling equipment; detailed description of worker protective devices; description of any typical environmental conditions; and a description of work practices/procedures/controls in operation during the sampling period. Documentation of sample analysis shall include, as a minimum, sample identification; total sample duration, sample flow rate; the "Limit of Reliable Quantification"; total air volume; total fibers counted (with work sheets); total fields counted; blank filter analysis; and reticule field area. Airborne fiber concentrations in fibers per cubic centimeter (f/cc) shall be calculated and reported at the 95 percent confidence level.

3. Full-shift personal exposure air sampling of workers shall be performed to establish the 8-hour (TWA) exposure. Such sampling shall be conducted for each employee (or representative group of employees, at least one sample per eight-man crew) expected to evidence the highest exposure in each work area for each type of activity on the first shift that site preparation, removal, or cleanup activities occur. Similarly, 30-minute personal exposure air sampling shall be conducted during activities anticipated to produce the highest airborne concentrations to determine the Excursion Limit. Personal exposure sampling shall be repeated everyday as per protocol requirements where removal and cleanup operations are conducted for the duration of the project, or at any time that conditions indicate to the Contractor or the Contractor's CIH that the most recent personal sampling results are no longer indicative of employee exposure. PCM personal samples shall be collected and analyzed according to the OSHA Reference Method in OSHA Standard 29 CFR 1926.1101, Appendix B.

C. **Personnel Entrance and Decontamination Procedures for Gross Removal Operations Utilizing Full Decontamination Facility:** The following entry/exit procedures shall be used for gross removal using full containment.

1. All workers and authorized visitors shall enter the work area through the worker decontamination enclosure system.

2 All individuals who enter the work area shall sign the entry log, located in the clean room, upon each entry and exit. The log shall be permanently bound and shall identify fully the facility, agents, contractor(s), the project, each work area and worker respiratory protection employed. The site supervisor shall be responsible for the maintenance of the log during the abatement activity.

3 Each worker or authorized visitor shall, upon entering the job site, remove street clothes in the clean room and put on a clean respirator (with new filters, if appropriate) and clean protective clothing before entering the work area through the shower room and equipment room.

4 Each worker or authorized visitor shall, each time he/she leaves the work area: remove gross contamination from clothing before leaving the work area; proceed to the equipment room and remove all clothing except the respirator; still wearing the respirator, proceed to the shower room; clean the outside of the respirator with soap and water while showering; remove filters, wet them, and dispose of them in the container provided for that purpose; wash and rinse the inside of the respirator; and thoroughly shampoo and wash himself/herself.

5 Following showering and drying off, each worker or authorized visitor shall proceed directly to the clean room, dress in street clothes, and exit the decontamination enclosure system immediately. Disposable clothing of the type worn inside the work area is not permitted outside the work area.

3.3 **PREPARATION OF WORK AREA:** The following Paragraph "General Preparations" outlines procedures applicable to all work areas. Work procedures specific for preparing each asbestos removal area is addressed in its respective Subparagraph. If a site-specific variance is approved, procedures outlined in the variance will supersede this specification.

A. **General Preparations:** The following general preparations shall be used for all work areas being abated:

1. Erect barricades; post notices and warning signs.

2. Provide and install decontamination enclosure systems in accordance with Article 3.01, "Decontamination Enclosure Systems" of this Section.

3. Seal drains and other collection devices with 6-mil plastic and plywood, as necessary, and provide a system to collect all water used by the Contractor. Collected water shall be passed through a water filtration system prior to being discharged into the sanitary sewer.

4. Ensure that the Contractor's approved Fall Protection Equipment (if applicable) is in place, in operating condition, and in operation during work described in this section.

5. Maintain emergency and fire exits from the work areas or establish alternative exits satisfactory to the local fire officials. Emergency exits and routes shall be established and clearly marked with florescent paint or other effective designations to permit easy location from anywhere within the work area. Emergency exits shall be secured to prevent access from uncontaminated areas and yet permit emergency exiting. Exits shall be checked daily against exterior blockage or impediments to exiting.

6. Temporary lighting within the work area and decontamination system shall be provided as required to achieve minimum illumination levels.

7. Hand power tools used to drill, cut into, or otherwise disturb ACM shall be equipped by manufacture with HEPA filtered local exhaust ventilation.

8. Hot and cold water may not be available in all work areas. In such cases sufficient heating equipment shall be provided to maintain a necessary supply of hot water for showers.

B. Friable Interior Asbestos-Containing Materials (Tent Enclosure):

1. Tent enclosure work areas shall at a minimum have decontamination areas installed and utilized, as per the requirements of Section 56-11.3.

2. Tents with greater than twenty (20) square feet of floor space, that are scheduled for gross removal of friable ACM, PACM, or asbestos material, shall be constructed of two (2) layers of six (6)-mil fire-retardant plastic sheeting and shall include walls, ceiling and a floor (except for portions of walls, floors and ceilings that are the removal surface) with double folded seams. Seams shall be duct taped airtight and then duct taped flush with the adjacent tent wall.

3. Tents with no gross removal of friable ACM, PACM or asbestos material, shall be constructed of one (1) layer six (6)-mil fire-retardant plastic sheeting and shall include walls, ceiling and a floor (except for portions of walls, floors and ceilings that are the removal surface) with double folded seams. Seams shall be duct taped airtight and then duct taped flush with the adjacent tent wall.

4. Tents or tent-like structures or enclosures shall be adequately supported and reinforced to withstand local environmental conditions and the negative pressures developed within them.

5. An airlock shall be constructed as per Section 56-7.5(b)(11), at the entrance to each tent that utilizes remote decontamination system facilities. Each tent and airlock shall be cordoned off twenty-five (25) feet from it perimeter, or the interior space/room where the tent and airlock is located shall be secured from non-certified personnel or public access, and signage shall be installed as per Section 56-7.4(c).

6. Manometers consistent with the requirements of Section 56-7.8(a)(4), are required for negative pressure tent enclosure regulated abatement work areas with OSHA Class I 12 NYCRR 56 Subpart 7, Page 69 abatement. Negative air shall be maintained at four (4) air changes per hour for non-friable and glovebag abatement tent enclosure work areas. Eight (8) air changes per hour shall be maintained for friable gross removal tent enclosure work areas. If a HEPA-filtered vacuum is used for a Minor size abatement tent enclosure work area to maintain the required air changes, after final cleaning is completed twenty (20) minutes shall elapse, then ventilation may be stopped, clearance air samples collected if required, and the tent sealed until results are read. If air sample results are unacceptable, ventilation shall be re-established, the area recleaned and new samples taken.

C. **Full Containment preparation for Gross Removal:** The Contractor shall perform the following general and gross area preparations for each work area to undergo gross removal using full containment unless procedures outlined in an approved site specific variance are being followed.

1. Request that Putnam Valley CSD's Environmental Consultant perform area monitoring and establish a background count prior to the preparatory operations for each removal area.

2. Erect barricades; post notices and warning signs.

3. Shut down, isolate, and lock out or tag heating, ventilating, and air conditioning (HVAC) systems which serve or which pass through the work area. Vents within the work area and seams in HVAC components shall be sealed with tape and two layers of plastic sheeting. Filters in HVAC systems shall be removed and treated as asbestos-contaminated waste.

4. Shut down, disconnect, and lock out or tag all electric power to the work area so that there is no possibility of its reactivation until after clearance testing of the work area.

5. Provide and install decontamination enclosure systems in accordance with Article 3.01 (B), "Decontamination Enclosure Systems". Prior to installation of decontamination enclosure system, the floor area shall be covered with one layer of 6-mil plastic sheeting and then 1/2-inch rigid flooring prior to normal decon construction. This procedure (to be implemented only when required) is necessary to protect the existing carpet from being contaminated.

6. Seal floor drains, sumps and other collection devices with two layers of 6-mil plastic and plywood, as necessary, and provide a system to collect all water used by the Contractor. Collected water shall be passed through a water filtration system prior to being discharged into the sanitary sewer.

7. Ensure that the Contractor's communication equipment is in place, in operating condition, and in operation during work described in this Section.

8. Separate by means of airtight barriers (isolation barriers) parts of the building that are not included in the work area(s) from parts of the building that will undergo asbestos abatement.

9. Seal with isolation barriers: open doorways, cased openings, and corridors which will not be used for passage during work. Any opening equal to or more than 32 square feet shall be sealed with solid (plywood or oriented strand board sheathing material of at least 3/8-inch thickness fastened to the regulated abatement work area side of the barrier partition) isolation barriers, except that where any one dimension is one foot or less.

10. Isolation barriers shall extend from the floor to the drop ceiling and form an airtight seal. They shall be built using wood or metal framing at 24-inch on-center faced with plywood sheathing, and shall be braced as necessary. Both sides of the isolation barrier shall be covered with a double layer of 6-mil plastic sheeting, with joints staggered and sealed with tape. Edges of the temporary partition at the floor, walls, and ceiling shall be taped and caulked airtight. Isolation barriers larger than 32 square feet shall be sheathed on the work area side with 3/8-inch plywood or oriented strand board (OSB) sheathing.

11. Completely seal airtight and isolate the work area. All openings, including but not limited to doorways, windows, tunnels, ducts, grilles, cracks, diffusers, openings through which pipe conduit passes, and any other penetrations of the work area, shall be covered with plastic sheeting taped or caulked airtight. Refer to updated ICR 56 for the elevator shaft ports isolation details.

12. Maintain emergency and fire exits from the work areas or establish alternative exits satisfactory to the local fire officials. Emergency exits and routes shall be established and clearly marked with fluorescent paint or other effective designations to permit easy location from anywhere within the work area. Emergency exits shall be secured to prevent access from uncontaminated areas and yet permit emergency exiting. Exits shall be checked daily against exterior blockage or impediments to exiting.

13. Temporary lighting within the work area and decontamination system shall be provided as required to achieve minimum illumination levels.

14. After sealing and plasticizing the area install and initiate operation of at least two air filtration devices to provide a negative pressure of at least -0.02 inches of water and four (4) changes per hour within the work area relative to surrounding non-work areas. Do not shut down AFD's until the work area is released to the Owner following final clearance procedures. All air filtration device filters shall be new and shall be installed on-site under the supervision of Putnam Valley CSD's Environmental Consultant. The contractor shall utilize Applicable Variance-A-2 (AV-A-2) at the locations with negative unit exhaust greater than 25-foot in length.

15. Hand power tools used to drill, cut into, or otherwise disturb ACM shall be manufacture equipped with HEPA-filtered local exhaust ventilation.

16. Scaffolds shall be provided for workers engaged in work that cannot safely be performed from the ground or other solid work area surface.

17. Work Area Precleaning Procedures: After establishing the decontamination enclosure system, prepare and pre-clean the work area as specified below and as indicated by the drawing notes:

    a. Movable and loose items not removed by the facility from work areas shall be cleaned using HEPA vacuum equipment and/or wet cleaning methods as appropriate and shall be removed from the work area and stored at the Owner's direction.

    b. Movable and loose items contaminated with asbestos shall be wrapped or placed in labeled ACM bags. Sealed ACM bags shall be removed from the work areas and properly discarded as asbestos-contaminated waste.

    c. Fixed objects within the work area shall be pre-cleaned using HEPA vacuum equipment and/or wet cleaning methods as appropriate. Joints of covers or casings shall be sealed with tape and fixed objects enclosed with a minimum of two layers of 6-mil plastic sheeting sealed airtight with tape. Disassembly of these fixed objects is not required unless otherwise noted. Fixed objects shall include, but not be limited to, light fixtures, junction boxes, hangers and black carrying channels.

    d. Prior to being plasticized, the work areas shall be cleaned using HEPA vacuum equipment and/or wet cleaning methods as appropriate. Methods that raise dust, such as dry sweeping or vacuuming with equipment not equipped with HEPA filters, shall not be used.

18. Plasticize the area after pre-cleaning, using the following procedure:

    a. Cover floor with one layer of 6-mil plastic sheeting, turning layer a minimum of 12 inches up wall, and seal layer to wall.

b. Cover walls with one layer of 6-mil plastic sheet, lapping wall layer a minimum of 12 inches, and seal layer to floor layer.
c. Cover ceiling with one layer of 6-mil plastic sheet, lapping wall layer a minimum of 12 inches, and seal layer to wall layer
c. Repeat procedure for second layer. All joints in plastic sheets shall be glued and taped in such a manner as to prohibit air passage. All seams within a layer shall be separated by a distance of at least six (6) feet and sealed airtight with duct tape. All seams between layers shall be staggered at least two (2) feet.

19. Areas immediately adjacent to removal areas, such as corridors or hallways which are not in work areas but are necessary routes to and from work areas, shall be protected with two layers of 6-mil plastic sheet on floors and two layers of 6-mil plastic sheet on walls and ceilings.

3.4 PRE-REMOVAL INSPECTIONS:

A. Prior to removal of any ACM the Contractor shall notify the Putnam Valley CSD's Environmental Consultant and request a pre-removal inspection. Posting of warning signs, plasticizing of work area, building of decontamination enclosure systems, and all other preparatory steps have been taken prior to notification of Putnam Valley CSD's Environmental Consultant. The Contractor shall not begin asbestos removal until the Putnam Valley CSD's Environmental Consultant approves the work area preparations.

3.5 MAINTENANCE OF CONTAINED WORK AREA AND DECONTAMINATION ENCLOSURE SYSTEMS:

A. Repair damaged barriers and remedy any defects immediately upon their discovery. Visually inspect barriers at the beginning and end of each work period.

B. Visually inspect non-Work Areas and the decontamination enclosure system for water leakage. Check the floor below, ceiling and walls, and view beneath/or around the decontamination enclosure system, for signs of leakage. Perform the visual inspection a minimum of twice each 8-hour work shift.

C. Ensure that both hot and cold water exist in sufficient supply for the decontamination enclosure system.

3.6 REMOVAL OF ASBESTOS-CONTAINING MATERIAL: The Asbestos Contractor shall be responsible for the proper removal of ACM from the Work Area using standard abatement industry removal techniques. The Environmental Consultant or their representative shall observe the Work. Approval of the Asbestos Contractor’s abatement techniques is required by the Environmental Consultant to allow for the continuance of work.

1. Removal of Interior Friable Asbestos-Containing Materials (Tent Enclosure):

1. All persons shall don appropriate personal protective equipment before entering the tent in compliance with current OSHA regulations. Authorized visitors entering the tent shall also don NIOSH-approved respiratory protection.

2. A HEPA-vacuum or other negative pressure HEPA-filtered ventilation equipment shall be used to continuously exhaust 12 NYCRR 56 Subpart 11, Page 100 the tent in accordance with Sections 56-7.8(a) and 56-7.11(f)(1).

3. All material to be removed shall be saturated with amended water as specified in this Part.

4. Asbestos material shall be removed and sealed in plastic bags prior to removal from tent. Edges of asbestos material remaining shall be encapsulated or sealed with wettable cloth.

5. The substrate from which asbestos was removed and any exposed edges shall be sealed with encapsulant.

2. Thermal System Insulation and Surfacing Materials Removal: The Contractor shall use work methods and equipment which will keep the fiber count during abatement operations inside the work area to less than 0.1 fibers/cc of air when tested by NIOSH Method 7400.

1. Removal of asbestos-containing material using full containment procedures (large projects).

   a. Prepare the area as described in Subparagraph "Gross Removal Area Preparations" of this Section. Remove aluminum lagging from piping and equipment while providing a continual mist of amended water or removal encapsulant to the insulation, leaving it intact. Spray asbestos materials with a fine mist of amended water or removal encapsulant, saturating materials to substrate. Spray the asbestos material repeatedly during work process to maintain a wet condition and to minimize asbestos fiber dispersion.

   b. Remove the saturated asbestos material in small sections. As it is removed, pack the material in sealable plastic bags which shall be placed in labeled drums for transport. Remove insulation materials carefully from equipment; do not permit them to fall to the floor.

   c. After completion of all stripping work, surfaces from which ACM have been removed shall be wet brushed and sponged or cleaned by some equivalent method to remove all visible residue. (Do not use wire brushes.)

d. After the ACM removal and bagging, the bagged waste shall be HEPA-vacuumed then wet cleaned and transferred into the shower room for double bagging. The goose-neck and double-bagged waste shall be transferred outside the clean room for its final transfer for storage in an enclosed waste container.

e. All accumulations of asbestos waste material shall be containerized and removed. Non-metal shovels and HEPA-vacuums may be used to pick up or move waste except in the vicinity of isolation barriers which might be breached. The areas around isolation barriers shall be cleaned utilizing rubber or plastic dustpans, squeegees or shovels. HEPA-vacuums shall be used to clean all surfaces after gross cleanup.

f. First Cleaning, Lockdown Encapsulation and Top Layer Removal. All surfaces of the regulated abatement work area shall be first wet-cleaned using rags, mops and sponges. For collecting excess liquid and wet debris, a wet purpose HEPA filtered shop vacuum may be used and shall be emptied prior to removal from the regulated abatement work area. When the first cleaning has been completed, a thin coat of a lockdown encapsulant agent shall be applied to all surfaces within the regulated abatement work area which were not the subject of removal or abatement. In no event shall lockdown encapsulant be applied to any surface which was the subject of removal or other abatement response activity, prior to obtaining satisfactory clearance air results for the regulated abatement work area. Once the lockdown encapsulant has been applied, and the appropriate waiting/settling or drying time requirements of ICR 56 have been met, the cleaned, exposed top barrier layer of plastic sheeting shall then be removed from walls, ceilings and floors. Windows, doors, HVAC system vents and other openings shall remain sealed. Decontamination system enclosures shall remain in place and shall continue to be utilized.

g. Second Cleaning and Bottom Layer Removal. After the first cleaning, at least twelve (12) hours shall be allowed for asbestos to settle. After the top layer of plastic sheeting has been removed, all objects and surfaces in the regulated abatement work area shall be HEPA-vacuumed and then wet-cleaned. After the second cleaning and waiting/settling or drying time requirements of this Subpart, then the remaining bottom layer of plastic sheeting on walls, ceilings and floors shall be removed. All windows, doors, HVAC system vents and all other openings shall remain sealed.

h. Third or Final Cleaning and Visual Inspection. After the bottom layer of plastic sheeting has been removed, all objects and surfaces in the regulated abatement work area shall be HEPA-vacuumed and then

wet-cleaned. After the final cleaning is complete, clearance air sampling shall not commence until the appropriate waiting/settling or drying time requirements of ICR 56 have elapsed and a visual inspection has been completed by the project monitor to confirm that the scope of abatement work for the asbestos project is complete, and no visible asbestos debris/residue, pools of liquid, or condensation remain. The asbestos abatement contractor supervisor must complete a satisfactory visual inspection for completeness of abatement and cleaning, prior to commencement of the project monitor visual inspection.

4. Additional Removal Requirements:

A. Putnam Valley CSD's Environmental Consultant shall issue a stop work order if visible emissions are detected outside the work areas and/or should the fiber count in adjacent non-work areas exceed 0.01 f/cc of air or the background count (use the greater of these two values as the reference). Work shall not resume until the condition(s) causing the increase are corrected, surfaces outside of the work area are decontaminated using HEPA vacuums or wet cleaning techniques and the Contractor receives written notice from Putnam Valley CSD's Environmental Consultant.

3.7 ACM WASTE PACKAGING AND LOAD OUT PROCEDURES:

A. Packaging of ACM shall conform to OSHA Standard 29 CFR 1926.1101, DOT 49 CFR 171,172, and 173, EPA Standard 40 CFR Part 61, New York City Department of Sanitation (in relation to transport, storage, and disposal of ACM) and the requirement as heretofore specified. ACM waste shall be placed in a wet condition into properly labeled disposal bags or sealed in two layers of 6-mil plastic sheeting wrapped airtight and properly labeled. Materials to be transported through a non-Work Area building space shall be placed in hard wall shipping containers for handling. Specific requirements for decontamination of waste containers, and load out through the decontamination enclosure systems is outlined below:

B. Frequency of Waste Removal: Properly packaged and labeled asbestos waste shall be removed from the site on a daily basis. Under no circumstance shall asbestos waste be stored on site. The waste hauler and landfill shall be as indicated on the notifications to regulatory agencies.

C. Waste Load-out Through Waste Decontamination Unit: Place asbestos waste in disposal bags. Large items not able to fit into disposal bags shall be wrapped in one layer of 6-mil thick plastic sheeting. Clean outer covering of asbestos waste package by wet cleaning and/or HEPA vacuuming in a designated part of the Work Area. Move wrapped asbestos waste to the washroom, wet clean each bag or object and place it inside a second disposal bag, or a second layer of 6-mil plastic sheeting, as the item’s physical characteristics demand. Air volume shall be minimized, and the bags or sheeting shall be sealed airtight with tape.

D. The clean containerized items shall be moved directly to the Waste Hauler's truck pending load-out to storage or disposal facilities.

E. Workers who have entered the decontamination enclosure system from the uncontaminated non-work area shall perform load-out of containers from the decontamination enclosure holding area. Dress workers that handle asbestos waste to storage or disposal facilities in clean overalls of a color different than from that of coveralls used in the Work Area. Ensure that workers do not enter from uncontaminated areas into the equipment washroom or the Work Area. Ensure that contaminated workers do not exit the Work Area through the equipment decontamination enclosure system.

F. Thoroughly clean the decontamination enclosure system immediately upon completion of the waste load-out activities, and at the completion of each work shift.

G. Labeled ACM waste containers or bags shall not be used for non-ACM debris or trash. Any materials placed in labeled containers or bags, whether turned inside out or not, shall be handled and disposed of as ACM waste.

3.8 CLEANUP AND CLEARANCE TESTING OF WORK AREAS: The following clean-up procedures shall be performed during abatement.

A. Visible accumulations of loose asbestos-containing waste material shall be cleaned up using rubber or plastic dustpans and rubber squeegees or HEPA filtered vacuums. Metal shovels may also be used, except in the vicinity of plastic sheeting, critical barriers and isolation barriers, which could be perforated by these tools. To pick up excess water and gross wet debris, a wet-dry HEPA filtered shop vacuum dedicated to asbestos abatement may be used. This cleaning shall be done whenever there is sufficient asbestos waste material to fill a single leak-tight bag/container, or this cleaning shall be done at the end of each work shift whichever shall occur first. Visible debris shall be maintained adequately wet.

B. Work shall stop whenever excessive water accumulation or flooding is present in the area and shall not resume until the water is collected and disposed of properly.

3.9 DISPOSAL AND TRANSPORTATION OF ASBESTOS-CONTAMINATED WASTE:

A. Storage of Containerized ACM: As the work progresses, remove sealed and labeled bags of ACM from the Work Area and place in a lockable trailer, dumpster, or other container approved for storage or transport of asbestos waste. The waste container shall be lined with two layers of 6-mil fire retardant plastic on all sides. Asbestos-containing waste shall remain under the positive control of the Asbestos Contractor and must never be left unattended in an area or on a vehicle where unauthorized persons could gain access. Containerized ACM shall

be removed from the site on a daily basis. Unless specifically approved in writing by the Owner, ACM shall not be permitted to be stored on site during non-working hours.

B. Sealed and labeled bags or waste wrapped in two layers of plastic sheeting sealed airtight shall be used to transport asbestos-contaminated waste to the landfill. Procedures for hauling and disposal shall comply with 40 CFR, Part 61, 49 CFR, Part 171 and 172, and other applicable state, regional, and local government regulations. Procedures for removal from the Work Area and disposal of waste are outlined below:

C. A properly completed and original "Waste Shipment Record" form shall accompany asbestos waste, which is transported to a disposal site. This form shall be signed and dated by each party who has control over the asbestos waste, and a copy retained by each party as responsibility for the waste is transferred to the next party. All original manifest forms and waste receipts shall be provided to the Architect or Putnam Valley SCD representative. The Environmental Consultant shall be provided with copies of all waste manifests.

D. Trucks hauling asbestos waste shall be totally enclosed to prevent loss or damage to waste container en-route to approved landfill. The interior of the vehicles shall be lined with two layers of 6-mil plastic.

E. Mark with a visible warning sign during the loading and unloading of asbestos-containing waste all vehicles used to transport the waste material. Danger sign legend, text size, style and arrangement shall conform to the requirements of EPA Standard 40 CFR Part 61.149 (d) (I).

F. Only sealed plastic bags or completely sealed items shall be deposited in landfill. Damaged, broken sealed windows or leaking plastic bags shall be resealed prior to being deposited in the landfill. Workers shall place asbestos waste in the landfill. Throwing or dumping of containers shall not be allowed. Workers unloading and handling the sealed bags/drums at the disposal site shall wear appropriate personnel protective equipment including respirators and protective clothing.

G. After the vehicle is unloaded at the landfill, the plastic sheeting that was taped to the floor, sides and top of the truck shall be carefully removed and placed in properly labeled bags for disposal with the rest of the waste.

END OF SECTION

LIST OF SUBMITTALS

SUBMITTAL		DATE SUBMITTED	DATE APPROVED
Pre-Project Submittal:			
1.	Insurance	_____	_____
2.	All required bonds	_____	_____
3.	List of Subcontractors	_____	_____
4.	Health and Safety Plan	_____	_____
5.	Proof that all required permits and variances have been obtained	_____	_____
6.	Documentation of Required Qualifications of Workers	_____	_____
7.	Proof of a respiratory protection program.	_____	_____
8.	Proof of historic airborne fiber data.	_____	_____
9.	Proof that a landfill site has been located.	_____	_____
10.	SDS of chemicals to be used on this project.	_____	_____
11.	Asbestos Removal and Disposal Work Plan	_____	_____
During Work Submittal:			
1.	Schedule of Work Changes	_____	_____
2.	Notarized copy of weekly payroll showing a prevailing wage rate has been paid.	_____	_____
3.	A "Request For Services" form.	_____	_____

4. Results of all air monitoring performed by the Contractor (OSHA) _____ _____

5. A certified, signed, and completed copy of each " Waste Shipment Record" form (Section 1.07)_____ _____

6. A copy of the bound log book _____ _____

Post Project Submittal:

1. A notarized "Release of Liens" _____ _____

2. Proof of payment of prevailing wage rate _____ _____

3. Notarized copies of a daily log. _____ _____

4. Compilation in chronological order of all air monitoring records pertaining to this project. _____ _____

5. Compilation of all completed and signed Waste Shipment Record forms. _____ _____

6. Copies of notifications to applicable agencies._____ _____

7. Paid invoice verifications for sub-contractor (for Time and Material job), service contract agreement, insurance certificates, copies of the workers licenses, and other required submittals. _____ _____

****

SECTION 2.0:
ASBESTOS REMOVAL DRAWING
(H-001.00 - H-002.00)

ASBESTOS ABATEMENT GENERAL NOTES

GENERAL NOTES:

1. ALL ASBESTOS REMOVAL SHALL BE PERFORMED IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL LAWS, GUIDELINES, REGULATIONS, ORDERS AND DIRECTIVES, INCLUDING WITHOUT LIMITATIONS, THE U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA), AND U.S. DEPARTMENT OF LABOR, OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA), NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH (NIOSH), AND NEW YOK STATE DEPARTMENT OF LABOR (NYSDOL).

2. CONTRACTOR SHALL FURNISH ALL LABOR, MATERIAL, EQUIPMENT, SERVICES, ETC., NECESSARY TO PERFORM THE WORK REQUIRED FOR ASBESTOS ABATEMENT IN ACCORDANCE WITH CONTRACT DOCUMENTS AND ALL APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS.

3. CONTRACTOR SHALL DEVELOP AND IMPLEMENT A WRITTEN STANDARD PROCEDURE FOR ABATEMENT WORK TO ENSURE MAXIMUM PROTECTION AND SAFEGUARD FROM ASBESTOS EXPOSURE OF THE WORKERS, VISITORS, EMPLOYEES, GENERAL PUBLIC, AND THE ENVIRONMENT.

4. CONTRACTOR SHALL PROVIDE SIGNS, LABELS, WARNINGS, AND POST INSTRUCTIONS THAT ARE NECESSARY TO PROTECT, INFORM AND WARN PEOPLE OF THE HAZARD FROM ASBESTOS EXPOSURE. POST IN A PROMINENT AND CONVENIENT PLACE FOR THE WORKERS A COPY OF THE LATEST APPLICABLE REGULATIONS FROM OSHA, EPA, NIOSH AND NYSDOL.

5. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE SPECIFICATION.

6. THE CONTRACTOR SHALL RELOCATE ALL FURNITURE, LOCKERS, DESKS AND OTHER MISC. ITEMS IN AND OUT OF THE WORK AREAS TO ACCOMODATE ASBESTOS ACTIVITIES.

7. THE CONTRACTOR SHALL PROVIDE ALL ELECTRICAL, WATER, AND WASTE CONNECTIONS, TIE-INS, EXTENSIONS, CONSTRUCTION MATERIALS, SUPPLIES, ETC. AS REQUIRED TO FACILITATE ASBESTOS REMOVAL.

8. CONTRACTOR SHALL PROVIDE TEMPORARY ELECTRIC AND LIGHT THROUGHOUT THE WORK AREA(S) AS REQUIRED IN ACCORDANCE WITH ALL APPLICABLE REGULATIONS AND CODES.

9. THE CONTRACTOR SHALL ESTABLISH CRITICAL BARRIERS OVER ALL OPENINGS LOCATED INSIDE THE PARTICULAR WORK AREA AS WELL AS INSIDE THE SCHOOL.

10. CONTRACTOR SHALL PROPERLY PROTECT ALL CONTROLS, TUBING, ELECTRICAL PANELS, EQUIPMENT, ETC. WITHIN THE WORK AREA.

11. THE CONTRACTOR SHALL BE REQUIRED TO ISSUE NON-WHITE WORK COVERALLS FOR ALL ABATEMENT WORKERS.

12. CONTRACTOR SHALL EXERCISE EXTREME CARE AND CAUTION DURING ANY AND ALL DEMOLITION AND ABATEMENT OPERATIONS. CONTRACTOR SHALL CONDUCT REMOVAL OF ALL MATERIALS FROM THE SITE WITH MINIMUM DISTURBANCE; PROVIDE PROPER PROTECTION AND REGULAR MAINTENANCE OF ALL BUILDING PREMISES DIRECTLY OR INDIRECTLY ASSOCIATED WITH ABATEMENT OPERATIONS.

13. CONTRACTOR SHALL LOCATE AND SEAL ALL PENETRATIONS THROUGH WALLS BETWEEN THE WORK AREA AND ADJACENT AREAS, INCLUDING, BUT NOT LIMITED TO PIPE, DUCT, CONDUIT, CHASES, AND OPENINGS IN FIRE WALLS OR DECKS BETWEEN FLOORS AS REQUIRED BY THE FIELD CONDITION.

14. THE CONTRACTOR SHALL USE A WATER SPRAYER TO WET ASBESTOS-CONTAINING MATERIALS INSIDE THE WORK AREA.

15. CONTRACTOR SHALL CONSTRUCT A PERSONAL/WASTE DECONTAMINATION ENCLOSURE SYSTEM (P./W.D.E.S.) AS INDICATED. IT SHALL BE OF SUFFICIENT SIZE TO ACCOMMODATE STORAGE OF MATERIALS, EQUIPMENT, ETC. .

16. SHOWER AND WASTEWATER MUST BE FILTERED AND DISPOSED OF IN THE BUILDING'S SANITARY SYSTEM. REFER TO CONTRACT SPECIFICATIONS.

17. IF WATER IS NOT AVAILABLE, THE CONTRACTOR SHALL PROVIDE A 55-GALLON WATER TANK FOR THE DECONTAMINATION UNIT.

18. THE CONTRACTOR SHALL UTILIZE GFCI PANEL CONNECTIONS AT THE SOURCE OUTLET WHEN ACCESSING TEMPORARY POWER.

19. CONTRACTOR SHALL SUPPLY ALL NECESSARY CONNECTIONS, FASTENERS, FLEXIBLE DUCTS, MANIFOLDS, SUPPORTS, ETC. ANY AND ALL INSTALLATIONS SHALL COMPLY WITH CONTRACT DOCUMENTS AND MANUFACTURER'S REQUIREMENTS.

20. THE CONTRACTOR SHALL VERIFY THE LOCATION OF THE TEMPORARY WATER AND POWER SOURCES PRIOR TO ABATEMENT ACTIVITIES.

21. DEBRIS RESULTING FROM ANY DEMOLITION AND/OR ASBESTOS ABATEMENT ACTIVITIES SHALL BE DISPOSED OF AS ASBESTOS CONTAMINATED WASTE.

22. NO WASTE SHALL BE STORED ON SITE OR INSIDE THE DECONTAMINATION UNIT BETWEEN SHIFTS. WASTE SHALL BE DOUBLE BAGGED BEFORE PROCEEDING TO THE CONTAINER AND/OR DECON. BAGS WILL BE MOVED FROM WORK AREAS TO THE WASTE DECON AND SUBSEQUENTLY TO THE CONTAINER IN COVERED CARTS. BAGS WILL BE CARRIED BY HAND ONLY WHEN NECESSARY. ALL WASTE SHALL BE CONTAINERIZED AT THE END OF EACH WORK SHIFT BEFORE RELINQUISHING TO WASTE HAULER.

23. CONTRACTOR IS RESPONSIBLE TO COORDINATE AND CONFIRM THE EXACT SCOPE OF WORK FOR EACH PHASE OF ABATEMENT WITH THE GENERAL CONTRACTOR AND OTHER TRADES.

24. CONTRACTOR SHALL PROVIDE ALL EQUIPMENT, TOOLS, TRANSPORTATION AND ANY OTHER EQUIPMENT REQUIRED AND/OR NECESSARY TO COMPLETE ALL WORK DESCRIBED IN THE CONTRACT DOCUMENTS.

25. THE LOCATION OF THE PERSONAL/WASTE DECONTAMINATION UNITS, AIRLOCKS, ETC. IS SHOWN FOR REFERENCE PURPOSES. EXACT LOCATIONS SHALL BE DETERMINED IN THE FIELD.

26. ASBESTOS ABATEMENT INDICATED IN THE DRAWING #H002.00 WILL BE DONE IN ACCORDANCE WITH 12 NYCRR PART 56 AND SHALL BE PERFORMED BY A NYS STATE DEPARTMENT OF LABOR LICENSED ASBESTOS CONTRACTOR.

SED ADDENDUM # 1 02/26/21

PRE-ABATEMENT WORK NOTES

1. THE HAZARDOUS MATERIALS, CONFIGURATIONS, AND LOCATIONS SHOWN IN THESE DRAWINGS ARE BASED ON THE HAZARDOUS MATERIALS TESTING REPORT COMPLETED BY LOUIS BERGER A WSP COMPANY, DATED NOVEMBER 19, 2019.

2. THE CONTRACTOR SHALL DETERMINE EXACT FINAL LOCATIONS OF PERSONAL AND WASTE DECONTAMINATION ENCLOSURES, PICK UP AREA FOR REFUSE AND ASBESTOS DEBRIS. THESE LOCATIONS SHALL BE REVIEWED AND PROPERLY APPROVED BY THE DISTRICT PRIOR TO COMMENCEMENT OF WORK. THE CONTRACTOR SHALL ESTABLISH, LABEL AND AND MAINTAIN PROPER EXITS AND WAYS OF DEPARTURE WITHIN EACH WORK AREA FOR NORMAL AND EMERGENCY USE BY WORKERS DURING ALL ABATEMENT.

POST-ABATEMENT WORK NOTES

1. THE CONTRACTOR SHALL, UPON COMPLETION OF REMOVALS, PROVIDE WRITTEN DOCUMENTATION THAT THE PROJECT WORK AREAS ARE COMPLETELY FREE OF ALL HAZARDOUS MATERIALS.

2. THE CONTRACTOR SHALL PROVIDE RECORDS OF ALL HAZARDOUS MATERIALS REMOVED FROM THE SITE.

SED ADDENDUM # 1 02/26/21

DRAWING	DRAWING NAME
H-001.00	ASBESTOS ABATEMENT LOCATIONS - GENERAL NOTES
H-002.00	ASBESTOS ABATEMENT LOCATIONS - 1ST AND 2ND FLOOR PLAN

PROJECT DESIGNER: VINCENT E. RICEVUTO NYS 02-06290

PVMS TOILET ROOM ALTERATIONS

CAPITAL PROJECTS PHASE 2

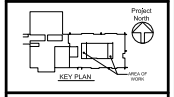
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NY SED PROJECT CONTROL NO.
48-05-03-04-0-004-016

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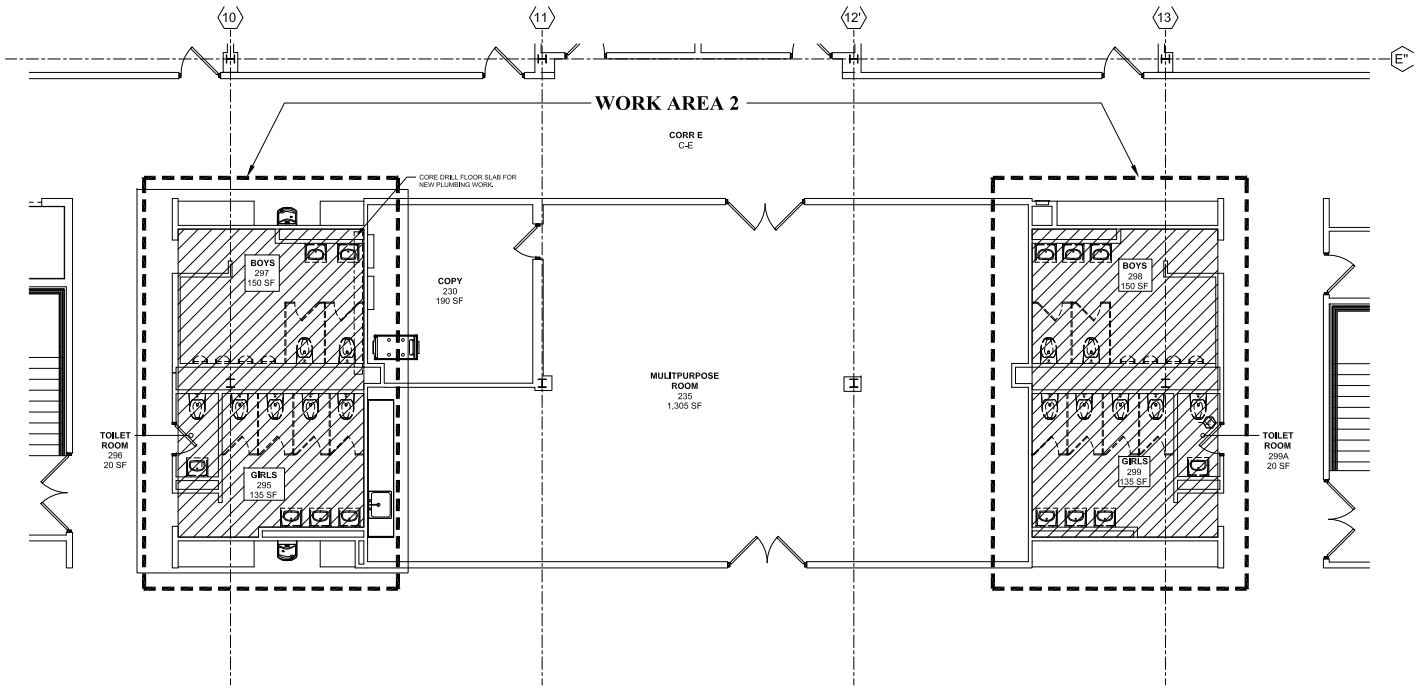
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1	02/01/21	SED SUBMISSION

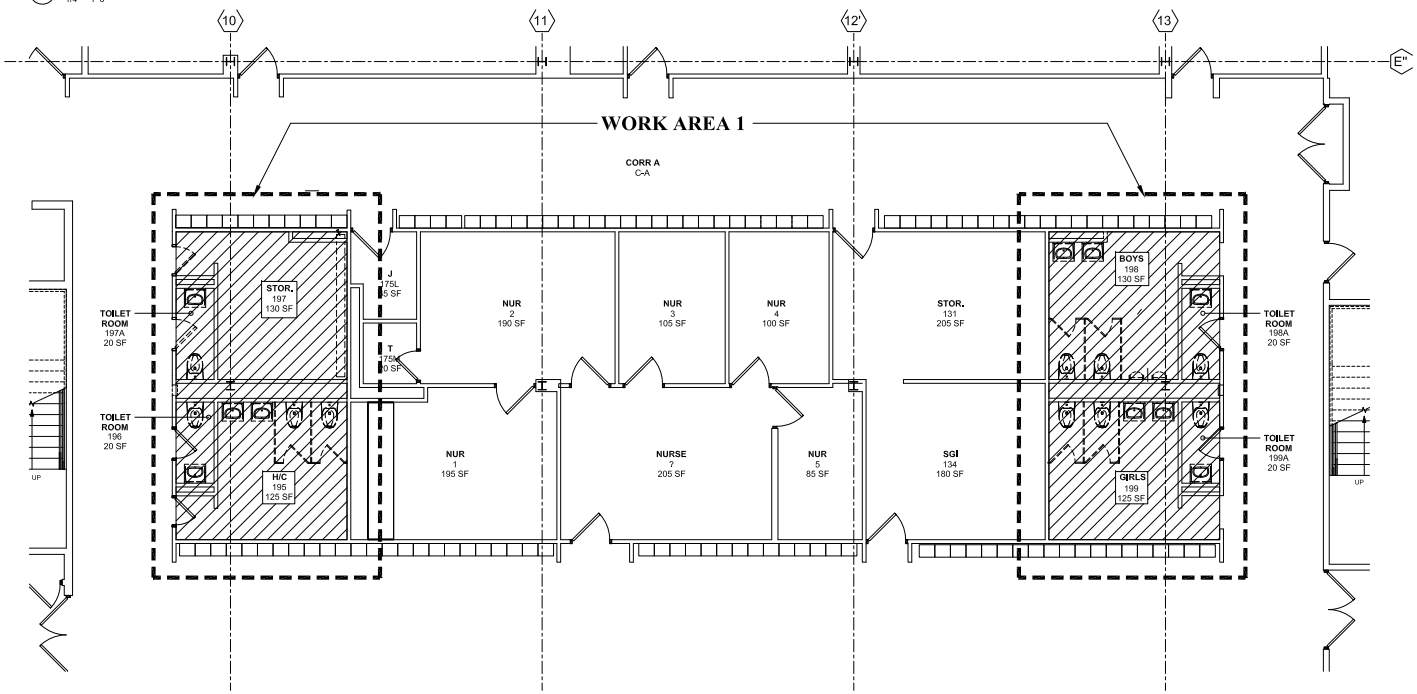
Sheet Title
ASBESTOS ABATEMENT GENERAL NOTES

Job No.	Date
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2 2ND FLOOR PLAN
1/4" = 1'-0"

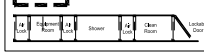


1 1ST FLOOR PLAN
1/4" = 1'-0"

LEGEND

LOCATION OF ASBESTOS-CONTAINING CERAMIC WALL TILE BACKING AND CONCEALED PIPE INSULATION/ELBOWS

WORK AREA BOUNDARY



TYPICAL DECONTAMINATION UNIT

WORK AREA	LOCATION	ASBESTOS-CONTAINING MATERIAL	APPROXIMATE QUANTITY	REMOVAL PROCEDURES
1	1ST FLOOR, N/C TOILET 195, TOILET ROOM 196, STORAGE 197, TOILET ROOM 198, TOILET ROOM 198A GIRLS TOILET 199 & TOILET ROOM 199A	CERAMIC WALLTILE BACKING	1,536 SQUARE FEET	NYS DOL 12 NYCRR FULL CONTAINMENT PROCEDURE
		CONCEALED PIPE INSULATION/ELBOWS (RISERS & PLENUMS)	230 LINEAR FEET	
2	2ND FLOOR GIRLS TOILET 295, TOILET ROOM 296, BOYS TOILET 297, BOYS TOILET 298, GIRLS TOILET 299 & TOILET ROOM 299A	CERAMIC WALLTILE BACKING	1,664 SQUARE FEET	
		CONCEALED PIPE INSULATION/ELBOWS (RISERS & PLENUMS)	275 LINEAR FEET	

PROJECT DESIGNER: VINCENT E. RICEVUTO NYS 02-06290

PVMS TOILET ROOM ALTERATIONS

CAPITAL PROJECTS PHASE 2

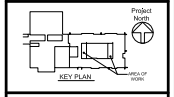
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500 Summit Lake Drive, Suite 450
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NY SED PROJECT CONTROL NO.
48-05-03-04-0-004-016

SED SUBMISSION



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No.	Date	Issue
2	02/26/21	SED ADDENDUM # 1
1	02/01/21	SED SUBMISSION

Sheet Title
ASBESTOS ABATEMENT 1ST AND 2ND FLOOR PLAN

Job No.	Date
3140300.00	02/25/2021
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Sheet Number
H002.00

FINAL REPORT OF ENVIRONMENTAL SERVICES

Performed at:

PUTNAM VALLEY MIDDLE SCHOOL
142 PEEKSKILL HOLLOW ROAD
PUTNAM VALLEY, NY 10579

Prepared for:

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. 2043465.18
Final Submission Date: October 14, 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 14, 2019

Mr. Dave Spittal
Director of Operations, Technology & Transportation
Chief Emergency Office
Putnam Valley Central School District
146 Peekskill Hollow Road
Putnam Valley, NY10579

Subject: Final Report of Environmental Services
Putnam Valley Middle School
142 Peekskill Hollow Road
Putnam Valley, NY 10579

Dear Mr. Spittal:

Louis Berger (LB) A WSP company has completed a material inspection at Putnam Valley Middle School located at 142 Peekskill Hollow Road, Putnam Valley NY 10579. The inspection included visual observation, material sampling, and laboratory sample analysis of suspect Asbestos-Containing Materials (ACM) and Polychlorinated Biphenyls (PCBs) based on the drawings submitted by KG&D Architects PC for the proposed 2018 Capital Projects – Volume III at the Putnam Valley Middle 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

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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

Appendix H: File Search

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 Putnam Valley Middle School located at 142 Peekskill Hollow Road, Putnam Valley NY 10579. The intent of this inspection was to screen for Asbestos-Containing Materials (ACM) and Polychlorinated Biphenyls (PCBs) based on the drawings submitted by KG&D Architects PC for the proposed 2018 Capital Projects – Volume III at the Putnam Valley Middle School.

Marvin Luccioni & Luis Nevarez of LB performed the inspection on September 25-26, 2019. Mr. Luccioni (Cert# 03-11021) is a New York State Department of Labor (NYSDOL) Asbestos Inspectors. Mr. Nevarez (Cert# 12-12740) is a New York State Department of Labor (NYSDOL) Asbestos Inspectors.

The results of the visual inspection and bulk sample analysis determined that the following suspect ACM and PCB materials may be impacted by the proposed 2018 Capital Project – Volume III.

A. ASBESTOS-CONTAINING MATERIAL

Analytical results of the bulk samples collected on 09/25-26/19 by Berger indicate that the following materials **contain asbestos** (greater than 1-percent).

- **Perimeter/Curb Flashing & Tar**
- **Curb Flashing Tar Paper**
- **Curb Flashing to Duct Work**
- **Vibration Cloth to Duct**
- **Duct Work Tar Insulation**
- **Tar on Shims**
- **Sealant to HVAC Unit**
- **Exterior Stone Walkway Caulking, Gray**
- **Interior Door Frame Caulking, Beige**
- **Ceramic Wall Tile Backing**

The following materials were **assumed to contain asbestos**.

- **Concealed Pipe Insulation/Elbows**
- **Concealed Vapor Barrier under Flooring**
- **Concealed Waterproofing Tar between Building Envelope**
- **Concealed Window Lintel Waterproofing Tar**
- **Concealed Door Lintel Waterproofing Tar**

As per 2019 AHERA the following materials **contain or are assumed to be asbestos**.

- **Joint Compound, Beige & Sheetrock**

- **4" Black Cove Base & Mastic**
- **Fire Door Insulation with or without Windows, Brown**
- **Duct Sealant, White**
- **12"x12" White with Brown Marble Floor Tiles & Mastic**
- **4" Gray Cove Base & Mastic**
- **12"x12" White with Brown Speckle Floor Tiles & Mastic**
- **4" Blue Cove Base & Mastic**
- **4" Beige Cove Base & Mastic**
- **Sink Undercoating, White/Black/Pink**
- **Wall Partition Insulation**
- **12"x12" Brown Marble Floor Tiles & Mastic**
- **Metal Fire Door Insulation with Window, White**
- **12"x12" Beige Marble Floor Tiles & Mastic**
- **12"x12" White with Gray Speckle Floor Tiles & Mastic**
- **12"x12" Blue Marble Floor Tiles & Mastic**
- **Vapor Barrier under Wood Floor**
- **Freezer Gasket Material & Insulation**
- **Electrical Panel & Wire Insulation**
- **2'x4' Tectum Ceiling Tiles**
- **Gypsum Ceiling Board & Joint Compound, White**
- **12"x12" Beige with Black Streaks Floor Tiles & Mastic**
- **Black Laboratory Countertops**
- **Light Brown Particle Boards**
- **12"x12" Beige Speckle Floor Tiles & Mastic**
- **12"x12" Tan/Brown Floor Tiles & Mastic**
- **Vibration Cloth**
- **Sound Board Mastic**
- **Stone Floor Backing**
- **Interior Door Frame Caulking to Glass Doors**
- **Ceiling Plaster, White & Brown Coat**

Analytical results of the bulk samples collected on 09/25-26/19 by Berger indicate that the following materials **did not contain asbestos** (less than 1-percent);

- Vapor Barrier on Concrete, Black (Bottom Layer)
- Felt Paper to Foam Insulation (2nd Layer)
- Spray on Membrane to Foam Insulation (Top)
- Screed Deck (Bottom)
- Vapor Barrier on Screed Deck
- Coping Stone Mortar under Metal Cap
- Foam Insulation under HVAC Unit
- Sealant on Fiberglass Pipe
- Sealant to Duct Work Seams

- Sealant to Screws
- Flue to Metal Roof
- Exterior Brick Mortar
- Exterior Door Frame Caulking, Brown (Type 4)
- Exterior Door Frame Caulking, Beige (Type 2)
- Exterior Door Frame Caulking, Gray (Type 3)
- Exterior Window Frame Caulking, Gray (Type 1)
- Exterior Window Frame Caulking, Gray (Type 2)
- Exterior Window Frame Caulking, Gray (Type 3)
- Exterior Expansion Joint Caulking, White
- Louver Caulking, White
- Mastic associated with 4" Black Cove Base, Yellow
- Mastic associated with 4" Black Cove Base, Tan
- Mastic associated with 4" Black Cove Base, Yellow
- 12"x12" Beige Floor Tiles & Mastic, Yellow
- 12"x12" Light Blue Floor Tiles & mastic, Yellow
- 12"x12" White/Blue Floor Tiles & Mastic, Yellow
- 12"x12" White with Brown Spot/Tan/Blue Floor Tiles & Mastic, Yellow
- 12"x12" White/Blue Floor Tiles & Mastic, Black
- Epoxy to Concrete Floor 2'x2' Fissure Ceiling Tiles
- Ceramic Wall Tile Grout
- Ceramic Floor Tile Mortar
- Stone Floor Mortar
- Mudded Elbows associated with Fiberglass Pipe Insulation

As per 2019 AHERA the following materials **do not contain asbestos**.

- 12"x12" Beige with Brown/Black Strips Floor Tiles & Mastic
- Interior Cinderblock Mortar, Gray
- Gypsum Wall Board, White
- 2'x4' Serpentine Ceiling Tiles, White
- Soft Concrete Fill Material
- Window Caulking, Brown
- Wall Paper, White
- Particle Board, Brown
- Caulking to Fire Door without Window, Brown
- 2'x4' Textured Ceiling Tiles
- Caulking to White Sink Basin, White
- 2'x4' Light Textured Ceiling Tiles
- Wall Block Mortar
- 2'x2' Serpentine Ceiling Tiles, White
- 1'x1' Textured Ceiling Tiles

- Cloth Duct Insulation, Black
- Linoleum Flooring, Brown
- Mudded Joint Pipe to Fiberglass Pipe Insulation
- 2'x4' Heavy Textured Ceiling Tiles
- 2'x2' Solid Ceiling Tiles
- Flange Gaskets
- Joint Compound, White & Gypsum Wall Board, White
- Sealant to Fiberglass Pipes, White
- Paper Insulation to Outer Walls, Black/Brown
- 12"x12" Brown Floor Tile Mastic, Black
- 12"x12" Tan Marble Floor Tile Mastic
- Caulking to Elevator Frame
- Thin Wire Insulation
- Thick Wire Insulation

B. PCB-CONTAINING MATERIAL

Analytical results of the bulk samples collected indicate that the following materials **contain PCB** (greater than 50 PPM).

- **Exterior Expansion Joint Caulking, Beige**
- **Exterior Window Frame Caulking, Gray (Type 1)**
- **Exterior Window Frame Caulking, Gray (Type 2)**
- **Exterior Door Frame Caulking, Gray (Type 3)**

Analytical results of the bulk samples collected indicate that the following materials **did not contain PCB** (less than 50 PPM);

- Exterior Door Frame Caulking, Brown (Type 1)
- Exterior Door Frame Caulking, Beige (Type 2)

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 then 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), the Toxic Substances Control Act (TSCA – 15 U.S.C. 2605), New York State Department of Environmental Conservation 6NYCRR 370-376 and federal Occupational Safety and Health Administration (OSHA) 29CFR 1926 & 1910. These regulations require certain testing and reporting requirements to determine management, recycling and disposal options for PCBs.

3.0 INSPECTION SCOPE AND MATERIAL ASSESSMENT

The areas inspected for ACM and PCB materials that may be impacted by the proposed 2018 Capital Project – Volume III at Putnam Valley Middle School. Locations surveyed include:

- Interior 1st & 2nd Floors
- Court Yard
- Exterior Façades
- Roof & Mechanical Room on Roof

A. ASBESTOS-CONTAINING MATERIAL

Materials examined during the Berger inspection included:

- **Perimeter/Curb Flashing & Tar**
- **Curb Flashing Tar Paper**
- **Curb Flashing to Duct Work**
- **Vibration Cloth to Duct**
- **Duct Work Tar Insulation**
- **Tar on Shims**
- **Sealant to HVAC Unit**
- **Exterior Stone Walkway Caulking, Gray**
- **Interior Door Frame Caulking, Beige**
- **Ceramic Wall Tile Backing**

A. ASBESTOS-CONTAINING MATERIAL

Analytical results of the bulk samples collected on 09/25-26/19 by Berger indicate that the following materials **contain asbestos** (greater than 1-percent).

- **Perimeter/Curb Flashing & Tar**
- **Curb Flashing Tar Paper**
- **Curb Flashing to Duct Work**
- **Vibration Cloth to Duct**
- **Duct Work Tar Insulation**
- **Tar on Shims**
- **Sealant to HVAC Unit**
- **Exterior Stone Walkway Caulking, Gray**
- **Interior Door Frame Caulking, Beige**
- **Ceramic Wall Tile Backing**

The following materials were **assumed to contain asbestos**.

- Concealed Pipe Insulation/Elbows
- Concealed Vapor Barrier under Flooring
- Concealed Waterproofing Tar between Building Envelope
- Concealed Window Lintel Waterproofing Tar
- Concealed Door Lintel Waterproofing Tar
- Vapor Barrier on Concrete, Black (Bottom Layer)
- Felt Paper to Foam Insulation (2nd Layer)
- Spray on Membrane to Foam Insulation (Top)
- Screed Deck (Bottom)
- Vapor Barrier on Screed Deck
- Coping Stone Mortar under Metal Cap
- Foam Insulation under HVAC Unit
- Sealant on Fiberglass Pipe
- Sealant to Duct Work Seams
- Sealant to Screws
- Flue to Metal Roof
- Exterior Brick Mortar
- Exterior Door Frame Caulking, Brown (Type 4)
- Exterior Door Frame Caulking, Beige (Type 2)
- Exterior Door Frame Caulking, Gray (Type 3)
- Exterior Window Frame Caulking, Gray (Type 1)
- Exterior Window Frame Caulking, Gray (Type 2)
- Exterior Window Frame Caulking, Gray (Type 3)
- Exterior Expansion Joint Caulking, White
- Louver Caulking, White
- Mastic associated with 4” Black Cove Base, Yellow
- Mastic associated with 4” Black Cove Base, Tan
- Mastic associated with 4” Black Cove Base, Yellow
- 12”x12” Beige Floor Tiles & Mastic, Yellow
- 12”x12” Light Blue Floor Tiles & mastic, Yellow
- 12”x12” White/Blue Floor Tiles & Mastic, Yellow
- 12”x12” White with Brown Spot/Tan/Blue Floor Tiles & Mastic, Yellow
- 12”x12” White/Blue Floor Tiles & Mastic, Black
- Epoxy to Concrete Floor 2’x2’ Fissure Ceiling Tiles
- Ceramic Wall Tile Grout
- Ceramic Floor Tile Mortar
- Stone Floor Mortar
- Mudded Elbows associated with Fiberglass Pipe Insulation

As per 2019 AHERA the following materials **contain or are assumed to be asbestos**.

- **Joint Compound, Beige & Sheetrock**
- **4" Black Cove Base & Mastic**
- **Fire Door Insulation with or without Windows, Brown**
- **Duct Sealant, White**
- **12"x12" White with Brown Marble Floor Tiles & Mastic**
- **4" Gray Cove Base & Mastic**
- **12"x12" White with Brown Speckle Floor Tiles & Mastic**
- **4" Blue Cove Base & Mastic**
- **4" Beige Cove Base & Mastic**
- **Sink Undercoating, White/Black/Pink**
- **Wall Partition Insulation**
- **12"x12" Brown Marble Floor Tiles & Mastic**
- **Metal Fire Door Insulation with Window, White**
- **12"x12" Beige Marble Floor Tiles & Mastic**
- **12"x12" White with Gray Speckle Floor Tiles & Mastic**
- **12"x12" Blue Marble Floor Tiles & Mastic**
- **Vapor Barrier under Wood Floor**
- **Freezer Gasket Material & Insulation**
- **Electrical Panel & Wire Insulation**
- **2'x4' Tectum Ceiling Tiles**
- **Gypsum Ceiling Board & Joint Compound, White**
- **12"x12" Beige with Black Streaks Floor Tiles & Mastic**
- **Black Laboratory Countertops**
- **Light Brown Particle Boards**
- **12"x12" Beige Speckle Floor Tiles & Mastic**
- **12"x12" Tan/Brown Floor Tiles & Mastic**
- **Vibration Cloth**
- **Sound Board Mastic**
- **Stone Floor Backing**
- **Interior Door Frame Caulking to Glass Doors**
- **Ceiling Plaster, White & Brown Coat**

Analytical results of the bulk samples collected on 09/25-26/19 by Berger indicate that the following materials **did not contain asbestos** (less than 1-percent);

- Vapor Barrier on Concrete, Black (Bottom Layer)
- Felt Paper to Foam Insulation (2nd Layer)
- Spray on Membrane to Foam Insulation (Top)
- Screed Deck (Bottom)
- Vapor Barrier on Screed Deck

- Coping Stone Mortar under Metal Cap
- Foam Insulation under HVAC Unit
- Sealant on Fiberglass Pipe
- Sealant to Duct Work Seams
- Sealant to Screws
- Flue to Metal Roof
- Exterior Brick Mortar
- Exterior Door Frame Caulking, Brown (Type 4)
- Exterior Door Frame Caulking, Beige (Type 2)
- Exterior Door Frame Caulking, Gray (Type 3)
- Exterior Window Frame Caulking, Gray (Type 1)
- Exterior Window Frame Caulking, Gray (Type 2)
- Exterior Window Frame Caulking, Gray (Type 3)
- Exterior Expansion Joint Caulking, White
- Louver Caulking, White
- Mastic associated with 4" Black Cove Base, Yellow
- Mastic associated with 4" Black Cove Base, Tan
- Mastic associated with 4" Black Cove Base, Yellow
- 12"x12" Beige Floor Tiles & Mastic, Yellow
- 12"x12" Light Blue Floor Tiles & mastic, Yellow
- 12"x12" White/Blue Floor Tiles & Mastic, Yellow
- 12"x12" White with Brown Spot/Tan/Blue Floor Tiles & Mastic, Yellow
- 12"x12" White/Blue Floor Tiles & Mastic, Black
- Epoxy to Concrete Floor 2'x2' Fissure Ceiling Tiles
- Ceramic Wall Tile Grout
- Ceramic Floor Tile Mortar
- Stone Floor Mortar
- Mudded Elbows associated with Fiberglass Pipe Insulation

As per 2019 AHERA the following materials **do not contain asbestos**.

- 12"x12" Beige with Brown/Black Strips Floor Tiles & Mastic
- Interior Cinderblock Mortar, Gray
- Gypsum Wall Board, White
- 2'x4' Serpentine Ceiling Tiles, White
- Soft Concrete Fill Material
- Window Caulking, Brown
- Wall Paper, White
- Particle Board, Brown
- Caulking to Fire Door without Window, Brown
- 2'x4' Textured Ceiling Tiles
- Caulking to White Sink Basin, White

- 2'x4' Light Textured Ceiling Tiles
- Wall Block Mortar
- 2'x2' Serpentine Ceiling Tiles, White
- 1'x1' Textured Ceiling Tiles
- Cloth Duct Insulation, Black
- Linoleum Flooring, Brown
- Mudded Joint Pipe to Fiberglass Pipe Insulation
- 2'x4' Heavy Textured Ceiling Tiles
- 2'x2' Solid Ceiling Tiles
- Flange Gaskets
- Joint Compound, White & Gypsum Wall Board, White
- Sealant to Fiberglass Pipes, White
- Paper Insulation to Outer Walls, Black/Brown
- 12"x12" Brown Floor Tile Mastic, Black
- 12"x12" Tan Marble Floor Tile Mastic
- Caulking to Elevator Frame
- Thin Wire Insulation
- Thick Wire Insulation

B. PCB-CONTAINING MATERIAL

Analytical results of the bulk samples collected indicate that the following materials **contain PCB** (greater than 50 PPM).

- **Exterior Expansion Joint Caulking, Beige**
- **Exterior Window Frame Caulking, Gray (Type 1)**
- **Exterior Window Frame Caulking, Gray (Type 2)**
- **Exterior Door Frame Caulking, Gray (Type 3)**

Analytical results of the bulk samples collected indicate that the following materials **did not contain PCB** (less than 50 PPM);

- Exterior Door Frame Caulking, Brown (Type 1)
- Exterior Door Frame Caulking, Beige (Type 2)

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 2018 Capital Project – Volume III at the Putnam Valley Middle 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
01	Roof	Vapor Barrier on Concrete, Black (Bottom Layer)	NAD
02	Roof	Felt Paper to Foam Insulation (2nd Layer)	NAD
03	Roof	Spray on Membrane to Foam Insulation (Top)	NAD
04	Roof	**Perimeter/Curb Flashing & Tar**	**19.00% Chrysotile**
05	Roof	Spray on Membrane to Foam Insulation	NAD
06	Mechanical Room on Roof	Screed Deck (Bottom)	NAD
07	Mechanical Room on Roof	Vapor Barrier on Screed Deck	NAD
08	**Mechanical Room on Roof**	**Curb Flashing Tar Paper**	**15.00% Chrysotile**
09	**Mechanical Room on Roof**	**Curb Flashing to Duct Work**	**15.00% Chrysotile**
10	Mechanical Room on Roof	Coping Stone Mortar under Metal Cap	NAD
11	Mechanical Room on Roof	Foam Insulation under HVAC Unit	NAD
12	**Mechanical Room on Roof**	**Vibration Cloth to Duct**	**29.00% Chrysotile**
13	**Mechanical Room on Roof**	**Duct Work Tar Insulation**	**5.50% Chrysotile**
14	Mechanical Room on Roof	Sealant on Fiberglass Pipe	NAD
15	**Mechanical Room on Roof**	**Tar on Shims**	**11.00% Chrysotile**
16	Mechanical Room on Roof	Sealant to Duct Work Seams	NAD
17	**Mechanical Room on Roof**	**Sealant to HVAC Unit**	**2.20% Chrysotile**
18	Mechanical Room on Roof	Sealant to Screws	<1% Chrysotile
19	Mechanical Room on Roof	Glue to Medal Roof	NAD
20	Courtyard	Exterior Brick Mortar	NAD
21	Courtyard	Door Frame Caulking, Brown (Type 4)	NAD
22	Courtyard	Door Frame Caulking, Beige (Type 2)	NAD

HOMOGENOUS MATERIAL	LOCATION	MATERIAL	ASBESTOS CONTENT
23	Exterior	Door Frame Caulking, Gray (Type 3)	NAD
24	Exterior	Exterior Window Frame Caulking, Gray (Type 1)	NAD
25	Exterior	Exterior Window Frame Caulking, Gray (Type 2)	NAD
26	Courtyard	Exterior Window Frame Caulking, Gray (Type 3)	NAD
27	Exterior	Exterior Expansion Joint Caulking, White	NAD
28	Exterior	Exterior Expansion Joint Caulking, Beige	NAD
29	Courtyard	Louver Caulking, White	NAD
30	**Vestibule B**	**Exterior Stone Walkway Caulking, Gray**	**1.70% Chrysotile**
31	**Cafeteria**	**Interior Door Frame Caulking, Beige**	**1.50% Chrysotile**
32	Hallway	Mastic associated with 4” Black Cove Base, Yellow	NAD
33	Copy Room	Mastic associated with 4” Black Cove Base, Tan	NAD
34	Cafeteria	Mastic associated with 4” Black Cove Base, Yellow	NAD
35	Copy Room	Mastic associated with 12”x12” Beige Floor Tiles, Yellow	<1% Chrysotile
36	Copy Room	12”x12” Beige Floor Tiles	NAD
37	Media Center	Mastic associated with 12”x12” Light Blue Floor Tiles, Yellow	NAD
38	Media Center	12”x12” Light Blue Floor Tiles	NAD
39	Nurse Office	Mastic associated with 12”x12” White & Blue Floor Tiles, Yellow	NAD
40	Nurse Office	12”x12” White Floor Tiles	NAD
41	Nurse Office	12”x12” Blue Floor Tiles	NAD
42	Hallway	Mastic associated with 12”x12” Blue, Tan & White with Brown Spot Floor Tiles, Yellow	NAD
43	Hallway	12”x12” White with Brown Spot Floor Tiles	NAD
44	Hallway	12”x12” Tan Floor Tiles	NAD
45	Hallway	12”x12” Blue Floor Tiles	NAD
46	Cafeteria	Mastic associated with White & Blue Floor Tiles, Black	NAD
47	Cafeteria	12”x12” White Floor Tiles	NAD

HOMOGENOUS MATERIAL	LOCATION	MATERIAL	ASBESTOS CONTENT
48	Cafeteria	12”x12” Blue Floor Tiles	NAD
49	Kitchen	Epoxy to Concrete Floor	NAD
50	Cafeteria	2’x2’ Fissure Ceiling Tiles	NAD
51	Boys Toilet	Ceramic Wall Tile Grout	NAD
52	Restroom Toilet	Ceramic Floor Tile Mortar	NAD
53	Main Lobby Vestibule	Stone Floor Mortar	NAD
54	**Boys Toilet**	**Ceramic Wall Tile Backing**	**1.50% Chrysotile**
55	Janitors Closet	Mudded Elbows associated with Fiberglass Pipe Insulation	NAD

Bold = Positive for ACM NAD = No Asbestos Detected

4.2 CONDITION AND FRIABLITY ASSESSMENT TABLE

For each inspection conducted, the inspector classifies ACM or Assumed ACM materials by friability and condition. This helps to determine the extent of damage in certain areas as well as the potential for further damage and Asbestos release due to disturbance of the material.

Table 4.2 – Condition and Friability Assessment

Location	Material	Quantity	Friability	Condition
First Floor Boys & Girls Locker Room Toilet, Boys & Girls Toilet, Staff Toilets, Storage Room, Nurses Office Toilet & H/G Toilet	Concealed Pipe Insulation/Elbows	1,300 LF	Friable	Good
	Ceramic Wall Tile Backing	3,352 SF	Friable	Good
	Concealed Vapor Barrier under Flooring	1,164 SF	Non-Friable	Good
1st Floor Rooms 140 – 145, 148, 149, 154, 155, 175 – 177, 182, 187 – 192, Faculty Dinning, PVTV/Storage Room	Joint Compound, Beige & Sheetrock	5,285 SF	Friable	Good
1st Floor Cafeteria	Interior Door Frame Caulking, Beige	42 LF	Non-Friable	Good
Exterior	Exterior Stone Walkway Caulking, Gray	8 LF	Non-Friable	Good
	Concealed Waterproofing Tar between Building Envelope	2,530 SF	Non-Friable	Good
	Concealed Window Lintel Waterproofing Tar	120 SF	Non-Friable	Good
	Concealed Door Lintel Waterproofing Tar	12 SF	Non-Friable	Good
Roof Area	Perimeter/Curb Flashing & Tar, Black	1,084 SF	Non-Friable	Good

Location	Material	Quantity	Friability	Condition
Roof Mechanical Room	Sealant to HVAC Unit, Black	100 LF	Non-Friable	Good
	Tar on Shims, Black	16 SF	Non-Friable	Good
	Perimeter/Curb Flashing & Tar, Black	200 SF	Non-Friable	Good
	Vibration Cloth to Duct Work, Gray	10 SF	Non-Friable	Good
	Duct Work Tar Insulation, Black	256 SF	Non-Friable	Good

Note:

1. All quantities in this assessment are estimations and MUST be confirmed by the abatement contractor with the scope of work 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

4.3 SAMPLE ANALYSIS TABLE

Laboratory analysis results, in tabular form, are included in Appendix A.

B. PCB-CONTAINING MATERIAL

The PCB Inspection involved a thorough visual examination of all areas that may be impacted by the proposed 2018 Capital Project – Volume III. The following suspect materials were tested for PCB content:

HOMOGENOUS MATERIAL	LOCATION	MATERIAL	PCB CONTENT (PPM)
01	**Courtyard**	**Exterior Expansion Joint Caulking, Beige**	**95**
02	Courtyard	Exterior Door Frame Caulking, Brown (Type 1)	ND
03	**Roof**	**Exterior Window Frame Caulking, Gray (Type 1)**	**30000**
04	**Roof**	**Exterior Window Frame Caulking, Gray (Type 2)**	**35000**
05	Courtyard	Exterior Door Frame Caulking, Beige (Type 2)	2.1

HOMOGENOUS MATERIAL	LOCATION	MATERIAL	PCB CONTENT (PPM)
06	**Exterior**	**Exterior Door Frame Caulking, Gray (Type 3)**	**81000**

Bold = Positive for PCB ND = No PCB Detected

5.0 AREAS NOT ACCESSIBLE

During the inspection the following areas were not accessible:

Spaces within Walls/Floors/Ceilings: No destructive sampling was performed on concealed spaces in walls to access plenum, chases etc. It should be assumed that asbestos containing materials may exist in these spaces. Any suspect materials encountered during work should be sampled for analysis before work continues.

Spaces within Building Envelope: No destructive sampling was performed on 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 and PCB materials have been identified in this inspection that may be impacted as part of the 2018 Capital Project – Volume III at the Putnam Valley Middle School. These materials, reported in Section 3.0 of this report, may require complete removal prior to the start of the 2018 Capital Project – Volume III.

The ACM and PCB inspection was conducted at the request of the Putnam Valley Central School District based on the drawings submitted KG&D Architects PC for the proposed 2018 Capital Projects – Volume III at the Putnam Valley Middle 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.

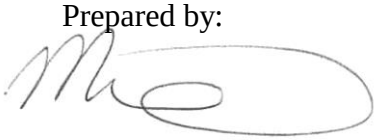
7.0 REPORT CERTIFICATIONS

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 Putnam Valley Middle 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, Emergency Management & IH Services

APPENDIX A:
ASBESTOS SAMPLE ANALYSIS RESULTS IN TABULAR FORM

APPENDIX A
SAMPLE ANALYSIS RESULTS IN TABULAR FORM
PUTNAM VALLEY MIDDLE SCHOOL
142 PEEKSKILL HOLLOW ROAD
PUTNAM VALLEY, NY

Homogeneous Area No.	Sample No.	Location	Material	PLM Result	TEM Result
01	01	Roof	Vapor Barrier on Concrete, Black (Bottom Layer)	NAD	NAD
01	02	Roof	Vapor Barrier on Concrete, Black (Bottom Layer)	NAD	NAD
02	03	Roof	Felt Paper to Foam Insulation (2nd Layer)	NAD	--
02	04	Roof	Felt Paper to Foam Insulation (2nd Layer)	NAD	--
03	05	Roof	Spray on Membrane to Foam Insulation (Top)	NAD	NAD
03	06	Roof	Spray on Membrane to Foam Insulation (Top)	NAD	NAD
04	**07**	**Roof**	**Perimeter/Curb Flashing & Tar**	**19.00% Chrysotile**	**NA/PS**
04	**08**	**Roof**	**Perimeter/Curb Flashing & Tar**	**NA/PS**	**NA/PS**
05	09	Roof	Spray on Membrane to Foam Insulation	NAD	NAD
05	10	Roof	Spray on Membrane to Foam Insulation	NAD	NAD
06	11	Mechanical Room on Roof	Screed Deck (Bottom)	NAD	--
06	12	Mechanical Room on Roof	Screed Deck (Bottom)	NAD	--

Bold = Positive for ACM
NAD = No Asbestos Detected
N/A = Not Applicable
NA/PS = Not analyzed/ positive sample

Homogeneous Area No.	Sample No.	Location	Material	PLM Result	TEM Result
07	13	Mechanical Room on Roof	Vapor Barrier on Screed Deck	NAD	NAD
07	14	Mechanical Room on Roof	Vapor Barrier on Screed Deck	NAD	NAD
08	**15**	**Mechanical Room on Roof**	**Curb Flashing Tar Paper**	**15.00% Chrysotile**	**NA/PS**
08	**16**	**Mechanical Room on Roof**	**Curb Flashing Tar Paper**	**NA/PS**	**NA/PS**
09	**17**	**Mechanical Room on Roof**	**Curb Flashing to Duct Work**	**15.00% Chrysotile**	**NA/PS**
09	**18**	**Mechanical Room on Roof**	**Curb Flashing to Duct Work**	**NA/PS**	**NA/PS**
10	19	Mechanical Room on Roof	Coping Stone Mortar under Metal Cap	NAD	--
10	20	Mechanical Room on Roof	Coping Stone Mortar under Metal Cap	NAD	--
11	21	Mechanical Room on Roof	Foam Insulation under HVAC Unit	NAD	--
11	22	Mechanical Room on Roof	Foam Insulation under HVAC Unit	NAD	--
12	**23**	**Mechanical Room on Roof**	**Vibration Cloth to Duct**	**29.00% Chrysotile**	**NA/PS**
12	**24**	**Mechanical Room on Roof**	**Vibration Cloth to Duct**	**NA/PS**	**NA/PS**
13	**25**	**Mechanical Room on Roof**	**Duct Work Tar Insulation**	**5.50% Chrysotile**	**NA/PS**
13	**26**	**Mechanical Room on Roof**	**Duct Work Tar Insulation**	**NA/PS**	**NA/PS**
14	27	Mechanical Room on Roof	Sealant on Fiberglass Pipe	NAD	NAD
14	28	Mechanical Room on Roof	Sealant on Fiberglass Pipe	NAD	NAD
15	**29**	**Mechanical Room on Roof**	**Tar on Shims**	**11.00% Chrysotile**	**NA/PS**
15	**30**	**Mechanical Room on Roof**	**Tar on Shims**	**NA/PS**	**NA/PS**
16	31	Mechanical Room on Roof	Sealant to Duct Work Seams	NAD	NAD
16	32	Mechanical Room on Roof	Sealant to Duct Work Seams	NAD	NAD
17	**33**	**Mechanical Room on Roof**	**Sealant to HVAC Unit**	**2.20% Chrysotile**	**NA/PS**
17	**34**	**Mechanical Room on Roof**	**Sealant to HVAC Unit**	**NA/PS**	**NA/PS**
18	35	Mechanical Room on Roof	Sealant to Screws	NAD	<1% Chrysotile
18	36	Mechanical Room on Roof	Sealant to Screws	NAD	NAD
19	37	Mechanical Room on Roof	Glue to Medal Roof	NAD	NAD

Bold = Positive for ACM
NAD = No Asbestos Detected
N/A = Not Applicable
NA/PS = Not analyzed/ positive sample

Homogeneous Area No.	Sample No.	Location	Material	PLM Result	TEM Result
19	38	Mechanical Room on Roof	Glue to Medal Roof	NAD	NAD
20	39	Courtyard	Exterior Brick Mortar	NAD	--
20	40	Courtyard	Exterior Brick Mortar	NAD	--
21	41	Courtyard	Door Frame Caulking, Brown (Type 4)	NAD	NAD
21	42	Courtyard	Door Frame Caulking, Brown (Type 4)	NAD	NAD
22	43	Courtyard	Door Frame Caulking, Beige (Type 2)	NAD	NAD
22	44	Courtyard	Door Frame Caulking, Beige (Type 2)	NAD	NAD
23	45	Exterior	Door Frame Caulking, Gray (Type 3)	NAD	NAD
23	46	Exterior	Door Frame Caulking, Gray (Type 3)	NAD	NAD
24	47	Exterior	Exterior Window Frame Caulking, Gray (Type 1)	NAD	NAD
24	48	Exterior	Exterior Window Frame Caulking, Gray (Type 1)	NAD	NAD
25	49	Exterior	Exterior Window Frame Caulking, Gray (Type 2)	NAD	NAD
25	50	Exterior	Exterior Window Frame Caulking, Gray (Type 2)	NAD	NAD
26	51	Courtyard	Exterior Window Frame Caulking, Gray (Type 3)	NAD	NAD
26	52	Courtyard	Exterior Window Frame Caulking, Gray (Type 3)	NAD	NAD
27	53	Exterior	Exterior Expansion Joint Caulking, White	NAD	NAD

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Homogeneous Area No.	Sample No.	Location	Material	PLM Result	TEM Result
27	54	Exterior	Exterior Expansion Joint Caulking, White	NAD	NAD
28	55	Exterior	Exterior Expansion Joint Caulking, Beige	NAD	NAD
28	56	Exterior	Exterior Expansion Joint Caulking, Beige	NAD	NAD
29	57	Courtyard	Louver Caulking, White	NAD	NAD
29	58	Courtyard	Louver Caulking, White	NAD	NAD
30	**59**	**Vestibule B**	**Exterior Stone Walkway Caulking, Gray**	**1.70% Chrysotile**	**NA/PS**
30	**60**	**Vestibule B**	**Exterior Stone Walkway Caulking, Gray**	**NA/PS**	**NA/PS**
31	**61**	**Cafeteria**	**Interior Door Frame Caulking, Beige**	**1.50% Chrysotile**	**NA/PS**
31	**62**	**Cafeteria**	**Interior Door Frame Caulking, Beige**	**NA/PS**	**NA/PS**
32	63	Hallway	Mastic associated with 4” Black Cove Base, Yellow	NAD	NAD
32	64	Hallway	Mastic associated with 4” Black Cove Base, Yellow	NAD	NAD
33	65	Copy Room	Mastic associated with 4” Black Cove Base, Tan	NAD	NAD
33	66	Copy Room	Mastic associated with 4” Black Cove Base, Tan	NAD	NAD
34	67	Cafeteria	Mastic associated with 4” Black Cove Base, Yellow	NAD	NAD
34	68	Cafeteria	Mastic associated with 4” Black Cove Base, Yellow	NAD	NAD

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Homogeneous Area No.	Sample No.	Location	Material	PLM Result	TEM Result
35	69	Copy Room	Mastic associated with 12”x12” Beige Floor Tiles, Yellow	NAD	NAD
35	70	Copy Room	Mastic associated with 12”x12” Beige Floor Tiles, Yellow	NAD	<1% Chrysotile
36	71	Copy Room	12”x12” Beige Floor Tiles	NAD	NAD
36	72	Copy Room	12”x12” Beige Floor Tiles	NAD	NAD
37	73	Media Center	Mastic associated with 12”x12” Light Blue Floor Tiles, Yellow	NAD	NAD
37	74	Media Center	Mastic associated with 12”x12” Light Blue Floor Tiles, Yellow	NAD	NAD
38	75	Media Center	12”x12” Light Blue Floor Tiles	NAD	NAD
38	76	Media Center	12”x12” Light Blue Floor Tiles	NAD	NAD
39	77	Nurse Office	Mastic associated with 12”x12” White & Blue Floor Tiles, Yellow	NAD	NAD
39	78	Nurse Office	Mastic associated with 12”x12” White & Blue Floor Tiles, Yellow	NAD	NAD
40	79	Nurse Office	12”x12” White Floor Tiles	NAD	NAD
40	80	Nurse Office	12”x12” White Floor Tiles	NAD	NAD
41	81	Nurse Office	12”x12” Blue Floor Tiles	NAD	NAD
41	82	Nurse Office	12”x12” Blue Floor Tiles	NAD	NAD
42	83	Hallway	Mastic associated with 12”x12” Blue, Tan & White with Brown Spot Floor Tiles, Yellow	NAD	NAD
42	84	Hallway	Mastic associated with 12”x12” Blue, Tan & White with Brown Spot Floor Tiles, Yellow	NAD	NAD

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Homogeneous Area No.	Sample No.	Location	Material	PLM Result	TEM Result
43	85	Hallway	12”x12” White with Brown Spot Floor Tiles	NAD	NAD
43	86	Hallway	12”x12” White with Brown Spot Floor Tiles	NAD	NAD
44	87	Hallway	12”x12” Tan Floor Tiles	NAD	NAD
44	88	Hallway	12”x12” Tan Floor Tiles	NAD	NAD
45	89	Hallway	12”x12” Blue Floor Tiles	NAD	NAD
45	90	Hallway	12”x12” Blue Floor Tiles	NAD	NAD
46	91	Cafeteria	Mastic associated with White & Blue Floor Tiles, Black	NAD	NAD
46	92	Cafeteria	Mastic associated with White & Blue Floor Tiles, Black	NAD	NAD
47	93	Cafeteria	12”x12” White Floor Tiles	NAD	NAD
47	94	Cafeteria	12”x12” White Floor Tiles	NAD	NAD
48	95	Cafeteria	12”x12” Blue Floor Tiles	NAD	NAD
48	96	Cafeteria	12”x12” Blue Floor Tiles	NAD	NAD
49	97	Kitchen	Epoxy to Concrete Floor	NAD	NAD
49	98	Kitchen	Epoxy to Concrete Floor	NAD	NAD
50	99	Cafeteria	2’x2’ Fissure Ceiling Tiles	NAD	NAD
50	100	Cafeteria	2’x2’ Fissure Ceiling Tiles	NAD	NAD
51	101	Boys Toilet	Ceramic Wall Tile Grout	NAD	--
51	102	Boys Toilet	Ceramic Wall Tile Grout	NAD	--
52	103	Restroom Toilet	Ceramic Floor Tile Mortar	NAD	--
52	104	Restroom Toilet	Ceramic Floor Tile Mortar	NAD	--
53	105	Main Lobby Vestibule	Stone Floor Mortar	NAD	--
53	106	Main Lobby Vestibule	Stone Floor Mortar	NAD	--
54	**107**	**Boys Toilet**	**Ceramic Wall Tile Backing**	**1.50% Chrysotile**	**NA/PS**
54	**108**	**Boys Toilet**	**Ceramic Wall Tile Backing**	**NA/PS**	**NA/PS**

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Homogeneous Area No.	Sample No.	Location	Material	PLM Result	TEM Result
55	109	Janitors Closet	Mudded Elbows associated with Fiberglass Pipe Insulation	NAD	--
55	110	Janitors Closet	Mudded Elbows associated with Fiberglass Pipe Insulation	NAD	--
55	111	Janitors Closet	Mudded Elbows associated with Fiberglass Pipe Insulation	NAD	--

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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
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EMSL Order: 061922487
Customer ID: LBAP78
Customer PO: 2043465.18
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: 09/30/2019 7:12 AM
Analysis Date: 10/01/2019 - 10/02/2019
Collected Date: 09/25/2019

Project: Proj. # 2043465.18, Putnam Valley S.D., Putnam Valley M.S. @ 142 Peekskill Hollow Rd.. Putnam Valley, NY, Roof, Exterior & Interior

Test Report:Asbestos Analysis of Bulk Material

Test	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos
Sample ID 01-01 *061922487-0001*		**Description**	Roof - Black Vapor Barrier on Concrete (Bottom)		
		Homogeneity	Heterogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	10/01/2019	Black		100.00% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	10/02/2019	Black		100.00% Other	**None Detected**
Sample ID 01-02 *061922487-0002*		**Description**	Roof - Black Vapor Barrier on Concrete (Bottom)		
		Homogeneity	Heterogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	10/01/2019	Black		100.00% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	10/02/2019	Black		100.00% Other	**None Detected**
Sample ID 02-03 *061922487-0003*		**Description**	Roof - Felt Paper to Foam Insulation (2nd layer)		
		Homogeneity	Heterogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	10/01/2019	Black	<1.00% Glass	100.00% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	10/02/2019	Black		100.00% Other	**None Detected**
Sample ID 02-04 *061922487-0004*		**Description**	Roof - Felt Paper to Foam Insulation (2nd layer)		
		Homogeneity	Heterogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	10/01/2019	Black	<1.00% Glass	100.00% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	10/02/2019	Black		100.00% Other	**None Detected**
Sample ID 03-05 *061922487-0005*		**Description**	Roof - Spray-On Membrane to Foam Insulation (Top)		
		Homogeneity	Heterogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	10/01/2019	Gray		100.00% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	10/02/2019	Gray		100.00% Other	**None Detected**

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EMSL Order: 061922487
Customer ID: LBAP78
Customer PO: 2043465.18
Project ID:

Test Report:Asbestos Analysis of Bulk Material

Test	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos
Sample ID 03-06 *061922487-0006*		**Description** Roof - Spray-On Membrane to Foam Insulation (Top) **Homogeneity** Heterogeneous			
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	10/01/2019	Gray		100.00% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	10/02/2019	Gray		100.00% Other	**None Detected**
Sample ID 04-07 *061922487-0007*		**Description** Roof - Perimeter/Curb - Flashing & Tar **Homogeneity** Heterogeneous			
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	10/01/2019	Black	None	81.00% Other	**19.00% Chrysotile**
TEM NYS 198.4 NOB	10/02/2019				**Not Analyzed**
Sample ID 04-08 *061922487-0008*		**Description** Roof - Perimeter/Curb - Flashing & Tar **Homogeneity**			
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	10/01/2019				**Positive Stop (Not Analyzed)**
TEM NYS 198.4 NOB	10/02/2019				**Not Analyzed**
Sample ID 05-09 *061922487-0009*		**Description** Roof - Spray-On Membrane to Foam Insulation **Homogeneity** Heterogeneous			
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	10/01/2019	Gray		100.00% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	10/02/2019	Gray		100.00% Other	**None Detected**
Sample ID 05-10 *061922487-0010*		**Description** Roof - Spray-On Membrane to Foam Insulation **Homogeneity** Heterogeneous			
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	10/01/2019	Gray		100.00% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	10/02/2019	Gray		100.00% Other	**None Detected**
Sample ID 06-11 *061922487-0011*		**Description** Mechanical Room on Roof - Screed Deck (Bottom) **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	10/02/2019	Gray/ White		45.00% Ca Carbonate 30.00% Non-fibrous (other) 25.00% Quartz	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**

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EMSL Order: 061922487
Customer ID: LBAP78
Customer PO: 2043465.18
Project ID:

Test Report:Asbestos Analysis of Bulk Material

Test	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos
Sample ID 06-12 *061922487-0012*		**Description** Mechanical Room on Roof - Screed Deck (Bottom) **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	10/02/2019	Gray/ White		40.00% Ca Carbonate 30.00% 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 07-13 *061922487-0013*		**Description** Mechanical Room on Roof - Vapor Barrier on Screed Deck **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	10/01/2019	Black		100.00% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	10/02/2019	Black		100.00% Other	**None Detected**
Sample ID 07-14 *061922487-0014*		**Description** Mechanical Room on Roof - Vapor Barrier on Screed Deck **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	10/01/2019	Black		100.00% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	10/02/2019	Black		100.00% Other	**None Detected**
Sample ID 08-15 *061922487-0015*		**Description** Mechanical Room on Roof - Curb Flashing Tar Paper **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	10/01/2019	Black	None	85.00% Other	**15.00% Chrysotile**
TEM NYS 198.4 NOB	10/02/2019				**Not Analyzed**
Sample ID 08-16 *061922487-0016*		**Description** Mechanical Room on Roof - Curb Flashing Tar Paper **Homogeneity**			
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	10/01/2019				**Positive Stop (Not Analyzed)**
TEM NYS 198.4 NOB	10/02/2019				**Not Analyzed**
Sample ID 09-17 *061922487-0017*		**Description** Mechanical Room on Roof - Curb Flashing to Duct Work **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	10/01/2019	Black	None	85.00% Other	**15.00% Chrysotile**
TEM NYS 198.4 NOB	10/02/2019				**Not Analyzed**

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Customer ID: LBAP78
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Project ID:

Test Report:Asbestos Analysis of Bulk Material

Test	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos
Sample ID 09-18 *061922487-0018*		**Description** Mechanical Room on Roof - Curb Flashing to Duct Work **Homogeneity**			
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	10/01/2019				**Positive Stop (Not Analyzed)**
TEM NYS 198.4 NOB	10/02/2019				**Not Analyzed**
Sample ID 10-19 *061922487-0019*		**Description** Mechanical Room on Roof - Coping Stone Mortar under Metal Cap. **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	10/02/2019	Gray/ Tan/ White		30.00% Ca Carbonate 5.00% Mica 5.00% 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 10-20 *061922487-0020*		**Description** Mechanical Room on Roof - Coping Stone Mortar under Metal Cap. **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	10/02/2019	Gray/ Tan/ White		30.00% Ca Carbonate 3.00% Mica 2.00% 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 11-21 *061922487-0021*		**Description** Mechanical Room on Roof - Foam Insulation under HVAC Unit **Homogeneity** Heterogeneous			
PLM NYS 198.1 Friable	10/02/2019	Gray/ Black	2.00% Cellulose	75.00% Matrix 23.00% 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 11-22 *061922487-0022*		**Description** Mechanical Room on Roof - Foam Insulation under HVAC Unit **Homogeneity** Heterogeneous			
PLM NYS 198.1 Friable	10/02/2019	Gray/ Black	<1.00% Cellulose	80.00% 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 12-23 *061922487-0023*		**Description** Mechanical Room on Roof - Vibration Cloth to Duct **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	10/02/2019	Gray/ Tan/ White	30.00% Glass 40.00% Synthetic	1.00% Non-fibrous (other)	**29.00% Chrysotile**
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: 061922487
Customer ID: LBAP78
Customer PO: 2043465.18
Project ID:

Test Report:Asbestos Analysis of Bulk Material

Test	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos
Sample ID 12-24		**Description**	Mechanical Room on Roof - Vibration Cloth to Duct		
061922487-0024		**Homogeneity**			
PLM NYS 198.1 Friable	10/02/2019				**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 13-25		**Description**	Mechanical Room on Roof - Duct Work Tar insulation		
061922487-0025		**Homogeneity**	Homogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	10/01/2019	Black	3.30% Glass	91.20% Other	**5.50% Chrysotile**
TEM NYS 198.4 NOB	10/02/2019				**Not Analyzed**
Sample ID 13-26		**Description**	Mechanical Room on Roof - Duct Work Tar insulation		
061922487-0026		**Homogeneity**			
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	10/01/2019				**Positive Stop (Not Analyzed)**
TEM NYS 198.4 NOB	10/02/2019				**Not Analyzed**
Sample ID 14-27		**Description**	Mechanical Room on Roof - Sealant on Fiberglass Pipe		
061922487-0027		**Homogeneity**	Heterogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	10/01/2019	White	8.70% Glass	91.30% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	10/02/2019	White		100.00% Other	**None Detected**
Sample ID 14-28		**Description**	Mechanical Room on Roof - Sealant on Fiberglass Pipe		
061922487-0028		**Homogeneity**	Heterogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	10/01/2019	White	7.00% Glass	93.00% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	10/02/2019	White		100.00% Other	**None Detected**
Sample ID 15-29		**Description**	Mechanical Room on Roof - Tar on Shims		
061922487-0029		**Homogeneity**	Homogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	10/01/2019	Black	None	89.00% Other	**11.00% Chrysotile**
TEM NYS 198.4 NOB	10/02/2019				**Not Analyzed**

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Test Report:Asbestos Analysis of Bulk Material

Test	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos
Sample ID 15-30 *061922487-0030*		**Description** **Homogeneity**	Mechanical Room on Roof - Tar on Shims		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	10/01/2019				**Positive Stop (Not Analyzed)**
TEM NYS 198.4 NOB	10/02/2019				**Not Analyzed**
Sample ID 16-31 *061922487-0031*		**Description** **Homogeneity**	Mechanical Room on Roof - Sealant to Duct Work Seams Homogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	10/01/2019	Gray		100.00% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	10/02/2019	Gray		100.00% Other	**None Detected**
Sample ID 16-32 *061922487-0032*		**Description** **Homogeneity**	Mechanical Room on Roof - Sealant to Duct Work Seams Homogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	10/01/2019	Gray		100.00% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	10/02/2019	Gray		100.00% Other	**None Detected**
Sample ID 17-33 *061922487-0033*		**Description** **Homogeneity**	Mechanical Room on Roof - Sealant to HVAC Unit Homogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	10/01/2019	Black	None	97.80% Other	**2.20% Chrysotile**
TEM NYS 198.4 NOB	10/02/2019				**Not Analyzed**
Sample ID 17-34 *061922487-0034*		**Description** **Homogeneity**	Mechanical Room on Roof - Sealant to HVAC Unit		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	10/01/2019				**Positive Stop (Not Analyzed)**
TEM NYS 198.4 NOB	10/02/2019				**Not Analyzed**
Sample ID 18-35 *061922487-0035*		**Description** **Homogeneity**	Mechanical Room Roof - Sealant to Screws Homogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	10/01/2019	Gray		100.00% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	10/02/2019	Gray	None	100.00% Other	**<1% Chrysotile**

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Test	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos
Sample ID 18-36 *061922487-0036*		**Description** Mechanical Room Roof - Sealant to Screws **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	10/01/2019	Gray		100.00% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	10/02/2019	Gray		100.00% Other	**None Detected**
Sample ID 19-37 *061922487-0037*		**Description** Mechanical Room Roof - Glue to Metal Roof **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	10/01/2019	Gray		100.00% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	10/02/2019	Gray		100.00% Other	**None Detected**
Sample ID 19-38 *061922487-0038*		**Description** Mechanical Room Roof - Glue to Metal Roof **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	10/01/2019	Gray		100.00% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	10/02/2019	Gray		100.00% Other	**None Detected**
Sample ID 20-39 *061922487-0039*		**Description** Courtyard - Exterior Brick Mortar **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	10/02/2019	Gray/ Tan/ White		25.00% Ca Carbonate 3.00% Mica 7.00% 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 20-40 *061922487-0040*		**Description** Courtyard - Exterior Brick Mortar **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	10/02/2019	Gray/ Tan/ White		25.00% Ca Carbonate 3.00% Mica 2.00% Non-fibrous (other) 70.00% 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 21-41 *061922487-0041*		**Description** Courtyard - Door Frame Caulking (Brown) - Type 4 **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	10/01/2019	Black		100.00% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	10/02/2019	Black		100.00% Other	**None Detected**

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Test	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos
Sample ID 21-42 *061922487-0042*		**Description**	Courtyard - Door Frame Caulking (Brown) - Type 4		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	10/01/2019	Black		100.00% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	10/02/2019	Black		100.00% Other	**None Detected**
Sample ID 22-43 *061922487-0043*		**Description**	Courtyard - Door Frame Caulking (Beige) - Type 2		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	10/01/2019	Beige		100.00% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	10/02/2019	Beige		100.00% Other	**None Detected**
Sample ID 22-44 *061922487-0044*		**Description**	Courtyard - Door Frame Caulking (Beige) - Type 2		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	10/01/2019	Beige		100.00% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	10/02/2019	Beige		100.00% Other	**None Detected**
Sample ID 23-45 *061922487-0045*		**Description**	Exterior to Boys Locker Room - Door Frame Caulking (Gray) - Type 3		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	10/01/2019	Gray		100.00% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	10/02/2019	Gray		100.00% Other	**None Detected**
Sample ID 23-46 *061922487-0046*		**Description**	Exterior to Boys Locker Room - Door Frame Caulking (Gray) - Type 3		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	10/01/2019	Gray		100.00% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	10/02/2019	Gray		100.00% Other	**None Detected**
Sample ID 24-47 *061922487-0047*		**Description**	Roof Area - Exterior Window Frame Caluking (Gray) - Type 1		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	10/01/2019	Gray		100.00% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	10/02/2019	Gray		100.00% Other	**None Detected**

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Test	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos
Sample ID 24-48 *061922487-0048*		**Description**	Roof Area - Exterior Window Frame Caluking (Gray) - Type 1		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	10/01/2019	Gray		100.00% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	10/02/2019	Gray		100.00% Other	**None Detected**
Sample ID 25-49 *061922487-0049*		**Description**	Roof Area - Exterior Window Frame Caluking (Gray) - Type 2		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	10/01/2019	Gray		100.00% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	10/02/2019	Gray		100.00% Other	**None Detected**
Sample ID 25-50 *061922487-0050*		**Description**	Roof Area - Exterior Window Frame Caluking (Gray) - Type 2		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	10/01/2019	Gray		100.00% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	10/02/2019	Gray		100.00% Other	**None Detected**
Sample ID 26-51 *061922487-0051*		**Description**	Courtyard - Exterior Window Frame Caluking (Gray) - Type 3		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	10/01/2019	Gray		100.00% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	10/02/2019	Gray		100.00% Other	**None Detected**
Sample ID 26-52 *061922487-0052*		**Description**	Courtyard - Exterior Window Frame Caluking (Gray) - Type 3		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	10/01/2019	Gray		100.00% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	10/02/2019	Gray		100.00% Other	**None Detected**
Sample ID 27-53 *061922487-0053*		**Description**	Roof Area - Exterior Expansion Joint (White)		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	10/01/2019	White		100.00% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	10/02/2019	White		100.00% Other	**None Detected**

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Test	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos
Sample ID 27-54 *061922487-0054*		**Description**	Roof Area - Exterior Expansion Joint (White)		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	10/01/2019	White		100.00% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	10/02/2019	White		100.00% Other	**None Detected**
Sample ID 28-55 *061922487-0055*		**Description**	Roof Area - Exterior Expansion Joint (Beige)		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	10/01/2019	White		100.00% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	10/02/2019	White		100.00% Other	**None Detected**
Sample ID 28-56 *061922487-0056*		**Description**	Roof Area - Exterior Expansion Joint (Beige)		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	10/01/2019	White		100.00% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	10/02/2019	White		100.00% Other	**None Detected**
Sample ID 29-57 *061922487-0057*		**Description**	Courtyard - Louver Caulking (White)		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	10/01/2019	Gray		100.00% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	10/02/2019	Gray		100.00% Other	**None Detected**
Sample ID 29-58 *061922487-0058*		**Description**	Courtyard - Louver Caulking (White)		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	10/01/2019	Gray		100.00% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	10/02/2019	Gray		100.00% Other	**None Detected**
Sample ID 30-59 *061922487-0059*		**Description**	Vestibule B - Exterior Stone Walkway Caulking (Gray)		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	10/01/2019	Gray	None	98.30% Other	**1.70% Chrysotile**
TEM NYS 198.4 NOB	10/02/2019	Gray		100.00% Other	**None Detected**

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Test	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos
Sample ID 30-60 *061922487-0060*		**Description** Vestibule B - Exterior Stone Walkway Caulking (Gray) **Homogeneity**			
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	10/01/2019				**Positive Stop (Not Analyzed)**
TEM NYS 198.4 NOB	10/02/2019				**Not Analyzed**
Sample ID 31-61 *061922487-0061*		**Description** Cafeteria - Interior Door Frame Caulking (Beige) **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	10/01/2019	Gray	7.40% Wollastonite	91.10% Other	**1.50% Chrysotile**
TEM NYS 198.4 NOB	10/02/2019				**Not Analyzed**
Sample ID 31-62 *061922487-0062*		**Description** Cafeteria - Interior Door Frame Caulking (Beige) **Homogeneity**			
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	10/01/2019				**Positive Stop (Not Analyzed)**
TEM NYS 198.4 NOB	10/02/2019				**Not Analyzed**
Sample ID 32-63 *061922487-0063*		**Description** Hallway - Yellow Mastic associated with 4" Blue Cove Base **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	10/01/2019	Yellow		100.00% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	10/02/2019	Yellow		100.00% Other	**None Detected**
Sample ID 32-64 *061922487-0064*		**Description** Hallway - Yellow Mastic associated with 4" Blue Cove Base **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	10/01/2019	Yellow		100.00% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	10/02/2019	Yellow		100.00% Other	**None Detected**
Sample ID 33-65 *061922487-0065*		**Description** Copy room - Tan Mastic associated with 4" Black Cove Base **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	10/01/2019	Tan		100.00% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	10/02/2019	Tan		100.00% Other	**None Detected**

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Test Report:Asbestos Analysis of Bulk Material

Test	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos
Sample ID 33-66 *061922487-0066*		**Description** Copy room - Tan Mastic associated with 4" Black Cove Base **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	10/01/2019	Tan	<1.00% Wollastonite	100.00% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	10/02/2019	Tan		100.00% Other	**None Detected**
Sample ID 34-67 *061922487-0067*		**Description** Cafeteria - Yellow Mastic associated with 4" Black Cove Base **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	10/01/2019	Yellow		100.00% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	10/02/2019	Yellow		100.00% Other	**None Detected**
Sample ID 34-68 *061922487-0068*		**Description** Cafeteria - Yellow Mastic associated with 4" Black Cove Base **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	10/01/2019	Yellow	7.80% Wollastonite	92.20% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	10/02/2019	Yellow		100.00% Other	**None Detected**
Sample ID 35-69 *061922487-0069*		**Description** Copy Room - Yellow Mastic associated with 12"x12" Beige Floor Tile **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	10/01/2019	White		100.00% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	10/02/2019	White		100.00% Other	**None Detected**
Sample ID 35-70 *061922487-0070*		**Description** Copy Room - Yellow Mastic associated with 12"x12" Beige Floor Tile **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	10/01/2019	Yellow	<1.00% Fibrous (other)	100.00% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	10/02/2019	Yellow	None	100.00% Other	**<1% Chrysotile**
Sample ID 36-71 *061922487-0071*		**Description** Copy Room - 12"x12" Beige Floor Tile **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	10/01/2019	Beige		100.00% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	10/02/2019	Beige		100.00% Other	**None Detected**

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Test	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos
Sample ID 36-72 *061922487-0072*		**Description**	Copy Room - 12"x12" Beige Floor Tile		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	10/01/2019	Beige		100.00% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	10/02/2019	Beige		100.00% Other	**None Detected**
Sample ID 37-73 *061922487-0073*		**Description**	Media center - Yellow Mastic associated with 12"x12" Light Blue Floor Tiles		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	10/01/2019	Yellow		100.00% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	10/02/2019	Yellow		100.00% Other	**None Detected**
Sample ID 37-74 *061922487-0074*		**Description**	Media center - Yellow Mastic associated with 12"x12" Light Blue Floor Tiles		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	10/01/2019	Yellow		100.00% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	10/02/2019	Yellow		100.00% Other	**None Detected**
Sample ID 38-75 *061922487-0075*		**Description**	Media center - 12"x12" Light Blue Floor Tiles		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	10/01/2019	Blue		100.00% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	10/02/2019	Blue		100.00% Other	**None Detected**
Sample ID 38-76 *061922487-0076*		**Description**	Media center - 12"x12" Light Blue Floor Tiles		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	10/01/2019	Blue		100.00% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	10/02/2019	Blue		100.00% Other	**None Detected**
Sample ID 39-77 *061922487-0077*		**Description**	Nurse Office - Brown Mastic associated with 12"x12" White & Blue Floor Tiles		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	10/01/2019	Brown		100.00% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	10/02/2019	Brown		100.00% Other	**None Detected**

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EMSL Analytical, Inc.
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EMSL Order: 061922487
Customer ID: LBAP78
Customer PO: 2043465.18
Project ID:

Test Report:Asbestos Analysis of Bulk Material

Test	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos
Sample ID 39-78 *061922487-0078*		**Description** Nurse Office - Brown Mastic associated with 12"x12" White & Blue Floor Tiles **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	10/01/2019	Yellow		100.00% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	10/02/2019	Yellow		100.00% Other	**None Detected**
Sample ID 40-79 *061922487-0079*		**Description** Nurse Office - 12"x12" White Floor Tiles **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	10/01/2019	White		100.00% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	10/02/2019	White		100.00% Other	**None Detected**
Sample ID 40-80 *061922487-0080*		**Description** Nurse Office - 12"x12" White Floor Tiles **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	10/01/2019	White		100.00% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	10/02/2019	White		100.00% Other	**None Detected**
Sample ID 41-81 *061922487-0081*		**Description** Nurse Office - 12"x12" Blue Floor Tiles **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	10/01/2019	Blue		100.00% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	10/02/2019	Blue		100.00% Other	**None Detected**
Sample ID 41-82 *061922487-0082*		**Description** Nurse Office - 12"x12" Blue Floor Tiles **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	10/01/2019	Blue		100.00% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	10/02/2019	Blue		100.00% Other	**None Detected**
Sample ID 42-83 *061922487-0083*		**Description** Hallway - Yellow Mastic associated with 12"x12" Blue, Tan and White w./ Brown Spots Floor Tiles **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	10/01/2019	Yellow		100.00% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	10/02/2019	Yellow		100.00% Other	**None Detected**

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EMSL Order: 061922487
Customer ID: LBAP78
Customer PO: 2043465.18
Project ID:

Test Report:Asbestos Analysis of Bulk Material

Test	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos
Sample ID 42-84		**Description**	Hallway - Yellow Mastic associated with 12"x12" Blue, Tan and White w./ Brown Spots Floor Tiles		
061922487-0084		**Homogeneity**	Homogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	10/01/2019	Yellow		100.00% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	10/02/2019	Yellow		100.00% Other	**None Detected**
Sample ID 43-85		**Description**	Hallway - 12"x12" White w./ Brown Spots Floor Tiles		
061922487-0085		**Homogeneity**	Homogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	10/01/2019	White		100.00% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	10/02/2019	White		100.00% Other	**None Detected**
Sample ID 43-86		**Description**	Hallway - 12"x12" White w./ Brown Spots Floor Tiles		
061922487-0086		**Homogeneity**	Homogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	10/01/2019	White		100.00% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	10/02/2019	White		100.00% Other	**None Detected**
Sample ID 44-87		**Description**	Hallway - 12"x12" Tan Floor Tiles		
061922487-0087		**Homogeneity**	Homogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	10/01/2019	Tan		100.00% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	10/02/2019	Tan		100.00% Other	**None Detected**
Sample ID 44-88		**Description**	Hallway - 12"x12" Tan Floor Tiles		
061922487-0088		**Homogeneity**	Homogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	10/01/2019	Tan		100.00% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	10/02/2019	Tan		100.00% Other	**None Detected**
Sample ID 45-89		**Description**	Hallway - 12"x12" Blue Floor Tiles		
061922487-0089		**Homogeneity**	Homogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	10/01/2019	Blue		100.00% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	10/02/2019	Blue		100.00% Other	**None Detected**

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EMSL Order: 061922487
Customer ID: LBAP78
Customer PO: 2043465.18
Project ID:

Test Report:Asbestos Analysis of Bulk Material

Test	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos
Sample ID 45-90 *061922487-0090*		**Description**	Hallway - 12"x12" Blue Floor Tiles		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	10/01/2019	Blue		100.00% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	10/02/2019	Blue		100.00% Other	**None Detected**
Sample ID 46-91 *061922487-0091*		**Description**	Cafeteria - Black Mastic associated with 12"x12" White & Blue Floor Tiles		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	10/01/2019	Black		100.00% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	10/02/2019	Black		100.00% Other	**None Detected**
Sample ID 46-92 *061922487-0092*		**Description**	Cafeteria - Black Mastic associated with 12"x12" White & Blue Floor Tiles		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	10/01/2019	Black		100.00% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	10/02/2019	Black		100.00% Other	**None Detected**
Sample ID 47-93 *061922487-0093*		**Description**	Cafeteria - 12"x12" White Floor Tiles		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	10/01/2019	White		100.00% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	10/02/2019	White		100.00% Other	**None Detected**
Sample ID 47-94 *061922487-0094*		**Description**	Cafeteria - 12"x12" White Floor Tiles		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	10/01/2019	White		100.00% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	10/02/2019	White		100.00% Other	**None Detected**
Sample ID 48-95 *061922487-0095*		**Description**	Cafeteria - 12"x12" Blue Floor Tiles		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	10/01/2019	Blue		100.00% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	10/02/2019	Blue		100.00% Other	**None Detected**

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EMSL Order: 061922487
Customer ID: LBAP78
Customer PO: 2043465.18
Project ID:

Test Report:Asbestos Analysis of Bulk Material

Test	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos
Sample ID 48-96 *061922487-0096*		**Description** Cafeteria - 12"x12" Blue Floor Tiles **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	10/01/2019	Blue		100.00% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	10/02/2019	Blue		100.00% Other	**None Detected**
Sample ID 49-97 *061922487-0097*		**Description** Kitchen - Epoxy to Concrete Floor **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	10/01/2019	Brown		100.00% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	10/02/2019	Brown		100.00% Other	**None Detected**
Sample ID 49-98 *061922487-0098*		**Description** Kitchen - Epoxy to Concrete Floor **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	10/01/2019	Black		100.00% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	10/02/2019	Black		100.00% Other	**None Detected**
Sample ID 50-99 *061922487-0099*		**Description** Cafeteria - 2'x2' Fissure Ceiling Tiles **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	10/01/2019	Gray/ White	27.00% Min. Wool	73.00% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	10/02/2019	Gray/ White		100.00% Other	**None Detected**
Sample ID 50-100 *061922487-0100*		**Description** Cafeteria - 2'x2' Fissure Ceiling Tiles **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	10/01/2019	Gray/ White	55.00% Min. Wool	45.00% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	10/02/2019	Gray/ White		100.00% Other	**None Detected**
Sample ID 51-101 *061922487-0101*		**Description** Boys Restroom - Ceramic Wall Tile Grout **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	10/02/2019	Gray/ White	4.00% Cellulose	50.00% Ca Carbonate 11.00% Non-fibrous (other) 35.00% 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: 061922487
Customer ID: LBAP78
Customer PO: 2043465.18
Project ID:

Test Report:Asbestos Analysis of Bulk Material

Test	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos
Sample ID 51-102 *061922487-0102*		**Description** Boys Restroom - Ceramic Wall Tile Grout **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	10/02/2019	Gray/ White	<1.00% Cellulose	55.00% Ca Carbonate 15.00% 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 52-103 *061922487-0103*		**Description** 1st Floor - Restroom - Ceramic Floor Tile Mortar **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	10/02/2019	Gray/ Tan/ Various		20.00% Ca Carbonate 5.00% Non-fibrous (other) 75.00% 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 52-104 *061922487-0104*		**Description** 1st Floor - Restroom - Ceramic Floor Tile Mortar **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	10/02/2019	Gray/ Tan/ Various		25.00% Ca Carbonate 5.00% Non-fibrous (other) 70.00% 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 53-105 *061922487-0105*		**Description** Main Lobby - Vestibule - Stone Floor Mortar **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	10/02/2019	Brown/ Gray/ Various	3.00% Cellulose	25.00% Ca Carbonate 7.00% 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 53-106 *061922487-0106*		**Description** Main Lobby - Vestibule - Stone Floor Mortar **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	10/02/2019	Brown/ Gray/ Various	4.00% Cellulose	20.00% Ca Carbonate 6.00% Non-fibrous (other) 70.00% 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: 061922487
Customer ID: LBAP78
Customer PO: 2043465.18
Project ID:

Test Report:Asbestos Analysis of Bulk Material

Test	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos
Sample ID 54-107 *061922487-0107*		**Description** Boys Restroom - Ceramic Wall Tile Backing **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	10/02/2019	Tan/ White	2.00% Cellulose	30.00% Ca Carbonate 11.50% Non-fibrous (other) 55.00% Quartz	**1.50% Chrysotile**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 54-108 *061922487-0108*		**Description** Boys Restroom - Ceramic Wall Tile Backing **Homogeneity**			
PLM NYS 198.1 Friable	10/02/2019				**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 55-109 *061922487-0109*		**Description** Janitors Closet - Mudded Elbows associated with Fiberglass Pipe Insulation **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	10/02/2019	Tan/ White	10.00% Cellulose 15.00% Min. Wool	40.00% 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 55-110 *061922487-0110*		**Description** Janitors Closet - Mudded Elbows associated with Fiberglass Pipe Insulation **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	10/02/2019	Tan/ White	7.00% Cellulose 20.00% Min. Wool	45.00% 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 55-111 *061922487-0111*		**Description** Janitors Closet - Mudded Elbows associated with Fiberglass Pipe Insulation **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	10/02/2019	Tan/ White	5.00% Cellulose 18.00% Min. Wool	40.00% Ca Carbonate 37.00% 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:	061922487
Customer ID:	LBAP78
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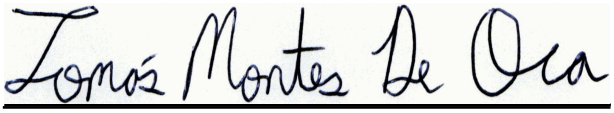
Test Report:Asbestos Analysis of Bulk Material

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:	9/30/2019	Sample Receipt Time:	7:12 AM
Analysis Completed Date:	10/1/2019	Analysis Completed Time:	2:36 PM

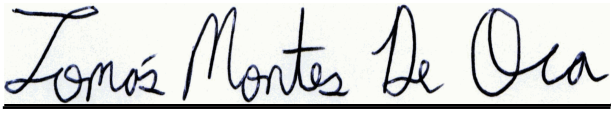
Analyst(s):



Tomas Montes De Oca PLM NYS 198.1 Friable (19)



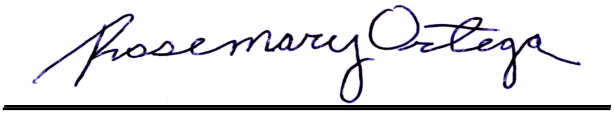
Omatie Ramrattan-Scarallo PLM NYS 198.6 NOB (42)



Tomas Montes De Oca PLM NYS 198.6 NOB (40)



Keith McWilliams TEM NYS 198.4 NOB (24)



Rosemary Ortega TEM NYS 198.4 NOB (51)

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: 10/02/2019 21:27:33

LOUIS BERGER

ASBESTOS SURVEY DATA SHEET/ CHAIN OF CUSTODY

PAGE 1 OF 10

LB PROJ 2043465.18
CLIENT: PUTNAM VALLEY S.D.

LOCATION(S) SURVEYED: ROOF, EXTERIOR & INTERIOR
PROPOSED PROJECT: ALTERATION & ADDITION
DATE(S) OF INSPECTION: 09/25-26/19
Inspector(s) M. UCCIONI & L. NEVAREZ

PROJECT SITE: PUTNAM VALLEY M.S. @ 142 PEEKSKILL HOLLOW RD, PUTNAM VALLEY NY
Project Manager: M. UCCIONI

LOUIS BERGER
TELEPHONE NO : (212) 612-7900 FAX NO.: (212) 363-4341
ADDRESS: 565 Taxter Rd, 5th Floor, Elmsford, NY 10533

RESULTS TO: MUCCIONI@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
01	01	Black vapor Barrier on concrete (Bottom)	Roof		
↓	02	↓	↓		
02	03	Felt paper to foam insulation (2nd layer)			061922487
↓	04	↓	↓		
03	05	Spray on membrain to foam insulation (Top)			
↓	06	↓	↓		
04	07	Perimiter / curb Flashings & Tar			
↓	08	↓	↓		
05	09	Spray on membrain to Foam insulation.			
↓	10	↓	↓		
06	11	Screed Deck (Bottom)	Mechanical Room on Roof		
↓	12	↓	↓		

RECEIVED
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Page 1 Of 10

CHAIN OF CUSTODY

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M. UCCIONI		09 '27 '19	AM/PM			/ / AM/PM				/ / AM/PM	
Received by: (print) D. Sandhu	(Sign)	9 30 19	7:12 AM/PM	Received by: (print)	(Sign)	/ / AM/PM		Received by: (print)	(Sign)	/ / AM/PM	

Jaime Montes De Oca 10/1/19 / 10/2/19

GENERAL NOTES: All inconclusive NOBs to be analyzed by TEM. Please stop at 1st positive in any homogeneous group.

TEM 10/2/19

OrderID: 061922487

LOUIS BERGER

ASBESTOS SURVEY DATA SHEET/ CHAIN OF CUSTODY

LB PROJ 20943965.18
CLIENT: PUTNAM VALLEY S.D.

PROJECT SITE: PUTNAM VALLEY M.S. @ 142 PEEKSKILL HOLLOW RD., PUTNAM VALLEY NY
Project Manager: M. LUCCIONI

LOCATION(S) SURVEYED: ROOF, EXTERIOR & INTERIOR
PROPOSED PROJECT: ALTERATION & ADDITION
DATE(S) OF INSPECTION: 09/25-26/19
Inspector(s) M. LUCCIONI & L. NEVAREZ

LOUIS BERGER
TELEPHONE NO.: (212) 612-7900 FAX NO.: (212) 363-4341
ADDRESS: 565 Taxter Rd, 5th Floor, Elmsford, NY 10533

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
07	13	Vapor Barrior on Screed Deck	Mechanical Room on Roof		
↓	14	↓	↓		
08	15	curb Flashing Tar paper			
↓	16	↓			
09	17	curb Flashing to Duct work			
↓	18	↓			
10	19	Coping Stone morter under metal cap.			
↓	20	↓			
11	21	foam insulation under HVAC unit			
↓	22	↓			
12	23	Vibration cloth to Duct			
↓	24	↓	↓		

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M. LUCCIONI		09/27/19				/ /				/ /	
Received by: (print)	(Sign)		AM/PM	Received by: (print)	(Sign)		AM/PM	Received by: (print)	(Sign)		AM/PM
D Sandhu		9/30/19	7:12			/ /				/ /	

Tomas Montes de Oca 10/1/19 | 10/2/19

Omaida Rivera 10/1/19 for

TEM 10/2/19

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HA	SAMPLE NO.	MATERIAL DESCRIPTION	SAMPLE LOCATION	APPROX. QUANTITY (LF/SF)	FIELD NOTES
13	25	Duct work Tar Insulation	mechanical Room on Roof		
↓	26	↓	↓		
14	27	Sealant on fiberglass pipe			
↓	28	↓			
15	29	Tar on Shims			
↓	30	↓			
16	31	Sealant to Duct work seams			
↓	32	↓		061922487	
17	33	Sealant to HVAC unit			
↓	34	↓			
18	35	Sealant to Screws	mechanical Room Roof		
↓	36	↓	↓		

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M. LUCCIONI		09/27/19					/ /					/ /		
Received by: (print)	(Sign)	Date	Time	AM/PM	Received by: (print)	(Sign)	Date	Time	AM/PM	Received by: (print)	(Sign)	Date	Time	AM/PM
O. Sandlin		9.30.19	7:12				/ /					/ /		

Lorna Montes De Oca 10/1/19 / 10/2/19 per pm

Donald Bernard 10/1/19

TEM 10/2/19

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HA	SAMPLE NO.	MATERIAL DESCRIPTION	SAMPLE LOCATION	APPROX. QUANTITY (LF/SF)	FIELD NOTES
19	37	glue to medal roof	mechanical Room Roof		
↓	38				
20	39	Exterior Brick mortar	court yard		
↓	40				
21	41	Door Frame calking (Brown) Type 1			
↓	42				
22	43	Door Frame calking (Beige) Type 2			
↓	44				
23	45	Door Frame calking (Grey) Type 3	Exterior to Boys locker room		
↓	46			061922487	
24	47	Exterior window frame calking (Grey) Type 1	Roof Area		
↓	48				

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Page 4 Of 10

CHAIN OF CUSTODY

Relinquished by: (print)	(Sign)			Relinquished by: (print)	(Sign)			Relinquished by: (print)	(Sign)		
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Received by: (print)	(Sign)			Received by: (print)	(Sign)			Received by: (print)	(Sign)		
D. Sandhu		9/30/19	7:12 AM/PM			/ /	AM/PM			/ /	AM/PM

Tomas Montes DeOca 10/1/19 | 10/2/19

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10/1/19 10/2/19

OrderID: 061922487

LOUIS BERGER

ASBESTOS SURVEY DATA SHEET/ CHAIN OF CUSTODY

LB PROJ 2043465.18
CLIENT: PUTNAM VALLEY S.D.

LOCATION(S) SURVEYED: ROOF, EXTERIOR & INTERIOR
PROPOSED PROJECT: ALTERATION & ADDITION
DATE(S) OF INSPECTION: 09/25-26/19
Inspector(s) M. LUCCIONI & L. NEVAREZ

PROJECT SITE: PUTNAM VALLEY M.S. @ 142 PEEKSKILL HOLLOW RD., PUTNAM VALLEY NY
Project Manager: M. LUCCIONI

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TELEPHONE NO.: (212) 612-7900 FAX NO.: (212) 363-4341
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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
25	49	Exterior Window Frame calking (Grey) Type 2	Roof Area		
↓	50	↓	↓		
26	51	Exterior window Frame calking (Grey) Type 3	Courtyard		
↓	52	↓	↓		
27	53	Exterior Expantion Joint White	Roof Area		
↓	54	↓	↓		
28	55	Exterior Expantion Joint (Beige)	↓		
↓	56	↓	↓		
29	57	Laver calking (white)	Court yard	061922487	
↓	58	↓	↓		
30	59	Exterior Stone walkway calking (Grey)	Vestibule B		
↓	60	↓	↓		

EMSL ANALYTICAL, INC. CARLE PLACE, NY 19 SEP 30 AM 7:12

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M. LUCCIONI		09/27/19	AM/PM			/ /	AM/PM			/ /	AM/PM
Received by: (print) D. Sandhu	(Sign)	9/30/19	7:13 AM/PM	Received by: (print)	(Sign)	/ /	AM/PM	Received by: (print)	(Sign)	/ /	AM/PM

Lomé Monte DeOca 10/1/19 / 10/2/19 TEM 10/2/19

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10/1/19

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LOUIS BERGER

ASBESTOS SURVEY DATA SHEET/ CHAIN OF CUSTODY

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HA	SAMPLE NO.	MATERIAL DESCRIPTION	SAMPLE LOCATION	APPROX. QUANTITY (LF/SF)	FIELD NOTES
31	61	interior Door frame caulking (Beige)	Cafiteria		Entrance Doors
↓	62	↓	↓		↓
32	63	Yellow mastic Associated with 4" Blue cove Base.	Hallway		outside Janitors closet
↓	64	↓	↓		↓
33	65	Tan mastic Associated with 4" Black cove Base	copy room		
↓	66	↓	↓		
34	67	Yellow mastic Associated with 4" Black cove Base	Cafiteria		
↓	68	↓	↓		
35	69	Yellow mastic Associated with 12X12 Beige Floor Tile	copy room		
↓	70	↓	↓		
36	71	12 X12 Beige Floor Tile	↓		
↓	72	↓	↓		

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EMSL ANALYTICAL, INC. EARLE PLACE, NY
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M. LUCCIONI		09 27 19				/ /				/ /	
Received by: (print)	(Sign)		AM/PM	Received by: (print)	(Sign)		AM/PM	Received by: (print)	(Sign)		AM/PM
O. Sandhu		9 30 19	7:13			/ /				/ /	

Jesus Montalvo De Oca 10/1/19 | 10/2/19 — 10/2/19 — 10/1/19

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OrderID: 061922487

LOUIS BERGER

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Project Manager: M. LUCCIONI

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DATE(S) OF INSPECTION: 09/25-26/19
Inspector(s) M. LUCCIONI & L. NEVAREZ

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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
37	73	Yellow mastic Associated with 12X12 light Blue Floor Tiles	media center		
↓	74	↓	↓		
38	75	12X12 light Blue Floor tiles			
↓	76	↓	↓		
39	77	Brown mastic Associated with 12x12 white & Blue Floor Tiles	Nurse office		
↓	78	↓	↓		
40	79	12X12 white Floor tiles			
↓	80	↓	↓		
41	81	12X12 Blue Floor Tiles		061922487	
↓	82	↓	↓		
42	83	Yellow mastic Associated with 12X12 Blue, Tan and white w/ Brown spots Floor tile	Hallway		
↓	84	↓	↓		

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M. LUCCIONI		09/27/19	AM/PM			/ /	AM/PM			/ /	AM/PM
Received by: (print)	(Sign)			Received by: (print)	(Sign)			Received by: (print)	(Sign)		
P Sandhu		9/30/19	7:13 AM/PM			/ /	AM/PM			/ /	AM/PM

Jomis Montes De Oca 10/1/19 / 10/2/19 TBM 10/2/19 10/2/19

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ASBESTOS SURVEY DATA SHEET/ CHAIN OF CUSTODY

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Project Manager: M. LUCCIONI

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PROPOSED PROJECT: ALTERATION & ADDITION
DATE(S) OF INSPECTION: 09/25-26/19
Inspector(s) M. LUCCIONI & L. NEVAREZ

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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
43	85	12x12 white w/ Brown spots Floor tile	Hallway		
↓	86	↓	↓		
44	87	12x12 tan Floor tiles	↓		
↓	88	↓	↓		
45	89	12x12 Blue Floor tiles	↓		
↓	90	↓	↓		
46	91	Black mastic associated with white & Blue Floor tiles	Cafiteria		
↓	92	↓	↓		
47	93	12x12 white Floor tiles	↓	061922487	
↓	94	↓	↓		
48	95	12x12 Blue Floor tiles	↓		
↓	96	↓	↓		

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19 SEP 30 AM 7:13

CHAIN OF CUSTODY

Relinquished by: (print)	(Sign)		AM/PM	Relinquished by: (print)	(Sign)		AM/PM	Relinquished by: (print)	(Sign)		AM/PM
M. LUCCIONI		09/27/19				/ /				/ /	
Received by: (print)	(Sign)		AM/PM	Received by: (print)	(Sign)		AM/PM	Received by: (print)	(Sign)		AM/PM
O. Sandhu		9/30/19	7:13			/ /				/ /	

Fonso Montalbo 10/1/19 / 10/2/19 TEM 10/2/19 10/1/19

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HA	SAMPLE NO.	MATERIAL DESCRIPTION	SAMPLE LOCATION	APPROX. QUANTITY (LF/SF)	FIELD NOTES
49	97	Appoxi to concret floor	Kitchen		
↓	98	↓	↓		
50	99	2X2 Fisher celing Tiles	Cafiteria	061922487	
↓	100	↓	↓		
51	101	Ceramic wall Tile Grout	Boys restroom		near Kitchen
↓	102	↓	↓		
52	103	Cecamic Floor tile mortor	1st Floor Restroom		
↓	104	↓	↓		
53	105	Stone floor mortor	Main lobby vestibule		
↓	106	↓	↓		
54	107	Ceramic wall Tile Backing	Boys restroom		
↓	108	↓	↓		

LOUIS BERGER - ANALYTICAL, INC. CARLE PLACE, NY
19 SEP 30 AM 7:13

CHAIN OF CUSTODY

Relinquished by: (print)	(Sign)			Relinquished by: (print)	(Sign)			Relinquished by: (print)	(Sign)		
1) M. LUCCIONI		09/27/19	AM/PM			/ /	AM/PM			/ /	AM/PM
Received by: (print)	(Sign)			Received by: (print)	(Sign)			Received by: (print)	(Sign)		
1) D. Sandhu		9/30/19	7:13 AM/PM			/ /	AM/PM			/ /	AM/PM

1hr pm Tomás Montalbetti 10/1/19 / 10/2/19 TOM 10/2/19

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HA	SAMPLE NO.	MATERIAL DESCRIPTION	SAMPLE LOCATION	APPROX. QUANTITY (LF/SF)	FIELD NOTES
SS	109	Mudded Elbows Associated with fiber glass pipe insulation	Janitors closet		
↓	110	↓	↓		
↓	111	↓	↓		
			06192487		

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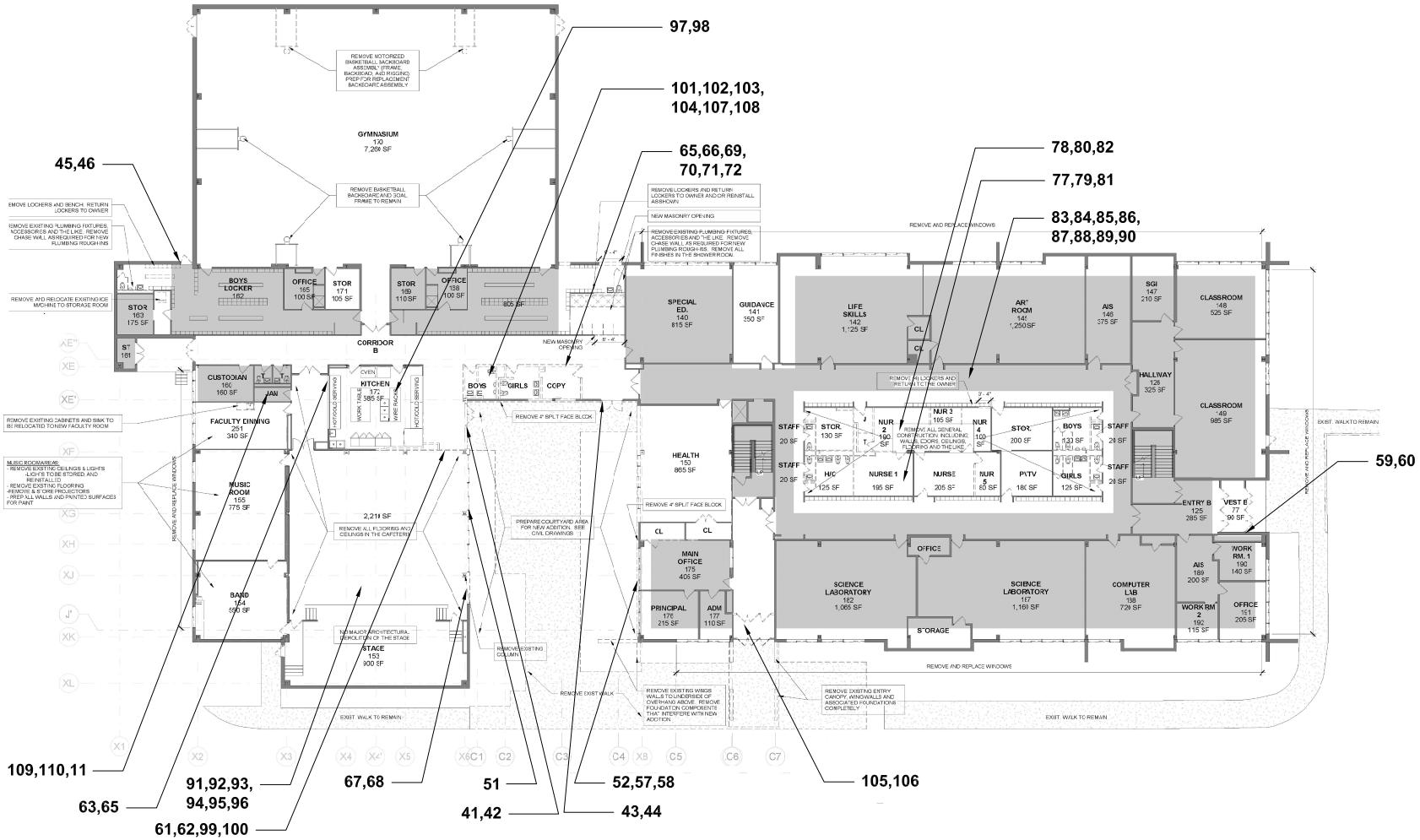
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M. LUCCIONI		09/27/19					/ /					/ /		
Received by: (print)	(Sign)	Date	Time	AM/PM	Received by: (print)	(Sign)	Date	Time	AM/PM	Received by: (print)	(Sign)	Date	Time	AM/PM
D. Sandhu		9/30/19	7:13				/ /					/ /		

for Tomasi Montalbano 10/1/19 / 10/2/19 TEM 10/2/19 10/1/19

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OrderID: 061922487

APPENDIX C:
ASBESTOS BULK SAMPLE LOCATION DRAWINGS



1 FIRST FLOOR PLAN
SCALE: NOT TO SCALE

PUTNAM VALLEY MIDDLE SCHOOL ADDITION & ALTERATIONS

142 PEEKSKILL HOLLOW RD
PUTNAM VALLEY, NY 10579

ENVIRONMENTAL CONSULTANT

wsp

565 Taxter Road, 5th Floor – Elmsford, New York 10523
TEL: 914.786.3710 FAX: 914.592.1724 WWW.WSP.COM

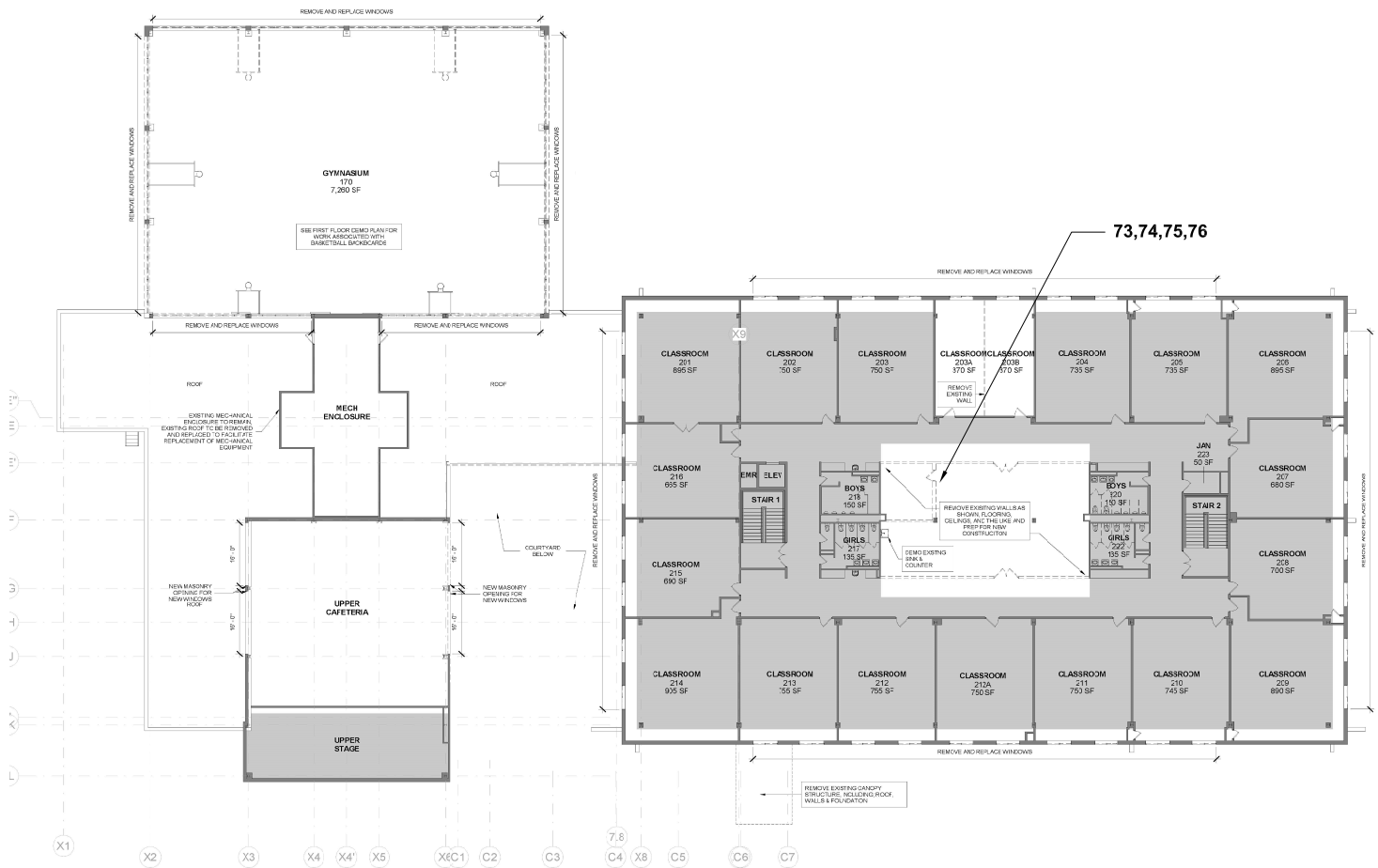
Key Plan

No.	Date	Issue

Sheet Title
BULK SAMPLE LOCATIONS FIRST FLOOR PLAN

Job No.	Date
20434465.18	10/03/2019
Scale: AS NOTED	Drawn / Checked: JP/ML

Sheet Number
BSL001



1 SECOND FLOOR PLAN

SCALE: NOT TO SCALE

PUTNAM VALLEY MIDDLE SCHOOL ADDITION & ALTERATIONS

142 PEEKSKILL HOLLOW RD
PUTNAM VALLEY, NY 10579

ENVIRONMENTAL CONSULTANT

wsp

565 Taxter Road, 5th Floor – Elmsford, New York 10523
TEL: 914.786.3710 FAX: 914.592.1724 WWW.WSP.COM

Key Plan

No.	Date	Issue

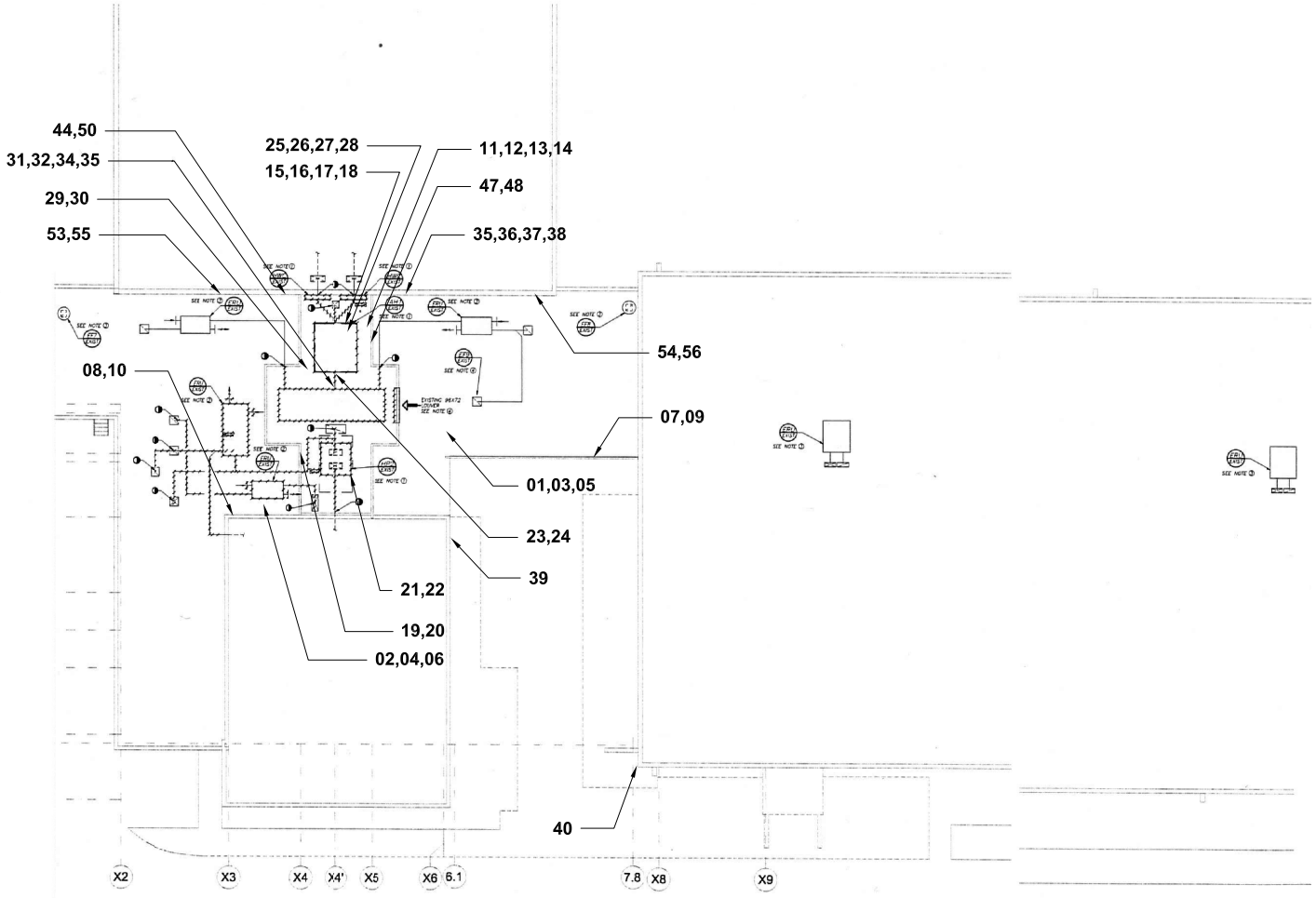
Sheet Title

BULK SAMPLE LOCATIONS SECOND FLOOR PLAN

Job No.	Date
20434465.18	10/03/2019
Scale: AS NOTED	Drawn / Checked: JPML

Sheet Number

BSL002



1 PARTIAL ROOF PLAN

SCALE: NOT TO SCALE

PUTNAM VALLEY MIDDLE SCHOOL ADDITION & ALTERATIONS

142 PEEKSKILL HOLLOW RD
PUTNAM VALLEY, NY 10579

ENVIRONMENTAL CONSULTANT

wsp

565 Taxter Road, 5th Floor – Elmsford, New York 10523
TEL: 914.786.3710 FAX: 914.592.1724 WWW.WSP.COM

Key Plan

No.	Date	Issue

Sheet Title

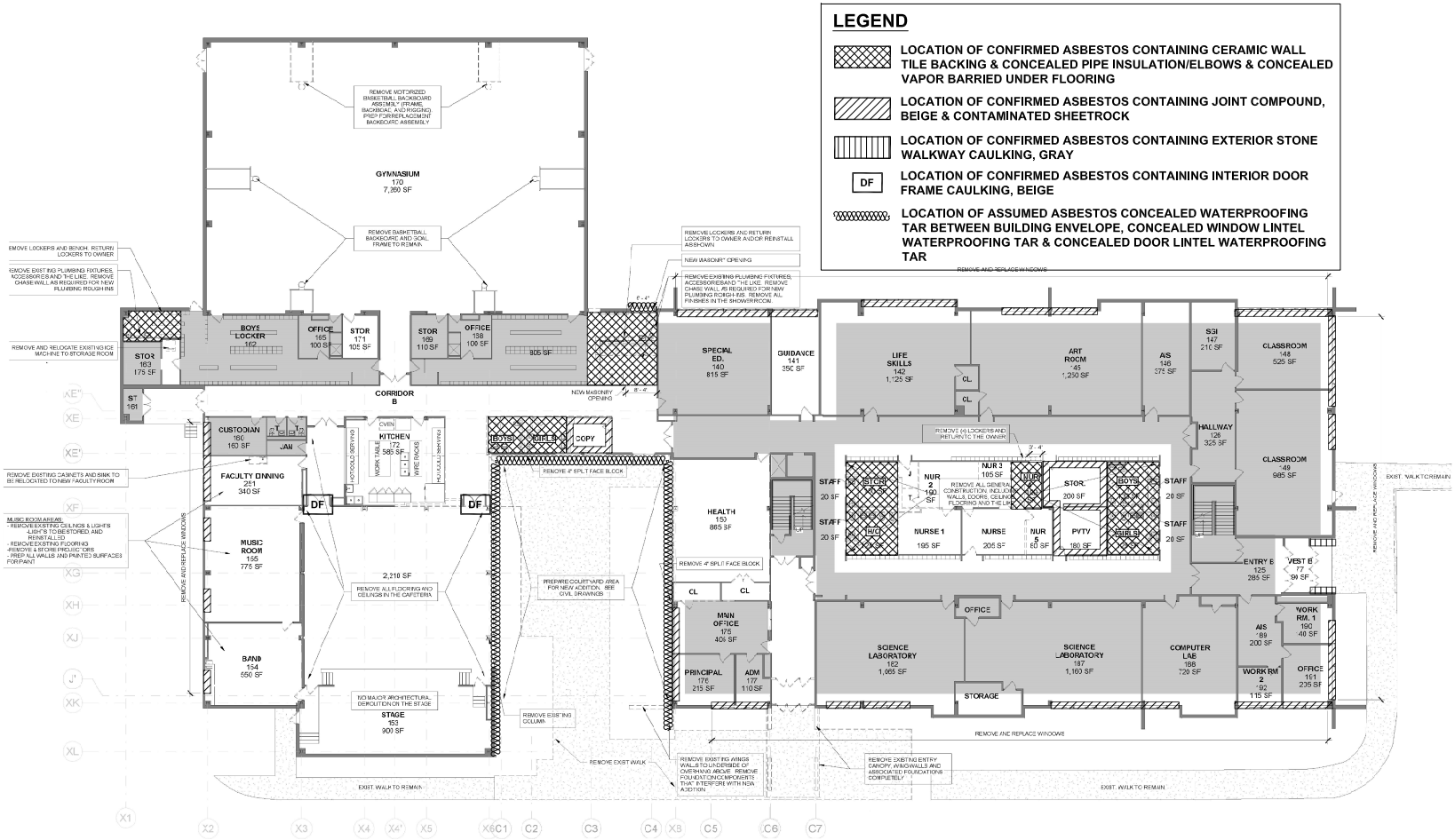
BULK SAMPLE LOCATIONS SECOND FLOOR PLAN

Job No.	Date
20434465.18	10/03/2019
Scale	Drawn / Checked
AS NOTED	JP/ML

Sheet Number

BSL003

APPENDIX D:
ASBESTOS CONTAINING MATERIALS LOCATION DRAWINGS



1 FIRST FLOOR PLAN
SCALE: APPROX. 3/32" = 1'-0"

PUTNAM VALLEY MIDDLE SCHOOL ADDITION & ALTERATIONS

142 PEEKSKILL HOLLOW RD
PUTNAM VALLEY, NY 10579

ENVIRONMENTAL CONSULTANT
wsp
565 Taxter Road, 5th Floor – Elmsford, New York 10523
TEL: 914.798.3710 FAX: 914.592.1724 WWW.WSP.COM

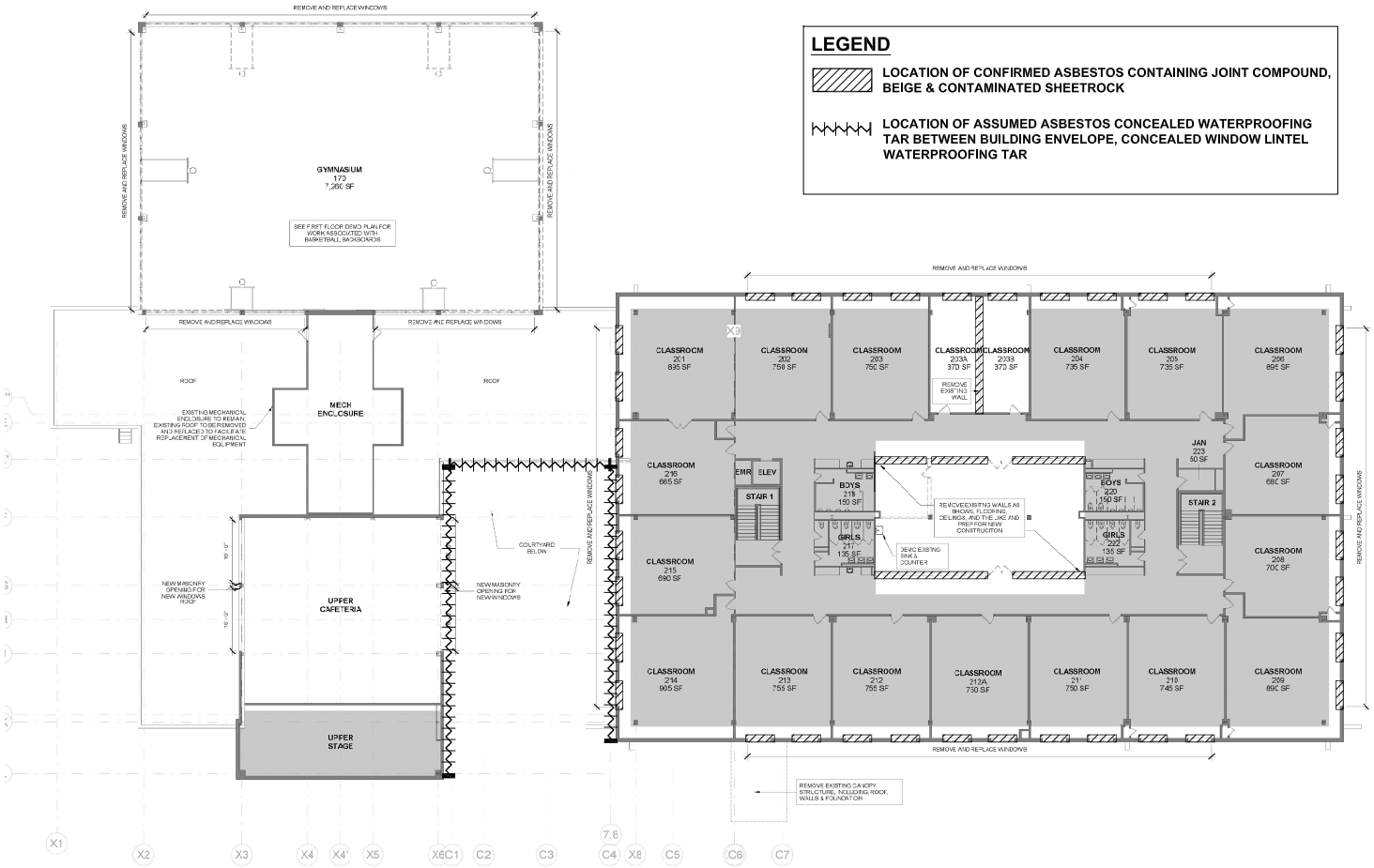
Key Plan

No.	Date	Issue

Sheet Title
ASBESTOS CONTAINING MATERIALS FIRST FLOOR PLAN

Job No.	Date
20434465.18	10/11/2019
Scale	Drawn / Checked
AS NOTED	JP/ML

Sheet Number
ACM001



LEGEND

LOCATION OF CONFIRMED ASBESTOS CONTAINING JOINT COMPOUND, BEIGE & CONTAMINATED SHEETROCK

LOCATION OF ASSUMED ASBESTOS CONCEALED WATERPROOFING TAR BETWEEN BUILDING ENVELOPE, CONCEALED WINDOW LINTEL WATERPROOFING TAR

1 SECOND FLOOR PLAN

SCALE: APPROX. 3/32" = 1'-0"

PUTNAM VALLEY MIDDLE SCHOOL ADDITION & ALTERATIONS

142 PEEKSKILL HOLLOW RD
PUTNAM VALLEY, NY 10579

ENVIRONMENTAL CONSULTANT

wsp

565 Taxter Road, 5th Floor – Elmsford, New York 10523
TEL: 914.798.3710 FAX: 914.592.1724 WWW.WSP.COM

Key Plan

No.	Date	Issue

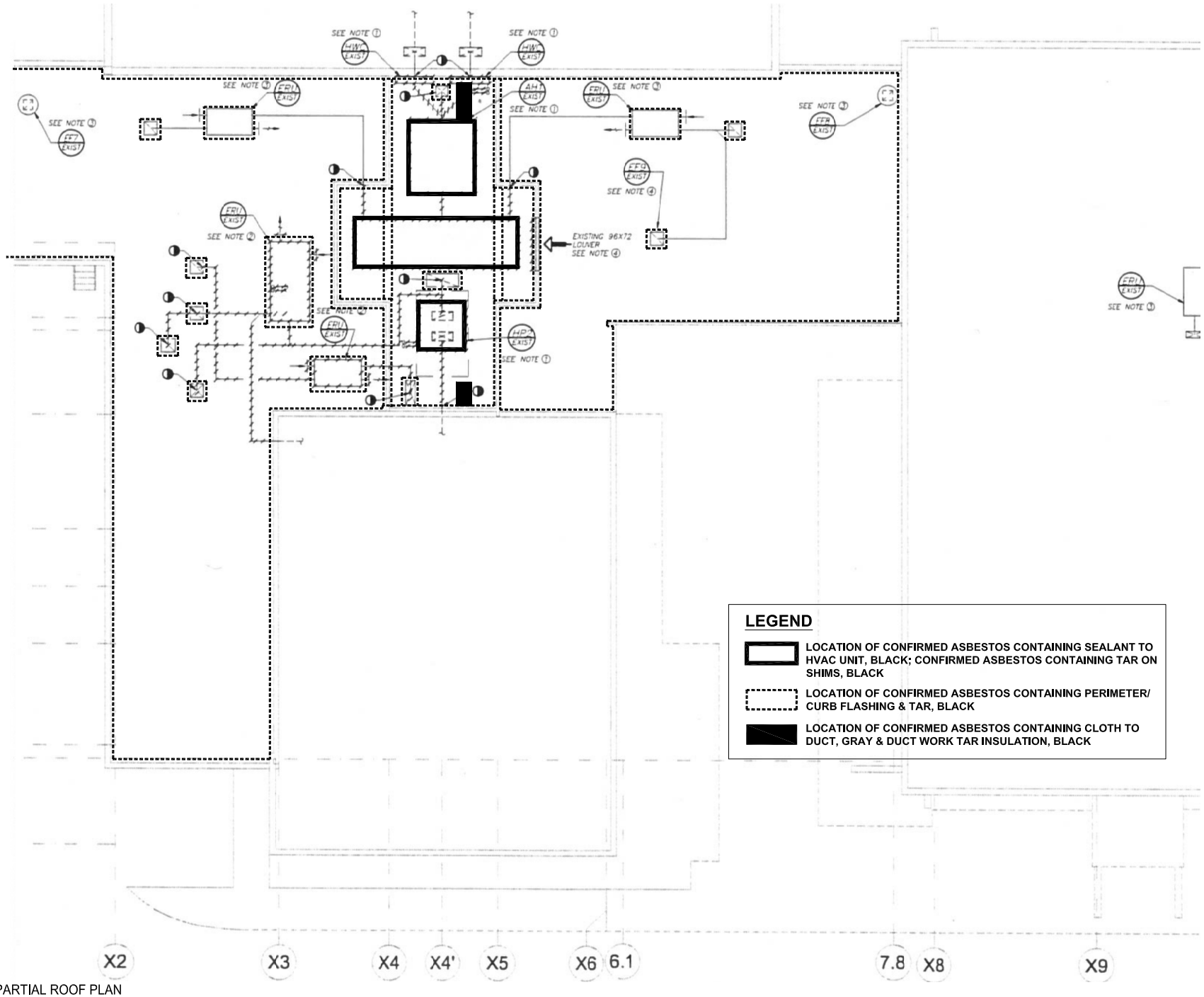
Sheet Title

ASBESTOS CONTAINING MATERIALS SECOND FLOOR PLAN

Job No.	Date
20434465.18	10/11/2019
Scale: AS NOTED	Drawn / Checked: JPML

Sheet Number

ACM002



LEGEND

- LOCATION OF CONFIRMED ASBESTOS CONTAINING SEALANT TO HVAC UNIT, BLACK; CONFIRMED ASBESTOS CONTAINING TAR ON SHIMS, BLACK
- LOCATION OF CONFIRMED ASBESTOS CONTAINING PERIMETER/ CURB FLASHING & TAR, BLACK
- LOCATION OF CONFIRMED ASBESTOS CONTAINING CLOTH TO DUCT, GRAY & DUCT WORK TAR INSULATION, BLACK

1 PARTIAL ROOF PLAN
SCALE: APPROX. 3/16" = 1'-0"

PUTNAM VALLEY MIDDLE SCHOOL ADDITION & ALTERATIONS

142 PEEKSKILL HOLLOW RD
PUTNAM VALLEY, NY 10579

ENVIRONMENTAL CONSULTANT
wsp
565 Taxter Road, 5th Floor – Elmsford, New York 10523
TEL: 914.798.3710 FAX: 914.592.1724 WWW.WSP.COM

Key Plan

No.	Date	Issue

Sheet Title
ASBESTOS CONTAINING MATERIALS PARTIAL ROOF PLAN

Job No.	Date
2043465.18	10/10/2019
Scale	Drawn / Checked
AS NOTED	JP/ML

Sheet Number
ACM003

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
Phone: (212) 612-7900
Fax:

10/7/2019

The following analytical report covers the analysis performed on samples submitted to EMSL Analytical, Inc. on 9/30/2019. The results are tabulated on the attached data pages for the following client designated project:

2043465.18

The reference number for these samples is EMSL Order #011912315. 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: 011912315
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: 09/30/19 3:00 PM

Project: **2043465.18**

Analytical Results

Client Sample Description 01,02,03 Exterior expantion joint (beige) ***Collected:*** 9/25/2019 ***Lab ID:*** *011912315-0001*

Method	*Parameter*	*Result*	*RL*	*Units*	*Prep Date & Analyst*		*Analysis Date & Analyst*	
GC-SVOA								
3546/8082A	Aroclor-1016	ND D	9.3	mg/Kg	10/1/2019	AB	10/01/19 0:00	EH
3546/8082A	Aroclor-1221	ND D	9.3	mg/Kg	10/1/2019	AB	10/01/19 0:00	EH
3546/8082A	Aroclor-1232	ND D	9.3	mg/Kg	10/1/2019	AB	10/01/19 0:00	EH
3546/8082A	Aroclor-1242	ND D	9.3	mg/Kg	10/1/2019	AB	10/01/19 0:00	EH
3546/8082A	Aroclor-1248	ND D	9.3	mg/Kg	10/1/2019	AB	10/01/19 0:00	EH
3546/8082A	Aroclor-1254	95 D	9.3	mg/Kg	10/1/2019	AB	10/01/19 0:00	EH
3546/8082A	Aroclor-1260	38 D	9.3	mg/Kg	10/1/2019	AB	10/01/19 0:00	EH
3546/8082A	Aroclor-1262	ND D	9.3	mg/Kg	10/1/2019	AB	10/01/19 0:00	EH
3546/8082A	Aroclor-1268	ND D	9.3	mg/Kg	10/1/2019	AB	10/01/19 0:00	EH

Client Sample Description 04,05,06 Exterior door frame caulking (brown) type 1 ***Collected:*** 9/25/2019 ***Lab ID:*** *011912315-0002*

Method	*Parameter*	*Result*	*RL*	*Units*	*Prep Date & Analyst*		*Analysis Date & Analyst*	
GC-SVOA								
3546/8082A	Aroclor-1016	ND D	0.94	mg/Kg	10/1/2019	AB	10/01/19 0:00	EH
3546/8082A	Aroclor-1221	ND D	0.94	mg/Kg	10/1/2019	AB	10/01/19 0:00	EH
3546/8082A	Aroclor-1232	ND D	0.94	mg/Kg	10/1/2019	AB	10/01/19 0:00	EH
3546/8082A	Aroclor-1242	ND D	0.94	mg/Kg	10/1/2019	AB	10/01/19 0:00	EH
3546/8082A	Aroclor-1248	ND D	0.94	mg/Kg	10/1/2019	AB	10/01/19 0:00	EH
3546/8082A	Aroclor-1254	ND D	0.94	mg/Kg	10/1/2019	AB	10/01/19 0:00	EH
3546/8082A	Aroclor-1260	ND D	0.94	mg/Kg	10/1/2019	AB	10/01/19 0:00	EH
3546/8082A	Aroclor-1262	ND D	0.94	mg/Kg	10/1/2019	AB	10/01/19 0:00	EH
3546/8082A	Aroclor-1268	ND D	0.94	mg/Kg	10/1/2019	AB	10/01/19 0:00	EH

Client Sample Description 07,08,09 Exterior window frame caulking (grey) type 1 ***Collected:*** 9/25/2019 ***Lab ID:*** *011912315-0003*

Method	*Parameter*	*Result*	*RL*	*Units*	*Prep Date & Analyst*		*Analysis Date & Analyst*	
GC-SVOA								
3546/8082A	Aroclor-1016	ND D	1200	mg/Kg	10/1/2019	AB	10/01/19 0:00	EH
3546/8082A	Aroclor-1221	ND D	1200	mg/Kg	10/1/2019	AB	10/01/19 0:00	EH
3546/8082A	Aroclor-1232	ND D	1200	mg/Kg	10/1/2019	AB	10/01/19 0:00	EH
3546/8082A	Aroclor-1242	ND D	1200	mg/Kg	10/1/2019	AB	10/01/19 0:00	EH
3546/8082A	Aroclor-1248	ND D	1200	mg/Kg	10/1/2019	AB	10/01/19 0:00	EH

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: 011912315
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: 09/30/19 3:00 PM

Project: **2043465.18**

Analytical Results

Client Sample Description 07,08,09 Exterior window frame caulking (grey) type 1 ***Collected:*** 9/25/2019 ***Lab ID:*** *011912315-0003*

Method	Parameter	Result	RL	Units	Prep Date & Analyst		Analysis Date & Analyst	
GC-SVOA								
3546/8082A	Aroclor-1254	30000 D	1200	mg/Kg	10/1/2019	AB	10/01/19 0:00	EH
3546/8082A	Aroclor-1260	9900 D	1200	mg/Kg	10/1/2019	AB	10/01/19 0:00	EH
3546/8082A	Aroclor-1262	ND D	1200	mg/Kg	10/1/2019	AB	10/01/19 0:00	EH
3546/8082A	Aroclor-1268	ND D	1200	mg/Kg	10/1/2019	AB	10/01/19 0:00	EH

Client Sample Description 10,11,12 Exterior window frame caulking (grey) type 2 ***Collected:*** 9/25/2019 ***Lab ID:*** *011912315-0004*

Method	Parameter	Result	RL	Units	Prep Date & Analyst		Analysis Date & Analyst	
GC-SVOA								
3546/8082A	Aroclor-1016	ND D	5900	mg/Kg	10/1/2019	AB	10/02/19 0:00	EH
3546/8082A	Aroclor-1221	ND D	5900	mg/Kg	10/1/2019	AB	10/02/19 0:00	EH
3546/8082A	Aroclor-1232	ND D	5900	mg/Kg	10/1/2019	AB	10/02/19 0:00	EH
3546/8082A	Aroclor-1242	ND D	5900	mg/Kg	10/1/2019	AB	10/02/19 0:00	EH
3546/8082A	Aroclor-1248	ND D	5900	mg/Kg	10/1/2019	AB	10/02/19 0:00	EH
3546/8082A	Aroclor-1254	35000 D	5900	mg/Kg	10/1/2019	AB	10/02/19 0:00	EH
3546/8082A	Aroclor-1260	88000 D	5900	mg/Kg	10/1/2019	AB	10/02/19 0:00	EH
3546/8082A	Aroclor-1262	ND D	5900	mg/Kg	10/1/2019	AB	10/02/19 0:00	EH
3546/8082A	Aroclor-1268	ND D	5900	mg/Kg	10/1/2019	AB	10/02/19 0:00	EH

Client Sample Description 13,14,15 Exterior door frame caulking (beige) type 2 ***Collected:*** 9/25/2019 ***Lab ID:*** *011912315-0005*

Method	Parameter	Result	RL	Units	Prep Date & Analyst		Analysis Date & Analyst	
GC-SVOA								
3546/8082A	Aroclor-1016	ND D	0.95	mg/Kg	10/1/2019	AB	10/01/19 0:00	EH
3546/8082A	Aroclor-1221	ND D	0.95	mg/Kg	10/1/2019	AB	10/01/19 0:00	EH
3546/8082A	Aroclor-1232	ND D	0.95	mg/Kg	10/1/2019	AB	10/01/19 0:00	EH

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: 011912315
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: 09/30/19 3:00 PM

Project: **2043465.18**

Analytical Results

Client Sample Description 13,14,15 Exterior door frame caulking (beige) type 2 ***Collected:*** 9/25/2019 ***Lab ID:*** *011912315-0005*

Method	*Parameter*	*Result*	*RL*	*Units*	*Prep Date & Analyst*		*Analysis Date & Analyst*	
GC-SVOA								
3546/8082A	Aroclor-1242	ND D	0.95	mg/Kg	10/1/2019	AB	10/01/19 0:00	EH
3546/8082A	Aroclor-1248	ND D	0.95	mg/Kg	10/1/2019	AB	10/01/19 0:00	EH
3546/8082A	Aroclor-1254	2.1 D	0.95	mg/Kg	10/1/2019	AB	10/01/19 0:00	EH
3546/8082A	Aroclor-1260	1.2 D	0.95	mg/Kg	10/1/2019	AB	10/01/19 0:00	EH
3546/8082A	Aroclor-1262	ND D	0.95	mg/Kg	10/1/2019	AB	10/01/19 0:00	EH
3546/8082A	Aroclor-1268	ND D	0.95	mg/Kg	10/1/2019	AB	10/01/19 0:00	EH

Client Sample Description 16,17,18 Exterior door frame caulking (grey) type 3 ***Collected:*** 9/25/2019 ***Lab ID:*** *011912315-0006*

Method	*Parameter*	*Result*	*RL*	*Units*	*Prep Date & Analyst*		*Analysis Date & Analyst*	
GC-SVOA								
3546/8082A	Aroclor-1016	ND D	5800	mg/Kg	10/1/2019	AB	10/02/19 0:00	EH
3546/8082A	Aroclor-1221	ND D	5800	mg/Kg	10/1/2019	AB	10/02/19 0:00	EH
3546/8082A	Aroclor-1232	ND D	5800	mg/Kg	10/1/2019	AB	10/02/19 0:00	EH
3546/8082A	Aroclor-1242	ND D	5800	mg/Kg	10/1/2019	AB	10/02/19 0:00	EH
3546/8082A	Aroclor-1248	ND D	5800	mg/Kg	10/1/2019	AB	10/02/19 0:00	EH
3546/8082A	Aroclor-1254	44000 D	5800	mg/Kg	10/1/2019	AB	10/02/19 0:00	EH
3546/8082A	Aroclor-1260	81000 D	5800	mg/Kg	10/1/2019	AB	10/02/19 0:00	EH
3546/8082A	Aroclor-1262	ND D	5800	mg/Kg	10/1/2019	AB	10/02/19 0:00	EH
3546/8082A	Aroclor-1268	ND D	5800	mg/Kg	10/1/2019	AB	10/02/19 0:00	EH

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

011912315

LOUIS BERGER

PCB SURVEY DATA SHEET/ CHAIN OF CUSTODY

LB PROJ #: 2043465.18
CLIENT: P.V.S.D.
CLIENT JOB N0:
PROJECT SITE: PUTNAM M.S @ 142 PEEKSKILL HOLLOW RD, PUTNAM VALLEY NY
Project Manager: M. LUCCIONI
LOCATION(S) SURVEYED: COURTYARD, ROOF, EXTER.OR & INTERIOR
PROPOSED PROJECT: ALTERATIONS & ADDITIONS
DATE(S) OF INSPECTION: 09/25-26/19
Inspector(s): M. LUCCIONI & L. NEVAREZ

LOUIS BERGER
TELEPHONE N0. : (212) 612-7900 FAX N0.: (212) 363-4341
ADDRESS: 96 Morton Street, 8 Floor, New York, NY 10014

RESULTS TO: MLUCCIONI@LOUISBERGER.COM

TURNAROUND TIME: ☐48 HR ☐72 HR ☐96 HR ☒120 HR

LAB SAMPLE NO.	HA	SAMPLE NO.	MATERIAL DESCRIPTION	SAMPLE LOCATION	APPROX. QUANTITY (LF/SF)	FIELD NOTES
	01	01	Exterior Expantion Joint (Beige)	courtyard		
(1)	↓	02	↓	↓		
	↓	03	↓	↓		
	02	04	Exterior Door Frame calking (Brown) Type 1	↓		
(2)	↓	05	↓	↓		
	↓	06	↓	↓		
	03	07	Exterior Window Frame calking (Grey) Type 1	Roof Area		
(3)	↓	08	↓	↓		
	↓	09	↓	↓		
	04	10	Exterior Window Frame calking (gray) Type 2	↓		
(4)	↓	11	↓	↓		
	↓	12	↓	↓		

EMSL ANALYTICAL, INC. CARLE PLACE, NY
19 SEP 30 AM 7:22

CHAIN OF CUSTODY

Relinquished by: (print)	(Sign)			Relinquished by: (print)	(Sign)			Relinquished by: (print)	(Sign)		
M. LUCCIONI		09/30/19	AM/PM			/ /	AM/PM			/ /	AM/PM
Received by: (print)	(Sign)			Received by: (print)	(Sign)			Received by: (print)	(Sign)		
Katherine Viaud		09/30/19	7:22 AM/PM			/ /	AM/PM			9/30/19	3pm AM/PM

9-30-19 3:10pm

LAB INSTRUCTIONS: create one (1) composite sample of each homogeneous material from equal mass portions (± 5%) of the three (3) sub-samples for extraction and analysis via EPA Method 8082 and report the Arochlors listed (Arochlor 1016, Arochlor 1221, Arochlor 1232, Arochlor 1242, Arochlor 1248, Arochlor 1254, Arochlor 1260). The laboratory shall target a PCB detection limit of 1 ppm

recvd in plastic 4°C

OrderID: 011912315

011912315

LOUIS BERGER

PCB SURVEY DATA SHEET/ CHAIN OF CUSTODY

LB PROJ #: _____ CLIENT JOB NO: _____

CLIENT: _____

PROJECT SITE: _____

Project Manager: _____

LOCATION(S) SURVEYED : _____

PROPOSED PROJECT : _____

DATE(S) OF INSPECTION: _____

Inspector(s): _____

LOUIS BERGER
TELEPHONE NO. : (212) 612-7900 FAX NO.: (212) 363-4341
ADDRESS: 96 Morton Street, 8 Floor, New York, NY 10014

RESULTS TO: _____

TURNAROUND TIME:
☐48 HR ☐72 HR ☐96 HR ☐ 120 HR

LAB SAMPLE NO.	HA	SAMPLE NO.	MATERIAL DESCRIPTION	SAMPLE LOCATION	APPROX. QUANTITY (LF/SF)	FIELD NOTES
	05	13	Exterior Door Frame caulking (Beige) Type 2	Courtyard		
(5)	↓	14	↓	↓		
	↓	15	↓	↓		
	06	16	Exterior Door Frame caulking (Grey) Type 3	Exterior at Boys locker room		
(6)	↓	17	↓	↓		
	↓	18	↓	↓		

RECEIVED
ANALYTICAL, INC.
CARLE PLACE, NY
19 SEP 30 AM 7:22

Page 2 Of 2

CHAIN OF CUSTODY

Relinquished by:	(Sign)			Relinquished by: (print)	(Sign)			Relinquished by: (print)	(Sign)		
M. Wooten		09/30/19	AM/PM			/ /	AM/PM			/ /	AM/PM
Received by:	(Sign)			Received by: (print)	(Sign)			Received by: (print)	(Sign)		
		/ /	AM/PM			/ /	AM/PM			/ /	AM/PM

LAB INSTRUCTIONS: create one (1) composite sample of each homogeneous material from equal mass portions (± 5%) of the three (3) sub-samples for extraction and analysis via EPA Method 8082 and report the Arochlors listed (Arochlor 1016, Arochlor 1221, Arochlor 1232, Arochlor 1242, Arochlor 1248, Arochlor 1254, Arochlor 1260). The laboratory shall target a PCB detection limit of 1 ppm

OrderID: 011912315

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

SH 432 (8/12)

14020

01213 005123202 33

NEW YORK STATE OF OPPORTUNITY. Department of Labor

LUIS A NEVAREZ

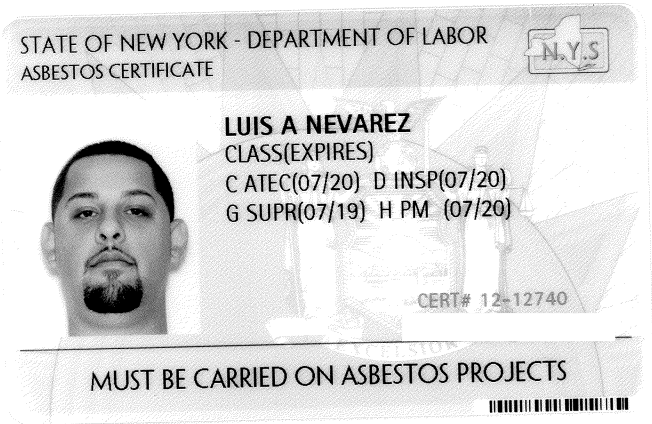
C/O LOUIS BERGER, 96 MORTON ST APT 8FL
NEW YORK NY 10014

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

For the National Voluntary Laboratory Accreditation Program

NVLAP® 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

Code	*Description*
18/A01	EPA -- 40 CFR Appendix E to Subpart E of Part 763, Interim Method of the Determination of Asbestos in Bulk Insulation Samples
18/A03	EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials

Airborne Asbestos Analysis

Code	*Description*
18/A02	U.S. EPA's "Interim Transmission Electron Microscopy Analytical Methods-Mandatory and Nonmandatory-and Mandatory Section to Determine Completion of Response Actions" as found in 40 CFR, Part 763, Subpart E, Appendix A.

For the National Voluntary Laboratory Accreditation Program

Effective 2019-07-01 through 2020-06-30

APPENDIX G:
PHOTORAPHIC DOCUMENTATION

APPENDIX H:
FILE SEARCH

565 Taxter Road, Suite 510
Elmsford, New York 10523

HOMOGENEOUS AREA SHEET

Client: Putnam Valley Central School District **Project Site:** Putnam Valley Middle School

Inspector(s): Drew Cheskin **Man. Planner(s):** Drew Cheskin **Project #:** 2042839.062

HA #	Homogenous Area Description	Color	Material Type	ACM	Friable	Serial #s
1	Mastic to 12"x12" Beige with Brown/Black Strips Floor Tile	Black	M	N	N	58, 59
2	12"x12" Beige with Brown/Black Strips Floor Tiles	White	M	N	N	60, 61
3	Grey Cinderblock Mortar	Grey	M	N	Y	NA
4	White Gypsum Wall Board	White	M	N	Y	22, 23
5	**Beige Joint Compound to Gypsum Wall Board**	**Beige**	**M**	**Y**	**Y**	**20, 21**
6	**Mastic to Black 4" Baseboard Molding**	**---**	**M**	**Y***	**N**	**NA**
7	**Black 4" Baseboard Molding**	**Black**	**M**	**Y***	**N**	**NA**
8	White 2'x4' Serpentine Ceiling Tile	White	M	N	N	10, 11
9	Soft Concrete Fill Material	Grey	M	N	Y	56, 57
10	Brown Window Caulking	Brown	M	N	N	40, 41
11	White Wall Paper	Brown	M	N	N	28, 29
12	Brown Particle Boards	Brown	M	N	N	38, 39
13	**Brown Fire door Insulation With Window**	**---**	**M**	**Y***	**Y**	**NA**
14	**Brown Fire door Insulation No Windows**	**---**	**M**	**Y***	**Y**	**NA**
15	Brown Fire door with No Windows - White Caulking	White	M	N	N	36, 37
16	**White Duct Sealant**	**White**	**M**	**Y***	**N**	**NA**
17	**Mastic to 12"x12" White with Brown Marble Floor Tiles**	**---**	**M**	**Y***	**N**	**NA**
18	**12"x12" White with Brown Marble Floor Tiles**	**White**	**M**	**Y***	**N**	**NA**
19	**Mastic to Grey 4" Baseboard Molding**	**---**	**M**	**Y***	**N**	**NA**
20	**Grey 4" Baseboard Molding**	**Grey**	**M**	**Y***	**N**	**NA**
21	White 2'x4' Texture Ceiling Tile	White	M	N	N	08, 09
22	**Mortar/Mastic to 1"x1" White Ceramic Floor Tile**	**---**	**M**	**Y***	**Y**	**NA**

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565 Taxter Road, Suite 510
Elmsford, New York 10523

HOMOGENEOUS AREA SHEET

Client: Putnam Valley Central School District **Project Site:** Putnam Valley Middle School

Inspector(s): Drew Cheskin **Man. Planner(s):** Drew Cheskin **Project #:** 2042839.062

HA #	Homogenous Area Description	Color	Material Type	ACM	Friable	Serial #s
23	**Grout to 1"x1" White Ceramic Floor Tile**	**White**	**M**	**Y***	**Y**	**NA**
24	White Caulking to White Sink Basin	White	M	N	N	34, 35
25	**Waterproofing Under 1"x1" White Ceramic Floor Tile**	**Black**	**M**	**Y***	**N**	**NA**
26	**Mastic to 12"x12" Blue Floor Tiles**	**---**	**M**	**Y***	**N**	**NA**
27	**12"x12" Blue Marble Floor Tile**	**Blue**	**M**	**Y***	**N**	**NA**
28	**12"x12" Border Dark Blue Floor Tile**	**Dark Blue**	**M**	**Y***	**N**	**NA**
29	**Mastic to 12"x12" White with Brown Speckle Floor Tile**	**---**	**M**	**Y***	**N**	**NA**
30	**12"x12" White with Brown Speckle Floor Tile**	**White**	**M**	**Y***	**N**	**NA**
31	**Mastic to Blue 4" Baseboard Molding**	**---**	**M**	**Y***	**N**	**NA**
32	**Blue 4" Baseboard Molding**	**Blue**	**M**	**Y***	**N**	**NA**
33	**Mastic to Beige 4" Baseboard Molding**	**---**	**M**	**Y***	**N**	**NA**
34	**Beige 4" Baseboard Molding**	**Beige**	**M**	**Y***	**N**	**NA**
35	**White Sink Undercoating**	**White**	**M**	**Y***	**N**	**NA**
36	**Wall Partition Insulation**	**---**	**M**	**Y***	**Y**	**NA**
37	2"x4" Light Texture Ceiling Tile	White	M	N	N	12, 13
38	**Mortar/Mastic to 1"x1" White Ceramic Wall Tile**	**---**	**M**	**Y***	**Y**	**NA**
39	**Grout to 1"x1" White Ceramic Wall Tile**	**White**	**M**	**Y***	**Y**	**NA**
40	**Black Sink Undercoating**	**Black**	**M**	**Y**	**N**	**30, 31**
41	**Pink Sink Undercoating**	**Pink**	**M**	**Y**	**N**	**32, 33**
42	**Mastic to 12"x12" Brown Marble Floor Tile**	**---**	**M**	**Y***	**N**	**NA**
43	**12"x12" Brown Marble Floor Tiles**	**Brown**	**M**	**Y***	**N**	**NA**
44	**White Metal Fire door Insulation With Window**	**---**	**M**	**Y***	**N**	**NA**

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HA #	Homogenous Area Description	Color	Material Type	ACM	Friable	Serial #s
45	**Mastic to 12"x12" Beige Marble**	**---**	**M**	**Y***	**N**	**NA**
46	**12"x12" Beige Marble**	**Beige**	**M**	**Y***	**N**	**NA**
47	**Mastic to 12"x12" White With Grey Speckle Floor Tile**	**---**	**M**	**Y***	**N**	**NA**
48	**12"x12" White With Grey Speckle Floor Tile**	**White**	**M**	**Y***	**N**	**NA**
49	Wall Block Mortar	Brown/Grey	M	N	Y	42, 43
50	**Mastic to 12"x12" Blue Marble Boarder Tiles**	**---**	**M**	**Y***	**N**	**NA**
51	**12"x12" Blue Marble Boarder Tiles**	**Blue**	**M**	**Y***	**N**	**NA**
52	White 2'x2' Serpentine Ceiling Tile	White	M	N	N	16, 17
53	1'x1' Texture Ceiling Tile	White	M	N	N	06, 07
54	**Vapor Barrier Under Wood Floor**	**Black**	**M**	**Y***	**N**	**NA**
55	Black Cloth Duct Insulation	Black	M	N	Y	46, 47
56	**Waterproofing Tar To External Interior Wall**	**Black**	**M**	**Y***	**N**	**NA**
57	Brown Linoleum Flooring	Brown	M	N	N	50, 51
58	**Freezer Gasket Material & Insulation**	**---**	**M**	**Y***	**Y**	**NA**
59	**Electrical Panels & Wire Insulation**	**---**	**M**	**Y***	**Y**	**NA**
60	Mudded Joint Pipe to Fiberglass Pipe Insulation	Grey	TSI	N	Y	01, 02, 03
61	**White 2'x4' Tectum Ceiling Tile**	**White**	**M**	**Y***	**N**	**NA**
62	**Gypsum Ceiling Board**	**Grey**	**M**	**Y***	**Y**	**NA**
63	**Joint Compound to Gypsum Ceiling Board**	**White**	**M**	**Y***	**Y**	**NA**
64	White 2'x4' Heavy Texture Ceiling Tile	White	M	N	N	14, 15
65	**Mastic to 12"x12" Beige With Black Streaks Floor Tile**	**---**	**M**	**Y***	**N**	**NA**
66	**12"x12" Beige With Black Streaks Floor Tile**	**Beige**	**M**	**Y***	**N**	**NA**

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HA #	Homogenous Area Description	Color	Material Type	ACM	Friable	Serial #s
67	**Black Laboratory Countertop**	**Black**	**M**	**Y***	**N**	**NA**
68	White 2'x2' Solid Ceiling Tile	White	M	N	N	18, 19
69	**Light Brown Particle Boards**	**Light Brown**	**M**	**Y***	**N**	**NA**
70	**Mastic to 12"x12" Beige Speckle Tiles**	**---**	**M**	**Y***	**N**	**NA**
71	**12"x12" Beige Speckle Tiles**	**Beige**	**M**	**Y***	**N**	**NA**
72	Flange Gasket	Red	M	N	N	04, 05
73	White Joint Compound to Gypsum Wall Board	White	M	N	Y	24, 25
74	White Gypsum Wall Board	White	M	N	Y	26, 27
75	White Sealant to Fiberglass Pipes	White	M	N	N	44, 45
76	Black/Brown Paper Insulation to Outer Walls	Black/Brown	M	N	N	48, 49
77	**12”x12” Brown Floor Tiles**	**Brown**	**M**	**Y**	**N**	**54, 55**
78	Black Mastic to 12”x12” Brown Floor Tiles	Black	M	N	N	52, 53
79	**12”x12” Tan Marble Floor Tiles**	**Tan**	**M**	**Y**	**N**	**64, 65**
80	Mastic to 12”x12” Tan Marble	Black	M	N	N	62, 63
81	Caulking to Elevator Frame	White	M	N	N	03, 04
82	Thin Wire Insulation	Multi-Colored	TSI	N	Y	05, 06
83	Thick Cable Insulation	Black	TSI	N	Y	07, 08
84	**Duct Vibration Cloth**	**Black**	**M**	**Y***	**Y**	**NA**
85	**Electrical Panel**	**---**	**M**	**Y***	**N**	**NA**
86	**Electrical Wiring associated with Electrical Panel**	**---**	**TSI**	**Y***	**Y**	**NA**
87	**Mastic to Sound Board Wall**	**---**	**M**	**Y***	**N**	**NA**
88	**Stone Flooring Backing**	**Brown**	**M**	**Y***	**Y**	**NA**
89	**Interior Door Caulking to Glass Doors**	**Brown**	**M**	**Y***	**N**	**NA**
90	**Ceiling Plaster, White & Brown Coats**	**---**	**S**	**Y***	**Y**	**NA**

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Space ID	Description / Common Name	HA	HA Description	Quantity	Assesment	Response Action			Comment
						Remove	Repair	O&M	
1003	Open Basement Area	79	12”x12” Tan Marble Floor Tiles	900 SF	X	-	-	900 SF	No tile present. Mastic remnants
		6	Mastic to Black 4" Baseboard Molding	90 SF	X	-	-	90 SF	No baseboard molding present. Mastic remnants
		7	Black 4" Baseboard Molding		X	-	-		
		84	Duct Vibration Cloth	10 SF	7	-	-	10 SF	
		86	Electrical Panel	5 SF	X	-	-	5 SF	
		85	Electrical Wiring associated with Electrical Panel	6LF	7	-	-	6LF	
1004	Electrical Room	86	Electrical Panel	5 SF	X	-	-	5 SF	
		85	Electrical Wiring associated with Electrical Panel	6LF	7	-	-	6LF	
1005	Stair Landings	26	Mastic to 12"x12" Blue Marble Floor Tile	96 SF	X	-	-	96 SF	
		27	12"x12" Blue Marble Floor Tile		X	-	-		
		28	12"x12" Border Dark Blue Floor Tile		X	-	-		
		29	Mastic to 12"x12" White With Brown Speckle Floor Tile		X	-	-		
		30	12"x12" White With Brown Speckle Floor Tile		X	-	-		
		42	Mastic to 12"x12" Brown Marble Floor Tile		X	-	-		
		43	12"x12" Brown Marble Floor Tiles		X	-	-		
		31	Mastic to Blue 4" Baseboard Molding	20 SF	X	-	-	20 SF	
		32	Blue 4" Baseboard Molding		X	-	-		
1006	Elevator	77	12”x12” Brown Floor Tiles	25 SF	X	-	-	25 SF	
2118	Chorus Room 118	4	White Gypsum Wall Board	225 SF	7	-	-	225 SF	
		5	Beige Joint Compound to Gypsum Wall Board		7	-	-		
		19	Mastic to Grey 4" Baseboard Molding	30 SF	X	-	-	30 SF	
		20	Grey 4" Baseboard Molding		X	-	-		
		13	Brown Fire door Insulation With Window	21 SF	7	-	-	21 SF	
		87	Mastic to Sound Board Wall	300 SF	X	-	-	300 SF	
		56	Waterproofing Tar To External Interior Wall	400 SF	X	-	-	400	
		16	White Duct Sealant	1 SF	X	-	-	1 SF	
2120	Music Room 120	4	White Gypsum Wall Board	330 SF	7	-	-	330 SF	
		5	Beige Joint Compound to Gypsum Wall Board		7	-	-		
		6	Mastic to Black 4" Baseboard Molding	26 SF	X	-	-	26 SF	
		7	Black 4" Baseboard Molding		X	-	-		
		13	Brown Fire door Insulation With Window	42 SF	7	-	-	42 SF	
		16	White Duct Sealant	1 SF	X	-	-	1 SF	
2140	Science Room 140	4	White Gypsum Wall Board	160 SF	7	-	-	160 SF	
		5	Beige Joint Compound to Gypsum Wall Board		7	-	-		
		19	Mastic to Grey 4" Baseboard Molding	31 SF	X	-	-	31 SF	
		20	Grey 4" Baseboard Molding		X	-	-		
		44	White Metal Fire door Insulation With Window	21 SF	7	-	-	21 SF	
		14	Brown Fire door Insulation No Windows	21 SF	7	-	-	21 SF	
		16	White Duct Sealant	21 SF	X	-	-	21 SF	
2141	School Psychologist Room 141	4	White Gypsum Wall Board	160 SF	7	-	-	160 SF	
		5	Beige Joint Compound to Gypsum Wall Board		7	-	-		
		19	Mastic to Grey 4" Baseboard Molding	35 SF	X	-	-	35 SF	
		20	Grey 4" Baseboard Molding		X	-	-		
		13	Brown Fire door Insulation With Window	21 SF	7	-	-	21 SF	
		16	White Duct Sealant	1 SF	X	-	-	1 SF	
		56	Waterproofing Tar To External Interior Wall	120 SF	X	-	-	120 SF	

Space ID	Description / Common Name	HA	HA Description	Quantity	Assesment	Response Action			Comment
						Remove	Repair	O&M	
2142	Home Ed Room 142	65	Mastic to 12"x12" Beige With Black Streaks Floor Tile	1,100 SF	X	-	-	1,100 SF	16"x16" White Speckled Floor Tile Observed
		66	12"x12" Beige With Black Streaks Floor Tile		X	-	-		
		4	White Gpysum Wall Board	200 SF	7	-	-	200 SF	
		5	Beige Joint Compound to Gpysum Wall Board		7	-	-		
		6	Mastic to Black 4" Baseboard Molding	30 SF	X	-	-	30 SF	
		7	Black 4" Baseboard Molding		X	-	-		
		13	Brown Fire door Insulation With Window	21 SF	7	-	-	21 SF	
		40	Black Sink Undercoating	3 SF	7	-	-	3 SF	
		16	White Duct Sealant	1 SF	X	-	-	1 SF	
		56	Waterproofing Tar To External Interior Wall	145 SF	X	-	-	145 SF	
2145	Art Room 145	4	White Gypsum Wall Board	1,200 SF	7	-	-	1,200 SF	
		5	Beige Joint Compound to Gypsum Wall Board		7	-	-		
		6	Mastic to Black 4" Baseboard Molding	15 SF	X	-	-	15 SF	
		7	Black 4" Baseboard Molding		X	-	-		
		13	Brown Fire door Insulation With Window	21 SF	7	-	-	21 SF	
		41	Pink Sink Undercoating	2 SF	7	-	-	2 SF	
		16	White Duct Sealant	1 SF	X	-	-	1 SF	
		56	Waterproofing Tar To External Interior Wall	175 SF	X	-	-	175 SF	
2145A	Room 145A	4	White Gypsum Wall Board	320 SF	7	-	-	320 SF	
		5	Beige Joint Compound to Gypsum Wall Board		7	-	-		
		6	Mastic to Black 4" Baseboard Molding	20 SF	X	-	-	20 SF	
		7	Black 4" Baseboard Molding		X	-	-		
		13	Brown Fire door Insulation With Window	21 SF	7	-	-	21 SF	
		16	White Duct Sealant	1 SF	X	-	-	1 SF	
		56	Waterproofing Tar To External Interior Wall	40 SF	X	-	-	40 SF	
2145B	Closet In Room 145	4	White Gypsum Wall Board	16 SF	7	-	-	16 SF	
		5	Beige Joint Compound to Gypsum Wall Board		7	-	-		
2146	Room 146 Foyer	6	Mastic to Black 4" Baseboard Molding	48 SF	X	-	-	48 SF	
		7	Black 4" Baseboard Molding		X	-	-		
		13	Brown Fire door Insulation With Window	21 SF	7	-	-	21 SF	
2146A	Room 146 A Physical Therapy	4	White Gypsum Wall Board	270 SF	7	-	-	270 SF	
		5	Beige Joint Compound to Gypsum Wall Board		7	-	-		
		6	Mastic to Black 4" Baseboard Molding	15 SF	X	-	-	15 SF	
		7	Black 4" Baseboard Molding		X	-	-		
		44	White Metal Fire door Insulation With Window	21 SF	X	-	-	21 SF	
2146B	Room 146B Classroom	4	White Gypsum Wall Board	690 SF	7	-	-	690 SF	
		5	Beige Joint Compound to Gypsum Wall Board		7	-	-		
		6	Mastic to Black 4" Baseboard Molding	100 SF	X	-	-	100 SF	
		7	Black 4" Baseboard Molding		X	-	-		
		24	White Metal Fire door Insulation With Window	21 SF	X	-	-	21 SF	
2146C	Room 146C Computer Lav	4	White Gypsum Wall Board	840 SF	7	-	-	840 SF	
		5	Beige Joint Compound to Gypsum Wall Board		7	-	-		
		6	Mastic to Black 4" Baseboard Molding	84 SF	X	-	-	84 SF	
		7	Black 4" Baseboard Molding	84 SF	X	-	-	84 SF	
		24	White Metal Fire door Insulation With Window	63 SF	X	-	-	63 SF	
		16	White Duct Sealant	1 SF	X	-	-	1 SF	
		56	Waterproofing Tar To External Interior Wall	200 SF	X	-	-	200 SF	

Space ID	Description / Common Name	HA	HA Description	Quantity	Assesment	Response Action			Comment
						Remove	Repair	O&M	
2147	Copy Room	45	Mastic to 12"x12" Beige Marble	120 SF	X	-	-	120 SF	
		46	12"x12" Beige Marble		X	-	-		
		4	White Gypsum Wall Board	90 SF	7	-	-	90 SF	
		5	Beige Joint Compound to Gypsum Wall Board		7	-	-		
		6	Mastic to Black 4" Baseboard Molding	7 SF	X	-	-	7 SF	
		7	Black 4" Baseboard Molding		X	-	-		
		14	Wood Fire door Insulation Without Window	21 SF	7	-	-	21 SF	
		16	White Duct Sealant	1 SF	X	-	-	1 SF	
2148	Girl's Bathroom	22	Mortar/Mastic to 1"x1" White Ceramic Floor Tile	70 SF	7	-	-	70 SF	
		23	Grout to 1"x1" White Ceramic Floor Tile		7	-	-		
		25	Waterproofing Under 1"x1" White Ceramic Floor Tile		X	-	-		
		38	Mortar/Mastic to 1"x1" White Ceramic Wall Tile	500 SF	7	-	-	500 SF	
		39	Grout to 1"x1" White Ceramic Wall Tile		7	-	-		
		16	White Duct Sealant	1 SF	X	-	-	1 SF	
2149	Boy's Bathroom	22	Mortar/Mastic to 1"x1" White Ceramic Floor Tile	70 SF	7	-	-	70 SF	
		23	Grout to 1"x1" White Ceramic Floor Tile		7	-	-		
		25	Waterproofing Under 1"x1" White Ceramic Floor Tile		X	-	-		
		38	Mortar/Mastic to 1"x1" White Ceramic Wall Tile	500 SF	7	-	-	500 SF	
		39	Grout to 1"x1" White Ceramic Wall Tile		7	-	-		
		16	White Duct Sealant	1 SF	X	-	-	1 SF	
2150	Room 150	4	White Gypsum Wall Board	175 SF	7	-	-	175 SF	
		5	Beige Joint Compound to Gypsum Wall Board		7	-	-		
		19	Mastic to Grey 4" Baseboard Molding	135 SF	X	-	-	135 SF	
		20	Grey 4" Baseboard Molding		X	-	-		
		13	Brown Fire door Insulation With Window	21 SF	7	-	-	21 SF	
		16	White Duct Sealant	1 SF	X	-	-	1 SF	
		56	Waterproofing Tar To External Interior Wall	120 SF	X	-	-	120 SF	
2150A	Closet In Room 150	19	Mastic to Grey 4" Baseboard Molding	15 SF	X	-	-	15 SF	
		20	Grey 4" Baseboard Molding		X	-	-		
2151	Cafeteria/ Auditorium	47	Mastic to 12"x12" White With Grey Speckle Floor Tile	2,300 SF	X	-	-	2,300 SF	
		48	12"x12" White With Grey Speckle Floor Tile		X	-	-		
		50	Mastic to 12"x12" Blue with White Marble Floor Tile		X	-	-		
		51	12"x12" Blue with White Marble Floor Tile		X	-	-		
		6	Mastic to Black 4" Baseboard Molding	200 SF	X	-	-	200 SF	
		7	Black 4" Baseboard Molding		X	-	-		
		13	Brown Fire door Insulation With Window	84 SF	7	-	-	84 SF	
2151B	Kitchen	44	White Metal Fire door Insulation With Window	21 SF	7	-	-	21 SF	
		58	Freezer Gasket Material & Insulation	150 SF	7	-	-	150 SF	
		59	Electrical Panels & Wire Insulation	20 SF	7	-	-	20 SF	
		16	White Duct Sealant	1 SF	X	-	-	1 SF	
2152	Stage	13	Brown Fire door Insulation With Window	42 SF	7	-	-	42 SF	
		44	White Metal Firedoor Insulation With Window	21 SF	7	-	-	21 SF	
		54	Vapor Barrier Under Wood Floor	1,300 SF	X	-	-	1,300 SF	
2153	Faculty Dining Room	42	Mastic to 12"x12" Brown Marble Floor Tile	350 SF	X	-	-	350 SF	16"x16" White Speckled Floor Tile Observed
		43	12"x12" Brown Marble Floor Tiles		X	-	-		
		6	Mastic to Black 4" Baseboard Molding	22 SF	X	-	-	22 SF	
		7	Black 4" Baseboard Molding		X	-	-		

Space ID	Description / Common Name	HA	HA Description	Quantity	Assesment	Response Action			Comment
						Remove	Repair	O&M	
		13	Brown Fire door Insulation With Window	21 SF	7	-	-	21 SF	
		16	White Duct Sealant	1 SF	X	-	-	1 SF	
		56	Waterproofing Tar To External Interior Wall	200 SF	X	-	-	200 SF	
2154	Slop Sink	22	Mortar/Mastic to 1"x1" White Ceramic Floor Tile	40 SF	7	-	-	40 SF	
		23	Grout to 1"x1" White Ceramic Floor Tile		7	-	-		
		25	Waterproofing Under 1"x1" White Ceramic Floor Tile		X	-	-		
		14	Brown Fire door Insulation No Windows	21 SF	7	-	-	21 SF	
2155	Faculty Bathroom	14	Brown Fire door Insulation With No Window	21 SF	7	-	-	21 SF	
		22	Mortar/Mastic to 1"x1" White Ceramic Floor Tile	21 SF	7	-	-	21 SF	
		23	Grout to 1"x1" White Ceramic Floor Tile		7	-	-		
		25	Waterproofing Under 1"x1" White Ceramic Floor Tile		X	-	-		
		16	White Duct Sealent	1 SF	X	-	-	1 SF	
2156	Faculty Bathroom	14	Brown Fire door Insulation With No Window	21 SF	7	-	-	21 SF	
		22	Mortar/Mastic to 1"x1" White Ceramic Floor Tile	21 SF	7	-	-	21 SF	
		23	Grout to 1"x1" White Ceramic Floor Tile		7	-	-		
		25	Waterproofing Under 1"x1" White Ceramic Floor Tile		X	-	-		
		16	White Duct Sealant	1 SF	X	-	-	1 SF	
2157	Custodian Office	42	Mastic to 12"x12" Brown Marble Floor Tile	150 SF	X	-	-	150 SF	
		43	12"x12" Brown Marble Floor Tiles		X	-	-		
		6	Mastic to Black 4" Baseboard Molding	14 SF	X	-	-	14 SF	
		7	Black 4" Baseboard Molding		X	-	-		
		13	Brown Fire door Insulation With Window	21 SF	7	-	-	21 SF	
		41	Pink Sink Undercoating	1 SF	X	-	-	1 SF	
		16	White Duct Sealant	1 SF	X	-	-	1 SF	
		56	Waterproofing Tar To External Interior Wall	40 SF	X	-	-	40 SF	
2158	Boy's Locker Room	13	Brown Fire door Insulation With Window	42 SF	7	-	-	42 SF	
		16	White Duct Sealant	1 SF	X	-	-	1 SF	
2159	Girl's Locker Room	13	Brown Fire door Insulation With Window	42 SF	7	-	-	42 SF	
		6	Mastic to Black 4" Baseboard Molding	35 SF	X	-	-	35 SF	
		7	Black 4" Baseboard Molding		X	-	-		
		16	White Duct Sealant	1 SF	X	-	-	1 SF	
2160	Gymnasium	6	Mastic to Black 4" Baseboard Molding	100 SF	X	-	-	100 SF	
		7	Black 4" Baseboard Molding		X	-	-		
		44	White Metal Fire door Insulation With Window	84 SF	7	-	-	84 SF	
		61	White 2'x4' Tectum Ceiling Tile	8,000 SF					
		54	Vapor Barrier Under Wood Floor	8,000 SF	X	-	-	8,000 SF	
2160A	Plenum to Gymnasium	-	Non-Accessible	-	-	-	-	-	
2161	Boy's Athletic Office	22	Mortar/Mastic to 1"x1" White Ceramic Floor Tile	10 SF	7	-	-	10 SF	
		23	Grout to 1"x1" White Ceramic Floor Tile		7	-	-		
		25	Waterproofing Under 1"x1" White Ceramic Floor Tile		X	-	-		
		38	Mortar/Mastic to 1"x1" White Ceramic Wall Tile	90 SF	7	-	-	90 SF	
		39	Grout to 1"x1" White Ceramic Wall Tile		7	-	-		
		19	Mastic to Grey 4" Baseboard Molding	13 SF	X	-	-	13 SF	
		20	Grey 4" Baseboard Molding		X	-	-		
		47	Mastic to 12"x12" White With Grey Speckle Floor Tile	140 SF	X	-	-	140 SF	
		48	12"x12" White With Grey Speckle Floor Tile		X	-	-		

Space ID	Description / Common Name	HA	HA Description	Quantity	Assesment	Response Action			Comment
						Remove	Repair	O&M	
		13	Brown Fire door Insulation With Window	42 SF	7	-	-	42 SF	
		62	Gypsum Ceiling Board	10 SF	7	-	-	10 SF	
		63	Joint Compound to Gypsum Ceiling Board		7	-	-		
		16	White Duct Sealant	1 SF	X	-	-	1 SF	
2162	Boy's Storage Room	19	Mastic to Grey 4" Baseboard Molding	13 SF	X	-	-	13 SF	
		20	Grey 4" Baseboard Molding		X	-	-		
		47	Mastic to 12"x12" White With Grey Speckle Floor Tile	150 SF	X	-	-	150 SF	
		48	12"x12" White With Grey Speckle Floor Tile		X	-	-		
		13	Brown Fire door Insulation With Window	42 SF	7	-	-	42 SF	
		16	White Duct Sealant	1 SF	X	-	-	1 SF	
2163	Girl's Athletic Office	22	Mortar/Mastic to 1"x1" White Ceramic Floor Tile	10 SF	7	-	-	10 SF	
		23	Grout to 1"x1" White Ceramic Floor Tile		7	-	-		
		25	Waterproofing Under 1"x1" White Ceramic Floor Tile		X	-	-		
		38	Mortar/Mastic to 1"x1" White Ceramic Wall Tile	90 SF	7	-	-	90 SF	
		39	Grout to 1"x1" White Ceramic Wall Tile		7	-	-		
		19	Mastic to Grey 4" Baseboard Molding	13 SF	X	-	-	13 SF	
		20	Grey 4" Baseboard Molding		X	-	-		
		47	Mastic to 12"x12" White With Grey Speckle Floor Tile	140 SF	X	-	-	140 SF	
		48	12"x12" White With Grey Speckle Floor Tile		X	-	-		
		13	Brown Fire door Insulation With Window	42 SF	7	-	-	42 SF	
		62	Gypsum Ceiling Board	10 SF	7	-	-	10 SF	
		63	Joint Compound to Gypsum Ceiling Board		7	-	-		
		16	White Duct Sealant	1 SF	X	-	-	1 SF	
2164	Girl's Storage Room	19	Mastic to Grey 4" Baseboard Molding	13 SF	X	-	-	13 SF	
		20	Grey 4" Baseboard Molding		X	-	-		
		47	Mastic to 12"x12" White With Grey Speckle Floor Tile	150 SF	X	-	-	150 SF	
		48	12"x12" White With Grey Speckle Floor Tile		X	-	-		
		13	Brown Fire door Insulation With Window	21 SF	7	-	-	21 SF	
		16	White Duct Sealant	1 SF	X	-	-	1 SF	
2165	Boy's Shower	22	Mortar/Mastic to 1"x1" White Ceramic Floor Tile	250 SF	7	-	-	250 SF	
		23	Grout to 1"x1" White Ceramic Floor Tile		7	-	-		
		25	Waterproofing Under 1"x1" White Ceramic Floor Tile		X	-	-		
		38	Mortar/Mastic to 1"x1" White Ceramic Wall Tile	300 SF	7	-	-	300 SF	
		39	Grout to 1"x1" White Ceramic Wall Tile		7	-	-		
		90	Ceiling Plaster, White & Brown Coats	250 SF	7	-	-	250 SF	
2165A	Plenum To Boy's Shower	-	Non-Accessible	-	-	-	-	-	
2166	Girl's Shower	22	Mortar/Mastic to 1"x1" White Ceramic Floor Tile	250 SF	7	-	-	250 SF	
		23	Grout to 1"x1" White Ceramic Floor Tile		7	-	-		
		25	Waterproofing Under 1"x1" White Ceramic Floor Tile		X	-	-		
		38	Mortar/Mastic to 1"x1" White Ceramic Wall Tile	300 SF	7	-	-	300 SF	
		39	Grout to 1"x1" White Ceramic Wall Tile		7	-	-		
		90	Ceiling Plaster, White & Brown Coats	250 SF	7	-	-	250 SF	
2166A	Plenum To Girl's Shower	-	Non-Accessible	-	-	-	-	-	

Space ID	Description / Common Name	HA	HA Description	Quantity	Assesment	Response Action			Comment
						Remove	Repair	O&M	
2182	Science Room 182	4	White Gypsum Wall Board	860 SF	7	-	-	860 SF	
		5	Beige Joint Compound to Gypsum Wall Board		7	-	-		
		19	Mastic to Grey 4" Baseboard Molding	151 SF	X	-	-	151 SF	
		20	Grey 4" Baseboard Molding		X	-	-		
		13	Brown Fire door Insulation With Window	21 SF	7	-	-	21 SF	
		67	Black Labortory Countertop	300 SF	X	-	-	300 SF	
		69	Light Brown Particle Boards	36 SF	X	-	-	36 SF	
		16	White Duct Sealant	1 SF	X	-	-	1 SF	
		56	Waterproofing Tar To External Interior Wall	240 SF	X	-	-	240 SF	
2183	Main Office	29	Mastic to 12"x12" White With Brown Speckle Floor Tile	375 SF	X	-	-	375 SF	
		30	12"x12" White With Brown Speckle Floor Tile		X	-	-		
		19	Mastic to Grey 4" Baseboard Molding	120 SF	X	-	-	120 SF	
		20	Grey 4" Baseboard Molding		X	-	-		
		13	Brown Fire door Insulation With Window	21 SF	7	-	-	21 SF	
2184	Shredding Room	29	Mastic to 12"x12" White With Brown Speckle Floor Tile	32 SF	X	-	-	32 SF	
		30	12"x12" White With Brown Speckle Floor Tile		X	-	-		
		19	Mastic to Grey 4" Baseboard Molding	16 SF	X	-	-	16 SF	
		20	Grey 4" Baseboard Molding		X	-	-		
		16	White Duct Sealant	1 SF	X	-	-	1 SF	
		56	Waterproofing Tar To External Interior Wall	220 SF	X	-	-	220 SF	
2185	Principal's Office	29	Mastic to 12"x12" White With Brown Speckle Floor Tile	200 SF	X	-	-	200 SF	
		30	12"x12" White With Brown Speckle Floor Tile		X	-	-		
		4	White Gypsum Wall Board	270 SF	7	-	-	270 SF	
		5	Beige Joint Compound to Gypsum Wall Board		7	-	-		
		19	Mastic to Grey 4" Baseboard Molding	60 SF	X	-	-	60 SF	
		20	Grey 4" Baseboard Molding		X	-	-		
		14	Brown Fire door Insulation No Windows	21 SF	7	-	-	21 SF	
2186	Copy Room	29	Mastic to 12"x12" White With Brown Speckle Floor Tile	120 SF	X	-	-	120 SF	
		30	12"x12" White With Brown Speckle Floor Tile		X	-	-		
		19	Mastic to Grey 4" Baseboard Molding	40 SF	X	-	-	40 SF	
		20	Grey 4" Baseboard Molding		X	-	-		
2187	Science Room 187	4	White Gypsum Wall Board	600 SF	7	-	-	600 SF	
		5	Beige Joint Compound to Gypsum Wall Board		7	-	-		
		19	Mastic to Grey 4" Baseboard Molding	151 SF	X	-	-	151 SF	
		20	Grey 4" Baseboard Molding		X	-	-		
		13	Brown Fire door Insulation With Window	21 SF	7	-	-	21 SF	
		67	Black Labortory Countertop	300 SF	X	-	-	300 SF	
		69	Light Brown Particle Boards	36 SF	X	-	-	36 SF	
2187A	Server Room	4	White Gypsum Wall Board	40 SF	7	-	-	40 SF	
		5	Beige Joint Compound to Gypsum Wall Board		7	-	-		
		19	Mastic to Grey 4" Baseboard Molding	16 SF	X	-	-	16 SF	
		20	Grey 4" Baseboard Molding		X	-	-		
		13	Brown Fire door Insulation With Window	21 SF	7	-	-	21 SF	
2187B	Laboratory Office Room	4	White Gypsum Wall Board	216 SF	7	-	-	216 SF	
		5	Beige Joint Compound to Gypsum Wall Board		7	-	-		
		19	Mastic to Grey 4" Baseboard Molding	32 SF	X	-	-	32 SF	
		20	Grey 4" Baseboard Molding		X	-	-		

Space ID	Description / Common Name	HA	HA Description	Quantity	Assesment	Response Action			Comment
						Remove	Repair	O&M	
		68	White 2'x2' Solid Ceiling Tile	128 SF	X	-	-	128 SF	
		44	Metal Fire door Insulation With Window	21 SF	7	-	-	21 SF	
		67	Black Laboratory Countertop	16 SF	X	-	-	16 SF	
		16	White Duct Sealant	1 SF	X	-	-	1 SF	
		56	Waterproofing Tar To External Interior Wall	240 SF	X	-	-	240 SF	
2188	Classroom 188	29	Mastic to 12"x12" White With Brown Speckle Floor Tile	700 SF	X	-	-	700 SF	
		30	12"x12" White With Brown Speckle Floor Tile		X	-	-		
		4	White Gypsum Wall Board	290 SF	7	-	-	290 SF	
		5	Beige Joint Compound to Gypsum Wall Board		7	-	-		
		19	Mastic to Grey 4" Baseboard Molding	131 SF	X	-	-	131 SF	
		20	Grey 4" Baseboard Molding		X	-	-		
		13	Brown Fire door Insulation With Window	21 SF	7	-	-	21 SF	
2188A	2 Closet to Classroom 188	29	Mastic to 12"x12" White With Brown Speckle Floor Tile	30 SF	X	-	-	30 SF	
		30	12"x12" White With Brown Speckle Floor Tile		X	-	-		
		4	White Gypsum Wall Board	40 SF	7	-	-	40 SF	
		5	Beige Joint Compound to Gypsum Wall Board		7	-	-		
		19	Mastic to Grey 4" Baseboard Molding	18 SF	X	-	-	18 SF	
		20	Grey 4" Baseboard Molding		X	-	-		
		16	White Duct Sealant	1 SF	X	-	-	1 SF	
2189	Counseling Dept 189 & Offices	29	Mastic to 12"x12" White With Brown Speckle Floor Tile	728 SF	X	-	-	728 SF	
		30	12"x12" White With Brown Speckle Floor Tile		X	-	-		
		50	Mastic to 12"x12" Blue Marble Boarder Tiles	30 SF	X	-	-	30 SF	
		51	12"x12" Blue Marble Boarder Tiles		X	-	-		
		19	Mastic to Grey 4" Baseboard Molding	280 SF	X	-	-	280 SF	
		20	Grey 4" Baseboard Molding		X	-	-		
		4	White Gypsum Wall Board	1,204 SF	7	-	-	1,204 SF	
		5	Beige Joint Compound to Gypsum Wall Board		7	-	-		
		13	Brown Fire door Insulation With Window	84 SF	7	-	-	84 SF	
		16	White Duct Sealant	1 SF	X	-	-	1 SF	
		56	Waterproofing Tar To External Interior Wall	230 SF	X	-	-	230 SF	
2190A	Boy's Restroom	22	Mortar/Mastic to 1"x1" White Ceramic Floor Tile	150 SF	7	-	-	150 SF	
		23	Grout to 1"x1" White Ceramic Floor Tile		7	-	-		
		25	Waterproofing Under 1"x1" White Ceramic Floor Tile		X	-	-		
		38	Mortar/Mastic to 1"x1" White Ceramic Wall Tile	150 SF	7	-	-	150 SF	
		39	Grout to 1"x1" White Ceramic Wall Tile	370 SF	7	-	-	370 SF	
		16	White Duct Sealant	1 SF	X	-	-	1 SF	
2190B	Girl's Restroom	22	Mortar/Mastic to 1"x1" White Ceramic Floor Tile	150 SF	7	-	-	150 SF	
		23	Grout to 1"x1" White Ceramic Floor Tile		7	-	-		
		25	Waterproofing Under 1"x1" White Ceramic Floor Tile		X	-	-		
		38	Mortar/Mastic to 1"x1" White Ceramic Wall Tile	150 SF	7	-	-	150 SF	
		39	Grout to 1"x1" White Ceramic Wall Tile	370 SF	7	-	-	370 SF	
		16	White Duct Sealant	1 SF	X	-	-	1 SF	

Space ID	Description / Common Name	HA	HA Description	Quantity	Assesment	Response Action			Comment
						Remove	Repair	O&M	
2191	Faculty Bathroom	14	Brown Fire door Insulation No Windows	21 SF	7	-	-	21 SF	
		22	Mortar/Mastic to 1"x1" White Ceramic Floor Tile	21 SF	7	-	-	21 SF	
		23	Grout to 1"x1" White Ceramic Floor Tile		7	-	-		
		25	Waterproofing Under 1"x1" White Ceramic Floor Tile		X	-	-		
		16	White Duct Sealant	1 SF	X	-	-	1 SF	
2192	Faculty Bathroom	14	Brown Fire door Insulation No Windows	21 SF	7	-	-	21 SF	
		22	Mortar/Mastic to 1"x1" White Ceramic Floor Tile	21 SF	7	-	-	21 SF	
		23	Grout to 1"x1" White Ceramic Floor Tile		7	-	-		
		25	Waterproofing Under 1"x1" White Ceramic Floor Tile		X	-	-		
		16	White Duct Sealant	1 SF	X	-	-	1 SF	
2193	Storage	22	Mortar/Mastic to 1"x1" White Ceramic Floor Tile	150 SF	7	-	-	150 SF	
		23	Grout to 1"x1" White Ceramic Floor Tile		7	-	-		
		25	Waterproofing Under 1"x1" White Ceramic Floor Tile		X	-	-		
		38	Mortar/Mastic to 1"x1" White Ceramic Wall Tile	150 SF	7	-	-	150 SF	
		39	Grout to 1"x1" White Ceramic Wall Tile	370 SF	7	-	-	370 SF	
		16	White Duct Sealant	1 SF	X	-	-	1 SF	
2194	Handicapped Restroom	22	Mortar/Mastic to 1"x1" White Ceramic Floor Tile	150 SF	7	-	-	150 SF	
		23	Grout to 1"x1" White Ceramic Floor Tile		7	-	-		
		25	Waterproofing Under 1"x1" White Ceramic Floor Tile		X	-	-		
		38	Mortar/Mastic to 1"x1" White Ceramic Wall Tile	150 SF	7	-	-	150 SF	
		39	Grout to 1"x1" White Ceramic Wall Tile	370 SF	7	-	-	370 SF	
		16	White Duct Sealant	1 SF	X	-	-	1 SF	
2195	Faculty Bathroom	14	Brown Fire door Insulation No Windows	21 SF	7	-	-	21 SF	
		22	Mortar/Mastic to 1"x1" White Ceramic Floor Tile	21 SF	7	-	-	21 SF	
		23	Grout to 1"x1" White Ceramic Floor Tile		7	-	-		
		25	Waterproofing Under 1"x1" White Ceramic Floor Tile		X	-	-		
		16	White Duct Sealant	1 SF	X	-	-	1 SF	
2196	Faculty Bathroom	14	Brown Fire door Insulation No Windows	21 SF	7	-	-	21 SF	
		22	Mortar/Mastic to 1"x1" White Ceramic Floor Tile	21 SF	7	-	-	21 SF	
		23	Grout to 1"x1" White Ceramic Floor Tile		7	-	-		
		25	Waterproofing Under 1"x1" White Ceramic Floor Tile		X	-	-		
		16	White Duct Sealant	1 SF	X	-	-	1 SF	
2197	Slop Sink	14	Brown Fire door Insulation No Windows	21 SF	7	-	-	21 SF	
		6	Mastic to Black 4" Baseboard Molding	24 SF	X	-	-	24 SF	
		7	Black 4" Baseboard Molding		X	-	-		
2198	Health Office Foyer, Nurse's Office, Offices 179, 180, 181 & Patient Room	29	Mastic to 12"x12" White With Brown Speckle Floor Tile	900 SF	X	-	-	900 SF	
		30	12"x12" White With Brown Speckle Floor Tile		X	-	-		
		50	Mastic to 12"x12" Blue Marble Boarder Tiles	30 SF	X	-	-	30 SF	
		51	12"x12" Blue Marble Boarder Tiles		X	-	-		

Space ID	Description / Common Name	HA	HA Description	Quantity	Assesment	Response Action			Comment
						Remove	Repair	O&M	
		6	Mastic to Black 4" Baseboard Molding	136 SF	X	-	-	136 SF	
		7	Black 4" Baseboard Molding		X	-	-		
		13	Brown Fire door Insulation With Window	63 SF	7	-	-	63 SF	
		14	Brown Fire door Insulation No Windows	63 SF	7	-	-	63 SF	
2198A	Bathroom to Nurse's Office	22	Mortar/Mastic to 1"x1" White Ceramic Floor Tile	15 SF	7	-	-	15 SF	
		23	Grout to 1"x1" White Ceramic Floor Tile		7	-	-		
		25	Waterproofing Under 1"x1" White Ceramic Floor Tile		X	-	-		
		14	Brown Fire door Insulation No Windows	21 SF	7	-	-	21 SF	
2199	Stair Landings	26	Mastic to 12"x12" Blue Marble Floor Tile	350 SF	X	-	-	350 SF	
		27	12"x12" Blue Marble Floor Tile		X	-	-		
		28	12"x12" Border Dark Blue Floor Tile		X	-	-		
		29	Mastic to 12"x12" White With Brown Speckle Floor Tile		X	-	-		
		30	12"x12" White With Brown Speckle Floor Tile		X	-	-		
		42	Mastic to 12"x12" Brown Marble Floor Tile		X	-	-		
		43	12"x12" Brown Marble Floor Tiles		X	-	-		
		31	Mastic to Blue 4" Baseboard Molding	80 SF	X	-	-	80 SF	
		32	Blue 4" Baseboard Molding		X	-	-		
2200	Technology Office	29	Mastic to 12"x12" White With Brown Speckle Floor Tile	210 SF	X	-	-	210 SF	
		30	12"x12" White With Brown Speckle Floor Tile		X	-	-		
		70	Mastic to 12"x12" Beige Speckle Tiles	140 SF	X	-	-	140 SF	
		71	12"x12" Beige Speckle Tiles		X	-	-		
		4	White Gypsum Wall Board	300 SF	7	-	-	300 SF	
		5	Beige Joint Compound to Gypsum Wall Board		7	-	-		
		19	Mastic to Grey 4" Baseboard Molding	42 SF	X	-	-	42 SF	
		20	Grey 4" Baseboard Molding		X	-	-		
		6	Mastic to Black 4" Baseboard Molding	41 SF	X	-	-	41 SF	
		7	Black 4" Baseboard Molding		X	-	-		
		14	Brown Fire door Insulation No Windows	42 SF	7	-	-	42 SF	
2201	1st Floor Corridor	32	Blue 4" Baseboard Molding	280 SF	X	-	-	280 SF	
		31	Mastic to Blue 4" Baseboard Molding		X	-	-		
		29	Mastic to 12"x12" White With Brown Speckle Floor Tile	3,700 SF	X	-	-	3,700 SF	
		30	12"x12" White With Brown Speckle Floor Tile		X	-	-		
		26	Mastic to 12"x12" Blue Marble Floor Tile	400 SF	X	-	-	400 SF	
		27	12"x12" Blue Marble Floor Tile		X	-	-		
		42	Mastic to 12"x12" Brown Marble Floor Tile	400 SF	X	-	-	400 SF	
		43	12"x12" Brown Marble Floor Tiles		X	-	-		
		16	White Duct Sealant	10 SF	X	-	-	10 SF	
2202	South & South East Vestibules	88	Stone Flooring Backing	200 SF	7	-	-	200 SF	
		6	Mastic to Black 4" Baseboard Molding	128 SF	X	-	-	128 SF	
		7	Black 4" Baseboard Molding		X	-	-		
		89	Interior Door Caulking, to Glass Doors	20 LF	X	-	-	20 LF	
3200	Classroom 200	4	White Gypsum Wall Board	700 SF	7	-	-	700 SF	
		5	Beige Joint Compound to Gypsum Wall Board		7	-	-		
		6	Mastic to Black 4" Baseboard Molding	70 SF	X	-	-	70 SF	
		7	Black 4" Baseboard Molding		X	-	-		
		13	Brown Fire door Insulation With Window	21 SF	7	-	-	21 SF	
		16	White Duct Sealant	1 SF	X	-	-	1 SF	

Space ID	Description / Common Name	HA	HA Description	Quantity	Assesment	Response Action			Comment
						Remove	Repair	O&M	
3201	Classroom 201	4	White Gypsum Wall Board	1,100 SF	7	-	-	1,100 SF	
		5	Beige Joint Compound to Gypsum Wall Board		7	-	-		
		6	Mastic to Black 4" Baseboard Molding	81 SF	X	-	-	81 SF	
		7	Black 4" Baseboard Molding		X	-	-		
		13	Brown Fire door Insulation With Window	21 SF	7	-	-	21 SF	
		14	Brown Fire door Insulation No Windows	42 SF	7	-	-	42 SF	
		16	White Duct Sealant	1 SF	X	-	-	1 SF	
3202	Classroom 202	4	White Gypsum Wall Board	750 SF	7	-	-	750 SF	
		5	Beige Joint Compound to Gypsum Wall Board		7	-	-		
		6	Mastic to Black 4" Baseboard Molding	75 SF	X	-	-	75 SF	
		7	Black 4" Baseboard Molding		X	-	-		
		13	Brown Fire door Insulation With Window	21 SF	X	-	-	21 SF	
		16	White Duct Sealant	1 SF	X	-	-	1 SF	
3203	Classroom 203	4	White Gypsum Wall Board	910 SF	7	-	-	910 SF	
		5	Beige Joint Compound to Gypsum Wall Board		7	-	-		
		6	Mastic to Black 4" Baseboard Molding	91 SF	X	-	-	91 SF	
		7	Black 4" Baseboard Molding		X	-	-		
		13	Brown Fire door Insulation With Window	21 SF	7	-	-	21 SF	
		16	White Duct Sealant	1 SF	X	-	-	1 SF	
3204	Classroom 204	4	White Gypsum Wall Board	750 SF	7	-	-	750 SF	
		5	Beige Joint Compound to Gypsum Wall Board		7	-	-		
		6	Mastic to Black 4" Baseboard Molding	75 SF	X	-	-	75 SF	
		7	Black 4" Baseboard Molding		X	-	-		
		13	Brown Fire door Insulation With Window	21 SF	7	-	-	21 SF	
		16	White Duct Sealant	1 SF	X	-	-	1 SF	
3204A	Classroom 204A	4	White Gypsum Wall Board	660 SF	7	-	-	660 SF	
		5	Beige Joint Compound to Gypsum Wall Board		7	-	-		
		6	Mastic to Black 4" Baseboard Molding	66 SF	X	-	-	66 SF	
		7	Black 4" Baseboard Molding		X	-	-		
		16	White Duct Sealant	1 SF	X	-	-	1 SF	
3204B	Classrom 204B	4	White Gypsum Wall Board	550 SF	7	-	-	550 SF	
		5	Beige Joint Compound to Gypsum Wall Board		7	-	-		
		6	Mastic to Black 4" Baseboard Molding	55 SF	X	-	-	55 SF	
		7	Black 4" Baseboard Molding		X	-	-		
		13	Brown Fire door Insulation With Window	21 SF	7	-	-	21 SF	
		16	White Duct Sealant	1 SF	X	-	-	1 SF	
3205	Classroom 205	4	White Gypsum Wall Board	850 SF	7	-	-	850 SF	
		5	Beige Joint Compound to Gypsum Wall Board		7	-	-		
		6	Mastic to Black 4" Baseboard Molding	85 SF	X	-	-	85 SF	
		7	Black 4" Baseboard Molding		X	-	-		
		13	Brown Fire door Insulation With Window	21 SF	7	-	-	21 SF	
3205A	Closet to Classroom 205	4	White Gypsum Wall Board	170 SF	X	-	-	170 SF	
		5	Beige Joint Compound to Gypsum Wall Board		X	-	-		
		6	Mastic to Black 4" Baseboard Molding	17 SF	X	-	-	17 SF	
		7	Black 4" Baseboard Molding		X	-	-		
		14	Brown Fire door Insulation With Window	21 SF	7	-	-	21 SF	
		16	White Duct Sealant	1 SF	X	-	-	1 SF	
3206	Classroom 206	4	White Gypsum Wall Board	980 SF	7	-	-	980 SF	
		5	Beige Joint Compound to Gypsum Wall Board		7	-	-		
		6	Mastic to Black 4" Baseboard Molding	98 SF	X	-	-	98 SF	
		7	Black 4" Baseboard Molding		X	-	-		
		13	Brown Fire door Insulation With Window	21 SF	7	-	-	21	

Space ID	Description / Common Name	HA	HA Description	Quantity	Assesment	Response Action			Comment
						Remove	Repair	O&M	
3206A	Closet to Classroom 206	4	White Gypsum Wall Board	210 SF	7	-	-	210 SF	
		5	Beige Joint Compound to Gypsum Wall Board		7	-	-		
		6	Mastic to Black 4" Baseboard Molding	21 SF	X	-	-	21 SF	
		7	Black 4" Baseboard Molding		X	-	-		
		14	Brown Fire door Insulation No Windows	21 SF	7	-	-	21 SF	
		16	White Duct Sealant	1 SF	X	-	-	1 SF	
3207	Classroom 207	4	White Gypsum Wall Board	700 SF	7	-	-	700 SF	
		5	Beige Joint Compound to Gypsum Wall Board		7	-	-		
		6	Mastic to Black 4" Baseboard Molding	70 SF	X	-	-	70 SF	
		7	Black 4" Baseboard Molding		X	-	-		
		13	Brown Fire door Insulation With Window	21 SF	7	-	-	21 SF	
3207A	Closet to Classroom 207	4	White Gypsum Wall Board	60 SF	7	-	-	60 SF	
		5	Beige Joint Compound to Gypsum Wall Board		7	-	-		
		6	Mastic to Black 4" Baseboard Molding	6 SF	X	-	-	6 SF	
		7	Black 4" Baseboard Molding		X	-	-		
		14	Brown Fire door Insulation No Windows	21 SF	7	-	-	21 SF	
		16	White Duct Sealent	1 SF	X	-	-	1 SF	
3208	Classroom 208	4	White Gypsum Wall Board	910 SF	7	-	-	910 SF	
		5	Beige Joint Compound to Gypsum Wall Board		7	-	-		
		6	Mastic to Black 4" Baseboard Molding	91 SF	X	-	-	91 SF	
		7	Black 4" Baseboard Molding		X	-	-		
		13	Brown Fire door Insulation No Windows	21 SF	7	-	-	21 SF	
3208A	Closet to Classroom 208	4	White Gypsum Wall Board	60 SF	7	-	-	60 SF	
		5	Beige Joint Compound to Gypsum Wall Board		7	-	-		
		6	Mastic to Black 4" Baseboard Molding	6 SF	X	-	-	6 SF	
		7	Black 4" Baseboard Molding		X	-	-		
		14	Brown Fire door Insulation No Windows	21 SF	7	-	-	21 SF	
		16	White Duct Sealant	1 SF	X	-	-	1 SF	
3209	Classroom 209	4	White Gypsum Wall Board	800 SF	7	-	-	800 SF	
		5	Beige Joint Compound to Gypsum Wall Board		7	-	-		
		6	Mastic to Black 4" Baseboard Molding	80 SF	X	-	-	80 SF	
		7	Black 4" Baseboard Molding		X	-	-		
		13	Brown Fire door Insulation With Window	21	7	-	-	21	
3209A	Closet to Classroom 209	4	White Gypsum Wall Board	60 SF	7	-	-	60 SF	
		5	Beige Joint Compound to Gypsum Wall Board		7	-	-		
		6	Mastic to Black 4" Baseboard Molding	6 SF	X	-	-	6 SF	
		7	Black 4" Baseboard Molding		X	-	-		
		14	Brown Fire door Insulation No Windows	21 SF	7	-	-	21 SF	
		16	White Duct Sealant	1 SF	X	-	-	1 SF	
3210	Classroom 210	4	White Gypsum Wall Board	750 SF	7	-	-	750 SF	
		5	Beige Joint Compound to Gypsum Wall Board		7	-	-		
		6	Mastic to Black 4" Baseboard Molding	75 SF	X	-	-	75 SF	
		7	Black 4" Baseboard Molding		X	-	-		
		13	Brown Fire door Insulation With Window	21 SF	7	-	-	21 SF	
3210A	Closet to Classroom 210	4	White Gypsum Wall Board	60 SF	7	-	-	60 SF	
		5	Beige Joint Compound to Gypsum Wall Board		7	-	-		
		6	Mastic to Black 4" Baseboard Molding	6 SF	X	-	-	6 SF	
		7	Black 4" Baseboard Molding		X	-	-		

Space ID	Description / Common Name	HA	HA Description	Quantity	Assesment	Response Action			Comment
						Remove	Repair	O&M	
		14	Brown Fire door Insulation No Window	21 SF	7	-	-	21 SF	
		16	White Duct Sealant	1 SF	X	-	-	1 SF	
3211	Classroom 211	4	White Gypsum Wall Board	900 SF	7	-	-	900 SF	
		5	Beige Joint Compound to Gypsum Wall Board		7	-	-		
		6	Mastic to Black 4" Baseboard Molding	90 SF	X	-	-	90 SF	
		7	Black 4" Baseboard Molding		X	-	-		
		13	Brown Fire door Insulation With Window	21 SF	7	-	-	21 SF	
		16	White Duct Sealant	1 SF	X	-	-	1 SF	
3212	Classroom 212	4	White Gypsum Wall Board	860 SF	7	-	-	860 SF	
		5	Beige Joint Compound to Gypsum Wall Board		7	-	-		
		6	Mastic to Black 4" Baseboard Molding	86 SF	X	-	-	86 SF	
		7	Black 4" Baseboard Molding		X	-	-		
		13	Brown Fire door Insulation With Window	21 SF	7	-	-	21 SF	
		16	White Duct Sealant	1 SF	X	-	-	1 SF	
3212A	Classroom 212A	4	White Gypsum Wall Board	960 SF	7	-	-	960 SF	
		5	Beige Joint Compound to Gypsum Wall Board		7	-	-		
		6	Mastic to Black 4" Baseboard Molding	96 SF	X	-	-	96 SF	
		7	Black 4" Baseboard Molding		X	-	-		
		13	Brown Fire door Insulation With Window	21 SF	7	-	-	21 SF	
		16	White Duct Sealant	1 SF	X	-	-	1 SF	
3213	Classroom 213	4	White Gypsum Wall Board	860 SF	7	-	-	860 SF	
		5	Beige Joint Compound to Gypsum Wall Board		7	-	-		
		6	Mastic to Black 4" Baseboard Molding	86 SF	X	-	-	86 SF	
		7	Black 4" Baseboard Molding		X	-	-		
		13	Brown Fire door Insulation With Window	21 SF	7	-	-	21 SF	
		16	White Duct Sealant	1 SF	X	-	-	1 SF	
3214	Classroom 214	4	White Gypsum Wall Board	1,100 SF	7	-	-	1,100 SF	
		5	Beige Joint Compound to Gypsum Wall Board		7	-	-		
		6	Mastic to Black 4" Baseboard Molding	111 SF	X	-	-	111 SF	
		7	Black 4" Baseboard Molding		X	-	-		
		13	Brown Fire door Insulation With Window	21 SF	7	-	-	21 SF	
		16	White Duct Sealant	1 SF	X	-	-	1 SF	
3215	Classroom 215	4	White Gypsum Wall Board	700 SF	7	-	-	700 SF	
		5	Beige Joint Compound to Gypsum Wall Board		7	-	-		
		6	Mastic to Black 4" Baseboard Molding	70 SF	X	-	-	70 SF	
		7	Black 4" Baseboard Molding		X	-	-		
		13	Brown Fire door Insulation With Window	21 SF	7	-	-	21 SF	
		16	White Duct Sealant	1 SF	X	-	-	1 SF	
3219	Slop Sink	4	White Gypsum Wall Board	10 SF	7	-	-	10 SF	
		5	Beige Joint Compound to Gypsum Wall Board		7	-	-		
		22	Mortar/Mastic to 1"x1" White Ceramic Floor Tile	40 SF	7	-	-	40 SF	
		23	Grout to 1"x1" White Ceramic Floor Tile		7	-	-		
		25	Waterproofing Under 1"x1" White Ceramic Floor Tile		X	-	-		
		14	Brown Fire door Insulation No Windows	21 SF	7	-	-	21 SF	
3220	Boy's Bathroom	22	Mortar/Mastic to 1"x1" White Ceramic Floor Tile	150 SF	7	-	-	150 SF	
		23	Grout to 1"x1" White Ceramic Floor Tile		7	-	-		
		25	Waterproofing Under 1"x1" White Ceramic Floor Tile		X	-	-		

Space ID	Description / Common Name	HA	HA Description	Quantity	Assesment	Response Action			Comment
						Remove	Repair	O&M	
		38	Mortar/Mastic to 1"x1" White Ceramic Wall Tile	370 SF	7	-	-	370 SF	
		39	Grout to 1"x1" White Ceramic Wall Tile		7	-	-		
		16	White Duct Sealant	1 SF	X	-	-	1 SF	
3221	Girl's Bathroom	22	Mortar/Mastic to 1"x1" White Ceramic Floor Tile	150 SF	7	-	-	150 SF	
		23	Grout to 1"x1" White Ceramic Floor Tile		7	-	-		
		25	Waterproofing Under 1"x1" White Ceramic Floor Tile		X	-	-		
		38	Mortar/Mastic to 1"x1" White Ceramic Wall Tile	370 SF	7	-	-	370 SF	
		39	Grout to 1"x1" White Ceramic Wall Tile		7	-	-		
		16	White Duct Sealant	1 SF	X	-	-	1 SF	
3222	Faculty Bathroom	14	Brown Fire door Insulation No Windows	21 SF	7	-	-	21 SF	
		22	Mortar/Mastic to 1"x1" White Ceramic Floor Tile	21 SF	7	-	-	21 SF	
		23	Grout to 1"x1" White Ceramic Floor Tile		7	-	-		
		25	Waterproofing Under 1"x1" White Ceramic Floor Tile		X	-	-		
		16	White Duct Sealant	1 SF	X	-	-	1 SF	
3223	Boy's Bathroom	22	Mortar/Mastic to 1"x1" White Ceramic Floor Tile	150 SF	7	-	-	150 SF	
		23	Grout to 1"x1" White Ceramic Floor Tile		7	-	-		
		25	Waterproofing Under 1"x1" White Ceramic Floor Tile		X	-	-		
		38	Mortar/Mastic to 1"x1" White Ceramic Wall Tile	370 SF	7	-	-	370 SF	
		39	Grout to 1"x1" White Ceramic Wall Tile		7	-	-		
		16	White Duct Sealant	1 SF	X	-	-	1 SF	
3224	Girl's Bathroom	22	Mortar/Mastic to 1"x1" White Ceramic Floor Tile	150 SF	7	-	-	150 SF	
		23	Grout to 1"x1" White Ceramic Floor Tile		7	-	-		
		25	Waterproofing Under 1"x1" White Ceramic Floor Tile		X	-	-		
		38	Mortar/Mastic to 1"x1" White Ceramic Wall Tile	370 SF	7	-	-	370 SF	
		39	Grout to 1"x1" White Ceramic Wall Tile		7	-	-		
		16	White Duct Sealant	1 SF	X	-	-	1 SF	
3225	Faculty Bathroom	14	Brown Fire door Insulation No Windows	21 SF	7	-	-	21 SF	
		22	Mortar/Mastic to 1"x1" White Ceramic Floor Tile	21 SF	7	-	-	21 SF	
		23	Grout to 1"x1" White Ceramic Floor Tile		7	-	-		
		25	Waterproofing Under 1"x1" White Ceramic Floor Tile		X	-	-		
		16	White Duct Sealant	1 SF	X	-	-	1 SF	
3226	Library/Copy Room	6	Mastic to Black 4" Baseboard Molding	150 SF	X	-	-	150 SF	
		7	Black 4" Baseboard Molding		X	-	-		
		26	Mastic to 12"x12" Blue Floor Tiles	1150 SF	X	-	-	1150 SF	
		27	12"x12" Blue Marble Floor Tile	900 SF	X	-	-	900 SF	
		28	12"x12" Border Dark Blue Floor Tile	250 SF	X	-	-	250 SF	
		29	Mastic to 12"x12" White With Brown Speckle Floor Tile	400 SF	X	-	-	400 SF	
		30	12"x12" White With Brown Speckle Floor Tile		X	-	-		
		31	Mastic to Blue 4" Baseboard Molding	5 SF	X	-	-	5 SF	
		32	Blue 4" Baseboard Molding		X	-	-		
		35	White Sink Undercoating	1 SF	7	-	-	1 SF	
		36	Wall Partition Insulation	515 SF	7	-	-	515 SF	
		16	White Duct Sealant	1 SF	X	-	-	1 SF	

Space ID	Description / Common Name	HA	HA Description	Quantity	Assesment	Response Action			Comment
						Remove	Repair	O&M	
3229	3rd Floor Corridor	32	Blue 4" Baseboard Molding	500 SF	X	-	-	500 SF	
		31	Mastic to Blue 4" Baseboard Molding		X	-	-		
		29	Mastic to 12"x12" White With Brown Speckle Floor Tile	2,500 SF	X	-	-	2,500 SF	
		30	12"x12" White With Brown Speckle Floor Tile		X	-	-		
		26	Mastic to 12"x12" Blue Marble Floor Tile	200 SF	X	-	-	200 SF	
		27	12"x12" Blue Marble Floor Tile		X	-	-		
		42	Mastic to 12"x12" Brown Marble Floor Tile	200 SF	X	-	-	200 SF	
		43	12"x12" Brown Marble Floor Tiles		X	-	-		
		16	White Duct Sealant	10 SF	X	-	-	10 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)

SECTION 02 41 19

SELECTIVE DEMOLITION AND ALTERATION WORK

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 SECTION INCLUDES

A. Work of this Section includes all labor, materials, equipment and services necessary to complete the selective demolition and alteration work as shown on the drawings and/or specified herein, including, but not limited to, the following:

1. Alterations, selective demolition and removals as noted on drawings and as required to accommodate new construction.
2. Patch vinyl composition tile (VCT) in Corridor A and Corridor B adjacent to work area.
3. Removal of debris.
4. Protection of existing building and spaces to remain, and shoring of the structure as required for structural integrity and personal safety.
5. Temporary coverage passageways.
6. Patching and refinishing of existing surfaces damaged as a result of this work.
7. Protection.

1.3 QUALITY ASSURANCE

A. The Contractor shall comply with the requirements of all applicable Federal, State and local safety and health regulations regarding the demolition of structures including ANSI/NFPD 241-Building Construction and Demolition Operations.

B. The Contractor shall be responsible for any damage to any adjacent structures or buildings to remain.

C. Qualifications: Qualifications of Contractor for work of this Section shall not be less than ten (10) years of field experience in work of this nature.

D. Professional Engineering: The Contractor shall retain the services of a Professional Engineer licensed in the State of New York, who shall design and supervise installation of all underpinning and shoring.

1.4 RELATED SECTIONS

A. Alteration and removal requirements for mechanical and electrical work - Mechanical and Electrical Sections.

1.5 SUBMITTALS

A. Schedule of Demolition Operations: Submit demolition procedures and operational sequence for Architect's review prior to start of work. Submit a written request to Architect well in advance of executing any cutting or alteration which affects:

1. The work of tying in or connecting to operational systems of the building, including electrical, mechanical and security systems.

2. The work of the Owner or any separate Contractor.

3. The structural value or integrity of any element of the project or of adjacent structures.

4. The integrity or effectiveness of weather-exposed and moisture-resistant elements or systems.

5. The efficiency, operational life, maintenance, or safety of operational elements or systems.

B. Notice of Differing Conditions: Submit a written notification if, during the work of demolition and cutting, conditions are discovered which significantly vary from those shown on the drawings. Do not commence work until approval of Architect.

C. Shop Drawings: Submit the following prior to starting work:

1. Submit for Architect's information shop drawings indicating location and typical construction details of temporary dustproof and weatherproof partitions.

2. Submit drawings of temporary structural shoring, bracing, framing or support, for the information of the Architect. Such drawings will be reviewed by the Structural Engineer for the effects of such temporary members on the structural elements to remain. These drawings shall include the reason for such temporary members, the location, the direction and magnitude of design reaction forces on existing structure, and details showing how these reaction forces will be applied to the existing structure.

a. Shop drawings shall be submitted with the Seal of the P.E. engaged by Contractor; P.E. must be licensed in the State of New York.
b. The Architect will receive acknowledgment for concepts shown. Such acknowledgments shall be of the concept only and not of actual capacities or structural design and shall not in any way diminish or limit the Contractor's responsibility for the quality and performance of the work and for protecting existing structures and facilities.

1.6 SPECIAL PRECAUTION

A. Hazardous materials may be encountered during demolition operations including asbestos; comply with applicable regulations, laws, and ordinances concerning removal, handling, and protection against exposure or environmental pollution.

1.7 JOB CONDITIONS

A. Condition of Structure

1. The Contractor for the work of this Section shall be held to have visited the site, examined the premises, determined for himself the existing conditions, character of equipment and facilities needed for the performance of the work, and all matters which may in any way affect the work before submitting a bid.

a. Information regarding existing construction or conditions is based on available record drawings which may or may not truly reflect existing conditions. Such information is included on the assumption that it may be of interest to the Contractor, but the Architect, Owner and their consultants do not assume responsibility for its accuracy or completeness.
b. Notify the Architect if, during the course of demolition, conditions are discovered which significantly vary from those shown on the drawings. Do not proceed until authorized by Architect.

2. The Contractor shall accept the condition of the site and structures as found. The Architect and Owner assume no responsibility for condition of site or structures nor the continuation of the condition existing at time of bidding or thereafter.

B. Areas of building to be demolished or altered will be vacated and discontinued in use prior to the start of the work.

1. Surrounding areas of the building shall remain operational by the Owner.

C. Partial Removal

1. Items of savable value to the Contractor may be removed from the structure as the work progresses. Salvaged items must be transported from the site as they are removed.

2. Storage or sale of removed items on the site will not be permitted.

D. Explosives: The use of explosives will not be permitted.

E. Traffic

1. Conduct demolition operations and the removal of debris to ensure minimum interference with roads, streets, walks and other adjacent occupied or used facilities.

2. Do not close or obstruct streets, walks or other occupied or used facilities without permission from authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by governing regulations.

F. Utilities

1. Refer to Division 22 and 26 of the specifications for special requirements concerning utilities and services.

2. Maintain any existing utilities required to remain; keep in service and protect against damage during demolition operations.

3. Do not interrupt existing utilities serving occupied or used facilities, except when authorized in writing by authorities having jurisdiction. Provide temporary services during interruptions to existing utilities, as acceptable to the governing authorities.

4. Disconnect and seal any abandoned utilities before starting demolition operations. Coordinate all work with local utility companies having jurisdiction.

1.8 SCHEDULING

A. Before commencing any alteration or demolition work, submit for review by the Architect, and approval of the Owner, a schedule showing the commencement, the order, and the completion dates for the various parts of this work.

B. Before starting any work relating to existing utilities (electrical, sewer, water, heat, gas, fire lines, etc.) that will temporarily discontinue or disrupt service to the structures to remain, notify the Architect and the Owner 7 days in advance and obtain the Owner's approval in writing before proceeding with this phase of the work.

PART 2 PRODUCTS

Refer to Part 3 - Execution, for Product Requirements

PART 3 EXECUTION

3.1 PROTECTION

A. Take full precautions to protect workmen, passersby or any other persons from falling debris and other hazards of demolition operations.

B. Execute demolition work to insure protection of existing portions of building to remain against damages which might occur from falling debris or other cause. Do not interfere with use of adjacent occupied buildings and areas. Maintain free, safe passage to and from occupied adjacent buildings.

C. Materials Placement: Do not load structure with weight that will endanger, overload or cause excessive deflection of the existing structure, or that will damage finished surfaces adjacent to and/or supported by the existing structure, except portions being removed.

D. Construction Operations: Do not employ any construction operation, equipment or vehicles that will endanger, overload or cause excessive deflection of the existing structure, or that will damage finished surfaces adjacent to and/or supported by the existing structure, except portions being removed.

E. Take precautions to guard against movement, settlement, damage, or collapse of any part of building, sidewalks, adjacent property or street passages; be liable for any such movement, settlement or collapse. If such damage does accidentally occur, Contractor shall repair promptly at no cost to Owner.

F. Provide the necessary safeguards to prevent accidents, to avoid all necessary hazards and protect the public, the work and property at all times, including Saturdays, Sundays, and holidays.

G. Be responsible for any and all damages which may arise or occur to any party whatsoever by reason of the neglect in providing proper lights, guards, barriers, or any other safeguards to prevent damage to property, life and limb.

H. Make such explorations and probes as are necessary to ascertain any required protective measures before proceeding with demolition and removal. Give particular attention to shoring and bracing requirements so as to prevent any damage to existing construction.

1. Provide interior and exterior shoring, bracing, or support to prevent movement or settlement or collapse of structures to be demolished and adjacent facilities to remain. The Contractor's Professional Engineer shall advise on bracing, shoring, underpinning, or other structural requirements. The Contractor shall bear all responsibility for prevention of movement or other structural fault.

2. The Contractor shall restore, by repair or otherwise, the portions of structure or their contents altered by the Contractor in furtherance of his underpinning and support operations. Restoration shall be completed to the conditions which existed prior to the start of the work. Any damage caused by inadequate support shall also be restored by the Contractor at no cost to the Owner.

I. Provide, erect and maintain catch platforms, lights, barriers, weather protection, warning signs, and other items as required for proper protection of the workmen engaged in demolition and alteration operations, occupants of the building, public and adjacent property. Any damage caused by the Contractor's operations shall be promptly repaired by the Contractor at no cost to the Owner.

J. Provide and maintain temporary protection of the existing structure designated to remain where demolition, removal, and new work are being done, connections made, materials handled, or equipment moved.

K. Take necessary precautions to prevent dust and dirt from rising. Protect unaltered portions of the existing building affected by the operations under this Section by dustproof partitions and other adequate means.

L. Provide adequate fire protection in accordance with local Fire Department requirements.

M. Do not close or obstruct walkways, passageways, or stairways. Do not store or place materials in passageways, stairs, or other means of egress. Conduct operations with minimum traffic interference.

N. Be responsible for any damage to the existing structure or contents by reason of the insufficiency of protection provided.

O. Erect temporary covered passageways at street level as required by authorities having jurisdiction.

P. Promptly repair damages caused to adjacent facilities by demolition operations at no cost to the Owner.

Q. Provide and maintain weather protection at exterior openings so as to fully protect the interior premises against damage from the elements until such openings are closed by new construction.

3.2 INSPECTION

A. Verify that areas of demolition work are protected and that temporary dustproof partitions have been installed.

B. Verify that construction to be removed is not load bearing or has been properly braced, framed or supported.

C. Inspect existing conditions of the project, including elements subject to damage or to movement during demolition and cutting.

D. After uncovering work, inspect the conditions affecting the installation or performance of the work.

1. Report differing or questionable conditions to the Architect in writing; do not proceed with the work until the Architect has provided further instructions.

3.3 PREPARATION

A. Provide adequate temporary support as necessary to assure the structural value or integrity of the affected portion of the work

B. Provide devices and methods to protect other portions of the project from damage.

C. Pollution Controls

1. Use water sprinkling, temporary enclosures, and other suitable methods to limit the amount of dust and dirt rising and scattering in the air to the lowest practical level. Comply with governing regulations pertaining to environmental protection.

a. Do not use water when it may create hazardous or objectionable conditions such as ice, flooding, and pollution.

2. Clean adjacent structures and improvements of dust, dirt and debris caused by demolition operations. Return adjacent areas to condition existing prior to the start of the work.

3. Provide drainage for temporary water use.

3.4 DEMOLITION AND CUTTING

A. Selectively demolish existing construction in conformance with the drawings and these specifications.

1. Execute cutting and demolition by methods which will prevent damage to other work and will provide proper surface to receive installation of work by others and patching of finish surfaces.

2. Do all cutting or removal so as to leave neat, true, plumb and square edges, at edges to remain. Use carborundum or diamond saw equipment for cutting masonry, concrete and stone work, where edges or surfaces are to remain.

3. Do not cut or remove construction which might weaken or impair the structural integrity or strength of the structural framing or support systems which are to remain.

4. Demolish and remove materials as shown on the drawings without damage to the remaining parts of the structure or mechanical/electrical/utility systems.

5. Remove materials so as to not impose excessive loads in supporting walls, floors or framing and so as not to damage remaining undemolished portions of the structure.

6. Where portions of structures are to be removed, remaining portions shall be protected from damage and prepared to fit new construction. Damage to portions of structures to remain shall be repaired.

7. Reinforcing steel in existing structures shall be left in place, cleaned and aligned to provide tie with new work.

8. Existing waterproofing systems and flashings shall be carefully exposed and protected to maintain workable conditions of fitting new work with existing construction.

9. Proceed with demolition in a systematic manner.

10. Demolish concrete and masonry in small sections.

11. Remove structural framing members and lower to ground by means of hoists, derricks, or other suitable methods.

B. Shoring

1. Design, provide, erect and maintain necessary temporary shoring, bracing, framing, or support where load bearing structural or supporting members are removed or weakened by cuts or openings or are subject to damage from demolition operations, and otherwise as required for safety or to protect finish surfaces from damage.

2. Construction and adequacy of the shoring shall be the entire responsibility of the Contractor. Any damage caused by the inadequacy of the shoring or other

support shall be the responsibility of the Contractor to remedy at no additional expense to the Owner.

3. Shoring and bracing shall remain until new structural framing and/or supports are installed. Coordinate operations fully with other trades.

4. Be ready at any time to promptly provide, add to, or strengthen temporary shoring, bracing, or support for existing work, in case existing construction begins to show signs of structural stress.

3.5 WORKMANSHIP STANDARDS FOR ALTERATION AND REMOVAL WORK

A. Cut, remove, alter, temporarily remove and replace, or relocate existing work as required for performance of the work. Perform such work required with due care, including shoring and bracing.

B. Coordinate patching involving the various trades whether or not specifically mentioned in the respective specification Sections.

C. Materials or items demolished and not designated to become the property of the Owner or to be reinstalled shall become the property of the Contractor and shall be removed from the Owner's property.

D. Execute the work in a careful and orderly manner, with the least possible disturbance to the public and to the occupants of the adjacent buildings.

E. In general, demolish masonry in small sections. Where necessary to prevent collapse of any construction, install temporary shores, struts, or bracing.

F. Materials to be removed by existing elevators shall be put in enclosed containers.

G. Where existing equipment and/or fixtures are indicated to be reused, repair such equipment and/or fixtures and refinish to put in perfect working order. Refinish as directed.

H. Cut out embedded anchorage and attachment items as required to properly provide for patching and repair of the respective finishes.

I. Confine cutting of existing roof areas designated to remain to the limits required for the proper installation of the new work. Cut and fold back existing roofing. Cut and remove insulation and related items. Provide temporary weathertight protection as required until new roofing and flashings are installed. Consult the Owner to ascertain if existing guarantee bonds are in force and execute the work so as not to invalidate such bonds.

J. Where utilities are removed, relocated or abandoned, cap, valve, plug, or by-pass to make complete and working installation.

K. Restore existing pipe and duct coverings damaged by work under this Contract to original undamaged condition.

L. Immediately restore to service and repair any damage caused by Contractor's workmen to existing pipe and conduits, wires, cables, etc., of utility services or of fire protection systems and communications systems which are not scheduled for discontinuance or abandonment.

M. Upon completion of contract, deliver work complete. Damage that may be caused by Contractor or Contractor's workmen to existing structures designated to remain, grounds, and utilities shall be repaired by Contractor and left in as good condition as existed prior to damaging.

N. Restore finish work of floors, walls, and ceilings remaining in place but damaged or defaced because of demolition or alteration work to condition equal that which existed at beginning of work under this Contract.

O. Where alteration or removals expose damaged or unfinished surfaces or materials, refinish such surfaces or materials, or remove them and provide new or salvaged materials to make continuous surfaces uniform.

P. Perform new work and restore and refinish existing work in conformance with applicable requirements of the specifications, except as follows:

1. Materials for use in repair of existing surfaces, but not otherwise specified, shall conform to the highest standards of the trade involved, and be in accordance with approved industry standards, and shall be as required to match existing surfaces.

2. Workmanship for repair of existing materials shall, unless otherwise specified, be equal to similar workmanship existing in or adjacent to the space where the work is being done.

3. Installation of salvaged items where no similar items exist shall be done in accordance with the highest standards of the trade involved and in accordance with approved shop drawings.

Q. Materials or items designated to become the property of the Owner shall be as shown on the drawings. Remove such items with care and store them in a location at the site to be designated by the Owner.

R. Materials or items designated to be reinstalled shall be as shown on the drawings. Remove such items with care under the supervision of the trade responsible for reinstallation; protect and store until required. Replace materials or items damaged in their removal with similar new material.

S. The existing building shall not be used as a work shop. Neither shall the furnishings or equipment in any room be used as work benches. Should any damage occur during the progress of the work to any furniture, fixtures, equipment, or appurtenances therein, such damage shall be repaired, replaced or made good by the Contractor without extra cost to the Owner.

T. Where removing existing floor finish and base, remove all adhesive and leave floors and walls smooth and flush, ready to receive new finish.

U. Finish new and adjacent existing surfaces as specified for new work. Clean existing surfaces of dirt, grease and loose paint before refinishing.

3.6 DISPOSAL OF DEMOLISHED MATERIALS

A. General

1. Remove from the site debris, rubbish and other materials resulting from work of this Section.

2. Burning of removed materials from demolished structures will not be permitted on the site.

B. Removal: Transport materials removed from demolished structures and legally dispose of off site. Pay any and all fees associated with disposal work. Leave the site in an orderly condition to the approval of the Architect.

3.7 CLEANING UP

A. Remove debris as the work progresses. Maintain existing premises in a neat and clean condition.

END OF SECTION

SECTION 033000 - CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes cast-in-place concrete, including formwork, reinforcement, concrete materials, mixture design, placement procedures, and finishes.

1.3 DEFINITIONS

A. Cementitious Materials: Portland cement alone or in combination with one or more of the following: blended hydraulic cement, fly ash, slag cement, other pozzolans, and silica fume; materials subject to compliance with requirements.

B. W/C Ratio: The ratio by weight of water to cementitious materials.

1.4 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1. Before submitting design mixtures, review concrete design mixture and examine procedures for ensuring quality of concrete materials. Require representatives of each entity directly concerned with cast-in-place concrete to attend, including the following:

    a. Contractor's superintendent.
    b. Independent testing agency responsible for concrete design mixtures.
    c. Ready-mix concrete manufacturer.
    d. Concrete Subcontractor.
    e. Special concrete finish Subcontractor.

2. Review special inspection and testing and inspecting agency procedures for field quality control, concrete finishes and finishing, cold- and hot-weather concreting procedures, curing procedures, construction contraction and isolation joints, and joint-filler strips, anchor rod and anchorage device installation tolerances, steel reinforcement installation, concrete repair procedures, and concrete protection.

1.5 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Design Mixtures: For each concrete mixture. Submit alternate design mixtures when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant adjustments.

1. Indicate amounts of mixing water to be withheld for later addition at Project site.

C. Steel Reinforcement Shop Drawings: Placing Drawings that detail fabrication, bending, and placement. Include bar sizes, lengths, material, grade, bar schedules, stirrup spacing, bent bar diagrams, bar arrangement, splices and laps, mechanical connections, tie spacing, hoop spacing, and supports for concrete reinforcement.

D. Construction Joint Layout: Indicate proposed construction joints required to construct the structure.

1. Location of construction joints is subject to approval of the Architect.

1.6 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer, manufacturer, and testing agency.

B. Welding certificates.

C. Material Certificates: For each of the following, signed by manufacturers:

1. Cementitious materials.
2. Admixtures.
3. Form materials and form-release agents.
4. Steel reinforcement and accessories.
5. Fiber reinforcement.
6. Waterstops.
7. Curing compounds.
8. Floor and slab treatments.
9. Bonding agents.
10. Adhesives.
11. Vapor retarders.
12. Semirigid joint filler.
13. Joint-filler strips.
14. Repair materials.

D. Material Test Reports: For the following, from a qualified testing agency:

1. Aggregates: Include service record data indicating absence of deleterious expansion of concrete due to alkali aggregate reactivity.

E. Formwork Shop Drawings: Prepared by or under the supervision of a qualified professional engineer, detailing fabrication, assembly, and support of formwork.

1. Shoring and Reshoring: Indicate proposed schedule and sequence of stripping formwork, shoring removal, and reshoring installation and removal.

F. Floor surface flatness and levelness measurements indicating compliance with specified tolerances.

G. Field quality-control reports.

H. Minutes of preinstallation conference.

1.7 QUALITY ASSURANCE

A. Installer Qualifications: A qualified installer who employs on Project personnel qualified as ACI-certified Flatwork Technician and Finisher and a supervisor who is an ACI-certified Concrete Flatwork Technician.

B. Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C 94/C 94M requirements for production facilities and equipment.

1. Manufacturer certified according to NRMCA's "Certification of Ready Mixed Concrete Production Facilities."

C. Testing Agency Qualifications: An independent agency, qualified according to ASTM C 1077 and ASTM E 329 for testing indicated.

1. Personnel conducting field tests shall be qualified as ACI Concrete Field Testing Technician, Grade 1, according to ACI CP-1 or an equivalent certification program.
2. Personnel performing laboratory tests shall be ACI-certified Concrete Strength Testing Technician and Concrete Laboratory Testing Technician, Grade I. Testing agency laboratory supervisor shall be an ACI-certified Concrete Laboratory Testing Technician, Grade II.

D. Welding Qualifications: Qualify procedures and personnel according to AWS D1.4/D 1.4M.

1.8 PRECONSTRUCTION TESTING

A. Preconstruction Testing Service: Engage a qualified testing agency to perform preconstruction testing on concrete mixtures.

1.9 DELIVERY, STORAGE, AND HANDLING

A. Steel Reinforcement: Deliver, store, and handle steel reinforcement to prevent bending and damage.

B. Waterstops: Store waterstops under cover to protect from moisture, sunlight, dirt, oil, and other contaminants.

1.10 FIELD CONDITIONS

A. Cold-Weather Placement: Comply with ACI 306.1 and as follows. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.

1. When average high and low temperature is expected to fall below 40 deg F (4.4 deg C) for three successive days, maintain delivered concrete mixture temperature within the temperature range required by ACI 301 (ACI 301M).
2. Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.
3. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise specified and approved in mixture designs.

B. Hot-Weather Placement: Comply with ACI 301 (ACI 301M) and as follows:

1. Maintain concrete temperature below 90 deg F (32 deg C) at time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated to total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.
2. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade uniformly moist without standing water, soft spots, or dry areas.

PART 2 - PRODUCTS

2.1 CONCRETE, GENERAL

A. ACI Publications: Comply with the following unless modified by requirements in the Contract Documents:

1. ACI 301 (ACI 301M).
2. ACI 117 (ACI 117M).

2.2 FORM-FACING MATERIALS

A. Smooth-Formed Finished Concrete: Form-facing panels that provide continuous, true, and smooth concrete surfaces. Furnish in largest practicable sizes to minimize number of joints.

1. Plywood, metal, or other approved panel materials.
2. Exterior-grade plywood panels, suitable for concrete forms, complying with DOC PS 1, and as follows:

a. High-density overlay, Class 1 or better.
b. Medium-density overlay, Class 1 or better; mill-release agent treated and edge sealed.
c. Structural 1, B-B or better; mill oiled and edge sealed.
d. B-B (Concrete Form), Class 1 or better; mill oiled and edge sealed.

3. Overlaid Finnish birch plywood.

B. Rough-Formed Finished Concrete: Plywood, lumber, metal, or another approved material. Provide lumber dressed on at least two edges and one side for tight fit.

C. Forms for Cylindrical Columns, Pedestals, and Supports: Metal, glass-fiber-reinforced plastic, paper, or fiber tubes that produce surfaces with gradual or abrupt irregularities not exceeding specified formwork surface class. Provide units with sufficient wall thickness to resist plastic concrete loads without detrimental deformation.

D. Pan-Type Forms: Glass-fiber-reinforced plastic or formed steel, stiffened to resist plastic concrete loads without detrimental deformation.

E. Void Forms: Biodegradable paper surface, treated for moisture resistance, structurally sufficient to support weight of plastic concrete and other superimposed loads.

F. Chamfer Strips: Wood, metal, PVC, or rubber strips, 3/4 by 3/4 inch (19 by 19 mm), minimum.

G. Rustication Strips: Wood, metal, PVC, or rubber strips, kerfed for ease of form removal.

H. Form-Release Agent: Commercially formulated form-release agent that does not bond with, stain, or adversely affect concrete surfaces and does not impair subsequent treatments of concrete surfaces.

1. Formulate form-release agent with rust inhibitor for steel form-facing materials.

I. Form Ties: Factory-fabricated, removable or snap-off glass-fiber-reinforced plastic or metal form ties designed to resist lateral pressure of fresh concrete on forms and to prevent spalling of concrete on removal.

1. Furnish units that leave no corrodible metal closer than 1 inch (25 mm) to the plane of exposed concrete surface.

2. Furnish ties that, when removed, leave holes no larger than 1 inch (25 mm) in diameter in concrete surface.
3. Furnish ties with integral water-barrier plates to walls indicated to receive dampproofing or waterproofing.

2.3 STEEL REINFORCEMENT

A. Reinforcing Bars: ASTM A 615/A 615M, Grade 60 (Grade 420), deformed.

B. Low-Alloy-Steel Reinforcing Bars: ASTM A 706/A 706M, deformed.

C. Plain-Steel Wire: ASTM A 1064/A 1064M, as drawn.

D. Deformed-Steel Wire: ASTM A 1064/A 1064M.

E. Plain-Steel Welded-Wire Reinforcement: ASTM A 1064/A 1064M, plain, fabricated from as-drawn steel wire into flat sheets.

F. Deformed-Steel Welded-Wire Reinforcement: ASTM A 1064/A 1064M, flat sheet.

2.4 REINFORCEMENT ACCESSORIES

A. Joint Dowel Bars: ASTM A 615/A 615M, Grade 60 (Grade 420), plain-steel bars, cut true to length with ends square and free of burrs.

B. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded-wire reinforcement in place. Manufacture bar supports from steel wire, plastic, or precast concrete according to CRSI's "Manual of Standard Practice," of greater compressive strength than concrete and as follows:

1. For concrete surfaces exposed to view, where legs of wire bar supports contact forms, use CRSI Class 1 plastic-protected steel wire or CRSI Class 2 stainless-steel bar supports.
2. For epoxy-coated reinforcement, use epoxy-coated or other dielectric-polymer-coated wire bar supports.
3. For zinc-coated reinforcement, use galvanized wire or dielectric-polymer-coated wire bar supports.

2.5 CONCRETE MATERIALS

A. Source Limitations: Obtain each type or class of cementitious material of the same brand from the same manufacturer's plant, obtain aggregate from single source, and obtain admixtures from single source from single manufacturer.

B. Cementitious Materials:

1. Portland Cement: ASTM C 150/C 150M, Type I/II.

2. Fly Ash: ASTM C 618, Class F or C.
3. Slag Cement: ASTM C 989/C 989M, Grade 100 or 120.

C. Normal-Weight Aggregates: ASTM C 33/C 33M, coarse aggregate or better, graded. Provide aggregates from a single source with documented service record data of at least 10 years' satisfactory service in similar applications and service conditions using similar aggregates and cementitious materials.

1. Maximum Coarse-Aggregate Size: 3/4 inch (19 mm) nominal.
2. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.

D. Air-Entraining Admixture: ASTM C 260/C 260M.

E. Chemical Admixtures: Certified by manufacturer to be compatible with other admixtures and that do not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride.

1. Water-Reducing Admixture: ASTM C 494/C 494M, Type A.
2. Retarding Admixture: ASTM C 494/C 494M, Type B.
3. Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type D.
4. High-Range, Water-Reducing Admixture: ASTM C 494/C 494M, Type F.
5. High-Range, Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type G.
6. Plasticizing and Retarding Admixture: ASTM C 1017/C 1017M, Type II.

F. Set-Accelerating Corrosion-Inhibiting Admixture: Commercially formulated, anodic inhibitor or mixed cathodic and anodic inhibitor; capable of forming a protective barrier and minimizing chloride reactions with steel reinforcement in concrete and complying with ASTM C 494/C 494M, Type C.

G. Non-Set-Accelerating Corrosion-Inhibiting Admixture: Commercially formulated, non-set-accelerating, anodic inhibitor or mixed cathodic and anodic inhibitor; capable of forming a protective barrier and minimizing chloride reactions with steel reinforcement in concrete.

H. Water: ASTM C 94/C 94M and potable.

2.6 WATERSTOPS

A. Flexible PVC Waterstops: CE CRD-C 572, for embedding in concrete to prevent passage of fluids through joints. Factory fabricate corners, intersections, and directional changes.
1. Profile: Flat dumbbell with center bulb.
2. Dimensions: 6 inches by 3/8 inch thick (150 mm by 10 mm thick); nontapered.

2.7 VAPOR RETARDERS

A. Sheet Vapor Retarder: ASTM E 1745, Class A. Include manufacturer's recommended adhesive or pressure-sensitive tape.

2.8 CURING MATERIALS

A. Evaporation Retarder: Waterborne, monomolecular film forming, manufactured for application to fresh concrete.

B. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. (305 g/sq. m) when dry.

C. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.

D. Water: Potable.

E. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, dissipating.

2.9 RELATED MATERIALS

A. Expansion- and Isolation-Joint-Filler Strips: ASTM D 1751, asphalt-saturated cellulosic fiber or ASTM D 1752, cork or self-expanding cork.

B. Bonding Agent: ASTM C 1059/C 1059M, Type II, nonredispersible, acrylic emulsion or styrene butadiene.

C. Epoxy Bonding Adhesive: ASTM C 881, two-component epoxy resin, capable of humid curing and bonding to damp surfaces, of class suitable for application temperature and of grade to suit requirements, and as follows:

1. Types IV and V, load bearing, for bonding hardened or freshly mixed concrete to hardened concrete.

D. Reglets: Fabricate reglets of not less than 0.022-inch- (0.55-mm-) thick, galvanized-steel sheet. Temporarily fill or cover face opening of reglet to prevent intrusion of concrete or debris.

E. Dovetail Anchor Slots: Hot-dip galvanized-steel sheet, not less than 0.034 inch (0.85 mm) thick, with bent tab anchors. Temporarily fill or cover face opening of slots to prevent intrusion of concrete or debris.

2.10 REPAIR MATERIALS

A. Repair Underlayment: Cement-based, polymer-modified, self-leveling product that can be applied in thicknesses from 1/8 inch (3.2 mm) and that can be feathered at edges to match adjacent floor elevations.

1. Cement Binder: ASTM C 150/C 150M, portland cement or hydraulic or blended hydraulic cement as defined in ASTM C 219.
2. Primer: Product of underlayment manufacturer recommended for substrate, conditions, and application.
3. Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch (3.2 to 6 mm) or coarse sand as recommended by underlayment manufacturer.
4. Compressive Strength: Not less than 4100 psi (29 MPa) at 28 days when tested according to ASTM C 109/C 109M.

B. Repair Overlayment: Cement-based, polymer-modified, self-leveling product that can be applied in thicknesses from 1/4 inch (6.4 mm) and that can be filled in over a scarified surface to match adjacent floor elevations.

1. Cement Binder: ASTM C 150/C 150M, portland cement or hydraulic or blended hydraulic cement as defined in ASTM C 219.
2. Primer: Product of topping manufacturer recommended for substrate, conditions, and application.
3. Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch (3.2 to 6 mm) or coarse sand as recommended by topping manufacturer.
4. Compressive Strength: Not less than 5000 psi (34.5 MPa) at 28 days when tested according to ASTM C 109/C 109M.

2.11 CONCRETE MIXTURES, GENERAL

A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, according to ACI 301 (ACI 301M).

1. Use a qualified independent testing agency for preparing and reporting proposed mixture designs based on laboratory trial mixtures.

B. Cementitious Materials: Use fly ash, pozzolan, slag cement, and silica fume as needed to reduce the total amount of portland cement, which would otherwise be used, by not less than 50 percent. Limit percentage, by weight, of cementitious materials other than portland cement in concrete as follows:
1. See project General Notes.

C. Limit water-soluble, chloride-ion content in hardened concrete to 0.30 percent by weight of cement.

D. Admixtures: Use admixtures according to manufacturer's written instructions.
1. See project General Notes.

2.12 CONCRETE MIXTURES FOR BUILDING ELEMENTS

A. Footings: Normal-weight concrete.

1. See project General Notes.

2.13 FABRICATING REINFORCEMENT

A. Fabricate steel reinforcement according to CRSI's "Manual of Standard Practice."

2.14 CONCRETE MIXING

A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94/C 94M, and furnish batch ticket information.

1. When air temperature is between 85 and 90 deg F (30 and 32 deg C), reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F (32 deg C), reduce mixing and delivery time to 60 minutes.

B. Project-Site Mixing: Measure, batch, and mix concrete materials and concrete according to ASTM C 94/C 94M. Mix concrete materials in appropriate drum-type batch machine mixer.

1. For mixer capacity of 1 cu. yd. (0.76 cu. m) or smaller, continue mixing at least 1-1/2 minutes, but not more than 5 minutes after ingredients are in mixer, before any part of batch is released.
2. For mixer capacity larger than 1 cu. yd. (0.76 cu. m), increase mixing time by 15 seconds for each additional 1 cu. yd. (0.76 cu. m).
3. Provide batch ticket for each batch discharged and used in the Work, indicating Project identification name and number, date, mixture type, mixture time, quantity, and amount of water added. Record approximate location of final deposit in structure.

PART 3 - EXECUTION

3.1 FORMWORK INSTALLATION

A. Design, erect, shore, brace, and maintain formwork, according to ACI 301 (ACI 301M), to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until structure can support such loads.

B. Construct formwork so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117 (ACI 117M).

C. Limit concrete surface irregularities, designated by ACI 347 as abrupt or gradual, as follows:

1. Class A, 1/8 inch (3.2 mm) for smooth-formed finished surfaces.
2. Class B, 1/4 inch (6 mm) for rough-formed finished surfaces.

D. Construct forms tight enough to prevent loss of concrete mortar.

E. Construct forms for easy removal without hammering or prying against concrete surfaces. Provide crush or wrecking plates where stripping may damage cast-concrete surfaces. Provide top forms for inclined surfaces steeper than 1.5 horizontal to 1 vertical.

1. Install keyways, reglets, recesses, and the like, for easy removal.
2. Do not use rust-stained steel form-facing material.

F. Set edge forms, bulkheads, and intermediate screed strips for slabs to achieve required elevations and slopes in finished concrete surfaces. Provide and secure units to support screed strips; use strike-off templates or compacting-type screeds.

G. Provide temporary openings for cleanouts and inspection ports where interior area of formwork is inaccessible. Close openings with panels tightly fitted to forms and securely braced to prevent loss of concrete mortar. Locate temporary openings in forms at inconspicuous locations.

H. Chamfer exterior corners and edges of permanently exposed concrete.

I. Form openings, chases, offsets, sinkages, keyways, reglets, blocking, screeds, and bulkheads required in the Work. Determine sizes and locations from trades providing such items.

J. Clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, and other debris just before placing concrete.

K. Retighten forms and bracing before placing concrete, as required, to prevent mortar leaks and maintain proper alignment.

L. Coat contact surfaces of forms with form-release agent, according to manufacturer's written instructions, before placing reinforcement.

3.2 EMBEDDED ITEM INSTALLATION

A. Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.

1. Install anchor rods, accurately located, to elevations required and complying with tolerances in Section 7.5 of AISC 303.

2. Install reglets to receive waterproofing and to receive through-wall flashings in outer face of concrete frame at exterior walls, where flashing is shown at lintels, shelf angles, and other conditions.
3. Install dovetail anchor slots in concrete structures as indicated.

3.3 REMOVING AND REUSING FORMS

A. General: Formwork for sides of beams, walls, columns, and similar parts of the Work that does not support weight of concrete may be removed after cumulatively curing at not less than 50 deg F (10 deg C) for 24 hours after placing concrete. Concrete has to be hard enough to not be damaged by form-removal operations, and curing and protection operations need to be maintained.

1. Leave formwork for beam soffits, joists, slabs, and other structural elements that support weight of concrete in place until concrete has achieved at least 70 percent of its 28-day design compressive strength.
2. Remove forms only if shores have been arranged to permit removal of forms without loosening or disturbing shores.

B. Clean and repair surfaces of forms to be reused in the Work. Split, frayed, delaminated, or otherwise damaged form-facing material are not acceptable for exposed surfaces. Apply new form-release agent.

C. When forms are reused, clean surfaces, remove fins and laitance, and tighten to close joints. Align and secure joints to avoid offsets. Do not use patched forms for exposed concrete surfaces unless approved by Architect.

3.4 SHORING AND RESHORING INSTALLATION

A. Comply with ACI 318 (ACI 318M) and ACI 301 (ACI 301M) for design, installation, and removal of shoring and reshoring.

1. Do not remove shoring or reshoring until measurement of slab tolerances is complete.

B. In multistory construction, extend shoring or reshoring over a sufficient number of stories to distribute loads in such a manner that no floor or member will be excessively loaded or will induce tensile stress in concrete members without sufficient steel reinforcement.

C. Plan sequence of removal of shores and reshore to avoid damage to concrete. Locate and provide adequate reshoring to support construction without excessive stress or deflection.

3.5 VAPOR-RETARDER INSTALLATION

A. Sheet Vapor Retarders: Place, protect, and repair sheet vapor retarder according to ASTM E 1643 and manufacturer's written instructions.

1. Lap joints 6 inches (150 mm) and seal with manufacturer's recommended tape.

B. Bituminous Vapor Retarders: Place, protect, and repair bituminous vapor retarder according to manufacturer's written instructions.

3.6 STEEL REINFORCEMENT INSTALLATION

A. General: Comply with CRSI's "Manual of Standard Practice" for fabricating, placing, and supporting reinforcement.

1. Do not cut or puncture vapor retarder. Repair damage and reseal vapor retarder before placing concrete.

B. Clean reinforcement of loose rust and mill scale, earth, ice, and other foreign materials that reduce bond to concrete.

C. Accurately position, support, and secure reinforcement against displacement. Locate and support reinforcement with bar supports to maintain minimum concrete cover. Do not tack weld crossing reinforcing bars.

1. Weld reinforcing bars according to AWS D1.4/D 1.4M, where indicated.

D. Set wire ties with ends directed into concrete, not toward exposed concrete surfaces.

E. Install welded-wire reinforcement in longest practicable lengths on bar supports spaced to minimize sagging. Lap edges and ends of adjoining sheets at least one mesh spacing. Offset laps of adjoining sheet widths to prevent continuous laps in either direction. Lace overlaps with wire.

F. Epoxy-Coated Reinforcement: Repair cut and damaged epoxy coatings with epoxy repair coating according to ASTM D 3963/D 3963M. Use epoxy-coated steel wire ties to fasten epoxy-coated steel reinforcement.

G. Zinc-Coated Reinforcement: Repair cut and damaged zinc coatings with zinc repair material according to ASTM A 780/A 780M. Use galvanized-steel wire ties to fasten zinc-coated steel reinforcement.

3.7 JOINTS

A. General: Construct joints true to line with faces perpendicular to surface plane of concrete.

B. Construction Joints: Install so strength and appearance of concrete are not impaired, at locations indicated or as approved by Architect.

1. Place joints perpendicular to main reinforcement. Continue reinforcement across construction joints unless otherwise indicated. Do not continue reinforcement through sides of strip placements of floors and slabs.
2. Form keyed joints as indicated. Embed keys at least 1-1/2 inches (38 mm) into concrete.
3. Locate joints for beams, slabs, joists, and girders in the middle third of spans. Offset joints in girders a minimum distance of twice the beam width from a beam-girder intersection.
4. Locate horizontal joints in walls and columns at underside of floors, slabs, beams, and girders and at the top of footings or floor slabs.
5. Space vertical joints in walls as indicated in General Notes. Locate joints beside piers integral with walls, near corners, and in concealed locations where possible.
6. Use a bonding agent at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.
7. Use epoxy-bonding adhesive at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.

C. Contraction Joints in Slabs-on-Grade: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth of concrete thickness as follows:

1. Grooved Joints: Form contraction joints after initial floating by grooving and finishing each edge of joint to a radius of 1/8 inch (3.2 mm). Repeat grooving of contraction joints after applying surface finishes. Eliminate groover tool marks on concrete surfaces.
2. Sawed Joints: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch- (3.2-mm-) wide joints into concrete when cutting action does not tear, abrade, or otherwise damage surface and before concrete develops random contraction cracks.

D. Isolation Joints in Slabs-on-Grade: After removing formwork, install joint-filler strips at slab junctions with vertical surfaces, such as column pedestals, foundation walls, grade beams, and other locations, as indicated.

1. Extend joint-filler strips full width and depth of joint, terminating flush with finished concrete surface unless otherwise indicated.
2. Terminate full-width joint-filler strips not less than 1/2 inch (13 mm) or more than 1 inch (25 mm) below finished concrete surface where joint sealants, specified in Section 079200 "Joint Sealants," are indicated.
3. Install joint-filler strips in lengths as long as practicable. Where more than one length is required, lace or clip sections together.

E. Doweled Joints: Install dowel bars and support assemblies at joints where indicated. Lubricate or asphalt coat one-half of dowel length to prevent concrete bonding to one side of joint.

3.8 WATERSTOP INSTALLATION

A. Flexible Waterstops: Install in construction joints and at other joints indicated to form a continuous diaphragm. Install in longest lengths practicable. Support and protect exposed waterstops during progress of the Work. Field fabricate joints in waterstops according to manufacturer's written instructions.

B. Self-Expanding Strip Waterstops: Install in construction joints and at other locations indicated, according to manufacturer's written instructions, adhesive bonding, mechanically fastening, and firmly pressing into place. Install in longest lengths practicable.

3.9 CONCRETE PLACEMENT

A. Before placing concrete, verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections are completed.

B. Do not add water to concrete during delivery, at Project site, or during placement unless approved by Architect.

C. Before test sampling and placing concrete, water may be added at Project site, subject to limitations of ACI 301 (ACI 301M).

1. Do not add water to concrete after adding high-range water-reducing admixtures to mixture.

D. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete is placed on concrete that has hardened enough to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as indicated. Deposit concrete to avoid segregation.

1. Deposit concrete in horizontal layers of depth not to exceed formwork design pressures and in a manner to avoid inclined construction joints.
2. Consolidate placed concrete with mechanical vibrating equipment according to ACI 301 (ACI 301M).
3. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations to rapidly penetrate placed layer and at least 6 inches (150 mm) into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to lose plasticity. At each insertion, limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing mixture constituents to segregate.

E. Deposit and consolidate concrete for floors and slabs in a continuous operation, within limits of construction joints, until placement of a panel or section is complete.

1. Consolidate concrete during placement operations, so concrete is thoroughly worked around reinforcement and other embedded items and into corners.
2. Maintain reinforcement in position on chairs during concrete placement.

3. Screed slab surfaces with a straightedge and strike off to correct elevations.
4. Slope surfaces uniformly to drains where required.
5. Begin initial floating using bull floats or darbies to form a uniform and open-textured surface plane, before excess bleedwater appears on the surface. Do not further disturb slab surfaces before starting finishing operations.

3.10 FINISHING FORMED SURFACES

A. Rough-Formed Finish: As-cast concrete texture imparted by form-facing material with tie holes and defects repaired and patched. Remove fins and other projections that exceed specified limits on formed-surface irregularities.

1. Apply to concrete surfaces not exposed to public view.

B. Smooth-Formed Finish: As-cast concrete texture imparted by form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams. Repair and patch tie holes and defects. Remove fins and other projections that exceed specified limits on formed-surface irregularities.

1. Apply to concrete surfaces exposed to public view, or to be covered with a coating or covering material applied directly to concrete.

C. Rubbed Finish: Apply the following to smooth-formed-finished as-cast concrete where indicated:

1. Smooth-Rubbed Finish: Not later than one day after form removal, moisten concrete surfaces and rub with carborundum brick or another abrasive until producing a uniform color and texture. Do not apply cement grout other than that created by the rubbing process.
2. Grout-Cleaned Finish: Wet concrete surfaces and apply grout of a consistency of thick paint to coat surfaces and fill small holes. Mix 1 part portland cement to 1-1/2 parts fine sand with a 1:1 mixture of bonding admixture and water. Add white portland cement in amounts determined by trial patches, so color of dry grout matches adjacent surfaces. Scrub grout into voids and remove excess grout. When grout whitens, rub surface with clean burlap and keep surface damp by fog spray for at least 36 hours.
3. Cork-Floated Finish: Wet concrete surfaces and apply a stiff grout. Mix 1 part portland cement and 1 part fine sand with a 1:1 mixture of bonding agent and water. Add white portland cement in amounts determined by trial patches, so color of dry grout matches adjacent surfaces. Compress grout into voids by grinding surface. In a swirling motion, finish surface with a cork float.

D. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces unless otherwise indicated.

3.11 FINISHING FLOORS AND SLABS

A. General: Comply with ACI 302.1R recommendations for screeding, restraightening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.

B. Scratch Finish: While still plastic, texture concrete surface that has been screeded and bull-floated or darbied. Use stiff brushes, brooms, or rakes to produce a profile amplitude of 1/4 inch (6 mm) in one direction.

1. Apply scratch finish to surfaces indicated.

C. Float Finish: Consolidate surface with power-driven floats or by hand floating if area is small or inaccessible to power-driven floats. Restraighten, cut down high spots, and fill low spots. Repeat float passes and restraightening until surface is left with a uniform, smooth, granular texture.

1. Apply float finish to surfaces indicated.

D. Trowel Finish: After applying float finish, apply first troweling and consolidate concrete by hand or power-driven trowel. Continue troweling passes and restraighten until surface is free of trowel marks and uniform in texture and appearance. Grind smooth any surface defects that would telegraph through applied coatings or floor coverings.

1. Apply a trowel finish to surfaces indicated.
2. Finish surfaces to the following tolerances, according to ASTM E 1155 (ASTM E 1155M), for a randomly trafficked floor surface:

    a. Specified overall values of flatness, F(F) 25; and of levelness, F(L) 20; with minimum local values of flatness, F(F) 17; and of levelness, F(L) 15.
    b. Specified overall values of flatness, F(F) 35; and of levelness, F(L) 25; with minimum local values of flatness, F(F) 24; and of levelness, F(L) 17; for slabs-on-grade.
    c. Specified overall values of flatness, F(F) 30; and of levelness, F(L) 20; with minimum local values of flatness, F(F) 24; and of levelness, F(L) 15; for suspended slabs.
    d. Specified overall values of flatness, F(F) 45; and of levelness, F(L) 35; with minimum local values of flatness, F(F) 30; and of levelness, F(L) 24.

3. Finish and measure surface, so gap at any point between concrete surface and an unleveled, freestanding, 10-ft.- (3.05-m-) long straightedge resting on two high spots and placed anywhere on the surface does not exceed 1/8 inch (3.2 mm).

E. Trowel and Fine-Broom Finish: Apply a first trowel finish to surfaces indicated. While concrete is still plastic, slightly scarify surface with a fine broom.

1. Comply with flatness and levelness tolerances for trowel-finished floor surfaces.

F. Broom Finish: Apply a broom finish to exterior concrete platforms, steps, ramps, and elsewhere as indicated.

1. Immediately after float finishing, slightly roughen trafficked surface by brooming with fiber-bristle broom perpendicular to main traffic route. Coordinate required final finish with Architect before application.

G. Slip-Resistive Finish: Before final floating, apply slip-resistive aggregate finish where indicated and to concrete stair treads, platforms, and ramps. Apply according to manufacturer's written instructions and as follows:

1. Uniformly spread 25 lb/100 sq. ft. (12 kg/10 sq. m) of dampened slip-resistive aggregate over surface in one or two applications. Tamp aggregate flush with surface, but do not force below surface.
2. After broadcasting and tamping, apply float finish.
3. After curing, lightly work surface with a steel wire brush or an abrasive stone and water to expose slip-resistive aggregate.

H. Dry-Shake Floor Hardener Finish: After initial floating, apply dry-shake floor hardener to surfaces according to manufacturer's written instructions and as follows:

1. Uniformly apply dry-shake floor hardener at a rate of 100 lb/100 sq. ft. (49 kg/10 sq. m) unless greater amount is recommended by manufacturer.
2. Uniformly distribute approximately two-thirds of dry-shake floor hardener over surface by hand or with mechanical spreader, and embed by power floating. Follow power floating with a second dry-shake floor hardener application, uniformly distributing remainder of material, and embed by power floating.
3. After final floating, apply a trowel finish. Cure concrete with curing compound recommended by dry-shake floor hardener manufacturer and apply immediately after final finishing.

3.12 MISCELLANEOUS CONCRETE ITEM INSTALLATION

A. Filling In: Fill in holes and openings left in concrete structures after work of other trades is in place unless otherwise indicated. Mix, place, and cure concrete, as specified, to blend with in-place construction. Provide other miscellaneous concrete filling indicated or required to complete the Work.

B. Curbs: Provide monolithic finish to interior curbs by stripping forms while concrete is still green and by steel-troweling surfaces to a hard, dense finish with corners, intersections, and terminations slightly rounded.

C. Equipment Bases and Foundations:

1. Coordinate sizes and locations of concrete bases with actual equipment provided.
2. Construct concrete bases 6 inches (150 mm) high unless otherwise indicated, and extend base not less than 6 inches (150 mm) in each direction beyond the maximum dimensions of supported equipment unless otherwise indicated or unless required for seismic anchor support.
3. Minimum Compressive Strength: 4000 psi (27.6 MPa) at 28 days.

4. Install dowel rods to connect concrete base to concrete floor. Unless otherwise indicated, install dowel rods on 18-inch (450-mm) centers around the full perimeter of concrete base.
5. For supported equipment, install epoxy-coated anchor bolts that extend through concrete base and anchor into structural concrete substrate.
6. Prior to pouring concrete, place and secure anchorage devices. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
7. Cast anchor-bolt insert into bases. Install anchor bolts to elevations required for proper attachment to supported equipment.

D. Steel Pan Stairs: Provide concrete fill for steel pan stair treads, landings, and associated items. Cast-in inserts and accessories as shown on Drawings. Screed, tamp, and trowel finish concrete surfaces.

3.13 CONCRETE PROTECTING AND CURING

A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and ACI 301 (ACI 301M) for hot-weather protection during curing.

B. Evaporation Retarder: Apply evaporation retarder to unformed concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h (1 kg/sq. m x h) before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.

C. Formed Surfaces: Cure formed concrete surfaces, including underside of beams, supported slabs, and other similar surfaces. If forms remain during curing period, moist cure after loosening forms. If removing forms before end of curing period, continue curing for remainder of curing period.

D. Unformed Surfaces: Begin curing immediately after finishing concrete. Cure unformed surfaces, including floors and slabs, concrete floor toppings, and other surfaces.

E. Cure concrete according to ACI 308.1, by one or a combination of the following methods:

1. Moisture Curing: Keep surfaces continuously moist for not less than seven days with the following materials:

    a. Water.
    b. Continuous water-fog spray.
    c. Absorptive cover, water saturated, and kept continuously wet. Cover concrete surfaces and edges with 12-inch (300-mm) lap over adjacent absorptive covers.

2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides

and ends lapped at least 12 inches (300 mm), and sealed by waterproof tape or adhesive. Cure for not less than seven days. Immediately repair any holes or tears during curing period, using cover material and waterproof tape.

a. Moisture cure or use moisture-retaining covers to cure concrete surfaces to receive floor coverings.
b. Moisture cure or use moisture-retaining covers to cure concrete surfaces to receive penetrating liquid floor treatments.
c. Cure concrete surfaces to receive floor coverings with either a moisture-retaining cover or a curing compound that the manufacturer certifies does not interfere with bonding of floor covering used on Project.

3. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period.

a. Removal: After curing period has elapsed, remove curing compound without damaging concrete surfaces by method recommended by curing compound manufacturer.

4. Curing and Sealing Compound: Apply uniformly to floors and slabs indicated in a continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Repeat process 24 hours later and apply a second coat. Maintain continuity of coating and repair damage during curing period.

3.14 LIQUID FLOOR TREATMENT APPLICATION

A. Penetrating Liquid Floor Treatment: Prepare, apply, and finish penetrating liquid floor treatment according to manufacturer's written instructions.

1. Remove curing compounds, sealers, oil, dirt, laitance, and other contaminants and complete surface repairs.
2. Do not apply to concrete that is less than 14 days' old.
3. Apply liquid until surface is saturated, scrubbing into surface until a gel forms; rewet; and repeat brooming or scrubbing. Rinse with water; remove excess material until surface is dry. Apply a second coat in a similar manner if surface is rough or porous.

B. Sealing Coat: Uniformly apply a continuous sealing coat of curing and sealing compound to hardened concrete by power spray or roller according to manufacturer's written instructions.

3.15 JOINT FILLING

A. Prepare, clean, and install joint filler according to manufacturer's written instructions.

1. Defer joint filling until concrete has aged at least [**one**] [**six**] month(s). Do not fill joints until construction traffic has permanently ceased.

B. Remove dirt, debris, saw cuttings, curing compounds, and sealers from joints; leave contact faces of joints clean and dry.

C. Install semirigid joint filler full depth in saw-cut joints and at least 2 inches (50 mm) deep in formed joints. Overfill joint and trim joint filler flush with top of joint after hardening.

3.16 CONCRETE SURFACE REPAIRS

A. Defective Concrete: Repair and patch defective areas when approved by Architect. Remove and replace concrete that cannot be repaired and patched to Architect's approval.

B. Patching Mortar: Mix dry-pack patching mortar, consisting of 1 part portland cement to 2-1/2 parts fine aggregate passing a No. 16 (1.18-mm) sieve, using only enough water for handling and placing.

C. Repairing Formed Surfaces: Surface defects include color and texture irregularities, cracks, spalls, air bubbles, honeycombs, rock pockets, fins and other projections on the surface, and stains and other discolorations that cannot be removed by cleaning.

1. Immediately after form removal, cut out honeycombs, rock pockets, and voids more than 1/2 inch (13 mm) in any dimension to solid concrete. Limit cut depth to 3/4 inch (19 mm). Make edges of cuts perpendicular to concrete surface. Clean, dampen with water, and brush-coat holes and voids with bonding agent. Fill and compact with patching mortar before bonding agent has dried. Fill form-tie voids with patching mortar or cone plugs secured in place with bonding agent.
2. Repair defects on surfaces exposed to view by blending white portland cement and standard portland cement so that, when dry, patching mortar matches surrounding color. Patch a test area at inconspicuous locations to verify mixture and color match before proceeding with patching. Compact mortar in place and strike off slightly higher than surrounding surface.
3. Repair defects on concealed formed surfaces that affect concrete's durability and structural performance as determined by Architect.

D. Repairing Unformed Surfaces: Test unformed surfaces, such as floors and slabs, for finish and verify surface tolerances specified for each surface. Correct low and high areas. Test surfaces sloped to drain for trueness of slope and smoothness; use a sloped template.

1. Repair finished surfaces containing defects. Surface defects include spalls, popouts, honeycombs, rock pockets, crazing and cracks in excess of 0.01 inch (0.25 mm) wide or that penetrate to reinforcement or completely through unreinforced sections regardless of width, and other objectionable conditions.
2. After concrete has cured at least 14 days, correct high areas by grinding.

3. Correct localized low areas during or immediately after completing surface finishing operations by cutting out low areas and replacing with patching mortar. Finish repaired areas to blend into adjacent concrete.
4. Correct other low areas scheduled to receive floor coverings with a repair underlayment. Prepare, mix, and apply repair underlayment and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface. Feather edges to match adjacent floor elevations.
5. Correct other low areas scheduled to remain exposed with a repair topping. Cut out low areas to ensure a minimum repair topping depth of 1/4 inch (6 mm) to match adjacent floor elevations. Prepare, mix, and apply repair topping and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface.
6. Repair defective areas, except random cracks and single holes 1 inch (25 mm) or less in diameter, by cutting out and replacing with fresh concrete. Remove defective areas with clean, square cuts and expose steel reinforcement with at least a 3/4-inch (19-mm) clearance all around. Dampen concrete surfaces in contact with patching concrete and apply bonding agent. Mix patching concrete of same materials and mixture as original concrete, except without coarse aggregate. Place, compact, and finish to blend with adjacent finished concrete. Cure in same manner as adjacent concrete.
7. Repair random cracks and single holes 1 inch (25 mm) or less in diameter with patching mortar. Groove top of cracks and cut out holes to sound concrete and clean off dust, dirt, and loose particles. Dampen cleaned concrete surfaces and apply bonding agent. Place patching mortar before bonding agent has dried. Compact patching mortar and finish to match adjacent concrete. Keep patched area continuously moist for at least 72 hours.

E. Perform structural repairs of concrete, subject to Architect's approval, using epoxy adhesive and patching mortar.

F. Repair materials and installation not specified above may be used, subject to Architect's approval.

3.17 FIELD QUALITY CONTROL

A. Special Inspections: Owner will engage a special inspector and qualified testing and inspecting agency to perform field tests and inspections and prepare test reports.

B. Testing Agency: Engage a qualified testing and inspecting agency to perform tests and inspections and to submit reports.

C. Inspections:

1. Steel reinforcement placement.
2. Steel reinforcement welding.
3. Headed bolts and studs.
4. Verification of use of required design mixture.
5. Concrete placement, including conveying and depositing.
6. Curing procedures and maintenance of curing temperature.

7. Verification of concrete strength before removal of shores and forms from beams and slabs.

D. Concrete Tests: Testing of composite samples of fresh concrete obtained according to ASTM C 172/C 172M shall be performed according to the following requirements:

1. Testing Frequency: Obtain one composite sample for each day's pour of each concrete mixture exceeding 5 cu. yd. (4 cu. m), but less than 25 cu. yd. (19 cu. m), plus one set for each additional 50 cu. yd. (38 cu. m) or fraction thereof.
2. Testing Frequency: Obtain at least one composite sample for each 100 cu. yd. (76 cu. m) or fraction thereof of each concrete mixture placed each day.

    a. When frequency of testing provides fewer than five compressive-strength tests for each concrete mixture, testing shall be conducted from at least five randomly selected batches or from each batch if fewer than five are used.

3. Slump: ASTM C 143/C 143M; one test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mixture. Perform additional tests when concrete consistency appears to change.
4. Air Content: ASTM C 231/C 231M, pressure method, for normal-weight concrete;one test for each composite sample, but not less than one test for each day's pour of each concrete mixture.
5. Concrete Temperature: ASTM C 1064/C 1064M; one test hourly when air temperature is 40 deg F (4.4 deg C) and below or 80 deg F (27 deg C) and above, and one test for each composite sample.
6. Unit Weight: ASTM C 567/C 567M, fresh unit weight of structural lightweight concrete; one test for each composite sample, but not less than one test for each day's pour of each concrete mixture.
7. Compression Test Specimens: ASTM C 31/C 31M.

    a. Cast and laboratory cure two sets of two standard cylinder specimens for each composite sample.
    b. Cast and field cure two sets of two standard cylinder specimens for each composite sample.

8. Compressive-Strength Tests: ASTM C 39/C 39M; test one set of two laboratory-cured specimens at 7 days and one set of two specimens at 28 days.

    a. Test one set of two field-cured specimens at 7 days and one set of two specimens at 28 days.
    b. A compressive-strength test shall be the average compressive strength from a set of two specimens obtained from same composite sample and tested at age indicated.

9. When strength of field-cured cylinders is less than 85 percent of companion laboratory-cured cylinders, Contractor shall evaluate operations and provide corrective procedures for protecting and curing in-place concrete.
10. Strength of each concrete mixture will be satisfactory if every average of any three consecutive compressive-strength tests equals or exceeds specified

compressive strength and no compressive-strength test value falls below specified compressive strength by more than 500 psi (3.4 MPa).

11. Test results shall be reported in writing to Architect, concrete manufacturer, and Contractor within 48 hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing and inspecting agency, location of concrete batch in Work, design compressive strength at 28 days, concrete mixture proportions and materials, compressive breaking strength, and type of break for both 7- and 28-day tests.
12. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by Architect but will not be used as sole basis for approval or rejection of concrete.
13. Additional Tests: Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Architect. Testing and inspecting agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42/C 42M or by other methods as directed by Architect.
14. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.
15. Correct deficiencies in the Work that test reports and inspections indicate do not comply with the Contract Documents.

E. Measure floor and slab flatness and levelness according to ASTM E 1155 (ASTM E 1155M) within 48 hours of finishing.

3.18 PROTECTION OF LIQUID FLOOR TREATMENTS

A. Protect liquid floor treatment from damage and wear during the remainder of construction period. Use protective methods and materials, including temporary covering, recommended in writing by liquid floor treatments installer.

END OF SECTION 033000

SECTION 03 54 16

CEMENT LEVELING COMPOUND

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 SECTION INCLUDES

A. Work of this Section includes all labor, materials, equipment, and services necessary to complete the cement leveling compound as shown on the drawings and/or specified herein, including, but not necessarily limited to, the following:

1. Self-leveling cement compound applied over existing concrete substrates, thickness shall be 1/4" minimum.

1.3 RELATED SECTIONS

A. Concrete work - Section 03 30 00.

1.4 QUALITY ASSURANCE

A. Applicator: Company specializing in performing the work of this Section with a minimum of 3 years' experience and approved by the manufacturer of the product used.

1.5 SUBMITTALS

A. Submit catalog information and product data for material to be used.

B. Submit approval letter as required by Article 3.1, para. B. herein.

1.6 PRODUCT HANDLING

A. Protection: Use all means necessary to protect the materials of this Section before, during and after installation and to protect the installed work and materials of all other trades.

B. Replacements: In the event of damage, immediately make all repairs and replacements necessary.

1.7 MOCK-UP

A. Construct a mock-up of underlayment material, 8 feet long by 8 feet wide.

B. Locate where directed by the Architect.

C. Approved mock-up may remain as part of the Work.

1.8 JOB REQUIREMENTS

A. Do not install underlayment until floor penetrations and peripheral work are complete.

B. Maintain minimum ambient temperatures of 50 degrees F. 24 hours before, during, and 72 hours after installation of underlayment.

C. During the curing process, ventilate spaces to remove excess moisture and until underlayment is dry, allow a minimum of seven (7) days.

PART 2 PRODUCTS

2.1 MANUFACTURER

A. Subject to the requirements specified herein, provide one of the following products:

1. “Supercap SC500” by Laticrete.

2. “Sikalevel 325” by Sika.

3. "Level Set 200" by ProSpec.

4. "Super Flo-Top" made by Euclid Chemical Co.

5. "K-15" made by Ardex.

6. "Ultraplan 1 Plus" by the Mapei Corp. (rapid setting).

7. "Novoplan 2" by the Mapei Corp. (standard setting).

8. "Level Quick R/S" or "E/S" by Custom Buiding Products.

2.2 MATERIALS

A. Underlayment: One of the above listed products.

B. Water: Potable and not detrimental to underlayment mix materials.

C. Primer: Manufacturer's recommended type.

D. Joint and Crack Filler: Latex based.

2.3 MIXING

A. Site mix materials in accordance with manufacturer's instructions.

B. Mix to achieve following characteristics:

1. Density: 115 lb./cu. ft. minimum dry density.

2. Compressive Strength: 4,000 psi minimum in accordance with ASTM C 109.

3. Fire Hazard Classification: Flame/Smoke rating of 0/0 in accordance with ASTM E 286.

C. Mix to self-leveling consistency.

PART 3 EXECUTION

3.1 INSPECTION

A. Examine the areas and conditions where cement leveling compounds are to be installed and correct any conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions are corrected to permit proper installation of the work.

B. Manufacturer’s representative must inspect surfaces to receive cement leveling compound and approve those surfaces in writing to the Architect prior to start of application.

3.2 PREPARATION

A. Vacuum clean surfaces; remove any material (curing compounds, film, dirt) that would be detrimental to bond of cement leveling compound.

B. Prime substrate in accordance with manufacturer's instructions. Allow to dry.

C. Close floor openings.

3.3 APPLICATION

A. Install underlayment in accordance with manufacturer's instructions.

B. Place to minimum 1/4" thickness.

C. Transition to existing floor; use stiff mix to slope to align with existing adjacent floor.

3.4 CURING

A. Air cure in accordance with manufacturer's instructions.

3.5 APPLICATION TOLERANCE

A. Top Surface: Level to 1/8 inch in 10 ft.

3.6 PROTECTION OF FINISHED WORK

A. Do not permit traffic over unprotected floor underlayment surfaces and until underlayment is completely dry.

END OF SECTION

SECTION 04 20 00

UNIT MASONRY

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 SECTION INCLUDES

A. Work of this Section includes all labor, materials, equipment, and services necessary to complete the unit masonry work as shown on the drawings and/or specified herein, including, but not necessarily limited to, the following:

1. Concrete block walls and partitions.
2. Metal joint reinforcing, anchors, ties, weeps, closures and related accessories for masonry.
3. Control and expansion joints in masonry, filled with joint fillers.
4. Chases, recesses, pockets and openings in masonry as required for installation of work by others.
5. Building in of items furnished by others into masonry, including access doors, door frames, anchors, sleeves and inserts, and other similar items to be embedded in masonry.
6. Grouting in of metal items built into masonry work.
7. Protection, pointing and cleaning of masonry.

1.3 RELATED SECTIONS

A. Cast-in-Place Concrete - Section 03 30 00.

B. Firestops and Smokeseals - Section 07 84 13.

C. Joint Sealers - Section 07 92 00.

D. Steel Doors and Frames - Section 08 11 13.

E. Wood Doors - Section 08 14 16.

F. Access Doors - Section 08 31 13.

1.4 SUBMITTALS

A. Submit Shop Drawings for the following:

1. Anchoring details.

2. Control and expansion joint locations and details.

B. Submit Samples for the following:

1. Each type of sound-absorbing concrete block.

2. Joint reinforcing, each type, width and proposed location (labeled).

3. Anchors, wedges and ties, each type, width and proposed location (labeled).

4. Joint filler, each type.

5. Mortar color, 12" long cured sample.

C. Submit technical and installation information for the following:

1. Mortar materials, each material and mortar type.

2. Certification of mortar mix.

3. Concrete block, joint reinforcing, anchors, ties and joint filler; submit manufacturer's technical and descriptive literature.

4. Block manufacturer shall submit certifications of compliance with ASTM C 90, C 331 and UL 618 prior to any job site delivery. Field sampling of concrete block may be tested by an Independent Testing Laboratory retained by the Owner according to the requirements of ASTM C 140.

D. Cleaning Procedures: Submit proposed procedures and materials for cleaning masonry work; including certification that cleaner will not adversely affect stone, gaskets, sealants, etc.

1.5 QUALITY ASSURANCE

A. Conform to the following non-cumulative tolerances (any masonry work not meeting these standards shall be re-built as directed by the Architect).

1. Variation from the plumb:

a. In lines and surfaces of columns, walls and arrises:
1). In 10 feet 1/8"
2). In any story of 25 feet maximum 1/4"
b. For external corners, expansion joints and other conspicuous lines:
1). In any story of 25 feet maximum 1/4"

2. Variation from the level or the grades indicated on the drawings; for exposed lintels, sills, parapets, horizontal grooves and other conspicuous lines:

a. In any bay or 20 feet maximum 1/4"

3. Variation of the linear building lines from established position in plan related portion of columns and partitions:

a. In any bay or 20 feet maximum 1/4"
b. In 40 feet or more 1/2"

4. Variation in cross-sectional dimensions of columns and in thickness of walls:

a. Minus 1/8"
b. Plus 1/8"

5. Variation in dimensions of masonry openings:

a. Horizontal dimension -0" + 1/16"
b. Vertical dimension +0" - 1/16"

B. Work of this Section shall conform to the requirements of the following:

1. 2016 "Building Code Requirements for Masonry Structures," (TMS 402/602-16).

2. 2016 "Specification for Masonry Structures," (TMS 602-16).

3. Brick Industry Association (BIA) "Technical Notes on Brick Construction."

C. Pre-Construction Conference: Prior to installation of masonry and associated work, Contractor shall arrange a meeting with Masonry Subcontractor, installers of related work, and other entities concerned with masonry wall performance, including the Architect and Owner. Contractor shall record discussions and agreements and furnish copy to each participant. Provide at least seventy-two (72) hours' advance notice to participants prior to convening conference. Review methods and procedures related to masonry work, including, but not limited to, the following:

1. Review masonry requirements (drawings, specifications and other Contract Documents).

2. Review required submittals, both completed and yet to be completed.

3. Review and finalize construction schedule related to masonry work and verify availability of materials, installer’s personnel, equipment and facilities needed to make progress and avoid delays.

4. Review required inspection, testing, certifying and material usage accounting procedures.

5. Review weather and forecasted weather conditions, and procedures for coping with unfavorable conditions.

6. Coordinate work with air/vapor barrier membrane and related flashing, review details to avoid conflicts.

1.6 PRODUCT HANDLING

A. General: Deliver, store, handle and protect all materials from damage, moisture, dirt and intrusion of foreign matter. Store all masonry units and mortar materials on raised platforms and under ventilated and waterproof cover. Store packaged materials in manufacturer's unopened containers, marked with manufacturer's name and product

brand name. Immediately reseal containers after partial use. Remove and replace damaged materials.

B. Masonry Units: Pack, deliver and store to prevent breakage, cracking, chipping, spalling or other damage. Store, protect and ventilate units at project site.

C. Aggregate: Store with provisions for good drainage.

D. Reinforcement and Anchors: Store and protect so that when placed, joint reinforcement and anchors will be free of soil, dirt, ice, loose rust, scale, or other coatings which would destroy or reduce bond with mortar and will not be disfigured or bent out of shape.

1.7 JOB CONDITIONS

A. In cold weather, when the outside temperature is below forty (40) deg. F., conform to the requirements of "Cold Weather Masonry Construction and Protection Recommendations" publication by Brick Industry Association (BIA). No anti-freeze admixtures are permitted.

1. In addition, conform to the following:

a. Masonry materials must be warmed as required.

B. Hot-Weather Requirements: Protect unit masonry work when temperature and humidity conditions produce excessive evaporation of water from mortar and grout. Provide artificial shade and wind breaks and use cooled materials as required. Do not apply mortar to substrates with temperatures of 100 deg. F. and above. In addition, conform to the following:

1. Masonry materials must be cool.

2. Mortar must be used within 2 hours of initial mixing.

C. Protection of Masonry: During erection, cover tops of walls, projections, and sills with waterproof sheeting at end of each day's work. Cover partially completed masonry when construction is not in progress.

1. Extend cover a minimum of 24" down both sides and hold cover securely in place.

2. Where one wythe of multi-wythe masonry walls is completed in advance of other wythes, secure cover a minimum of 24" down face next to unconstructed wythe and hold cover in place.

D. Stain Prevention: Prevent grout, mortar, and soil from staining the face of masonry to be left exposed or painted. Immediately remove grout, mortar, and soil that come in contact with such masonry.

1. Protect base of walls from rain-splashed mud and mortar splatter by coverings spread on ground and over wall surface.

2. Protect sills, ledges, and projections from mortar droppings.

3. Protect surfaces of window and door frames, as well as similar products with painted and integral finishes, from mortar droppings.

4. Turn scaffold boards near the wall on edge at the end of each day to prevent rain from splashing mortar and dirt on completed masonry.

PART 2 PRODUCTS

2.1 MATERIALS

A. Standard Concrete Block

1. Portland cement, ASTM C 150, Type 1, low alkali (less than 0.6%), single source for entire project.

2. Aggregates, ASTM C 331, lightweight expanded shale, clay or slate aggregates, manufactured by the rotary kiln process equal to "Solite," "Norlite," or "Haydite."

   a. Block scheduled to receive painted finish shall contain normal weight aggregate meeting ASTM C 33 in addition to lightweight aggregate in order to receive a smooth, uniform finish.

3. Concrete Masonry Units: Load bearing lightweight aggregate concrete masonry units conforming to the requirements of ASTM C 90, Type 1.

   a. Block for rated walls shall be 75% solid units.
   b. All other block may be hollow units.

4. The producer of the concrete masonry units shall furnish certification from an independent testing laboratory confirming that all 8" or larger masonry units meet all of the UL 618 requirements for two (2) hours or better (as required), referencing full scale fire test reports (ASTM E 119). All 4" and 6" units shall conform to "National Bureau of Standards" and "National Research Council" full scale fire tests.

5. Sizes and Shapes: Nominal face size 8" x 16" by thickness as indicated on drawings, with stretcher units, jamb units, header units, square corner units (at ends and corners of exposed or painted work), sash units (at control joints within masonry wall), lintel units and other special shapes and sizes required to complete the work.

6. Finish: For exposed or painted block surfaces, in addition to ASTM requirements, block shall have uniformly dense, flat, fine grain texture, with no cracks, chips, spalls, or other defects which would impair appearance. For concealed CMU, surfaces shall be free from deleterious materials that would stain plaster or corrode metal.

7. Curing: All concrete block shall be steam cured, and air dried for not less than thirty (30) days before delivery.

8. Density of concrete block shall not exceed one hundred and five (105) lbs. per cubic foot.

9. Shrinkage: Shrinkage of concrete blocks shall not exceed 0.065% when tested in accordance with ASTM C 426-16, Standard Test Method for Linear Drying Shrinkage of Concrete Masonry Units.

10. Water Content

    a. At the time of delivery to the job site, concrete masonry units shall have a value, in weight of contained water, of not more than thirty (30) percent of the fully saturated content for the unit tested.
    b. Ship all units from the factory, and store at the job site, with all necessary protection to prevent increase of water content from rain and other sources.

B. Joint Reinforcing for Masonry Walls

1. For block walls forming part of exterior wall construction behind exterior stone veneer, provide super heavy-duty reinforcing fabricated of 3/16" dia. side and cross rods, truss or ladder design, ties, spaced every block course. Provide prefabricated pieces at corners and intersections of walls or partitions.

    a. Reinforcing assembly shall be hot dip galvanized steel finish conforming to ASTM A 153 with zinc coating of 1.5 oz. of zinc per sq. ft., after fabrication.

2. For interior block walls and partitions, provide standard reinforcing fabricated of 9 ga. side and cross rods, truss or ladder design, no ties, spaced every other block course. Provide prefabricated pieces at corners and intersections of walls or partitions. Reinforcing shall be mill galvanized conforming to ASTM A 641, Class B-1, applied after fabrication.

3. Wire used in assemblies noted above shall be cold drawn steel wire conforming to ASTM A 82.

4. Approved Joint Reinforcing Manufacturers

    a. Hohmann & Barnard
    b. Wire-Bond
    c. Heckmann Building Products
    d. National Wire Products Industries, Inc.

C. Anchors and Ties

1. Wire Mesh: Hot-dip galvanized sixteen (16) gauge steel wire, square mesh, width 3" by length to suit condition; No. 268 by Heckmann Building Products or approved equal by manufacturer noted above in Para. D.5.

2. For anchoring CMU interior partitions to underside of steel beams, provide hot dip galvanized steel tube anchors equal to No. 419 and No. 421 made by Heckmann Building Products, No. PTA-420 made by Hohmann & Barnard, or approved equal by manufacturer noted above in Para. D.5.

3. For anchoring CMU interior partitions to underside of structural deck, provide 4" x 4" x 1/4" galvanized steel angles (ASTM A 36), 3'-0" long spaced 3'-0" o.c. alternately on each side of partition. Anchor partition securely to structural deck.

D. Reinforcing Bars and Rods: ASTM A 615, Grade 60. See Drawings for size.

E. Control and Expansion Joint Fillers

1. Vertical Installation Within Concrete Masonry Wall: Extruded high-grade neoprene rubber, cross shape, for use with concrete masonry sash units, which shall provide a force fit in the grooves of the sash block and shall have 1/2" diameter tubular ends (compressed 25% when installed in 3/8" wide joint).

   a. Provide the following sizes:
      1). 2-5/8" wide control joint fillers for 4" block walls.
      2). 4-5/8" wide for 6" block walls.
      3). 6-5/8" wide for 8", 10" and 12" block walls.
   b. Provide backer rod and sealant joint over joint filler as per drawings and Section 079200 of these specifications.

2. Isolation Joint Filler at Abutting Construction and at Intersecting CMU Walls: Compressible and resilient closed cell neoprene gasket with pressure sensitive adhesive backing, thickness 30% greater than thickness of joint. Acceptable joint filler shall be "Everlastic, Type NN-1" by Williams Products, Inc., or approved equal. Recess joint filler and install backer rod and sealant as per drawings and Section 079200 of these specifications.

2.2 MORTAR MATERIALS

A. Portland Cement: ASTM C 150, Type 1, standard color, one source.

B. Hydrated Lime: ASTM C 207, Type S.

C. Aggregate for Mortar: Clean, washed, buff colored sand, graded per ASTM C 144.

D. Aggregate for Grout: ASTM C 404.

E. Water: Clean, fresh and suitable for drinking.

2.3 MORTAR MIX

A. Exterior Block Back-Up Construction: Provide Portland cement/lime mortar as noted above conforming to ASTM C 270, Type N.

B. Interior Masonry Construction: Provide Portland cement/lime mortar conforming to ASTM C 270, Type N, for load bearing conditions, mortar shall conform to ASTM C 270, Type M.

C. Reinforced Concrete Block: Provide Portland cement/lime mortar conforming to ASTM C 270, Type S.

D. Mortar for Cement Cants: One (1) part Portland cement and four (4) parts sand, by volume.

E. Grout for Unit Masonry: Comply with ASTM C 476 for grout for use in construction of unit masonry. Use grout of consistency (fine or coarse) at time of placement which will

completely fill all spaces intended to receive grout. Grout shall have a minimum compressive strength of 3000 psi when tested in accordance with ASTM C 1019.

F. Mixing

1. General: Add cement just before mixing and mix dry. Use sufficient amount of water as necessary to produce workable mix. Mix in small batches to make plastic mass.

2. Mixing: Machine mix all mortars in approved type mixer with device to accurately and uniformly control water. Add hydrated lime dry. Mix dry materials not less than two (2) minutes. Add water, then mix not less than three (3) minutes, not to exceed five (5) minutes. Mix only amount of mortar that can be used before initial set. Do not use mortar which has reached its initial set or two (2) hours after initial mixing, whichever comes earlier. Mortar may not be re-tempered. Clean mixer for each batch, whenever mortar type is changed, and at end of each day's work.

3. Acceleration or other admixtures not permitted.

4. Mortar shall have a flow after suction of not less than seventy-five (75) percent of that immediately after mixing as determined by ASTM C 91.

G. Admixtures

1. No air-entraining admixtures or cementitious materials containing air-entraining admixtures shall be used in the mortar.

2. No antifreeze compounds or other substances shall be used in the mortar to lower the freezing point.

3. Calcium chloride or admixtures containing calcium chloride shall not be used in mortar.

2.4 MASONRY ACCESSORIES

A. Neoprene Joint Filler: Provide closed cell neoprene, Type NN-1, conforming to ASTM D 1056, Grade 1, high performance, as manufactured by Williams Products Inc., or equal made by D. S. Brown, Norton, or approved equal.

PART 3 EXECUTION

3.1 SURFACE CONDITIONS

A. Inspection

1. Prior to all work of this Section, carefully inspect the installed work of all other trades and verify that all such work is complete to the point where this installation may properly commence.

2. Verify that masonry may be completed in accordance with all pertinent codes and regulations, the referenced standards, and the original design.

3. Do not start any work until mock-ups are approved by the Architect.

B. Discrepancies

1. In the event of discrepancy, immediately notify the Architect in writing.

2. Do not proceed with installation in areas of discrepancy until all such discrepancies have been fully resolved.

3. Starting of work by the Contractor means acceptance by the Contractor of the substrate.

3.2 COORDINATION

A. Carefully coordinate with all other trades to ensure proper and adequate interface of the work of other trades with the work of this Section.

3.3 PREPARATION

A. Concrete Block: Do not wet concrete block units.

3.4 INSTALLATION

A. General

1. Build walls to the full thickness shown. Build single wythe walls to the actual thickness of the masonry units, using units of nominal thickness shown.

2. Build chases and recesses as shown or required for the work of other trades.

3. Leave openings for equipment to be installed before completion of masonry work. After installation of equipment, complete masonry work to match work immediately adjacent to the opening.

4. Lay out walls in advance for accurate spacing of surface bond patterns with uniform joint widths and to properly locate openings, movement type joints, returns and off-sets. Avoid the use of less than half size units at corners, jambs and wherever possible.

5. Lay up walls plumb and true with courses level, accurately spaced and coordinated with other work.

6. Pattern Bond: Lay exposed masonry patterns as noted on drawings. If not shown, provide running bond. Lay concealed concrete block with all units in a wythe bonded by lapping not less than two (2) inches. Bond and interlock each course of each wythe at corners. Do not use units of less than four (4) inches horizontal face dimensions at corners or jambs.

7. Where possible, masonry walls and partitions shall be built after all overhead ducts, pipes and conduits are in place and tested. Masonry shall be neatly built around the items above. Walls and partitions shall be plumb, true to line and free from defects such as open cells, voids, dry joints and other similar defects. In rooms and spaces scheduled to have concrete block finish, all such surfaces including upper wall surfaces up to termination of structural ceiling in spaces without suspended ceilings, shall be made suitable for paint application. Cutting of

openings in walls and partitions in place shall be done only with the approval of the Architect.

8. Mortar, ties and reinforcement must not extend into or bridge any expansion joints.

B. Mortar Bedding and Jointing

1. Lay concrete masonry units with full mortar coverage on horizontal and vertical face shells. Bed webs in mortar in starting course on exterior walls and in all courses of piers, columns and pilasters, where solid CMU is used and where adjacent to cells or cavities to be reinforced or filled with concrete or grout.

2. Lay masonry walls with 3/8" joints unless otherwise shown on drawings.

3. Tool exposed joints slightly concave after the mortar joint is thumbprint hard. Concealed joints shall be struck flush.

4. Remove masonry units disturbed after laying; clean and reset in fresh mortar. Do not pound corners at jambs to fit stretcher units which have been set in position. If adjustments are required, remove units, clean off mortar and reset in fresh mortar.

C. Stopping and Resuming Work: Rake block 1/2 block length in each course; do not tooth. Clean exposed surfaces of set masonry, wet units lightly (if required) and remove loose masonry units and mortar prior to laying fresh masonry.

D. Built-In Work

1. As the work progresses, build in items specified under this and other Sections of these specifications. Fill in solidly with masonry around built-in items.

2. Mortar in door frames, access doors, louvers and other metal items embedded or built into masonry work solidly with mortar as the masonry units are laid up.

3. Grout under lintels, bearing plates, and steel bearing on masonry with solid bed grout.

4. Sleeves, pipes, ducts and all other items which pass through masonry walls shall be caulked with interior grade sealant meeting requirements of Section 079200, so as to be air tight and prevent air leakage. Refer to Section 078413 for packing of voids in rated masonry walls.

5. Fill vertical cells of masonry units solid with grout which have anchoring, reinforcing rods, supporting or hanging devices embedded in the cell including stone anchors and window or curtain wall anchors.

6. Fill vertical cells of masonry units solid with mortar on each side of door frames to sixteen (16) inches beyond.

7. Unless otherwise noted, fill vertical cells of masonry units solid with grout which are below steel bearing plates, steel beams, and ends of lintels, to eight (8) inches beyond bearing and from floor to bearing.

8. Place wire mesh in horizontal joint below masonry unit cells to be filled with mortar, to prevent mortar from dropping into unfilled cells below.

9. Masonry indicated as being reinforced shall have all voids filled solid with grout. Grout shall be consolidated in place by vibration or other methods which insure complete filling of cells. When the least clear dimension of the grouted cell is less than two (2) inches, the maximum height of grout pour shall not exceed twelve (12) inches. When the least clear dimension is two (2) inches or more, maximum height of grout pour shall not exceed forty-eight (48) inches. When grouting is stopped for one (1) hour or longer, the grout pour shall be stopped 1-1/2" below the top of a masonry unit. Vertical bar reinforcing shall be accurately placed and held in position while being grouted and shall be in place before grouting starts. All such reinforcing shall have a minimum clear cover of 5/8". Lap all bars a minimum of forty (40) bar diameters and provide steel spacer ties (not to exceed 192 bar diameter) to secure and position all vertical steel and prevent displacement during grouting. Provide continuous horizontal reinforcement embedded in mortar joints every second course.

E. Cutting and Patching

1. All exposed masonry which requires cutting or fitting shall be cut accurately to size with motorized carborundum or diamond saw, producing cut edges.

2. Holes made in exposed masonry units for attachment of handrail brackets and similar items shall be neatly drilled to proper size.

3. All masonry which requires patching in exposed work, if approved by Architect, shall be patched neatly with mortar to match appearance of masonry as closely as possible and to the Architect's satisfaction. Rake back joints and use pointing mortar to match as required.

F. Solid Wall Construction

1. Fill the vertical longitudinal joint between wythes solidly with mortar by parging the in-place wythe and shoving units into the parging.

2. Tie wythes with continuous horizontal reinforcement embedded in mortar joints sixteen (16) inches o.c. vertically.

G. Interior Block Partitions

1. Build to full height unless otherwise shown on drawings. At non-rated partitions fill void between CMU and structural deck with continuous neoprene filler as specified herein. At fire rated partitions, fill void with fire stop material meeting the requirements of Section 078413. Fasten to structure at top of partition using steel angles as specified herein.

2. Provide continuous horizontal joint reinforcing every other block course, except as otherwise noted. Fully embed longitudinal side rods in mortar for their entire length with a minimum cover of 5/8". Lap reinforcement a minimum of six (6) inches at ends of units.

3. Provide continuity at corners and wall intersections by use of prefabricated "L" and "T" sections. Cut and bend units as directed by manufacturer for continuity at returns, offsets, column fireproofing, pipe enclosures and other special conditions.

4. Corners

    a. Provide interlocking masonry unit bond in each course at corners.
    b. Provide continuity at corners with prefabricated "L" reinforcement units, in addition to masonry bonding.

5. Intersecting and Abutting Walls

    a. Unless vertical control joints are shown as part of structural frame, provide interlocking masonry bond. Provide starters and special shapes as shown on the drawings to bond these walls.
    b. In addition to masonry bonding, provide horizontal reinforcement using prefabricated "T" units at interior partitions.

H. Ties and Anchors for Masonry Construction

1. Provide ties and anchors as shown or specified, but not less than one metal tie, spaced not to exceed sixteen (16) inches o.c. horizontally and/or vertically. Provide additional ties within 1'-0" of all openings and adjacent to expansion joints and spaced not more than 16" apart around perimeter of openings.

2. Anchoring Masonry to Structure: Provide an open space not less than 1/2" in width between masonry and structural member, unless otherwise shown. Keep open space free of mortar or other rigid materials.

I. Control and Expansion Joints

1. Provide expansion, control and isolation joints in masonry as shown. Build in related items as the masonry work progresses.

2. CMU Control Joint Spacing: If location of control joints is not shown, place vertical joints spaced not to exceed 40'-0" o.c. In addition, locate joints at points of natural weakness in the masonry work, including the following:

    a. At structural column or joint between bay.
    b. Above control joints in the supporting structure.
    c. Above major openings at end of lintels upward and below at ends of sills downward. Place at one side of jamb for openings not less than 6'-0" wide and at both sides for openings over 6'-0" wide.
    d. At reduction of wall thickness.
    e. Where masonry abuts supporting structure.
    f. If additional joints are required, indicate same on approved shop drawings.

J. Lintels

1. For concrete block walls, use specially formed U-shaped concrete block lintel units with reinforcing bars in accordance with the following table, filled with grout.

Number and Size of Reinforcing Bars Required at Concrete Block Lintels		
Maximum Clearance Span	Wall Width	Rebar No. - Size
2'-0" to 6'-0" 6'-0" to 8'-0"	6"	2 - #3 2 - #4
2'-0" to 6'-0" 6'-0" to 8'-0"	8"	2 - #3 2 - #4
2'-0" to 6'-0" 6'-0" to 8'-0"	12"	3 - #3 3- #4

2. U-shaped concrete block lintels shall extend a minimum of 8” at each side of opening.

3.5 CLEANING, PROTECTION, ADJUSTMENT

A. Protection

1. The Contractor shall take adequate precautions for the protection of all surfaces against mortar spatter and shall immediately remove any such spatter should it inadvertently occur, leaving no stain or discoloration.

2. Excess mortar shall be wiped off the masonry surfaces as the work progresses.

3. Wood coverings shall be placed over all such masonry surfaces as are likely to be damaged during the progress of the entire project.

4. Protective measures shall be performed in a manner satisfactory to the Architect.

5. Damaged masonry units shall be replaced to satisfaction of the Architect.

6. Exterior masonry walls shall be draped with waterproof covering until copings are in place, to prevent water penetration in cavity.

B. Cleaning of Masonry: Upon completion, all exposed masonry shall be thoroughly cleaned following recommendations of the BIA Technical Note No. 20. Before applying any cleaning agent to the entire wall, it shall be applied to a sample wall area of approximately 4' x 4' in a location approved by the Architect. No further cleaning work may proceed until the sample area has been approved by the Architect, after which time the same cleaning materials and method shall be used on the remaining wall area. If stiff brushes and water do not suffice, the surface shall be thoroughly saturated with clear water and then scrubbed with a solution of an approved detergent masonry cleaner, equal to "Vana Trol" made by ProSoCo Inc. or equal made by Diedrich or approved equal, mixed as per manufacturer's directions, followed immediately by a thorough rinsing with clear water. All lintels and other corrodible parts shall be thoroughly protected during cleaning.

1. Unless otherwise required by cleaning agent manufacturer use only low-pressure device (30 to 50 psi) for application of cleaning agent and water rinsing.

C. Pointing: Point any defective joint with mortar identical with that specified for that joint.

END OF SECTION

SECTION 05 50 00

MISCELLANEOUS METALS

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 SECTION INCLUDES

A. Work of this Section includes all labor, materials, equipment, and services necessary to complete the miscellaneous metal work as indicated on the drawings and/or specified herein, including, but not limited to, the following:

1. Rough hardware.
2. Steel pipe handrails and railings.
3. Loose steel lintels.
4. Loose bearing and leveling plates.
5. Light steel framing and supports not included as part of work of other trades.
6. Countertop supports.
7. Masonry support steel.
8. Sleeves in concrete walls and slabs.
9. Steel framing, bracing, supports, anchors, bolts, shims, fastenings, and all other supplementary parts indicated on drawings or as required to complete each item of work of this Section.
10. Prime painting, touch-up painting, galvanizing and separation of dissimilar metals for work of this Section.
11. Cutting, fitting, drilling and tapping work of this Section to accommodate work of other Sections and of concrete, masonry or other materials as required for attaching and installing work of this Section.

1.3 RELATED SECTIONS

A. Painting and Finishing - Section 09 90 00.

1.4 QUALITY ASSURANCE

A. Field Measurements: Take field measurements prior to preparation of shop drawings and fabrication, where possible. Do not delay job progress; allow for trimming and fitting where taking field measurements before fabrication might delay work.

B. Shop Assembly: Pre-assemble items in shop to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Clearly mark units for re-assembly and coordinated installation.

C. Reference Standards: The work is subject to requirements of applicable portions of the following standards:

1. "Manual of Steel Construction," American Institute of Steel Construction.

2. AWS D1-1 "Structural Welding Code," American Welding Society.

3. SSPC SP-3 "Surface Preparation Specification No. 3, Power Tool Cleaning," Steel Structures Painting Council.

4. SSPC PA-1 "Painting Application Specification," Steel Structures Painting Council.

5. "Handbook on Bolt, Nut and Rivet Standards," Industrial Fasteners Institute.

D. Steel Materials: For steel to be hot dip-galvanized, provide steel chemically suitable for metal coatings complying with the following requirements: carbon below 0.25 percent, silicon below 0.24 percent, phosphorous below 0.05 percent, and manganese below 1.35 percent. Notify galvanizer if steel does not comply with these requirements to determine suitability for processing.

E. Engage the services of a galvanizer who has demonstrated a minimum of five (5) years' experience in the successful performance of the processes outlined in this specification in the facility where the work is to be done and who will apply the galvanizing and coatings within the same facility as outlined herein. The Architect has the right to inspect and approve or reject the galvanizer/galvanizing facility.

F. The galvanizer/galvanizing facility must have an ongoing Quality Control/Quality Assurance program which has been in effect for a minimum of five years and shall provide the Architect with process and final inspection documentation. The galvanizer/galvanizing facility must have an on-premise testing facility capable of measuring the chemical and metallurgical composition of the galvanizing bath and pickling tanks.

G. Inspection and testing of hot-dip galvanized coating shall be done under the guidelines provided in the American Hot-Dip Galvanizers Association (AGA) publication "Inspection of Products Hot-Dip Galvanized After Fabrication."

1.5 PERFORMANCE STANDARDS

A. Railings shall be designed to resist loads per the New York State Building Code.

1.6 SUBMITTALS

A. Manufacturer's Literature: Submit manufacturer's specifications, load tables, dimension diagrams, anchor details and installation instructions for products to be used in the fabrication of miscellaneous metal work, including paint products.

B. Shop Drawings: Shop drawings for the fabrication and erection of all assemblies of miscellaneous iron work which are not completely shown by manufacturer's data sheets. Include plans and elevations at not less than 1" to 1'-0" scale, and include details of sections and connections at not less than 3" to 1'-0" scale. Show anchorage and accessory items.

C. Engineering Data

1. Before any railings are fabricated, submit engineering data drawings to the Architect for review indicating how performance standards specified here shall be met. The Contractor is responsible for the structural design and supports for these systems and must show his proposed systems on these drawings.

2. These drawings must show all load conditions and design calculations relative to connections, fastening devices and anchorage, as well as size and gauge of members. Calculations and drawings must be prepared by a Structural Engineer licensed in the State of New York and shall be signed and sealed by this Engineer.

D. Welding shall be indicated on shop drawings using AWS symbols and showing length, size and spacing (if not continuous). Auxiliary views shall be shown to clarify all welding. Notes such as 1/4" weld, weld and tack weld are not acceptable.

E. Certification: For items to be hot-dip galvanized, identify each item galvanized and to show compliance of application. The Certificate shall be signed by the galvanizer and shall contain a detailed description of the material processed and the ASTM standard used for the coating and, the weight of the coating. In addition, and as attachment to Certification, submit reports of testing and inspections indicating compliance with the provisions of this Section.

PART 2 PRODUCTS

2.1 MATERIALS

A. Metals

1. Metal Surfaces, General: For fabrication of miscellaneous metal work which will be exposed to view, use only materials which are smooth and free of surface blemishes including pitting, seam marks, roller marks, rolled trade names and roughness.

2. Steel Plates, Shapes and Bars: ASTM A 36.

3. Steel Bar Grating: ASTM A 1011 or ASTM A 36.

4. Steel Tubing: Cold formed, ASTM A 500; or hot rolled, ASTM A 501.

5. Structural Steel Sheet: Hot rolled, ASTM A 570; or cold rolled, ASTM A 611, Class 1; of grade required for design loading.

6. Galvanized Structural Steel Sheet: ASTM A 924, of grade required for design loading. Coating designation G90.

7. Steel Pipe: ASTM A 53, type and grade as selected by fabricator and as required for design loading; black finish unless galvanizing is indicated; standard weight (Schedule 40), unless otherwise indicated.

8. Gray Iron Castings: ASTM A 48, Class 30, unless another class is indicated or required by structural loads.

9. Malleable Iron Castings: ASTM A 47, grade as selected by fabricator.

10. Brackets, Flanges and Anchors: Cast or formed metal of the same type material and finish as supported rails, unless otherwise indicated.

11. Concrete Inserts: Threaded or wedge type; galvanized ferrous castings, either malleable iron, ASTM A 47, or cast steel, ASTM A 27. Provide bolts, washers and shims as required, hot-dip galvanized, ASTM A 153.

B. Grout: Non-shrink, non-metallic grout conforming to the requirements of Section 033000.

C. Fasteners

1. General: Provide zinc-coated fasteners for exterior use or where built into exterior walls. Select fasteners for the type, grade and class required.

2. Bolts and Nuts: Regular hexagon head type, ASTM A 307, Grade A.

3. Anchor Bolts: ASTM F 1554, Grade 36.

4. Lag Bolts: ASME B18.2.1.

5. Machine Screws: ASME B18.6.3.

6. Plain Washers: Round, carbon steel, ASME B18.22.1.

7. Masonry Anchorage Devices: Expansion shields, FS FF-S-325.

8. Toggle Bolts: Tumble-wing type, FS FF-B-588, type, class and style as required.

9. Lock Washers: Helical spring type carbon steel, ASME B18.21.1.

D. Shop Paint: Shop prime all non-galvanized miscellaneous metal items using Series 88 Azeron Primer made by Tnemec, ICI Devoe "Rust Guard" quick dry alkyd shop coat No. 41403, or "Interlac 393" by International Protection Coatings.

1. If steel is to receive high performance coating as noted in Section 099000, shop prime using primer noted in Section 099000.

E. Bituminous Paint: Cold applied asphalt emulsion complying with ASTM D 1187.

F. Galvanizing Repair Coating: For touching up galvanized surfaces after erection, provide repair coating that is V.O.C. compliant, equal to "Silver Galv" made by Z.R.C. Worldwide or approved equal. Apply to a dry film thickness of 1.5 to 3.0 mils.

2.2 PRIME PAINTING

A. Scope: All ferrous metal (except galvanized steel) shall be cleaned and shop painted with one coat of specified ferrous metal primer. No shop prime paint required on galvanized steel or aluminum work.

B. Cleaning: Conform to Steel Structures Painting Council Surface Preparation Specification SP 3 (latest edition) "Power Tool Cleaning" for cleaning of ferrous metals which are to receive shop prime coat.

1. Steel to get high performance coating as noted in Section 099000 shall be cleaned as per SSPC SP.6 "Commercial Blast Cleaning."

C. Application

1. Apply shop prime coat immediately after cleaning metal. Apply paint in dry weather or under cover. Metal surfaces shall be free from frost or moisture when painted. Paint all metal surfaces including edges, joints, holes, corners, etc.

2. Paint surfaces which will be concealed after shop assembly prior to such assembly. Apply paint in accordance with approved paint manufacturer's printed instructions, and the use of any thinners, adulterants or admixtures shall be only as stated in said instructions.

3. Paint shall uniformly and completely cover the metal surfaces, 2.0 mils minimum dry film thickness. No work shall be shipped until the shop prime coat thereon has dried.

D. Touch-Up: In the shop, after assembly and in the field, after installation of work of this Section, touch-up damaged or abraded portions of shop prime paint with specified ferrous metal primer.

E. Apply one shop coat to fabricated metal items, except apply two (2) coats of paint to surfaces inaccessible after assembly or erection. Change color of second coat to distinguish it from the first.

2.3 GALVANIZING

A. Scope: All ferrous metal exposed to the weather, and all ferrous metals indicated on drawings or in specifications to be galvanized, shall be cleaned and then hot-dipped galvanized after fabrication as provided by Duncan Galvanizing or approved equal.

B. Avoid fabrication techniques that could cause distortion or embrittlement of steel items to be hot-dip galvanized. Fabricator shall consult with hot-dip galvanizer regarding potential warpage problems or handling problems during the galvanizing process that

may require adjustment of fabrication techniques or design before finalizing shop drawings and beginning of fabrication.

C. Cleaning: Thoroughly clean metal surfaces of all mill scale, rust, dirt, grease, oil, moisture and other contaminants prior to galvanizing.

D. Application: Hot-dip galvanizing shall conform to the following::

1. ASTM A 143: Safeguarding Against Embrittlement of Hot-Dip Galvanized Structural Steel.

2. ASTM A 123: Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.

3. ASTM A 153: Galvanized Coating on Iron and Steel Hardware - Table 1.

4. ASTM A 384: Practice for Safeguarding Against Warpage and Distortion During Hot-Dip Galvanizing of Steel Assemblies.

5. ASTM A 385: Practice for Providing High Quality Zinc Coatings.

6. ASTM A 924: Galvanized Coating on Steel Sheets.

7. Minimum weight of galvanized coating shall be two (2) oz. per square foot of surface.

E. Fabricate joints which will be exposed to weather in a manner to exclude water or provide weep holes where water may accumulate.

F. All galvanized materials must be inspected for compliance with these specifications and marked with a stamp indicating the name of the galvanizer, the weight of the coating, and the appropriate ASTM number.

G. To minimize surface imperfection (eg: flux inclusions), material to be galvanized shall be dipped into a solution of Zinc Ammonium Chloride (pre-flux) immediately prior to galvanizing. The type of galvanizing process utilizing a flux blanket overlaying the molten zinc will not be permitted.

H. After galvanizing all materials not exposed to view must be chromated by dipping material in a 0.2% chromic acid solution.

I. Galvanized surfaces, where exposed to view, must have a smooth, level surface finish. Where this does not occur, piece shall be rejected and replaced to the acceptance of the Architect.

2.4 PROTECTIVE COATINGS

A. Whenever dissimilar metals will be in contact, separate contact surfaces by coating each contact surface prior to assembly or installation with one coat of specified bituminous paint, which shall be in addition to the specified shop prime paint. Mask off those surfaces not required to receive protective coating.

2.5 WORKMANSHIP

A. General

1. Miscellaneous metal work shall be fabricated by an experienced fabricator or manufacturer and installed by an experienced tradesman.

2. Materials, methods of fabrication, fitting, assembly, bracing, supporting, fastening, operating devices, and erection shall be in accordance with drawings and specifications, approved shop drawings, and best practices of the industry, using new and clean materials as specified, having structural properties sufficient to safely sustain or withstand stresses and strains to which materials and assembled work will be subjected.

3. All work shall be accurately and neatly fabricated, assembled and erected.

B. Shop Assembly: Insofar as practicable, fitting and assembly of work shall be done in shop. Shop assemble work in largest practical sizes to minimize field work. It is the responsibility of the miscellaneous metal subcontractor to assure himself that the shop-fabricated miscellaneous metal items will properly fit the field condition. In the event that shop-fabricated miscellaneous metal items do not fit the field condition, the item shall be returned to the shop for correction.

C. Cutting: Cut metal by sawing, shearing, or blanking. Flame cutting will be permitted only if cut edges are ground back to clean, smooth edges. Make cuts accurate, clean, sharp and free of burrs, without deforming adjacent surfaces or metals.

D. Holes: Drill or cleanly punch holes; do not burn.

E. Connections: Make connections with tight joints, capable of developing full strength of member, flush unless indicated otherwise, formed to exclude water where exposed to weather. Locate joints where least conspicuous. Unless indicated otherwise, weld or bolt shop connections; bolt or screw field connections. Provide expansion and contraction joints to allow for thermal movement of metal at locations and by methods approved by Architect.

1. Welding

a. Shall be in accordance with AWS D1.1 Structural Welding Code of the American Welding Society, and shall be done with electrodes and/or methods recommended by the manufacturer of the metals being welded.
b. Welds shall be continuous, except where spot welding is specifically permitted. Welds exposed to view shall be ground flush and dressed smooth with and to match finish of adjoining surfaces; undercut metal edges where welds are required to be flush.
c. All welds on or behind surfaces which will be exposed to view shall be done so as to prevent distortion of finished surface. Remove weld spatter and welding oxides from all welded surfaces.

2. Bolts and Screws: Make threaded connections tight with threads entirely concealed. Use lock nuts. Bolts and screw heads exposed to view shall be flat

and countersunk. Cut off projecting ends of exposed bolts and screws flush with nuts or adjacent metal.

F. Operating Mechanism: Operating devices (i.e. pivots, hinges, etc.) mechanism and hardware used in connection with this work shall be fabricated, assembled, installed and adjusted after installation so that they will operate smoothly, freely, noiselessly and without excessive friction.

G. Built-In Work: Furnish anchor bolts, inserts, plates and any other anchorage devices, and all other items specified under this Section of the Specifications to be built into concrete, masonry or work of other trades, with necessary templates and instructions, and in ample time to facilitate proper placing and installation.

H. Supplementary Parts: Provide as necessary to complete each item of work, even though such supplementary parts are not shown or specified.

I. Coordination: Accurately cut, fit, drill and tap work of this Section to accommodate and fit work of other trades. Furnish or obtain, as applicable, templates and drawings to or from applicable trades for proper coordination of this work.

J. Exposed Work

1. In addition to requirements specified herein and shown on drawings, all surfaces exposed to view shall be clean and free from dirt, stains, grease, scratches, distortions, waves, dents, buckles, tool marks, burrs, and other defects which mar appearance of finished work.

2. Metal work exposed to view shall be straight and true to line or curve, smooth arrises and angles as sharp as practicable, miters formed in true alignment, profiles accurately intersecting, and with joints carefully matched to produce continuity of line and design.

3. Exposed fastenings, where permitted, shall be of the same material, color and finish as the metal to which applied, unless otherwise indicated, and shall be of the smallest practicable size.

K. Preparation for Hot-Dip Galvanizing: Fabricator shall correctly prepare assemblies for galvanizing in consultation with galvanizer and in accordance with applicable Reference Standards and applicable AGA publications for the "Design of Products to be Hot-Dip galvanized After Fabrication." Preparation shall include but not be limited to the following:

1. Remove welding flux.

2. Drill appropriate vent holes and provide for drainage in inconspicuous locations of hollow sections and semi-enclosed elements. After galvanizing, plug vent holes with shaped lead and grind smooth.

2.6 MISCELLANEOUS METALS ITEMS

A. Rough Hardware

1. Furnish bent or otherwise custom fabricated bolts, plates, anchors, hangers, dowels and other miscellaneous steel and iron shapes as required for framing and supporting woodwork, and for anchoring or securing woodwork to concrete or other structures. Straight bolts and other stock rough hardware items are specified in Division 6 Sections.

2. Fabricate items to sizes, shapes and dimensions required. Furnish malleable iron washers for heads and nuts which bear on wood connections; elsewhere, furnish steel washers.

B. Steel Pipe Handrails: Provide Schedule 40 steel pipe of size shown on Drawings. Fittings shall be flush type, malleable of cast iron. Brackets shall be malleable iron, design as selected by the Architect.

1. Construction: Form direction changes in rails using solid bar stock or elbows. Connections shall be shop welded and ground smooth and flush, except where field connections and expansion joints are required. Field connections may be welded, internal sleeve and plug weld, or internal sleeve and set screw.

2. Secure handrails to walls with wall brackets. Provide brackets of malleable iron castings, with not more than three (3) inches clearance from inside face of handrail to wall surface. Neatly drill wall plate portion of the bracket into concrete or masonry to receive bolts for concealed anchorage. For installation at drywall, Drywall trades shall provide plate to receive wall plate portion of bracket and anchor or bolt wall plate through drywall to supporting steel plate. Locate brackets at not more than 5'-0" o.c. unless otherwise shown.

3. Provide wall return fittings of cast iron, flush type, with the same projection as that specified for wall brackets.

4. Longitudinal members shall be parallel with each other and with floor surface or shape of stair to a tolerance of 1/8" in 10'-0" linear feet. Center line of members within each run of railing shall be in the plane.

5. For steel pipe posts where indicated, anchor posts in concrete by means of pipe sleeves set and anchored into concrete. Provide sleeves of galvanized steel pipe, not less than six (6) inches long and having an inside diameter not less than 1/2" greater than outside diameter of the inserted pipe. Provide steel plate closure secure to bottom of sleeve and of width and length not less than one (1) inch greater than outside diameter of sleeve. After posts have been inserted into sleeves, fill annular space between post and sleeve solid with non-shrink, non-ferrous grout. Cover anchorage joint with a round steel flange welded to post. Posts shall be set plumb within 1/8" vertical tolerance.

6. Steel pipe handrails shall be capable of resisting a two hundred (200) lb. force applied to rail from any direction and a uniformly distributed load of fifty (50) lbs. per linear foot applied downward or horizontally, loads not to act simultaneously.

C. Miscellaneous Light Steel Framing

1. Light steel framing, bracing, supports, framing, clip angles, shelf angles, plates, etc., shall be of such shapes and sizes as indicated on the drawings and details or as required to suit the condition and shall be provided with all necessary supports and reinforcing such as hangers, braces, struts, clip angles, anchors, bolts, nuts, welds, etc., as required to properly support and rigidly fasten and anchor same in place and to steel, concrete, masonry and all other connecting and adjoining work.

2. All light steel framing steel shall be furnished and erected in accordance with the applicable requirements of the "Specifications for the Design, Fabrication and Erection of Structural Steel for Buildings" by the American Institute of Steel Construction and as specified herein.

D. Miscellaneous Steel Trim: Provide shapes and sizes for profiles shown. Except as otherwise indicated, fabricate units from structural steel shapes and plates and steel bars, with continuously welded joints and smooth exposed edges. Use concealed field splices wherever possible. Provide cutouts, fittings and anchorages as required for coordination of assembly and installation with other work.

E. Countertop Supports: Steel framing as indicated or required to support countertops. Conceal framing under countertops and within wall behind countertops. Provide supports to withstand a concentrated load of not less than three hundred (300) lbs. applied at any point with a deflection not to exceed L/240 for the length of the countertop.

F. Miscellaneous Framing and Supports

1. General: Provide steel framing and supports not specified in other Sections as needed to complete the Work.

2. Fabricate units from steel shapes, plates, and bars of welded construction unless otherwise indicated. Fabricate to sizes, shapes, and profiles indicated and as necessary to receive adjacent construction.

   a. Fabricate units from slotted channel framing where indicated.
   b. Furnish inserts for units installed after concrete is placed.

3. Galvanize miscellaneous framing and supports where indicated.

4. Prime miscellaneous framing and supports with zinc-rich primer where indicated.

G. Loose Bearing and Leveling Plates

1. Provide loose bearing and leveling plates for steel items bearing on masonry or concrete construction. Drill plates to receive anchor bolts and for grouting.

2. Galvanize plates.

H. Loose Steel Lintels

1. Fabricate loose steel lintels from steel angles and shapes of size indicated for openings and recesses in masonry walls and partitions at locations indicated.

Fabricate in single lengths for each opening unless otherwise indicated. Weld adjoining members together to form a single unit where indicated.

2. Size loose lintels to provide bearing length at each side of openings equal to 1/12 of clear span, but not less than 8 inches (200 mm) unless otherwise indicated.

3. Galvanize loose steel lintels located in exterior walls.

I. Steel Weld Plates and Angles

1. Provide steel weld plates and angles not specified in other Sections, for items supported from concrete construction as needed to complete the Work. Provide each unit with no fewer than two integrally welded steel strap anchors for embedding in concrete.

PART 3 EXECUTION

3.1 INSPECTION

A. Examine the areas and conditions where miscellaneous metal is to be installed and correct any conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions are corrected to permit proper installation of the work.

3.2 ERECTION

A. Fastening to In-Place Construction: Provide anchorage devices and fasteners where necessary for securing miscellaneous metal fabrications to in-place construction; including threaded fasteners for concrete and masonry inserts, toggle bolts, through-bolts, lag bolts, wood screws, and other connectors as required.

B. Cutting, Fitting and Placement: Perform cutting, drilling and fitting required for installation of miscellaneous metal fabrications. Set work accurately in location, alignment and elevation, plumb, level, true and free of rack, measured from established lines and levels. Provide temporary bracing or anchors in formwork for items which are to be built into concrete, masonry, or similar construction.

C. Fitting Connections: Fit exposed connections accurately together to form tight hairline joints. Weld connections which are not to be left as exposed joints, but cannot be shop welded because of shipping size limitations. Grind exposed joints smooth and touch up shop paint coat. Do not weld, cut or abrade the surfaces of exterior units which have been hot dip galvanized after fabrication, and are intended for bolted or screwed field connections.

D. Field Welding: Comply with AWS Code for procedures of manual shielded metal-arc welding, appearance, and quality of welds made, and methods used in correcting welding work.

E. Touch-Up Painting: Immediately after erection, clean field welds, bolted connections, and abraded areas of shop paint, and paint exposed areas with same material as used

for shop painting. Apply by brush or spray to provide a minimum dry film thickness of 2.0 mils.

F. Field Touch-Up of Galvanized Surfaces: Touch-up shop applied galvanized coatings damaged during handling and installation. Use galvanizing repair coating specified herein for galvanized surfaces.

END OF SECTION

SECTION 06 20 00

CARPENTRY

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 SECTION INCLUDES

A. Work of this Section includes all labor, materials, equipment, and services necessary to complete the carpentry work as shown on the drawings and/or specified herein, including, but not limited to, the following:

1. Blocking and miscellaneous wood.
2. Plywood backing panels for telephone and electrical closets.
3. Rough hardware.
4. Installation only of finish hardware.
5. Installation only of doors and hollow metal frames.

1.3 RELATED SECTIONS

A. Steel Frames - Section 08 11 14.

B. Wood Doors - Section 08 14 16.

C. Finish Hardware - Section 08 71 00.

1.4 QUALITY ASSURANCE

A. Lumber Standard: Comply with PS 20.

B. Plywood Standard: Comply with PS 1 and American Plywood Assoc. (APA).

C. Shop fabricate carpentry work to the extent feasible and where shop fabrication will result in better workmanship than feasible for on-site fabrication.

D. Grade Marks: Identify lumber and plywood by official grade mark.

1. Lumber: Grade stamp to contain symbol of grading agency certified by Board of Review, American Lumber Standards Committee, mill number or name, grade of lumber, species grouping or combination designation, rules under which graded where applicable, and condition of seasoning at time of manufacture.

a. S-Dry: Maximum nineteen (19) percent moisture content as per ASTM D 2016.

E. Installation of doors, frames and hardware shall conform to the minimum standards of "Installation Guides for Doors and Hardware" of the Door and Hardware Institute.

1.5 SUBMITTALS

A. Pressure Treatment: Include certification by treating plant stating chemicals and process used, net amount of salts retained and conformance with applicable standards.

B. Fire-Retardant Treatment: Include certification by treating plant that treatment material complies with governing ordinances and that treatment will not bleed through finished surfaces.

1.6 PRODUCT HANDLING

A. Deliver carpentry materials to the site ready to use with each piece of lumber clearly marked as to grade, type and mill, and place in an area protected from the elements.

B. Deliver rough hardware in sealed kegs and/or other containers which shall bear labels as to type and kind.

C. Pile lumber for rough usage, when delivered to the site in stacks to insure drainage and with a minimum clearance of six (6) inches above grade. Cover stacks with tarpaulins or other watertight coverings. Store grounds and similar small sized lumber inside the building as soon as possible after delivery.

D. Do not store seasoned lumber in wet or damp portions of the building.

E. Protect fire retardant treated materials against high humidity and moisture during storage and erection.

F. Remove delivered materials which do not conform to specified grading rules or are otherwise not suitable for installation from the job site and replace with acceptable materials.

G. All items specified in Section 087100 of this specification entitled "Finish Hardware" shall be received, accounted for, stored and applied under this Section.

H. Hardware shall be sorted and stored in space assigned by Contractor and shall be kept at all times under lock and key. The safety and preservation of all items delivered will be the responsibility of the Contractor.

1.7 JOB CONDITIONS

A. Installer must examine the substrates and supporting structure and the conditions under which the carpentry work is to be installed and notify the Contractor in writing of conditions detrimental to the work. Do not proceed with the installation until unsatisfactory conditions have been corrected in a manner acceptable to the Installer and the Architect.

B. Coordination: Fit carpentry work to other work; scribe and cope as required for accurate fit. Correlate location of furring, nailers, blocking, grounds and similar supports to allow proper attachment of other work.

PART 2 PRODUCTS

2.1 WOOD MATERIAL

A. General

1. All wood shall be sound, flat, straight, well-seasoned, thoroughly dry and free from all defects. Warped or twisted wood shall not be used.

2. For miscellaneous wood blocking, grounds, furring as required, use Utility Grade Coastal Douglas Fir or Southern Pine, free from knots, shakes, rot or other defects, straight, square edges and straight grain, air seasoned with maximum moisture content of nineteen (19) percent. Wood shall be S4S, S-Dry, complying with PS-20.

3. Plywood and rough carpentry for telephone and electrical closets, provide 3/4" thick C-D EXT-APA plywood, fire retardant treated as specified herein.

B. Wood Treatment

1. All interior wood material specified herein shall be fire retardant treated to comply with the AWPA standard U1 to achieve a flame spread rating of not more than 25 (UL Class "FR-S") when tested in accordance with UL Test 723 or ASTM E 84. The fire-retardant chemicals used to treat the lumber must comply with FR-1 of AWPA Standard P49 and be free of halogens, sulfates and ammonium phosphate.

   a. After treatment, kiln dry to a moisture content of fifteen (15) percent; if wood is to be painted or finished, kiln dry to a moisture content of twelve (12) percent. Treatment shall be equal to "Dricon" made by Arch Wood Protection Inc. or approved equal. Provide UL approved identification on treated materials.

2. For exterior blocking, roofing and sheet metal, pressure treat wood with copper azole, Type B (CA-B); ammoniacal copper quat (ACQ) or similar preservative product that contains no arsenic or chromium. Preservative shall comply with AWPA Standard U1, (.25 lbs./cubic foot of chemical in wood).

   a. After treatment, kiln dry to a maximum moisture content of fifteen (15) percent. Treatment shall be equal to "Wolmanized Natural Select" made by Arch Wood Protection Inc. or approved equal.

3. Treated wood which is cut or otherwise damaged shall be further treated in accordance with the AWPA Standard M-4.

2.2 HARDWARE

A. Rough Hardware for Treated Woods and Exterior Use: Hot-dipped galvanized or Type 304 stainless steel.

B. Nails: Common steel wire, untreated for interior work as per ASTM F 1667.

C. Bolts: Standard mild steel, square head machine bolts with square nuts and malleable iron or steel plate washers or carriage bolts with square nuts and cut washers conforming to the following:

1. Bolts: ASTM A 307, Grade A.

2. Nuts: ASTM A 563.

3. Lag Screws and Bolts: ASME B 18.2.1.

D. Expansion Anchors: Anchor bolt and sleeve assembly of material indicated below with capability to sustain, without failure, a load equal to 6 times the load imposed when installed in unit masonry assemblies and equal to 4 times the load imposed when installed in concrete as determined by testing per ASTM E 488 conducted by a qualified independent testing and inspecting agency.

1. Material for Treated Woods and Exterior Use: Stainless steel with bolts and nuts complying with ASTM F 593 and ASTM F 594, Alloy Group 1 or 2.

2. Material for Other Uses: Carbon-steel components, zinc plated to comply with ASTM B 633, Class Fe/Zn 5.

E. Wood Screws: ASME B 18.6.1.

F. Concrete and Masonry Anchors: Standard expansion-shield self-drilling type concrete anchors where so shown or noted on the drawings, or where approved by the Architect.

PART 3 EXECUTION

3.1 INSPECTION

A. Examine the areas and conditions where carpentry is to be installed and correct any conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions are corrected to permit proper installation of the work.

3.2 INSTALLATION OF FINISH HARDWARE

A. Hardware shall be carefully fitted and securely attached, in accordance with these specifications and the instructions of the various manufacturers.

B. Unless otherwise noted, mount hardware units at heights established in Section 081114.

C. Install each hardware item in compliance with the manufacturer's instructions and recommendations. Wherever cutting and fitting is required to install hardware onto or into surfaces which are later to be painted or finished in another way, install each item completely and then remove and store in a secure place during the finish application. After completion of the finishes, re-install each item. Do not install surface-mounted items until finishes have been completed on the substrate.

D. Set units level, plumb and true to line and location. Adjust and reinforce the attachment substrate as necessary for proper installation and operation.

E. Drill and countersink units which are not factory prepared for anchorage fasteners. Space fasteners and anchors in accordance with industry standards.

F. Cut and fit threshold and floor covers to profile of door frames, with mitered corners and hair-line joints. Join units with concealed welds or concealed mechanical joints. Cut smooth openings for spindles, bolts and similar items, if any.

G. All keys used shall be construction keys which are to be tagged with fiber discs as approved, clearly labeled with identifying inscriptions and then neatly arranged in a temporary cabinet. All construction keys shall be returned to the Owner.

H. Adjusting and Cleaning

1. Adjust and check each operating item of hardware and each door, to ensure proper operation and function of every unit. Lubricate moving parts with type lubrication recommended by manufacturer (graphite type if no other recommended). Replace units which cannot be adjusted and lubricated to operate freely and smoothly as intended for the application made.

2. Final Adjustment: Wherever hardware installation is made more than one month prior to acceptance or occupancy of a space or area, return to the work during the week prior to acceptance or occupancy, and make a final check and adjustment of all hardware items in such space or area. Clean and re-lubricate operating items as necessary to restore proper function and finish of hardware and doors. Adjust door control devices to compensate for final operation of heating and ventilating equipment.

3.3 INSTALLATION OF DOORS AND FRAMES

A. Preparation

1. Remove welded-in shipping spreaders installed at factory.

2. Prior to installation and with installation spreaders in place, adjust and securely brace standard steel door frames for squareness, alignment, twist, and plumb to the following tolerances:

a. Squareness: Plus or minus 1/16 inch, measured at door rabbet on a line 90 degrees from jamb perpendicular to frame head.
b. Alignment: Plus or minus 1/16 inch, measured at jambs on a horizontal line parallel to plane of wall.

c. Twist: Plus or minus 1/16 inch, measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of wall.
d. Plumbness: Plus or minus 1/16 inch, measured at jambs on a perpendicular line from head to floor.

3. Drill and tap doors and frames to receive non-templated mortised and surface-mounted door hardware.

B. Installation

1. General: Provide doors and frames of sizes, thicknesses, and designs indicated. Install steel doors and frames plumb, rigid, properly aligned, and securely fastened in place; comply with Drawings and manufacturer's written instructions.

2. Set frames accurately in position; plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is complete, remove temporary braces, leaving surfaces smooth and undamaged.

a. Install frames in accordance with ANSI 250.11-20001, Recommended Erection Instructions for Steel Frames, unless more stringent requirements are specified herein.
b. At fire-protection-rated openings, install frames according to NFPA 80.
c. Where frames are fabricated in sections due to shipping or handling limitations, field splice at approved locations by welding face joint continuously; grind, fill, dress, and make splice smooth, flush, and invisible on exposed faces.
d. Install frames with removable glazing stops located on secure side of opening.
e. Frames set in masonry walls shall have door silencers installed in frames before grouting.
f. Remove temporary braces necessary for installation only after frames have been properly set and secured.
g. Check plumb, squareness, and twist of frames as walls are constructed. Shim as necessary to comply with installation tolerances.

3. Floor Anchors: Provide floor anchors for each jamb and mullion that extends to floor and secure with post-installed expansion anchors.

a. Floor anchors may be set with powder-actuated fasteners instead of post-installed expansion anchors if so indicated and approved on Shop Drawings.

4. Metal-Stud Partitions: Solidly pack mineral-fiber insulation behind frames conforming to the requirements of Section 072100, "Thermal Insulation."

5. Masonry Walls: Coordinate installation of frames to allow for solidly filling space between frames and masonry with mortar; refer to Section 042000 "Unit Masonry" for installation of frames in masonry walls.

6. Ceiling Struts: Extend struts vertically from top of frame at each jamb to supporting construction above, unless frame is anchored to masonry or to other

structural support at each jamb. Bend top of struts to provide flush contact for securing to supporting construction above. Provide adjustable wedged or bolted anchorage to frame jamb members.

7. Installation Tolerances: Adjust steel door frames for squareness, alignment, twist, and plumb to the tolerance given in HMMA 841 of ANSI/NAAMM, current edition.

8. Steel Doors: Fit hollow metal doors accurately in frames to the tolerances given in HMMA 841 of ANSI/NAAMM, current edition.

   a. Fire-Rated Doors: Install doors with clearances according to NFPA 80.

9. Glazing: Comply with installation requirements in Division 8 Section "Glass and Glazing" and with standard steel door and frame manufacturer's written instructions.

   a. Secure stops with countersunk flat- or oval-head machine screws spaced uniformly not more than 9 inches o.c., and not more than 2 inches o.c. from each corner.

C. Wood Doors

1. Condition doors to average prevailing humidity in installation area prior to hanging.

2. Install doors in accordance with manufacturer’s instructions.

3. Fit door to frames and machine for hardware to whatever extent not previously worked at factory as required for proper fit and uniform clearance at each edge.

4. Clearances: Install doors to meet clearance requirements specified in Section 081416.

5. Fire-Rated Doors: Install in corresponding fire-rated frames in accordance with the requirements of NFPA No. 80. Provide clearances complying with the limitations of the authority having jurisdiction.

D. Adjustments: Check and readjust operating finish hardware items just prior to final inspection. Leave work in complete and proper operating condition. Remove and replace defective work, including doors or frames which are warped, bowed or otherwise unacceptable.

3.4 BLOCKING AND MISCELLANEOUS WOOD

A. General

1. Erect rough carpentry true to line, levels and dimensions required; squared, aligned, plumbed, and securely fastened in place.

2. Shim where required to true up furring, blocking and the like. Use wood or metal shims only.

3. Do all cutting, fitting, drilling and tapping of other work as required to secure work in place and to perform the work included herein. Do all the cutting and fitting of carpentry work, for the work of other trades as required.

B. Blocking and Miscellaneous Wood

1. Furnish and install all wood grounds, furring, blocking, curbs, bucks, nailers, etc., that may be necessary and required in connection with the carpentry and with the work described for any other trades and including required carpentry for electrical fixtures. All blocking and nailers shall be continuous wherever required, whether or not so indicated.

2. Blocking shall be as required for the proper installation of the finished work and for items in mechanical sections as required. Blocking, edgings, stops, nailing strips, etc., shall be continuous, unless distinctly noted otherwise. Provide blocking as required to install all equipment. Provide blocking and nailers where shown or required to fasten interior sheet metal work.

3. Fastening for wood grounds, furring and blocking shall be of metal and of type and spacing as best suited to conditions. Hardened steel nails, expansion screws, toggle bolts, self-clinching nails, metal plugs, inserts or similar fastenings shall be used, of suitable type and size to draw the members into place and securely hold same.

C. Rough Lumber for Roofing and Sheet Metal

1. Furnish and install all wood nailing strips and wood blocking required in connection with respective types of roofing, fans, flashings, and sheet metal work, using preservative treated wood as herein before specified.

2. Wood blocking shall be of sizes and shapes as indicated on the drawings and/or designed for the reception of curb flashings for roof ventilators and similar items.

3. All nailing strips and blocking shall be carried out in accordance with the printed installation instructions, and/or recommendations of the accepted manufacturer of the roofing materials, and in coordination and cooperation with the sheet metal work trades.

4. All blocking and nailing strips shall be firmly secured in place using counter bored bolt and nut fastenings, or secured by any other proposed flush surfaced fastenings.

5. Wood nailing strips or blocking required to be embedded in concrete work shall be furnished in time due for placing, prior to start of concrete operations. Locations and spacings of nailing strips or blocking shall be performed in coordination with the concrete trades, as required for respective installations.

3.5 TELEPHONE AND ELECTRICAL EQUIPMENT MOUNTING BOARDS

A. Furnish and install 3/4" thick plywood panels to the walls of the telephone and electrical equipment rooms in accordance with the requirements of the local utility company.

B. Secure to wall using proper devices for substrates encountered, spaced twelve (12) inches o.c., maximum around the edges, 1-1/2" from corners, and in three (3) rows of three (3) each in the field. Recess fastening devices flush with the plywood surface. Adjacent panels shall be butted with 1/16" space between without lapping.

3.6 ROUGH HARDWARE

A. Securely fasten rough carpentry together. Nail, spike, lag screw or bolt as required by conditions encountered in the field and the Contract Documents.

B. Provide rough or framing hardware, such as nails, screws, bolts, anchors, hangers, clips, inserts, miscellaneous fastenings, and similar items of the best quality and of the proper size and kind to adequately secure the work together and in place, in a rigid and substantial manner.

C. Secure rough carpentry to masonry with countersunk bolts in expansion sleeves or other acceptable manner, with fastenings not more than sixteen (16) inches apart. Secure woodwork to hollow masonry with toggle bolts spaced not more than sixteen (16) inches apart.

D. Countersink bolts in nailers and other rough woodwork and include washers and nuts. Cut bolts off flush with surfaces and peen as may be required to receive finished work.

E. Inserts to secure wood nailers to concrete shall be malleable iron threaded inserts with 3/8" diameter bolts of length to allow for countersinking. Locate at end of each nailer and at intervals not exceeding thirty (30) inches o.c.

F. Furnish to the mason for building into the work or attaching the work which is to be built in, anchors, bolts, wall plates bolted to masonry, corrugated wall plugs, nailing blocks, etc., which are required for the proper fastening and installation for the work or other items as called for in this Section.

G. Detailed instructions with sketches of necessary requirements, shall be given to the masonry trade showing the location and other details of such nailing devices.

3.7 CLEANING UP

A. General: Keep the premises in a neat, safe and orderly condition at all times during execution of this portion of the work, free from accumulation of sawdust, cut-ends and debris.

B. Sweeping

1. At the end of each working day, or more often if necessary, thoroughly sweep all surfaces where refuse from this portion of the work has settled.

2. Remove the refuse to the area of the job site set aside for its storage.

3. Upon completion of this portion of the work, thoroughly broom clean all surfaces.

END OF SECTION

SECTION 07 84 13

FIRESTOPS AND SMOKESEALS

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 SECTION INCLUDES

A. Work of this Section includes all labor, materials, equipment, and services necessary to complete the firestops and smokeseals as shown on the drawings and/or specified herein, including, but not limited to, the following:

1. Penetrations through fire-resistance-rated floor and roof construction including both empty openings and openings containing cables, pipes, ducts, conduits, and other penetrating items.

2. Penetrations through fire-resistance-rated walls and partitions including both empty openings and openings containing cables, pipes, ducts, conduits, and other penetrating items.

3. Penetrations through smoke barriers and construction enclosing compartmentalized areas involving both empty openings and openings containing penetrating items.

4. Sealant joints in fire-resistance-rated construction.

5. Penetrations at each floor level in shafts and/or stairwells.

6. Construction joints, including those between top of fire rated walls and underside of floors above; and those between exterior curtain walls and the outer perimeter edge of floor assemblies.

1.3 RELATED SECTIONS

A. Cast-in-Place Concrete - Section 03 30 00.

B. Unit Masonry - Section 04 20 00.

C. Joint Sealers - Section 07 92 00.

D. Gypsum Drywall - Section 09 29 00.

E. Piping penetrations - Division 22.

F. Duct penetrations - Division 23.

G. Cable and conduit penetrations - Division 26.

1.4 REFERENCES

A. ASTM E 814 "Standard Method of Fire Tests of Through-Penetration Firestops."

B. UL 1479, UBC 7-5 (Both are same as A. above).

C. ASTM E 119 "Standard Method of Fire Tests of Building Construction and Materials."

D. UL 263, UBC 7-1 (Both are same as C. above).

E. UL 2079 "Tests For Fire Resistance of Building Joint Systems."

F. ASTM E 1399 "Test For Dynamic Movement Conditions."

G. ASTM E 1966 (Same as E. above).

H. ASTM G 21 "Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi."

I. Test Requirements: ASTM E 2307, "Standard Test Method for Determining Fire Resistance of Perimeter Fire Barrier Systems Using Intermediate-Scale, Multi-story Test Apparatus."

J. Inspection Requirements: ASTM E 2174, "Standard Practice for On-site Inspection of Installed Firestops."

K. Published Through-Penetration Systems by recognized independent testing agencies.

1. UL Fire Resistance Directory, Volume II of current year.

2. Warnock Hersey Certification Listings, current year.

3. Omega Point Laboratories, current year.

L. International Firestop Council Guidelines for Evaluating Firestop Systems Engineering Judgments.

1.5 SUBMITTALS

A. Submit manufacturer's product literature for each type of firestop material to be installed. Literature shall indicate product characteristics, typical uses, performance, limitation criteria, test data and indication that products comply with specified requirements.

B. Submit shop drawings detailing materials, installation methods, and relationships to adjoining construction for each firestop system, and each kind of construction condition penetrated and kind of penetrating item. Include firestop design designation of qualified testing and inspection agency evidencing compliance with requirements for each condition indicated.

1. Submit documentation, including illustrations, for proposed UL listed (or equal) firestop and smokeseal assembly required for the Project.

C. Material Safety Data Sheets: Submit MSDS for each firestop product.

D. Submit qualifications of firestop installer, including letter from firestop manufacturer of products proposed to be installed, wherein manufacturer approves or recognizes as trained/ or certifies installer for installation of that manufacturer's products.

E. Engineering Judgment: For those firestop applications that exist for which no qualified tested system is available through a manufacturer, an engineering judgment derived from similar qualified tested system designs or other tests will be submitted to local authorities having jurisdiction for their review and approval prior to installation. Engineering judgment documents must follow requirements set forth by the International Firestop Council.

1.6 QUALITY ASSURANCE

A. General: Provide firestopping systems that are produced and installed to resist the spread of fire and the passage of smoke and other gases.

B. Installation Responsibility: Assign installation of through-penetration firestop systems and fire-resistive joint systems in Project to a single sole source firestop specialty contractor.

C. Firestopping materials shall conform to Flame (F) and Temperature (T) ratings as required by local building code and as tested by nationally accepted test agencies per ASTM E 814 or UL 1479. The F-rating must be a minimum of one (1) hour, but not less than the fire resistance rating of the assembly being penetrated. T-rating, when required by code authority, shall be based on measurement of the temperature rise on the penetrating item(s). The fire test shall be conducted with a minimum positive pressure differential of 0.01 inches of water column.

1. Penetrations in Horizontal Assemblies: Provide firestopping with ratings determined in accordance with UL 1479 or ASTM E 814.

    a. F-Rating: Minimum of 1-hour rating, but not less than the fire-resistance rating of the floor construction being penetrated.
    b. T-Rating: When penetrant is located outside of a wall cavity, minimum of 1-hour rating, but not less than the fire-resistance rating of the floor construction being penetrated.
    c. W-Rating: Class 1 rating in accordance with water leakage test per UL 1479.

2. Penetrations in Smoke Barriers: Provide firestopping with ratings determined in accordance with UL 1479 or ASTM E 814.

    a. L-Rating: Not exceeding 5.0 cfm/sq. ft. of penetration opening at both ambient and elevated temperatures.

D. Firestopping products shall be asbestos free and free of any PCBs.

E. Do not use any product containing solvents or that requires hazardous waste disposal.

F. Do not use firestop products which after curing, dissolve in water.

G. Do not use firestop products that contain ceramic fibers.

H. Firestopping Installer Qualifications: Firestop application shall be performed by a single firestopping contractor who specializes in the installation of firestop systems, whose personnel to be utilized have received specific training and certification or approval from the proposed respective firestop manufacturer, and firestop installer shall have a minimum of three years' experience (under present company name) installing firestop systems of the type herein specified.

I. Mock-Up: Prepare job site mock-ups of each typical Firestop System proposed for use in the project. Approved mock-ups will be left in place as part of the finished project and will constitute the quality standard for the remaining work.

J. For firestopping exposed to view, traffic, moisture, and physical damage, provide products that do not deteriorate when exposed to these conditions.

1. For piping penetrations for plumbing and wet-pipe sprinkler systems, provide moisture-resistant through-penetration firestop systems.

2. For floor penetrations with annular spaces exceeding 4 inches or more in width and exposed to possible loading and traffic, provide firestop systems capable of supporting the floor loads involved either by installing floor plates or by other means.

3. For penetrations involving insulated piping, provide through-penetration firestop systems not requiring removal of insulation.

K. Mold Resistance: Provide penetration firestopping with mold and mildew resistance rating of less than or equal to 1 as determined by ASTM G 21.

L. Firestopping Materials are either "cast-in-place" (integral with concrete placement) or "post-installed." Provide cast-in-place firestop devices prior to concrete placement.

M. Firestop systems do not reestablish the structural integrity of load bearing partitions or assemblies or support live loads and traffic. Installer shall consult the Structural Engineer prior to penetrating any load bearing assembly.

1.7 DELIVERY, STORAGE AND HANDLING

A. Deliver materials in manufacturer's original unopened containers with manufacturer's name, product identification, lot numbers, UL or Warnock Hersey labels, and mixing and installation instructions, as applicable.

B. Store materials in the original, unopened containers or packages, and under conditions recommended by manufacturer.

C. All firestop materials shall be installed prior to expiration of shelf life.

1.8 PROJECT CONDITIONS

A. Verify existing conditions and substrates before starting work

B. Do not use materials that contain solvents, show sign of damage or are beyond their shelf life.

C. During installation, provide masking and drop cloths as needed to prevent firestopping products from contaminating any adjacent surfaces.

D. Conform to ventilation requirements if required by manufacturer's installation instructions or Material Safety Data Sheet.

E. Weather Conditions: Do not proceed with installation of firestop products when temperatures are in excess or below the manufacturer's recommendations.

F. Schedule installation of firestop products after completion of penetrating item installation but prior to covering or concealing of openings.

G. Coordinate this work as required with work of other trades.

1.9 SEQUENCING AND SCHEDULING

A. Pre-Installation Conference: Convene a pre-installation conference to establish procedures to maintain optimum working conditions and to coordinate this work with related and adjacent work.

B. Sequence: Perform work of this and other sections in proper sequence to prevent damage to the firestop systems and to ensure that their installation will occur prior to enclosing or concealing work.

C. Install all firestop systems after voids and joints are prepared sufficiently to accept the applicable firestop system.

D. Do not cover firestop systems until they have been properly inspected and accepted by the authority having jurisdiction.

PART 2 PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. Subject to compliance with requirements, provide products of one of the following manufacturers:

1. Tremco.
2. Bio-Fireshield.
3. 3M.
4. Specified Technologies Inc.
5. U.S. Gypsum Co.
6. Nelson.
7. Hilti, Inc.
8. GCP Applied Technologies.

2.2 FIRESTOPPING, GENERAL

A. Compatibility: Provide firestopping composed of components that are compatible with each other, the substrates forming openings, and the items, if any, penetrating the firestopping under conditions of service and application, as demonstrated by firestopping manufacturer based on testing and field experience.

B. Accessories: Provide components for each firestopping system that are needed to install fill materials. Use only components specified by the firestopping manufacturer and approved by the qualified testing and inspecting agency for the designated fire-resistance-rated systems. Accessories include but are not limited to the following items:

1. Permanent forming/damming/backing materials including the following:

a. Semi-refractory fiber (mineral wool) insulation.
b. Sealants used in combination with other forming/damming materials to prevent leakage of fill materials in liquid state.
c. Fire-rated form board.
d. Joint fillers for joint sealants.

2. Temporary forming materials.

3. Substrate primers.

4. Collars.

5. Steel sleeves.

C. Applications: Provide firestopping systems composed of materials specified in this Section that comply with system performance and other requirements.

D. Smokeseals at top of partitions shall be flexible to allow for partition deflection.

E. Polypropylene Sleeves (PP): (For cast-in device options.)

2.3 FILL MATERIALS FOR THROUGH-PENETRATION FIRESTOP SYSTEMS

A. Endothermic, Latex Compound Sealant: Single-component, endothermic, latex formulation.

B. Intumescent, Latex Sealant: Single-component, Intumescent, latex formulation.

C. Intumescent Putty: Non-hardening, dielectric, water-resistant putty containing no solvents, inorganic fibers, or silicone compounds.

D. Intumescent Wrap Strips: Single-component, elastomeric sheet with aluminum or polyethylene foil on one side.

E. Job-Mixed Vinyl Compound: Prepackaged vinyl-based powder product for mixing with water at Project site to produce a paintable compound, passing ASTM E 136, with flame-spread and smoke-developed ratings of zero per ASTM E 84.

F. Mortar: Prepackaged dry mix composed of a blend of inorganic binders, fillers, and lightweight aggregate formulated for mixing with water at Project site to form a non-shrinking, homogeneous mortar.

G. Pillows/Bags: Re-usable, heat-expanding pillows/bags composed of glass-fiber cloth cases filled with a combination of mineral-fiber, water-insoluble expansion agents and fire-retardant additives.

H. Silicone Foam: Two-component, silicone-based liquid elastomer that, when mixed, expands and cures in place to produce a flexible, non-shrinking foam.

I. Silicone Sealant: Moisture-curing, single-component, silicone-based, neutral-curing elastomeric sealant of grade indicated below:

1. Grade: Pourable (self-leveling) formulation for openings in floors and other horizontal surfaces and non-sag formulation for openings in vertical and other surfaces requiring a non-slumping/gunnable sealant, unless firestop system limits use to non-sag grade for both opening conditions.

J. Cast-in-Place Firestop Devices: Factory-assembled devices for use in cast-in-place concrete floors and consisting of an outer metallic or polypropylene sleeve lined with an intumescent strip, an extended rectangular flange attached to one end of the sleeve for fastening to concrete formwork, and a neoprene gasket.

K. Fire Rated Cable Management Devices: Factory-assembled round metallic sleeve device for use with cable penetrations, containing an integrated smoke seal fabric membrane that can be opened and closed for re-penetration.

L. Drop-In Firestop Devices: Factory-assembled devices for use with combustible or noncombustible penetrants in cored holes within concrete floors. Device shall consist of galvanized steel sleeve lined with an intumescent strip, an extended rectangular flange attached to one end of the sleeve for fastening to concrete floor, and neoprene gasket.

M. Firestop Devices: Factory-assembled collars formed from galvanized steel and lined with intumescent material sized to fit specific diameter of penetrant.

N. Intumescent Composite Sheets: Rigid panels consisting of aluminum-foil-faced elastomeric sheet bonded to galvanized-steel sheet.

O. Blocks/Plugs: Intumescent flexible block/plug suitable for reuse in re-penetration of openings. Blocks shall allow up to 12” of unreinforced annular space.

P. Tub Box Kit: Cast-in place pre-formed plastic tub box kit with three support legs for use with drain piping assembly associated with bathtub installations.

2.4 FIRE-RESISTIVE ELASTOMERIC JOINT SEALANTS

A. Elastomeric Sealant Standard: Provide manufacturer's standard chemically curing, elastomeric sealant of base polymer indicated that complies with ASTM C 920 requirements, including those referenced for Type, Grade, Class, and Uses, and requirements specified in this Section applicable to fire-resistive joint sealants.

1. Sealant Colors: Color of exposed joint sealants as selected by the Architect.

B. Single-Component, Neutral-Curing Silicone Sealant: Type S; Grade NS; Class 25; exposure-related Use NT, and joint-substrate-related Uses M, G, A, and (as applicable to joint substrates indicated) O.

1. Additional Movement Capability: Provide sealant with the capability to withstand 33 percent movement in both extension and compression for a total of 66 percent movement.

C. Multi-Component, Non-Sag, Urethane Sealant: Type M; Grade NS; Class 25; exposure-related Use NT, and joint-substrate-related Uses M, A, and (as applicable to joint substrates indicated) O.

1. Additional Movement Capability: Provide sealant with the capability to withstand 40 percent movement in extension and 25 percent in compression for a total of 65 percent movement in joint width existing at time of installation, when tested for adhesion and cohesion under maximum cyclic movement per ASTM C 719, and remain in compliance with other requirements of ASTM C 920 for uses indicated.

D. Single-Component, Non-Sag, Urethane Sealant: Type S; Grade NS; Class 25; and Uses NT, M, A, and (as applicable to joint substrates indicated) O.

2.5 MINERAL FIBER/CERAMIC WOOL NON-COMBUSTIBLE INSULATION (FIRE SAFING)

A. Provide min. 4 pcf Thermafiber as manufactured by Thermafiber Co., min. 4 pcf FBX Safing Insulation as manufactured by Fibrex, or approved equal to suit conditions and to comply with fire resistance and firestop manufacturer's requirements.

B. Material shall be classified non-combustible per ASTM E 119.

2.6 MIXING

A. For those products requiring mixing prior to application, comply with firestopping manufacturer's directions for accurate proportioning of materials, water (if required), type of mixing equipment, selection of mixer speeds, mixing containers, mixing time, and other procedures needed to produce firestopping products of uniform quality with optimum performance characteristics for application indicated.

PART 3 EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions with Installer present, for compliance with requirements for opening configuration, penetrating items, substrates, and other conditions affecting performance of firestopping. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Surface Cleaning: Clean out openings and joints immediately prior to installing firestopping to comply with recommendations of firestopping manufacturer and the following requirements:

1. Remove all foreign materials from surfaces of opening and joint substrates and from penetrating items that could interfere with adhesion of firestopping.

2. Clean opening and joint substrates and penetrating items to produce clean, sound surfaces capable of developing optimum bond with firestopping. Remove loose particles remaining from cleaning operation.

3. Remove laitance and form release agents from concrete.

B. Priming: Prime substrates where recommended by firestopping manufacturer using that manufacturer's recommended products and methods. Confine primers to areas of bond; do not allow spillage and migration onto exposed surfaces.

C. Masking Tape: Use masking tape to prevent firestopping from contacting adjoining surfaces that will remain exposed upon completion of work and that would otherwise be permanently stained or damaged by such contact or by cleaning methods used to remove smears from firestopping materials. Remove tape as soon as it is possible to do so without disturbing seal of firestopping with substrates.

3.3 CONDITIONS REQUIRING FIRESTOPPING

A. Building Exterior Perimeters

1. Where exterior facing construction is continuous past a structural floor, and a space (i.e. construction joint) would otherwise remain open between the inner face of the wall construction and the outer perimeter edge of the structural floor, provide firestopping to equal the fire resistance of the floor assembly.

   a. If mineral wool is part of firestop system, the mineral wool must be completely covered by appropriate thickness of UL or Warnock Hersey listed firestop sealant or spray.
   b. Refer to Article 3.6 herein for description of fire safing insulation.

2. Firestopping shall be provided whether or not there are any clips, angles, plates, or other members bridging or interconnecting the facing and floor systems, and whether or not such items are continuous.

3. Where an exterior wall passes a perimeter structural member, such as a girder, beam, or spandrel, and the finish on the interior wall face does not continue up to close with the underside of the structural floor above, thus interrupting the fire-resistive integrity of the wall system, and a space would otherwise remain open between the interior face of the wall and the structural member, provide firestopping to continuously fill such open space.

B. Interior Walls and Partitions

1. Construction joints between top of fire rated walls and underside of floors above, shall be firestopped.

2. Firestop system installed shall have been tested by either UL or Omega Point, including exposure to hose stream test and including for use with steel fluted deck floor assemblies.

3. Firestop system used shall allow for deflection of floor above.

C. Penetrations

1. Penetrations include conduit, cable, wire, pipe, duct, or other elements which pass through one or both outer surfaces of a fire rated floor, wall, or partition.

2. Except for floors on grade, where a penetration occurs through a structural floor or roof and a space would otherwise remain open between the surfaces of the penetration and the edge of the adjoining structural floor or roof, provide firestopping to fill such spaces in accordance with ASTM E 814.

3. These requirements for penetrations shall apply whether or not sleeves have been provided, and whether or not penetrations are to be equipped with escutcheons or other trim. If penetrations are sleeved, firestop annular space, if any, between sleeve and wall of opening.

D. Provide firestopping to fill miscellaneous voids and openings in fire rated construction in a manner essentially the same as specified herein before.

3.4 INSTALLING THROUGH PENETRATION FIRESTOPS

A. General: Comply with the through penetrations firestop manufacturer's installation instructions and drawings pertaining to products and applications indicated.

B. Install forming/damming materials and other accessories of types required to support fill materials during their application and in the position needed to produce the cross-sectional shapes and depths required to achieve fire ratings of designated through-penetration firestop systems. After installing fill materials, remove combustible forming materials and other accessories not indicated as permanent components of firestop systems.

C. Install fill materials for through penetration firestop systems by proven techniques to produce the following results:

1. Completely fill voids and cavities formed by openings, forming materials, accessories, and penetrating items.

2. Apply materials so they contact and adhere to substrates formed by openings and penetrating items.

3. For fill materials that will remain exposed after completing work, finish to produce smooth, uniform surfaces that are flush with adjoining finishes.

3.5 INSTALLING FIRE RESISTIVE JOINT SEALANTS

A. General: Comply with ASTM C 1193, and with the sealant manufacturer's installation instructions and drawings pertaining to products and applications indicated.

B. Install joint fillers to provide support of sealants during application and at position required to produce the cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability and develop fire resistance rating required.

C. Install sealants by proven techniques that result in sealants directly contacting and fully wetting joint substrates, completely filling recesses provided for each joint configuration, and providing uniform, cross sectional shapes and depths relative to joint width that optimum sealant movement capability. Install sealants at the same time joint fillers are installed.

D. Tool no sag sealants immediately after sealant application and prior to the time skinning or curing begins. Form smooth, uniform beads of configuration indicated or required to produce fire resistance rating, as well as to eliminate air pockets, and to ensure contact and adhesion of sealants with sides of joint. Remove excess sealant from surfaces adjacent to joint. Do not use tooling agents that discolor sealants or adjacent surfaces or are not approved by sealant manufacturer.

3.6 INSTALLING FIRESAFING INSULATION

A. Install fire safing insulation utilizing welded or screw applied galvanized steel impaling pins and retaining clips; space clips or pins 24" o.c. maximum.

B. Completely fill voids in areas where safing insulation is required. At spandrel conditions/floor edges, depth of insulation top to bottom shall be at least four (4) inches.

C. Cover top of all safing insulation with firestop sealant or spray.

3.7 FIELD QUALITY CONTROL

A. Inspecting agency employed and paid by the Owner will examine completed firestopping to determine, in general, if it is being installed in compliance with requirements.

B. Inspecting agency will report observations promptly and in writing to Contractor, Owner and Architect.

C. Do not proceed to enclose firestopping with other construction until reports of examinations are issued.

D. Where deficiencies are found, Contractor must repair or replace firestopping so that it complies with requirements.

3.8 CLEANING

A. Clean off excess fill materials and sealants adjacent to openings and joints as work progresses by methods and with cleaning materials approved by manufacturers of firestopping products and of products in which openings and joints occur.

B. Protect firestopping during and after curing period from contact with contaminating substances or from damage resulting from construction operations or other causes so that they 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 firestopping immediately and install new materials to product firestopping complying with specified requirements.

END OF SECTION

SECTION 07 92 00

JOINT SEALERS

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 SECTION INCLUDES

A. Work of this Section includes all labor, materials, equipment and services necessary to complete the joint sealers work as shown on the drawings and/or specified herein, including but not necessarily limited to the following:

1. Flashing reglets and retainers.
2. Exterior wall joints not specified to be sealed in other Sections of work.
3. Interior wall joints not specified to be sealed in other Sections of work, including caulking to fill between architectural woodwork and any wall, floor and/or ceiling imperfections.
4. Control and expansion joints in walls.
5. Joints at wall penetrations.
6. Joints between items of equipment and other construction.
7. All other joints required to be sealed to provide a positive barrier against penetration of air and moisture.

1.3 RELATED SECTIONS

A. Firestop sealants - Section 07 84 13.

B. Sealant within drywall construction - Section 09 29 00.

C. Sealant at tile work - Section 09 30 13.

1.4 QUALITY ASSURANCE

A. Qualification of Installers: Use only personnel who are thoroughly familiar, skilled and specially trained in the techniques of sealant work, and who are completely familiar with the published recommendations of the sealant manufacturer.

B. Pre-Construction Field Adhesion Testing: Before installing elastomeric sealants, field test their adhesion to project joint substrates according to the method in ASTM C 794 and C 1521 that is appropriate for the types of Project joints.

C. Perform testing per ASTM C 1248 on interior and exterior sealants to determine if sealants or primers will stain adjacent surfaces. No sealant work shall start until results of these tests have been submitted to the Architect and he has given his written approval to proceed with the work.

D. VOC Limits: Comply with Adhesives, Sealants, and Sealant Primers VOC Limits Tables, CI 2009 (usgbc.org).

1.5 SUBMITTALS

A. Shop Drawings: Submit shop drawings showing all joint conditions, indicating relation of adjacent materials, all sealant materials (sealant, bond breakers, backing, primers, etc.), and method of installation.

1. Submit joint sizing calculations certifying that movement capability of sealant is not being exceeded.

B. Samples: Submit the following:

1. Color samples of sealants, submit physical samples (not color chart).

2. Sealant bond breaker and joint backing.

C. Product Data: Submit manufacturer's technical information and installation instructions for:

1. Sealant materials, indicating that material meets standards specified herein.

2. Backing rods.

D. Submit manufacturer's certification as required by Article 1.6 herein.

E. Submit results of testing required in Article 1.4 herein.

1.6 MANUFACTURER'S RESPONSIBILITY AND CERTIFICATION

A. Contractor shall require sealant manufacturer to review the Project joint conditions and details for this Section of the work. Contractor shall submit to the Architect written certification from the sealant manufacturer that joints are of the proper size and design, that the materials supplied are compatible with adjacent materials and backing, that the materials will properly perform to provide permanent watertight, airtight or vaportight seals (as applicable), and that materials supplied meet specified performance requirements.

1.7 ENVIRONMENTAL CONDITIONS

A. Temperature: Install all work of this Section when air temperature is above forty (40) degrees F. and below eighty (80) degrees F., unless manufacturer submits written instructions permitting sealant use outside of this temperature range.

B. Moisture: Do not apply work of this Section on surfaces which are wet, damp, or have frost.

1.8 PRODUCT HANDLING

A. Protection: Use all means necessary to protect the materials of this Section, before, during and after installation and to protect the installed work and materials of all other trades.

B. Replacements: In the event of damage, immediately make all repairs and replacements necessary.

C. Storage

1. Store sealant materials and equipment under conditions recommended by their manufacturer.

2. Do not use materials stored for a period of time exceeding the maximum recommended shelf life of the material.

3. Material shall be stored in unopened containers with manufacturers' name, batch number and date when shelf life expires.

1.9 WARRANTY

A. Provide a written, notarized warranty from the manufacturer stating that the applied sealants shall show no material failure for a period of ten (10) years.

B. Contractor to provide a written, notarized warranty stating that the applied sealants shall show no failure due to improper installation for a period of five (5) years.

C. Warranty shall be in a form acceptable to the Owner and executed by an authorized individual.

D. Include in warranty provision agreement to repair and/or replace, at Contractor's expense, sealant defects that develop during warranty period as a result of faulty labor and/or materials.

PART 2 PRODUCTS

2.1 SEALANT MATERIALS

A. Exterior Wall Sealant: Provide one (1) part non-sag sealant equal to No. 790 or 795 made by Dow Corning, "Silpruf SCS 2000" or "LM SCS 2700" made by G.E., "Spectrem 1" or "Spectrem 3" made by Tremco or "Sonolastic 150" by Sonneborn conforming to the minimum standards of ASTM C 920, Type S, Grade NS, Class 50.

B. Interior Sealant: Provide a one (1) part acrylic based sealant conforming to ASTM C 834, equal to "AC-20+ Silicone" made by Pecora, Masterseal NP 520 by BASF or equal made by Tremco.

C. Colors: Colors selected from manufacturer's standard selection.

2.2 MISCELLANEOUS MATERIALS

A. Back-Up Materials: Provide back-up materials and preformed joint fillers, non-staining, non-absorbent, compatible with sealant and primer, and of a resilient nature, equal to "HBR" made by Nomaco Inc. or approved equal, twenty-five (25) percent wider than joint width. Materials impregnated with oil, bitumen or similar materials shall not be used. Provide back-up materials only as recommended by sealant manufacturer in writing.

B. Provide bond breakers, where required, of polyethylene tape as recommended by manufacturer of sealant.

C. Provide primers recommended by the sealant manufacturer for each material to receive sealant. Note that each exterior joint must be primed prior to sealing.

D. Provide solvent, cleaning agents and other accessory materials as recommended by the sealant manufacturer.

E. Materials shall be delivered to the job in sealed containers with manufacturer's original labels attached. Materials shall be used per manufacturer's printed instructions.

PART 3 EXECUTION

3.1 INSPECTION

A. Examine the areas and conditions where joint sealers are to be installed and correct any conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions are corrected to permit proper installation of the work.

3.2 INSTALLATION

A. Sealant Installation Standard: Comply with instructions and recommendations of the manufacturer and in accordance with ASTM C 1193 for use of joint sealants as applicable to materials, applications and conditions required by this Project where more stringent installation requirements are specified herein, such requirements shall apply.

B. Sample Section of Sealant

1. During sealant installation work in exterior wall, the manufacturer of sealant shall send his representative to the site, under whose supervision a section of the wall (used as "control section") shall be completed for purposes of determining performance characteristics of sealant in joints. Architect shall be informed of time and place of such installation of control section.

2. Control section shall be installed according to specification given herein and shall not be considered as acceptable until written acceptance is provided by the Architect.

3. Accepted control section shall be standard to which all other sealant work must conform.

C. Supervision: The Contractor shall submit to the Architect written certification from the sealant manufacturer that the applicators have been instructed in the proper application of their materials. The Contractor shall use only skilled and experienced workmen for installation of sealant.

D. Apply sealant under pressure with a hand or power actuated gun or other appropriate means. Gun shall have nozzle of proper size and provide sufficient pressure to completely fill joints as detailed. Neatly point or tool joint to provide the contour as indicated on the drawings.

E. Preparation and Application

1. Thoroughly clean all joints, removing all foreign matter such as dust, oil, grease, water, surface dirt and frost. Sealant must be applied to the base surface. Previously applied film must be entirely removed.

2. Stone, masonry and concrete surfaces to receive sealant shall be cleaned where necessary by grinding, water blast cleaning, mechanical abrading, or combination of these methods as required to provide a clean, sound base surface for sealant adhesion.

   a. Do not use any acid or other material which might stain surfaces.
   b. Remove laitance by grinding or mechanical abrading.
   c. Remove loose particles present or resulting from grinding, abrading, or blast cleaning by blowing out joints with compressed air, oil and water free, or vacuuming joints prior to application of primer or sealant.

3. Clean non-porous surfaces such as metal and glass chemically. Remove protective coatings on metallic surfaces by solvent that leaves no residue and is compatible with sealant. Use solvent and wipe dry with clean, dry lint free paper towels. Do not allow solvent to air dry without wiping. Clean joint areas protected with masking tape or strippable films as above after removal of tape film.

4. Do not seal joints until they are in compliance with drawings, or meet with the control section standard.

5. Joint Size and Sealant Size: Joints to receive sealant shall be at least 1/4" wide. In joint 1/4" to 3/8" wide, sealant shall be 1/4" deep. In joints wider than 3/8" and up to 1" wide, sealant depth shall be one half the joint width. For joints wider than 1", sealant depth shall be as recommended by the sealant manufacturer. Depth of joint is defined as distance from outside face of joint to closest point of the filler.

6. Primer: Thoroughly clean joints and apply primer to all surfaces that will receive sealant. Apply primer on clean, dry surfaces, and prior to installation of joint backing. Completely wet both inner faces of the joint with primer. Mask adjacent surfaces of joint with non-staining masking tape prior to priming. Apply primer with clean brush and only when temperature is above 45 deg. F.

7. Joint Backing: In joints where depth of joint exceeds required depth of sealant, install joint backing (after primer is dry) in joints to provide backing and proper joint shape for sealant. Proper shape for sealant is a very slight "hourglass" shape,

with back and front face having slight concave curvature. Use special blunt T-shaped tool or roller to install joint backing to the proper and uniform depth required for the sealant. Joint backing shall be installed with approximately twenty-five (25) percent compressions. Do not stretch, twist, braid, puncture, or tear joint backing. Butt joint backing at intersections.

8. Bond Breaker: Install bond breaker smoothly over joint backing so that sealant adheres only to the sides of the joint and not backing.

9. Sealant Application: Apply sealant in accordance with the manufacturer's application manual and manufacturer's instructions, using hand guns or pressure equipment, on clean, dry, properly prepared substrates, completely filling joints to eliminate air pockets and voids. Mask adjacent surfaces of joint with non-staining masking tape. Force sealant into joint in front of the tip of the "caulking gun" (not pulled after it) and force sealant against sides to make uniform contact with sides of joint and to prevent entrapped air or pulling of sealant off of sides. Fill sealant space solid with sealant.

10. Tooling: Tool exposed joints to form smooth and uniform beds, with slightly concave surface conforming to joint configuration per Figure 5A in ASTM C 1193. Finished joints shall be straight, uniform, smooth and neatly finished. Remove masking tape immediately after tooling of sealant and before sealant face starts to "skin" over. Neatly remove any excess sealant from adjacent surfaces of joint, leaving the work in a neat, clean condition.

11. Replace sealant which is damaged during construction process.

END OF SECTION

SECTION 08 11 14

STEEL FRAMES

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 SECTION INCLUDES

A. Work of this Section includes all labor, materials, equipment, and services necessary to complete the steel frame work as shown on the drawings and/or specified herein, including, but not limited to, the following:

1. Interior frames for unrated and rated door openings.

2. Preparation of metal frames to receive finish hardware, including reinforcements, drilling and tapping, as necessary.

3. Furnishing anchors for building into masonry and drywall.

4. Factory prime painting of work of this Section.

1.3 RELATED SECTIONS

A. Carpentry - Section 06 20 00, for installation of doors and frames.

B. Finish Hardware - Section 08 71 00.

C. Gypsum Drywall - Section 09 29 00.

D. Painting and Finishing - Section 09 90 00.

1.4 SUBMITTALS

A. Product Data: Include construction details, material descriptions, core descriptions, label compliance, compliance with standards referenced herein, sound and fire-resistance ratings, and finishes for each type of door and frame specified.

B. Shop Drawings: Show fabrication and installation of frames. Include details of each frame type, conditions at openings, details of construction, reinforcement for surface applied hardware, dimensions of profiles and hardware preparation, location and installation requirements of door and frame hardware and reinforcements, and details of joints and connections. Show anchorage and accessories.

C. Door Schedule: Submit schedule of frames using same reference numbers for details and openings as those on Drawings.

1. Coordinate glazing frames and stops with glass and glazing requirements.

1.5 QUALITY ASSURANCE

A. Manufacturer Qualifications: A firm experienced in manufacturing custom steel doors and frames similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

B. Testing Agency Qualifications: An independent agency qualified according to ASTM E 329 for testing indicated, as documented according to ASTM E 548.

C. Source Limitations: Obtain custom steel doors and frames through one source from a single manufacturer.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver frames palleted, wrapped, or crated to provide protection during transit and Project site storage. Do not use non-vented plastic.

B. Inspect frames, on delivery, for damage. Minor damage may be repaired provided refinished items match new work and are approved by Architect; otherwise, remove and replace damaged items as directed.

C. Store frames under cover at building site. Conform to the requirements of ANSI A 250-11-2001 for site storage unless more stringent requirements are noted herein. Place units on minimum 4-inch high wood blocking. Avoid using nonvented plastic or canvas shelters that could create a humidity chamber. If wrappers on doors become wet, remove cartons immediately. Provide minimum 1/4-inch spaces between stacked doors to permit air circulation.

PART 2 PRODUCTS

2.1 FABRICATION - GENERAL

A. Fabricate hollow metal units to be rigid, neat in appearance and free from defects, warp or buckle. Accurately form metal to required sizes and profiles. Weld exposed joints continuously, grind, dress, and make smooth, flush and invisible. Metallic filler to conceal manufacturing defects is not acceptable.

B. Unless otherwise indicated, provide countersunk flat Phillips or Jackson heads for exposed screws and bolts.

C. Prepare hollow metal units to receive finish hardware, including cutouts, reinforcing, drilling and tapping in accordance with Finish Hardware Schedule and templates provided by hardware suppliers. Comply with applicable requirements of ANSI A115 "Specifications for Door and Frame Preparation for Hardware."

D. Locate finish hardware as shown on final shop drawings in accordance with locations noted herein.

2.2 MANUFACTURERS

A. Provide products manufactured by Steelcraft, Curries, Ceco Door Products, or approved equal meeting these specifications.

2.3 FRAMES

A. Materials

1. Frames for interior openings shall be either commercial grade cold-rolled steel conforming to ASTM A 1008, Type B or commercial grade hot-rolled steel conforming to ASTM A 1011, Commercial Steel, Type B. Metal thickness shall be not less than sixteen (16) ga. for frames in openings 4'-0" or less in width; not less than fourteen (14) ga. for frames in openings over 4'-0" in width.

B. Design and Construction

1. All frames shall be welded units with integral trim, of the sizes and shapes shown on approved shop drawings. Knock-down frames are not permitted.

2. All finished work shall be strong and rigid, neat in appearance, square, true and free of defects, warp or buckle. Molded members shall be clean cut, straight and of uniform profile throughout their lengths.

3. Jamb depths, trim, profile and backbends shall be as shown on drawings.

   a. Frames at drywall partitions shall be formed with double return backbends to prevent cutting into drywall surface.

4. Welded frames shall have corners mitered and reinforced and faces of welded frames shall be continuously back welded full depth and width of frame conforming to NAAMM Standard HMMA-820; face joints shall be hairline.

5. Minimum depth of stops shall be 5/8".

6. Frames for multiple or special openings shall have mullion and/or rail members which are closed tubular shapes having no visible seams or joints. All joints between faces of abutting members shall be securely welded and finished smooth.

   a. Mullions shall have 16 ga. internal steel stiffeners welded not less than 4" o.c.

7. Hardware Reinforcements

   a. Frames shall be mortised, reinforced, drilled and tapped at the factory for fully-templated mortised hardware only, in accordance with approved hardware schedule and templates provided by the hardware supplier. Where surface-mounted hardware is to be applied, frames shall have reinforcing plates.
   b. Minimum thickness of hardware reinforcing plates shall be as follows:
      1). Hinge and pivot reinforcements - seven (7) ga., 1-1/4" x 10" minimum size.
      2). Strike reinforcements - twelve (12) gauge

3). Flush bolt reinforcements - twelve (12) gauge
4). Closer reinforcements - twelve (12) gauge
5). Reinforcements for surface mounted hardware - twelve (12) gauge.

8. Floor Anchors

   a. Provide adjustable floor anchors, providing not less than two (2) inch height adjustment.
   b. Minimum thickness of floor anchors shall be fourteen (14) gauge.

9. Jamb Anchors

   a. Frames for installation in masonry walls shall be provided with adjustable jamb anchors of the wire type. Anchors shall be not less than 0.156" diameter steel wire. Provide three (3) anchors on each jamb for frames up to 7'-6" height.
   b. Frames for installation in stud partitions shall be provided with steel anchors of suitable design, not less than eighteen (18) gauge thickness, securely welded inside each jamb. Provide four (4) anchors on each jamb for frames up to 7'-6" height.
   c. Frames to be anchored to previously placed concrete or masonry shall be provided with minimum 3/8" concealed bolts set into expansion shields or inserts at six (6) inches from top and bottom and twenty-four (24) inches o.c. Reinforce frames at anchor locations with sixteen (16) gauge sheet steel stiffeners welded to frame at each anchor.

10. Anchors in exterior frames and in masonry walls shall be hot dip galvanized per ASTM A 153.

11. Frames for installation in masonry wall openings more than 4'-0" in width shall have an angle or channel stiffener factory welded into the head. Such stiffeners shall be not less than twelve (12) gauge steel and not longer than the opening width and shall not be used as lintels or load bearing members.

12. Dust cover boxes (or mortar guards) of not thinner than twenty-six (26) gauge steel shall be provided at all hardware mortises on frames to be set in masonry or plaster partitions.

13. Ceiling Struts: Minimum 3/8" thick x 2" wide steel.

14. All frames shall be provided with a steel spreader temporarily attached to the feet of both jambs to serve as a brace during shipping and handling.

15. Except on weather stripped frames, drill stops to receive three (3) silencers on strike jambs of single door frames and two (2) silencers on heads of double-door frames.

C. Finish: After fabrication, all tool marks and surface imperfections shall be removed, and exposed faces of all welded joints shall be dressed smooth. Frames shall then be chemically treated to insure maximum paint adhesion and shall be coated on all

surfaces with one coat of rust-inhibitive baked-on alkyd primer standard with the manufacturer which is fully cured before shipment to a dry film thickness of 2.0 mils.

1. Frames set in masonry walls shall be grouted in as described in Section 04 20 00 "Unit Masonry." These frames shall have surfaces in contact with grout shop coated with epoxy coating equal to Series 27 FC Typoxy made by Tnemec or approved equal spray applied at 4 to 6 mils, passing NFPA 101, Class A for smoke and flame spread, tested per ASTM E 84.

2.4 HARDWARE LOCATIONS

A. The location of hardware on doors and frames shall be as noted in "Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames" of the Door Hardware Institute unless otherwise required by prevailing Handicapped Codes.

2.5 LABELED FRAMES

A. Labeled frames shall be provided for those openings requiring fire protection ratings as scheduled on drawings. Such frames shall be labeled by Underwriters' Laboratories or other nationally recognized agency having a factory inspection service.

B. If any frame specified by the Architect to be fire-rated cannot qualify for appropriate labeling because of its design, size, hardware or any other reason, the Architect shall be so advised before fabricating work on that item is started.

2.6 CLEARANCES

A. Fabricate frames to meet edge clearances as follows:

1. Jambs and Head: 1/8" plus or minus 1/16".

2. Meeting Edges, Pairs of Doors: 1/8" plus or minus 1/16".

3. Bottom: 3/8" at threshold; 3/4" if no threshold.

B. Fire rated doors shall have clearances as required by NFPA 80.

2.7 MANUFACTURING TOLERANCES

A. Manufacturing tolerance shall be maintained within the limits given in HMMA 841 of ANSI/NAAMM, current edition.

2.8 PREPARATION FOR FINISH HARDWARE

A. Prepare frames to receive hardware:

1. Hardware supplier shall furnish hollow metal manufacturer approved hardware schedule, hardware templates, and samples of physical hardware where necessary to insure correct fitting and installation.

2. Preparation includes sinkages and cut-outs for mortise and concealed hardware.

B. Provide reinforcements for both concealed and surface applied hardware:

1. Drill and tap mortise reinforcements at factory, using templates.

2. Install reinforcements with concealed connections designed to develop full strength of reinforcements.

2.9 REJECTION

A. Hollow metal frames which are defective, have hardware cutouts of improper size or location, or which prevent proper installation of doors, hardware or work of other trades, shall be removed and replaced with new at no cost.

PART 3 EXECUTION

3.1 INSPECTION

A. Examine the areas and conditions where steel frames are to be installed and correct any conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions are corrected to permit proper installation of the work.

3.2 INSTALLATION

A. Refer to Section 06 20 00 for installation procedures for all work of this Section.

END OF SECTION

SECTION 08 14 16

WOOD DOORS

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 SECTION INCLUDES

A. Work of this Section includes all labor, materials, equipment, and services necessary to complete the wood doors as shown on the drawings and/or specified herein, including, but not limited to, the following:

1. Solid core flush wood doors.

2. Fire-rated flush wood doors.

1.3 RELATED SECTIONS

A. Carpentry - Section 06 20 00, for installation of wood doors.

B. Steel Doors and Frames - Section 08 11 13, for hollow metal frames.

C. Finish Hardware - Section 08 71 00.

1.4 SUBMITTALS

A. Product Data: Submit door manufacturer's product data, specifications and installation instructions for each type of wood door.

1. Include details of core and edge construction and trim for openings.

2. Include factory finish specifications.

3. Include certifications to show compliance with specifications.

4. Include certification to show compliance with AWI and WDMA requirements specified herein.

B. Shop Drawings: Submit shop drawings indicating location and size of each door, elevation of each kind of door, details of construction, location and extent of hardware blocking, fire ratings, requirements for finishing and other pertinent data.

1. Include requirements for veneer matching.

C. Submit samples of factory finishes applied to actual door face materials, approximately 8 by 10 inches for each material and finish. For each wood species and transparent

finish, provide set of three samples showing typical range of color and grain to be expected in the finished work.

1.5 QUALITY ASSURANCE

A. Source Limitations: Obtain flush wood doors through one source from a single manufacturer.

B. Quality Standard: Comply with AWI's "Architectural Woodwork Quality Standards Illustrated"; latest edition "Premium" grade and WDMA "Extra Heavy Duty" Performance Level.

1. Only manufacturers that are certified and listed by AWI to be QCP qualified are acceptable for this project.

2. Provide letter of licensing for Project indicating that doors comply with requirements of grade specified.

C. Fire-Rated Wood Doors: Doors complying with Category A, Positive Pressure or Neutral Pressure testing standards per UBC 7-2-1997 and UL 10-C (UBC 7-2-1994 and UL 10B) that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire ratings indicated on Door Schedule, based on testing according to NFPA 252.

1. Conform to prevailing Code requirements to determine which pressure standard (Positive or Neutral) is required.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Comply with requirements of referenced standard and manufacturer's written instructions.

B. Package doors individually in plastic bags or cardboard cartons.

C. Mark each door on top and bottom rail with opening number used on Shop Drawings.

1.7 PROJECT CONDITIONS

A. Environmental Limitations: Do not deliver or install doors until building is enclosed, wet work is complete, and HVAC system is operating and will maintain temperature and relative humidity at occupancy levels during the remainder of the construction period.

1.8 WARRANTY

A. Special Warranty: Manufacturer's standard form, signed by manufacturer, Installer, and Contractor, in which manufacturer agrees to repair or replace doors that are defective in materials or workmanship, have warped (bow, cup, or twist) in excess of permitted standard noted in Article 2.2 herein, or show telegraphing of core construction in face veneers.

1. Warranty shall also include installation and finishing that may be required due to repair or replacement of defective doors.

2. Warranty shall be in effect for the life of the installation starting from date of Substantial Completion.

PART 2 PRODUCTS

2.1 SOLID CORE FLUSH WOOD DOORS

A. Provide AWI PC-5 Premium Grade hot pressed 5-ply solid core particleboard doors, 1-3/4" thick, conforming to standards specified herein. Subject to meeting standards specified herein, the following manufacturers are acceptable: VT Industries, Masonite, Mohawk or approved equal.

1. Core shall consist of a formed flat panel consisting of wood particles bonded together with synthetic resins or other added binder, with an average density of 30 to 32 lbs. per cubic foot. The material shall meet or exceed the requirements of ANSI A208.1, Grade 1-LD-2 covering mat formed particleboard with face screw holding of 124 lbs., modulus of rupture of minimum 700 psi and modulus of elasticity of not less than 148,000 psi.

2. Core shall be capable of satisfying this WDMA TM-7 cycle slam test for 1 million slams for surface mounted hardware. Where the manufacturer's core does not meet this criterion, stiles and rails must measure a minimum of 5-1/2" and must be fabricated of hardwood.

a. Surface-mounted hardware must be installed with minimum 1-1/4" screw penetrations using threaded to the head screws; coordinate with Section 087100.

B. Cross Bands: Shall be 1/16" thick hardwood extending full width of door and laid with grain at right angles to face veneers. Cross bands and faces shall be laminated to the core with Type I MF or PVA glue.

C. Stiles, Rails: Stile and rail shall be a minimum of 1-3/8" solid hardwood or structural composite lumber (after trimming) laminated to the core. Stiles and rails must be securely glued to the core with no voids allowed. Stiles and rails must be capable of screw holding of 550 lbs. per WDMA TM-10.

D. Vertical door edge must be capable of screw holding of 550 lbs. per WDMA TM-10; horizontal door edge must be capable of screw holding of 400 lbs. per WDMA TM-10.

E. Transparent Finish: Finish in the shop with clear satin catalyzed polyurethane finish conforming to AWI System "Catalyzed Polyurethane Transparent."

1. Doors with transparent finish to have Plain Sliced Red Oak veneer with stain Serengeti SE18 (or to match existing doors). Veneer to conform to AWI, "AA" grade veneer with 3" wide leaf. Minimum veneer thickness shall be not less than 1/50" after sanding.

2. Veneers shall be continuous or end matched at transoms.

F. Doors shall have hinge-loading capacity of 500 lbs. per WDMA TM-8.

G. Fire-Rated Wood Doors: Provide mineral core 1-3/4" thick solid core wood doors conforming to standards specified herein, manufactured by one of the manufacturers noted above. Stile construction on both stiles shall conform to the following:

1. Stile edge screw withdrawals when tested in accordance with ASTM D 1037-78 shall exceed 650 lbs. This applies to both stiles.

2. Stile edge split resistance when tested in accordance with ASTM D 143-52 (78) Modified must exceed 950 lbs. This applies to both stiles.

3. Door to have face finish as specified above.

   a. Where the core is free of urea formaldehyde, provide a layer of veneer over the substrate prior to application of finish veneer to prevent telegraphing of patterns from the adhesive.

4. Blocking: For surface mounted hardware only, provide composite blocking designed to maintain fire resistance of door but with improved screw-holding capability of same thickness as core and with minimum dimensions as follows:

   a. 5-inch top rail blocking.
   b. 5-inch bottom rail blocking.
   c. 1 – 5" x 18" lock block at cylinder or mortise locksets.
   d. 2 – 5" x 18" lock blocks at exit devices.

2.2 FABRICATION

A. Prefit and premachine wood doors at the factory.

B. Comply with the tolerance requirements specified herein. Machine doors for hardware requiring cutting of doors. Comply with final hardware scheduled and door frame shop drawings, and with hardware templates and other essential information required to ensure proper fit of doors and hardware.

C. Take accurate field measurements of hardware mortises in metal frames to verify dimensions and alignment before proceeding with machining in the factory.

D. Doors shall be factory sized to door opening so that trimming and fitting are not required in the field.

E. Factory fit doors to suit frame-opening sizes indicated, with the following uniform clearances unless otherwise indicated.

1. Three-degree bevel or bevel to suit frame sizes indicated, with 3/16" prefit in width, +0/-1/32" tolerances. Prefit top of door 1/8" + 1/16"/-0" and undercut as required by floor condition. Undercut shall not exceed 1/8" from bottom of door to top of finished floor; where threshold occurs undercut shall not exceed 1/8" from bottom of door to top of threshold.

2. Comply with requirements in NFPA 80 for fire-rated doors.

F. Factory machine doors for hardware that is not surface applied. Locate hardware to comply with DHI-WDHS-3 unless otherwise noted. Comply with final hardware

schedules, door frame Shop Drawings, DHI A115-W series standards, and hardware templates.

1. Coordinate measurements of hardware mortises in metal frames to verify dimensions and alignment before factory machining.

G. Openings: Cut and trim openings through doors to comply with applicable requirements of referenced standards for kinds of doors required.

H. Once doors are installed, maximum allowable warp, bow, cut or twist in doors shall be 1/16" as measured by the 1/16-inch feeler gauge and a straight-edge extending from corner to corner of the door face at stiles, top and bottom rails and along both diagonals.

PART 3 EXECUTION

3.1 INSTALLATION

A. Refer to Section 06 20 00 for installation procedures for all work of this Section.

END OF SECTION

SECTION 08 31 13

ACCESS DOORS

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 SECTION INCLUDES

A. Work of this Section includes all labor, materials, equipment, and services necessary to complete the access doors as indicated on the drawings and/or specified herein, including, but not limited to, the following:

1. Frameless recessed panel access doors at drywall ceilings and walls.

2. Framed flush panel access doors at masonry and tile walls.

3. Provide access doors and frames for access from occupied spaces to the following, where indicated or required, and as directed by the trades of Divisions 23 and 26.

    a. All shutoff or balancing valves.
    b. Fire dampers, as required.
    c. Points of duct access.
    d. Pull boxes.
    e. Controls of mechanical and electrical items.
    f. Masonry shafts for pipes and conduits, as required.
    g. Pipe spaces, if required.
    h. Inlets of fans.
    i. Fusible link and splitter damper at filter bank.
    j. Automatic damper and motor.
    k. Equipment not otherwise accessible.

1.3 RELATED SECTIONS

A. Unit Masonry - Section 04 20 00.

B. Gypsum Drywall - Section 09 29 00.

C. Ceramic Tiling - Section 09 30 13.

D. Valves and connections - Division 23.

1.4 QUALITY ASSURANCE

A. For actual installation of the work of this Section, use only personnel who are thoroughly familiar with the manufacturer's recommended methods of installation and who are completely trained in the skills required.

B. Fire-Resistance Ratings: Wherever a fire-resistance classification is shown, or for construction where access doors are installed, provide required access door assembly with panel door, frame, hinge and latch from manufacturers listed in Underwriters' Laboratories, Inc. "Classified Building Materials Index" for the rating shown.

1. Provide UL label on each access panel.

2. Provide flush, key operated cylinder lock.

C. Size Variations: Obtain Architect's acceptance of manufacturer's standard size units which may vary slightly from sizes shown or scheduled.

1.5 SUBMITTALS

A. Before any materials of this Section are delivered to the job site, submit complete manufacturer's literature to the Architect. Submit plans and schedules showing size and location of each and every access door for Architect's acceptance prior to installation.

1.6 PRODUCT HANDLING

A. Protection: Use all means necessary to protect the materials of this Section before, during and after installation and to protect the installed work and materials of all other trades.

B. Replacements: In the event of damage, immediately make all repairs and replacements necessary.

PART 2 PRODUCTS

2.1 MATERIALS AND FABRICATION

A. Provide access door assembly manufactured by Milcor Inc., Nystrom Inc., Karp Associates, Inc. or approved equal. Assembly shall be an integral unit complete with all parts and ready for installation.

B. Fabricate units of continuous welded steel construction. Grind welds smooth and flush with adjacent surfaces. Provide attachment devices and fasteners of the type required to secure access panels to the types of supports shown.

C. Frames for Masonry and Tile Wall Only (Flush Panel Units): Fabricate frame from sixteen (16) gauge steel. Provide frame with exposed flange not less than one (1) inch wide around perimeter of frame for exposed masonry and tile finishes.

1. For installation in masonry construction, provide frames with adjustable metal masonry anchors.

D. Frameless Units for Drywall Surfaces (Recessed Panel Units): Provide access doors without exposed frames for drywall adhered to recessed panel.

E. Panels: Fabricate from fourteen (14) gauge steel, with concealed spring hinges set to open to 175 degrees. Provide removable pin type hinges of the quantity required to support the access panel sizes used in the work. Finish with manufacturer's factory applied baked enamel prime coat applied over phosphate protective coating on steel.

F. Locking Devices

1. For non-rated access doors, provide flush, screwdriver operated cam locks of number required to hold door in flush, smooth plane when closed.

2. For fire rated doors, provide locks as described in paragraph 1.4, B. herein.

G. Inserts and Anchorage: Furnish inserts and anchoring devices which must be built into masonry for the installation of access panels. Provide setting drawings, templates, instructions, and directions for installation of anchorage devices. Coordinate delivery with other work to avoid delay.

PART 3 EXECUTION

3.1 INSPECTION

A. Examine the areas and conditions where access doors are to be installed and correct any conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions are corrected to permit proper installation of the work.

3.2 COORDINATION

A. Coordinate all work with the mechanical trades to insure proper locations and in a timely manner to permit orderly progress of the total work.

B. Set frames accurately in position and securely attach to supports with face panels plumb or level in relation to adjacent finish surfaces.

C. Adjust hardware and panels after installation for proper operation.

D. Remove and replace panels or frames which are warped, bowed, or otherwise damaged.

END OF SECTION

SECTION 087100 – DOOR HARDWARE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes commercial door hardware for the following:

1. Swinging doors.
2. Other doors to the extent indicated.

B. Door hardware includes, but is not necessarily limited to, the following:

1. Mechanical door hardware.
2. Cylinders specified for doors in other sections.

C. Related Sections:

1. Division 08 Section “Hollow Metal Doors and Frames”.
2. Division 08 Section “Flush Wood Doors”.

D. Codes and References: Comply with the version year adopted by the Authority Having Jurisdiction.

1. ANSI A117.1 - Accessible and Usable Buildings and Facilities.
2. ICC/IBC - International Building Code.
3. NFPA 70 - National Electrical Code.
4. NFPA 80 - Fire Doors and Windows.
5. NFPA 101 - Life Safety Code.
6. NFPA 105 - Installation of Smoke Door Assemblies.
7. State Building Codes, Local Amendments.

E. Standards: All hardware specified herein shall comply with the following industry standards:

1. ANSI/BHMA Certified Product Standards - A156 Series
2. UL10C – Positive Pressure Fire Tests of Door Assemblies

1.3 SUBMITTALS

A. Product Data: Manufacturer's product data sheets including installation details, material descriptions, dimensions of individual components and profiles, operational descriptions and finishes.

B. Door Hardware Schedule: Prepared by or under the supervision of supplier, detailing fabrication and assembly of door hardware, as well as procedures and diagrams. Coordinate the final Door Hardware Schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of door hardware.

1. Format: Comply with scheduling sequence and vertical format in DHI's "Sequence and Format for the Hardware Schedule."

2. Organization: Organize the Door Hardware Schedule into door hardware sets indicating complete designations of every item required for each door or opening. Organize door hardware sets in same order as in the Door Hardware Sets at the end of Part 3. Submittals that do not follow the same format and order as the Door Hardware Sets will be rejected and subject to resubmission.

3. Content: Include the following information:

   a. Type, style, function, size, label, hand, and finish of each door hardware item.
   b. Manufacturer of each item.
   c. Fastenings and other pertinent information.
   d. Location of door hardware set, cross-referenced to Drawings, both on floor plans and in door and frame schedule.
   e. Explanation of abbreviations, symbols, and codes contained in schedule.
   f. Mounting locations for door hardware.
   g. Door and frame sizes and materials.
   h. Warranty information for each product.

4. Submittal Sequence: Submit the final Door Hardware Schedule at earliest possible date, particularly where approval of the Door Hardware Schedule must precede fabrication of other work that is critical in the Project construction schedule. Include Product Data, Samples, Shop Drawings of other work affected by door hardware, and other information essential to the coordinated review of the Door Hardware Schedule.

C. Shop Drawings: Details of electrified access control hardware indicating the following:

1. Wiring Diagrams: Upon receipt of approved schedules, submit detailed system wiring diagrams for power, signaling, monitoring, communication, and control of the access control system electrified hardware. Differentiate between manufacturer-installed and field-installed wiring. Include the following:

   a. Elevation diagram of each unique access controlled opening showing location and interconnection of major system components with respect to their placement in the respective door openings.

b. Complete (risers, point-to-point) access control system block wiring diagrams.
c. Wiring instructions for each electronic component scheduled herein.

2. Electrical Coordination: Coordinate with related sections the voltages and wiring details required at electrically controlled and operated hardware openings.

D. Keying Schedule: After a keying meeting with the owner has taken place prepare a separate keying schedule detailing final instructions. Submit the keying schedule in electronic format. Include keying system explanation, door numbers, key set symbols, hardware set numbers and special instructions. Owner must approve submitted keying schedule prior to the ordering of permanent cylinders/cores.

E. Informational Submittals:

1. Product Test Reports: Indicating compliance with cycle testing requirements, based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified independent testing agency.

F. Operating and Maintenance Manuals: Provide manufacturers operating and maintenance manuals for each item comprising the complete door hardware installation in quantity as required in Division 01, Closeout Submittals.

1.4 QUALITY ASSURANCE

A. Manufacturers Qualifications: Engage qualified manufacturers with a minimum 5 years of documented experience in producing hardware and equipment similar to that indicated for this Project and that have a proven record of successful in-service performance.

B. Installer Qualifications: A minimum 3 years documented experience installing both standard and electrified door hardware similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.

C. Door Hardware Supplier Qualifications: Experienced commercial door hardware distributors with a minimum 5 years documented experience supplying both mechanical and electromechanical hardware installations comparable in material, design, and extent to that indicated for this Project. Supplier recognized as a factory direct distributor by the manufacturers of the primary materials with a warehousing facility in Project's vicinity. Supplier to have on staff a certified Architectural Hardware Consultant (AHC) available during the course of the Work to consult with Contractor, Architect, and Owner concerning both standard and electromechanical door hardware and keying.

D. Source Limitations: Obtain each type and variety of door hardware specified in this section from a single source unless otherwise indicated.

1. Electrified modifications or enhancements made to a source manufacturer's product line by a secondary or third party source will not be accepted.

E. Each unit to bear third party permanent label demonstrating compliance with the referenced standards.

F. Keying Conference: Conduct conference to comply with requirements in Division 01 Section "Project Meetings." Keying conference to incorporate the following criteria into the final keying schedule document:

1. Function of building, purpose of each area and degree of security required.
2. Plans for existing and future key system expansion.
3. Requirements for key control storage and software.
4. Installation of permanent keys, cylinder cores and software.
5. Address and requirements for delivery of keys.

G. Pre-Submittal Conference: Conduct coordination conference in compliance with requirements in Division 01 Section "Project Meetings" with attendance by representatives of Supplier(s), Installer(s), and Contractor(s) to review proper methods and the procedures for receiving, handling, and installing door hardware.

1. Prior to installation of door hardware, conduct a project specific training meeting to instruct the installing contractors' personnel on the proper installation and adjustment of their respective products. Product training to be attended by installers of door hardware (including electromechanical hardware) for aluminum, hollow metal and wood doors. Training will include the use of installation manuals, hardware schedules, templates and physical product samples as required.
2. Inspect and discuss electrical roughing-in, power supply connections, and other preparatory work performed by other trades.
3. Review sequence of operation narratives for each unique access controlled opening.
4. Review and finalize construction schedule and verify availability of materials.
5. Review the required inspecting, testing, commissioning, and demonstration procedures

H. At completion of installation, provide written documentation that components were applied to manufacturer's instructions and recommendations and according to approved schedule.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Inventory door hardware on receipt and provide secure lock-up and shelving for door hardware delivered to Project site. Do not store electronic access control hardware, software or accessories at Project site without prior authorization.

B. Tag each item or package separately with identification related to the final Door Hardware Schedule, and include basic installation instructions with each item or package.

C. Deliver, as applicable, permanent keys, cylinders, cores, access control credentials, software and related accessories directly to Owner via registered mail or overnight package service. Instructions for delivery to the Owner shall be established at the "Keying Conference".

1.6 COORDINATION

A. Templates: Obtain and distribute to the parties involved templates for doors, frames, and other work specified to be factory prepared for installing standard and electrified hardware. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing hardware to comply with indicated requirements.

B. Door Hardware and Electrical Connections: Coordinate the layout and installation of scheduled electrified door hardware and related access control equipment with required connections to source power junction boxes, low voltage power supplies, detection and monitoring hardware, and fire and detection alarm systems.

C. Door and Frame Preparation: Doors and corresponding frames are to be prepared, reinforced and pre-wired (if applicable) to receive the installation of the specified electrified, monitoring, signaling and access control system hardware without additional in-field modifications.

1.7 WARRANTY

A. General Warranty: Reference Division 01, General Requirements. Special warranties specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.

B. Warranty Period: Written warranty, executed by manufacturer(s), agreeing to repair or replace components of standard and electrified door hardware that fails in materials or workmanship within specified warranty period after final acceptance by the Owner. Failures include, but are not limited to, the following:

1. Structural failures including excessive deflection, cracking, or breakage.
2. Faulty operation of the hardware.
3. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
4. Electrical component defects and failures within the systems operation.

C. Standard Warranty Period: One year from date of Substantial Completion, unless otherwise indicated.

D. Special Warranty Periods:
1. Seven years for heavy duty cylindrical (bored) locks and latches.
2. Five years for exit hardware.
3. Twenty five years for manual surface door closer bodies.

1.8 MAINTENANCE SERVICE

A. Maintenance Tools and Instructions: Furnish a complete set of specialized tools and maintenance instructions as needed for Owner's continued adjustment, maintenance, and removal and replacement of door hardware.

PART 2 - PRODUCTS

2.1 SCHEDULED DOOR HARDWARE

A. General: Provide door hardware for each door to comply with requirements in Door Hardware Sets and each referenced section that products are to be supplied under.

B. Designations: Requirements for quantity, item, size, finish or color, grade, function, and other distinctive qualities of each type of door hardware are indicated in the Door Hardware Sets at the end of Part 3. Products are identified by using door hardware designations, as follows:

1. Named Manufacturer's Products: Product designation and manufacturer are listed for each door hardware type required for the purpose of establishing requirements. Manufacturers' names are abbreviated in the Door Hardware Schedule.

C. Substitutions: Requests for substitution and product approval for inclusive mechanical and electromechanical door hardware in compliance with the specifications must be submitted in writing and in accordance with the procedures and time frames outlined in Division 01, Substitution Procedures. Approval of requests is at the discretion of the architect, owner, and their designated consultants.

2.2 HANGING DEVICES

A. Hinges: ANSI/BHMA A156.1 certified butt hinges with number of hinge knuckles and other options as specified in the Door Hardware Sets.

1. Quantity: Provide the following hinge quantity:

a. Two Hinges: For doors with heights up to 60 inches.
b. Three Hinges: For doors with heights 61 to 90 inches.
c. Four Hinges: For doors with heights 91 to 120 inches.
d. For doors with heights more than 120 inches, provide 4 hinges, plus 1 hinge for every 30 inches of door height greater than 120 inches.

2. Hinge Size: Provide the following, unless otherwise indicated, with hinge widths sized for door thickness and clearances required:

a. Widths up to 3’0”: 4-1/2” standard or heavy weight as specified.
b. Sizes from 3’1” to 4’0”: 5” heavy weight.

3. Hinge Weight and Base Material: Unless otherwise indicated, provide the following:

   a. Exterior Doors: Heavy weight, non-ferrous, ball bearing or oil impregnated bearing hinges.
   b. Interior Doors: Heavy weight, ball bearing or oil impregnated bearing hinges.

4. Hinge Options: Comply with the following:

   a. Non-removable Pins: Provide set screw in hinge barrel that, when tightened into a groove in hinge pin, prevents removal of pin while door is closed; for the all out-swinging lockable doors.

5. Cam Lift Hinges: Where specified provide hinges that move the door up and then lower it to create a tight seal when the door is closed.

6. Manufacturers:

   a. McKinney Products; ASSA ABLOY Architectural Door Accessories (MK) - TA Series.

B. Continuous Geared Hinges: ANSI/BHMA A156.26 Grade 1-600 certified continuous geared hinge. with minimum 0.120-inch thick extruded 6060 T6 aluminum alloy hinge leaves and a minimum overall width of 4 inches. Hinges are non-handed, reversible and fabricated to template screw locations. Factory trim hinges to suit door height and prepare for electrical cut-outs. Coordinate with aluminum door manufacturer for special templating requirements.

1. Manufacturers:

   a. Pemko Products; ASSA ABLOY Architectural Door Accessories (PE).

2.3 CYLINDERS AND KEYING

A. General: Cylinder manufacturer to have minimum (10) years experience designing secured master key systems and have on record a published security keying system policy.

B. Source Limitations: Obtain each type of keyed cylinder and keys from the same source manufacturer as locksets and exit devices, unless otherwise indicated.

1. Manufacturers:

   a. Sargent Manufacturing (SA).
   b. No Substitution.

C. Cylinders: Original manufacturer cylinders complying with the following:

1. Mortise Type: Threaded cylinders with rings and cams to suit hardware application.
2. Rim Type: Cylinders with back plate, flat-type vertical or horizontal tailpiece, and raised trim ring.
3. Bored-Lock Type: Cylinders with tailpieces to suit locks.
4. Mortise and rim cylinder collars to be solid and recessed to allow the cylinder face to be flush and be free spinning with matching finishes.
5. Keyway: Match Facility Standard.

D. Permanent Cores: Manufacturer's standard; finish face to match lockset; complying with the following:
   1. Removable Cores: Core insert, removable by use of a special key, and for use with only the core manufacturer's cylinder and door hardware. Provide removable core (small or large format) as specified in Hardware Sets.

E. Keying System: Each type of lock and cylinders to be factory keyed.

   1. Conduct specified "Keying Conference" to define and document keying system instructions and requirements.
   2. Furnish factory cut, nickel-silver large bow permanently inscribed with a visual key control number as directed by Owner.
   3. Existing System: Key locks to Owner's existing system.

F. Key Quantity: Provide the following minimum number of keys:

   1. Change Keys per Cylinder: Two (2)
   2. Master Keys (per Master Key Level/Group): Five (5).
   3. Construction Keys (where required): Ten (10).
   4. Construction Control Keys (where required): Two (2).
   5. Permanent Control Keys (where required): Two (2).

G. Construction Keying: Provide construction master keyed cylinders.

H. Construction Keying: Provide temporary keyed construction cores.

I. Key Registration List (Bitting List):

   1. Provide keying transcript list to Owner's representative in the proper format for importing into key control software.
   2. Provide transcript list in writing or electronic file as directed by the Owner.

J. Key Control Cabinet: Provide a key control system including envelopes, labels, and tags with self-locking key clips, receipt forms, 3-way visible card index, temporary markers, permanent markers, and standard metal cabinet. Key control cabinet shall have expansion capacity of 150% of the number of locks required for the project.

   1. Manufacturers:

      a. Lund Equipment (LU).
      b. MMF Industries (MM).

c. Telkee (TK).

K. Key Control Software: Provide one network version of "Key Wizard" branded key management software package that includes one year of technical support and upgrades to software at no charge. Provide factory key system formatted for importing into “Key Wizard” software.

2.4 MECHANICAL LOCKS AND LATCHING DEVICES

A. Mortise Locksets, Grade 1 (Heavy Duty): ANSI/BHMA A156.13, Series 1000, Operational Grade 1 certified. Locksets are to be manufactured with a corrosion resistant steel case and be field-reversible for handing without disassembly of the lock body.
1. Manufacturers:

a. Corbin Russwin Hardware (RU) – ML2000 Series.
b. Sargent Manufacturing (SA) – 8200 Series.

2.5 LOCK AND LATCH STRIKES

A. Strikes: Provide manufacturer's standard strike with strike box for each latch or lock bolt, with curved lip extended to protect frame, finished to match door hardware set, unless otherwise indicated, and as follows:

1. Flat-Lip Strikes: For locks with three-piece antifriction latchbolts, as recommended by manufacturer.
2. Extra-Long-Lip Strikes: For locks used on frames with applied wood casing trim.
3. Aluminum-Frame Strike Box: Provide manufacturer's special strike box fabricated for aluminum framing.
4. Double-lipped strikes: For locks at double acting doors. Furnish with retractable stop for rescue hardware applications.

B. Standards: Comply with the following:

1. Strikes for Mortise Locks and Latches: BHMA A156.13.
2. Strikes for Bored Locks and Latches: BHMA A156.2.
3. Strikes for Auxiliary Deadlocks: BHMA A156.36.
4. Dustproof Strikes: BHMA A156.16.

2.6 DOOR CLOSERS

A. All door closers specified herein shall meet or exceed the following criteria:

1. General: Door closers to be from one manufacturer, matching in design and style, with the same type door preparations and templates regardless of application or spring size. Closers to be non-handed with full sized covers including installation and adjusting information on inside of cover.

2. Standards: Closers to comply with UL-10C for Positive Pressure Fire Test and be U.L. listed for use of fire rated doors.

3. Cycle Testing: Provide closers which have surpassed 15 million cycles in a test witnessed and verified by UL.

4. Size of Units: Comply with manufacturer's written recommendations for sizing of door closers depending on size of door, exposure to weather, and anticipated frequency of use. Where closers are indicated for doors required to be accessible to the physically handicapped, provide units complying with ANSI ICC/A117.1.

5. Closer Arms: Provide heavy duty, forged steel closer arms unless otherwise indicated in Hardware Sets.

6. Closers shall not be installed on exterior or corridor side of doors; where possible install closers on door for optimum aesthetics.

7. Closer Accessories: Provide door closer accessories including custom templates, special mounting brackets, spacers and drop plates as required for proper installation. Provide through-bolt and security type fasteners as specified in the hardware sets.

B. Door Closers, Surface Mounted (Heavy Duty): ANSI/BHMA A156.4, Grade 1 surface mounted, heavy duty door closers with complete spring power adjustment, sizes 1 thru 6; and fully operational adjustable according to door size, frequency of use, and opening force. Closers to be rack and pinion type, one piece cast iron or aluminum alloy body construction, with adjustable backcheck and separate non-critical valves for closing sweep and latch speed control. Provide non-handed units standard.

1. Manufacturers:

a. Sargent Manufacturing (SA) - 351 Series.
b. Norton Door Controls (NO) - 7500 Series.

2.7 ARCHITECTURAL TRIM

A. Door Protective Trim

1. General: Door protective trim units to be of type and design as specified below or in the Hardware Sets.

2. Size: Fabricate protection plates (kick, armor, or mop) not more than 2" less than door width (LDW) on stop side of single doors and 1” LDW on stop side of pairs of doors, and not more than 1" less than door width on pull side. Coordinate and provide proper width and height as required where conflicting hardware dictates. Height to be as specified in the Hardware Sets.

3. Where plates are applied to fire rated doors with the top of the plate more than 16” above the bottom of the door, provide plates complying with NFPA 80.

Consult manufacturer's catalog and template book for specific requirements for size and applications.

4. Protection Plates: ANSI/BHMA A156.6 certified protection plates (kick, armor, or mop), fabricated from the following:

   a. Stainless Steel: 300 grade, 050-inch thick.

5. Options and fasteners: Provide manufacturer's designated fastener type as specified in the Hardware Sets. Provide countersunk screw holes.

6. Manufacturers:

   a. Rockwood Products; ASSA ABLOY Architectural Door Accessories (RO).

2.8 DOOR STOPS AND HOLDERS

A. General: Door stops and holders to be of type and design as specified below or in the Hardware Sets.

B. Door Stops and Bumpers: ANSI/BHMA A156.16, Grade 1 certified door stops and wall bumpers. Provide wall bumpers, either convex or concave types with anchorage as indicated, unless floor or other types of door stops are specified in Hardware Sets. Do not mount floor stops where they will impede traffic. Where floor or wall bumpers are not appropriate, provide overhead type stops and holders.

1. Manufacturers:

   a. Rockwood Products; ASSA ABLOY Architectural Door Accessories (RO).

C. Overhead Door Stops and Holders: ANSI/BHMA A156.6, Grade 1 certified overhead stops and holders to be surface or concealed types as indicated in Hardware Sets. Track, slide, arm and jamb bracket to be constructed of extruded bronze and shock absorber spring of heavy tempered steel. Provide non-handed design with mounting brackets as required for proper operation and function. Coordinate with aluminum door manufacturer. Where a conflict exists, provide Rixson 6 Series.

1. Manufacturers:

   a. Rixson Door Controls (RF).
   b. Rockwood Products; ASSA ABLOY Architectural Door Accessories (RO).
   c. Sargent Manufacturing (SA).

2.9 ARCHITECTURAL SEALS

A. General: Thresholds, weatherstripping, and gasket seals to be of type and design as specified below or in the Hardware Sets. Provide continuous weatherstrip gasketing on exterior doors and provide smoke, light, or sound gasketing on interior doors where

indicated. At exterior applications provide non-corrosive fasteners and elsewhere where indicated.

B. Smoke Labeled Gasketing: Assemblies complying with NFPA 105 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for smoke control ratings indicated, based on testing according to UL 1784.

1. Provide smoke labeled perimeter gasketing at all smoke labeled openings.

C. Fire Labeled Gasketing: Assemblies complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire ratings indicated, based on testing according to UL-10C.

1. Provide intumescent seals as indicated to meet UL10C Standard for Positive Pressure Fire Tests of Door Assemblies, and NPFA 252, Standard Methods of Fire Tests of Door Assemblies.

D. Sound-Rated Gasketing: Assemblies that are listed and labeled by a testing and inspecting agency, for sound ratings indicated.

E. Replaceable Seal Strips: Provide only those units where resilient or flexible seal strips are easily replaceable and readily available from stocks maintained by manufacturer.

F. Manufacturers:

1. Pemko Products; ASSA ABLOY Architectural Door Accessories (PE).

2.10 FABRICATION

A. Fasteners: Provide door hardware manufactured to comply with published templates generally prepared for machine, wood, and sheet metal screws. Provide screws according to manufacturers recognized installation standards for application intended.

2.11 FINISHES

A. Standard: Designations used in the Hardware Sets and elsewhere indicate hardware finishes complying with ANSI/BHMA A156.18, including coordination with traditional U.S. finishes indicated by certain manufacturers for their products.

B. Provide quality of finish, including thickness of plating or coating (if any), composition, hardness, and other qualities complying with manufacturer's standards, but in no case less than specified by referenced standards for the applicable units of hardware

C. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine scheduled openings, with Installer present, for compliance with requirements for installation tolerances, labeled fire door assembly construction, wall and floor construction, and other conditions affecting performance.

B. Notify architect of any discrepancies or conflicts between the door schedule, door types, drawings and scheduled hardware. Proceed only after such discrepancies or conflicts have been resolved in writing.

3.2 PREPARATION

A. Hollow Metal Doors and Frames: Comply with ANSI/DHI A115 series.

B. Wood Doors: Comply with ANSI/DHI A115-W series.

3.3 INSTALLATION

A. Install each item of mechanical and electromechanical hardware and access control equipment to comply with manufacturer's written instructions and according to specifications.

1. Installers are to be trained and certified by the manufacturer on the proper installation and adjustment of fire, life safety, and security products including: hanging devices; locking devices; closing devices; and seals.

B. Mounting Heights: Mount door hardware units at heights indicated in following applicable publications, unless specifically indicated or required to comply with governing regulations:

1. Standard Steel Doors and Frames: DHI's "Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames."
2. Wood Doors: DHI WDHS.3, "Recommended Locations for Architectural Hardware for Wood Flush Doors."
3. Where indicated to comply with accessibility requirements, comply with ANSI A117.1 "Accessibility Guidelines for Buildings and Facilities."
4. Provide blocking in drywall partitions where wall stops or other wall mounted hardware is located.

C. Retrofitting: Install door hardware to comply with manufacturer's published templates and written instructions. Where cutting and fitting are required to install door hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation of surface protective trim units with finishing work specified in Division 9 Sections. Do not install surface-mounted items until finishes have been completed on substrates involved.

Commented [SA1]:

D. Thresholds: Set thresholds for exterior and acoustical doors in full bed of sealant complying with requirements specified in Division 7 Section "Joint Sealants."

E. Storage: Provide a secure lock up for hardware delivered to the project but not yet installed. Control the handling and installation of hardware items so that the completion of the work will not be delayed by hardware losses before and after installation.

3.4 FIELD QUALITY CONTROL

A. Field Inspection: Supplier will perform a final inspection of installed door hardware and state in report whether work complies with or deviates from requirements, including whether door hardware is properly installed, operating and adjusted.

3.5 ADJUSTING

A. Initial Adjustment: Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.

3.6 CLEANING AND PROTECTION

A. Protect all hardware stored on construction site in a covered and dry place. Protect exposed hardware installed on doors during the construction phase. Install any and all hardware at the latest possible time frame.

B. Clean adjacent surfaces soiled by door hardware installation.

C. Clean operating items as necessary to restore proper finish. Provide final protection and maintain conditions that ensure door hardware is without damage or deterioration at time of owner occupancy.

3.7 DEMONSTRATION

A. Instruct Owner's maintenance personnel to adjust, operate, and maintain mechanical and electromechanical door hardware.

3.8 DOOR HARDWARE SETS

A. The hardware sets represent the design intent and direction of the owner and architect. They are a guideline only and should not be considered a detailed hardware schedule. Discrepancies, conflicting hardware and missing items should be brought to the attention of the architect with corrections made prior to the bidding process. Omitted

items not included in a hardware set should be scheduled with the appropriate additional hardware required for proper application and functionality.

B. The supplier is responsible for handing and sizing all products and providing the correct option for the appropriate door type and material where more than one is presented in the hardware sets. Quantities listed are for each pair of doors, or for each single door.

C. Manufacturer's Abbreviations:
1. MK - McKinney
2. PE - Pemko
3. RO - Rockwood
4. SA - SARGENT

Hardware Sets

Set: 1.0
Description: Toilet - Sgl-User

3	Hinge (heavy weight)	T4A3386 (qty, size, nrp per spec)	US32D	MK
1	Privacy Lock w/ Indicator	V20 8265 LNL	US26D	SA
1	Door Closer	351 O or P10	EN	SA
1	Kick Plate	K1050 10" 4BE CSK	US32D	RO
1	Mop Plate	K1050 4" 4BE CSK	US32D	RO
1	Door Stop	404 wall; 441CU floor; or per spec	US26D	RO
1	Head & Jamb Seal (adhesive)	S44BL		PE
1	Coat Hook	RM823	US32D	RO

END OF SECTION 087100

SECTION 09 29 00

GYPSUM DRYWALL

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 SECTION INCLUDES

A. Work of this Section includes all labor, materials, equipment, and services necessary to complete the gypsum drywall as shown on the drawings and/or specified herein, including, but not limited to, the following:

1. Gypsum board work for partitions, ceilings, column enclosures, furring, and elsewhere where gypsum drywall work is shown on drawings.
2. Metal supports for gypsum drywall construction.
3. Acoustical insulation for gypsum drywall work.
4. Sealant for gypsum drywall work.
5. Concealed metal reinforcing for attachment of railings, toilet partitions and other items supported on drywall partitions and walls.
6. Taping and finishing of drywall joints.
7. Installing rings and frames in drywall surfaces for grilles, registers and lighting fixtures.
8. Gypsum shaft wall construction.
9. Bracing and connections.

1.3 RELATED SECTIONS

A. Steel Frames - Section 08 11 14.

B. Access Doors - Section 08 31 13.

C. Painting and Finishing - Section 09 90 00.

D. Rings for grilles, registers and light fixtures - Division 23 and 26.

1.4 QUALITY ASSURANCE

A. The following standards, as well as other standards which may be referred to in this Section, shall apply to the work of this Section:

1. The Gypsum Construction Handbook, latest edition, USG.

2. Construction Guide, latest edition, National Gypsum.

3. ASTM A 568 "Standard Specification for Steel, Sheet, Carbon, and High-Strength, Low-Alloy, Hot-Rolled and Cold-Rolled, General Requirements For"

4. ASTM C 475 "Standard Specification for Joint Treatment Materials for Gypsum Wallboard Construction"

5. ASTM C 645 "Standard Specification for Non-Structural Steel Framing Members"

6. ASTM C 754 "Standard Specification for Installation of Steel Framing Members to Receive Screw Attached Gypsum Panel Products"

7. ASTM C 840 "Standard Specification for Application and Finishing of Gypsum Board"

8. ASTM C 919 "Standard Specification for Use of Sealants in Acoustical Applications"

9. ASTM C 954 "Standard Specification for Steel Drill Screws for the Application of Gypsum Board or Metal Plaster Bases to Steel Studs From 0.033 in. to 0.112 in. in Thickness"

10. ASTM C 1002 "Standard Specification for Steel Self-Piercing Tapping Screws for the Application of Gypsum Board"

11. ASTM C 1177 "Standard Specification for Glass Mat Gypsum Substrate for Use as Sheathing"

12. ASTM C 1178 "Standard Specification for Glass Mat Water Resistant Gypsum Backing Board"

13. ASTM C 1278 "Standard Specification for Fiber-Reinforced Gypsum Panel"

14. ASTM C 1396 "Standard Specification for Gypsum Board"

15. ASTM D 3273 "Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber"

B. Allowable Tolerances: 1/32" offsets between planes of board faces, and 1/16" in 8'-0" for plumb, level, warp and bow.

C. System Design Load

1. Provide standard drywall wall assemblies designed and tested by manufacturer to withstand a lateral load of 5 lbs. per sq. ft. for the maximum wall height required, and with deflection limited to L/240 of partition height.

a. Drywall assemblies with tile finish shall have a deflection limit of L/360.

2. Provide drywall ceiling assemblies designed, fabricated and installed to have a deflection not to exceed L/360.

D. Fire-Resistance Rating: Where gypsum drywall with fire resistance ratings are indicated, provide materials and installations which are identical with those of applicable assemblies tested per ASTM E 119 by fire testing laboratories, or to design designations in UL "Fire Resistance Directory" or in listing of other testing agencies acceptable to authorities having jurisdiction, and compliant with UL Test #2079; criteria for cycle movement for all field height wall sections requiring allowance for vertical deflection within framing details.

E. Installer: Firm with not less than 5 years of successful experience in the installation of specified materials.

1.5 SUBMITTALS

A. Submit shop drawing for each drywall partition, furring and ceiling system showing size and gauges of framing members, hanger and anchorage devices, wallboard types, insulation, sealant, methods of assembly and fastening, control joints indicating column lines, corner details, joint finishing and relationship of drywall work to adjacent work.

B. Samples: Each material specified herein, 12" x 12", or 12" long, or in manufacturer's container, as applicable for type of material submitted.

C. Manufacturer's Literature: Submit technical and installation instructions for each drywall partition, furring and ceiling system specified herein, and for each fire-rated and sound-rated gypsum board assembly. Submit other data as required to show compliance with these specifications, including data for mold resistant joint compound.

D. Test Reports: This Contractor shall submit test report, obtained by drywall manufacturer, indicating conformance of drywall assemblies to required fire ratings and sound ratings.

1.6 PRODUCT HANDLING AND PROTECTION

A. Deliver, store and handle drywall work materials to prevent damage. Deliver materials in their original, unopened containers or bundles, and store where protected from moisture, damage and from exposure to the elements. Store wallboard in flat stacks.

B. Protect wallboard from becoming wet.

C. Protect metal framing from corrosion, deformation, and other damage during delivery, storage, and handling as required by AISI's "Code of Standard Practice."

1.7 ENVIRONMENTAL CONDITIONS

A. Provide and maintain minimum temperature of fifty-five (55) degrees F. and adequate ventilation to eliminate excessive moisture within the building in the area of the drywall work for at least twenty-four (24) hours, prior to, during and after installation of drywall work. Installation shall not start until windows are glazed and doors are installed, unless openings are temporarily closed. Space above suspended ceilings shall be vented sufficiently to prevent temperature and pressure build up.

1.8 JOB MOCK-UP

A. At a suitable location, where directed by the Architect, lay up a portion of a finished wall and ceiling demonstrating the quality of work, including finishing, to be obtained under this Section. Omit drywall boards in locations as directed by the Architect to show stud spacing and attachments; after acceptance, complete assembly.

B. Adjust the finishing techniques as required to achieve the finish required by the Architect as described in this Section of these specifications.

C. Upon approval of the mock-up, the mock-up may be left in place as a portion of the finished work of this Section.

D. All drywall work shall be equal in quality to approved mock-up.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturers for Gypsum Drywall Panels and Accessories: U.S. Gypsum Co., Georgia Pacific, CertainTeed Corporation, Continental Building Products, or National Gypsum Co. meeting specification requirements are acceptable.

1. All drywall products must be manufactured in North America.

B. Acceptable Manufacturers for Metal Supports of Drywall Assemblies: Unless otherwise noted, provide products manufactured by ClarkDietrich, Super Stud Building Products, Marino/Ware, or approved equal.

2.2 METAL SUPPORTS

A. Metal Floor and Ceiling Runners

1. Drywall Track: Formed from 0.0312 inch (20 U.S. Std. gauge) (unless otherwise noted) cold formed steel, width to suit shaped metal studs. Use 20 ga. top runners with 1-1/4" minimum flanges.

2. Deflection track or head of wall connections at rated partitions shall conform to UL #2079 for cycle movement. Provide positive mechanical connection of framing to structure, allowing for vertical movement within connections. Minimum of 0.0312 (20 ga.) cold formed steel for clips, 25 ga. cold formed steel for deflection track.

a. Product: "BlazeFrame DSL" or "MaxTrak Slotted Deflection Track" as manufactured by ClarkDietrich, "VertiClip" or "VertiTrack" as manufactured by the Steel Network or equal made by Metal-Lite Inc.
b. FireTrak (including stud clips) by FireTrak Corp. or equal made by Metal-Lite Inc.

3. Shaft Wall "J" Type Runner: Formed from 0.0329" (20 U.S. Std. gauge) galvanized steel, 1" x 2-1/2" or 4" wide (to suit detail) x 2-1/4" (for shaft wall).

B. Metal Studs, Framing and Furring

1. C-Shaped Studs: Channel type with holes for passage of conduit formed from minimum 0.0312 inch (20 U.S. Std. gauge) (unless heavier gauge is required to meet deflection limits) cold formed steel, width as shown on drawings.

2. Furring Channels: Hat shaped, formed from galvanized steel, 25 U.S. Std. gauge.

a. Product: ClarkDietrich; Furring Channel, or comparable product.

3. "C-H," "CT," or "I" Type Stud: 1-1/2" x 2-1/2", 4" or 6" wide (to suit detail) galvanized steel. Use for shaft wall construction; gauge and size as required to meet deflection limits given herein.

a. Product: ClarkDietrich; CT Stud, or a comparable product.

4. Double "E" Type Stud or "J" Track with Holding Tabs: 1" x 2-1/2", 4" or 6" wide (to suit detail) galvanized steel. Use for shaft wall construction; gauge and size as required to meet deflection limits given herein.

a. Product: ClarkDietrich; J-Tabbed Track, or a comparable product.

5. Continuous 16 gauge x 8" wide steel wall plate screwed to studs as required for support of railings, toilet partitions and other items supported on drywall partitions and walls.

C. Suspended Ceiling and Fascia Supports

1. Main Runners: 1-1/2" steel channels, cold rolled at 0.475 lbs. per ft., rust-inhibitive paint finish.

2. Furring Members: Screw-type hat-shaped furring channels of 25 ga. zinc-coated steel; comply with ASTM C 645.

3. Hangers: Galvanized, 1" x 3/16" flat steel slats capable of supporting 5x calculated load supported.

4. Hanger Anchorages: Provide inserts, clips, bolts, screws and other devices applicable to the required method of structural anchorage for ceiling hangers. Size devices for 5x calculated load supported.

5. Furring Anchorages: 16 ga. galvanized wire ties, manufacturer's standard clips, bolts or screws as recommended by furring manufacturer.

D. Protective Coating: All cold-formed steel members shall have coating conforming to AISI S220; ASTM A 653, G60 or coating with equivalent corrosion resistance of ASTM A653/A653M, G60. Galvannealed products are not acceptable

2.3 GYPSUM WALLBOARD TYPES

A. Gypsum Wallboard: 5/8" thick "Sheetrock" by USG, "Gold Bond" by National Gypsum, or "Regular Gypsum" by CertainTeed Corp., 48" wide, in maximum lengths available to minimize end-to-end butt joints.

B. Gypsum Ceiling Board: 5/8" thick, sag-resistant, long edges tapered.

C. Fire-Rated Gypsum Wallboard: 5/8" thick "Sheetrock Firecode C" by USG, "Firecheck Type C" by Lafarge/Continental, "Gold Bond Fireshield" by National Gypsum, or "Type C" by CertainTeed Corp., 48" wide, in maximum lengths available to minimize end-to-end butt joints.

D. Cement Board Backing for Tile Finish: 5/8" thick "Durock Tile Backer Board" by USG, "Wonder Board Lite" by Custom Building Products or approved equal.

E. Moisture/Mold-Resistant Gypsum Wallboard (at all exterior walls and wet areas): 5/8" thick "Mold Tough," "Mold Tough FR," by U.S. Gypsum, "DensArmor Plus" by Georgia Pacific, Lafarge "Mold Defense" and/or Lafarge "Mold Defense Type X," or "Gold Bond EXP Interior Extreme Gypsum Board" by National Gypsum, 48" wide, in maximum lengths available to minimize end-to-end butt joints.

1. Board must have a rating of 10 per ASTM D 3273 with a core that meets ASTM C 1396, Section 6 or ASTM C 1658.

F. Mold-Resistant Shaft Wall Liner: Solid gypsum board liner for shaft wall construction, 1" thick, 24" wide, as required to suit condition, by standard lengths as required, beveled edges. Provide "Mold Tough Liner Panel" by USG, "DensGlass Ultra Shaft Guard" by Georgia Pacific, Lafarge "Mold Defense Shaftliner Type X" and/or Lafarge "Weather Defense Shaftliner Type X", "Gold Bond Brand Fireshield Shaft Liner XP" by National Gypsum or "Gold Bond Brand EXP Extended Exposure Shaft Liner" by National Gypsum.

1. Liner board must have a rating 10 per ASTM D 3273 with a core that meets ASTM C 1396 Section 6.

G. Abuse-Resistant Wallboard: 5/8" thick "Sheetrock Brand Mold Tough AR" by USG, "Dens Armor Plus Abuse Resistant Panels" by Georgia-Pacific, "EXP Interior Extreme AR" or "Gold Bond Brand Hi-Abuse XP" by National Gypsum, "Protecta AR100" or "Protecta HIR 300" by Lafarge/Continental, or "AirRenew Extreme Abuse" by CertainTeed Corp., 48" wide, in maximum lengths available to minimize end-to-end butt joints.

1. Board must achieve a Level 1 rating per ASTM C 1629.

2.4 ACCESSORIES

A. Acoustical Insulation: Paper-less, non-combustible, semi-rigid mineral fiber mat, 2" thick, in walls (unless otherwise indicated), 3 lb./cu. ft. maximum density; Thermafiber LLC "Thermafiber," or approved equal.

B. Fasteners for Wallboard: USG Brand Screws; Type S Bugle Head for fastening wallboard to lighter gauge interior metal framing (up to 20 ga.). Type S-12 Bugle Head for fastening wallboard to heavier gauge interior metal framing (20 ga. to 12 ga.); Type S and Type S-12 Pan Head for attaching metal studs to door frames and runners; and Type G Bugle Head for fastening wallboard to wallboard. Lengths specified below under "Part 3 - Execution" Articles and as recommended by drywall manufacturer.

C. Laminating Adhesive: "Sheetrock Brand Joint Compound."

D. Metal Trim - Corner Beads: For 90 degree External Corners - ClarkDietrich; 103 Deluxe Cornerbead or "Dur-A-Bead" No. 103, 26 U.S. Std. ga. galvanized steel, 1-1/4" x 1-1/4", for 90 degree external corners.

E. Metal Trim - Edge Beads: "Sheetrock Brand Paper Faced Metal Bead and Trim."

F. Partition/Concrete Ceiling Trim: Trim-Tex Super Seal Tear Away or approved equal.

G. Metal Trim Treatment Materials and Joint Treatment Materials for Gypsum Drywall Boards: Paper tape for joint reinforcing; Setting Type (Durabond 90) or Lightweight Setting Type Joint Compound for taping and topping; and Ready Mix Compound for finishing.

1. For mold-resistant drywall, water-resistant drywall and tile backer board, use glass mesh tape with setting joint compound that is rated 10 when tested in accordance with ASTM D 3273 and evaluated in accordance with ASTM D 3274. Acceptable joint compound is "Rapid Set One Pass" made by CTS Cement Manufacturing Corp. or "Rapid Joint" manufactured by Lafarge North America or approved equal meeting standards noted herein.

H. Control Joints: ClarkDietrich; #093 Control Joint or No. 0.093, USG.

I. Acoustical Sealant: USG "Acoustical Sealant" or "Tremco Acoustical Caulking" of Tremco Mfg. Co., Masterseal NP520 by BASF or approved equal.

J. Neoprene Gaskets: Conform to ASTM D 1056.

PART 3 EXECUTION

3.1 INSPECTION

A. Examine the areas and conditions where gypsum drywall is to be installed and correct any conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions are corrected to permit proper installation of the work.

3.2 GENERAL INSTALLATION REQUIREMENTS

A. General

1. Install drywall work in accordance with drywall manufacturer's printed instructions and as indicated on drawings and specified herein.

2. All metal framing for drywall partitions shall extend from floor to underside of structural deck above. Provide for vertical deflection with positive mechanical connections of framing members to structure.

3. Provide concealed reinforcement, 16 ga. thick by eight (8) inches wide or as detailed or as recommended by manufacturer, for attachment of railings, toilet partitions, and other items to be supported on the partitions which cannot be attached to the metal framing members. Concealed reinforcement shall span between metal studs and be attached thereto using two (2) self-tapping pan head screws at each stud.

   a. Back of drywall shall be scored or notched to prevent bulging out where reinforcement plate occurs.

B. Fire-Rated Assemblies: Install fire-rated assemblies in accordance with requirements of authorities having jurisdiction, Underwriters' Laboratories and test results obtained and published by the drywall manufacturer, for the fire-rated drywall assembly types indicated on the drawings.

C. Acoustical Assemblies: Install acoustically-rated assemblies to achieve a minimum STC as noted on drawings, in accordance with test results obtained and published by the drywall manufacturer, for the drywall assembly type indicated on the drawings.

D. Sealant

1. Install continuous acoustical sealant bead at top and bottom edges of wallboard where indicated or required for sound rating as wallboard is installed, and between metal trim edge beads and abutting construction.

2. Install acoustical sealant in 1/8" wide vertical control joints within the length of the wall or partitions, and in all other joints, specified below under "Control Joints." Install bead of acoustical sealant around electric switch and outlet boxes, piping, ducts, and around any other penetration in the wallboard; place sealant bead between penetrations and edge of wallboard.

3. Where sealant is exposed to view, protect adjacent surfaces from damage and from sealant material, and tool sealant flush with and in same plane as wallboard surface. Sealant beads shall be 1/4" to 3/8" diameter.

E. Wallboard Application

1. Do not install wallboard panels until steel door frames are in place; coordinate work with Section 081114, "Steel Frames."

2. See drawings for all board types. Use fire-rated wallboard for fire-rated assemblies. Use sag-resistant board for ceilings. Use water-resistant wallboard where indicated on drawings and where wallboard would be subject to moisture. Install water-resistant wallboard in full, large sheets (no scraps) to limit number of butt joints.

3. Apply wallboard with long dimension parallel to stud framing members, and with abutting edges occurring over stud flanges.

4. Install wallboard for partitions from floor to underside of structure above and secure rigidly in place by screw attachment, unless otherwise indicated.

5. Provide "Thermafiber" safing insulation meeting standards of Section 078413 at flutes of metal deck where partitions carry up to bottom of metal deck.

6. Neatly cut wallboard to fit around outlets, switch boxes, framed openings, piping, ducts, and other items which penetrate wallboard; fill gaps with acoustic sealant.

7. Where wallboard is to be applied to curved surfaces, dampen wallboard on back side as required to obtain required curve. Finish surface shall present smooth, even curve without fluting or other imperfections.

8. Screw fasten wallboard with power-driven electric screw driver, screw heads to slightly depress surface of wallboard without cutting paper, screws not closer than 3/8" from ends and edges of wallboard.

9. Where studs are doubled-up, screw fasten wallboard to both studs in a staggered pattern.

F. Cementitious Backer Board

1. General: Furnish cementitious backer board in maximum available lengths. Install horizontally, with end joints over framing members.

2. Fastening: Secure cementitious backer board to each framing member with screws spaced not more than 12 inches on center and not closer than 1/2" from the edge. Install screws with a conventional screw gun so that the screw heads are flush with the surface of the board.

3. Joint Treatment: Fill space between edge of backer and receptor with dry-set Portland cement or latex-Portland cement mortar. Fill all horizontal and vertical joints and corners with dry-set Portland cement or latex-Portland cement mortar. Apply fiberglass tape over joints and corners and embed with same mortar.

G. Metal Trim: Install and mechanically secure in accordance with manufacturer's instructions; and finish with three (3) coats of joint compound, feathered and finish sanded smooth with adjacent wallboard surface, in accordance with manufacturer's instructions.

1. Corner Beads: Install specified corner beads in single lengths at all external corners, unless corner lengths exceed standard stock lengths.

2. Edge Beads: Install specified edge beads in single lengths at all terminating edges of wallboard exposed to view, where edges abut dissimilar materials, where edges would be exposed to view, and elsewhere where shown on drawings. Where indicated on drawings, seal joint between metal edge bead and adjoining surface with specified gasket, 1/8" wide minimum and set back 1/8" from face of wallboard, unless other size and profile indicated on drawings.

3. Casing beads shall be set in long lengths, neatly butted at joints. Provide casing beads at juncture of board and vertical surfaces and at exposed perimeters.

H. Control Joint Locations: Gypsum board surfaces shall be isolated with control joints where:

1. Ceiling abuts a structural element, dissimilar wall or other vertical penetration.

2. Construction changes within the plane of the partition or ceiling.

3. Shown on approved shop drawings.

4. Ceiling dimensions exceed thirty (30) feet in either direction.

5. Wings of "L," "U," and "T" shaped ceiling areas are joined.

6. Expansion or control joints occur in the structural elements of the building.

7. Shaft wall runs exceed 30' without interruption.

8. Partition or furring abuts a structural element or dissimilar wall or ceiling.

9. Partition or furring runs exceed 30' without interruption.

10. Where control joints are required, ceiling height door frames may be used as control joints. Less than ceiling height frames shall have control joints extending to the ceiling from both corners.

I. Joint Treatment and Spackling

1. Joints between face wallboards in the same plane, joints at internal corners of intersecting partitions and joints at internal corners of intersections between ceilings and walls or partitions shall be filled with joint compound.

2. Screw heads and other depressions shall be filled with joint compound. Joint compound shall be applied in three (3) coats, feathered and finish surface sanded smooth with adjacent wallboard surface, in accordance with manufacturer's instructions. Treatment of joints and screw heads with joint compound is also required where wallboard will be covered by finish materials which require a smooth surface, such as vinyl wall coverings.

3.3 FURRED WALLS AND PARTITIONS

A. Use specified metal furring channels. Run metal furring channel framing members vertically, space sixteen (16) inches o.c. maximum. Fasten furring channels to

concrete or masonry surfaces with power-driven fasteners or concrete stub nails spaced sixteen (16) inches o.c. maximum through alternate wing flanges (staggered) of furring channel. Furring channels shall be shimmed as necessary to provide a plumb and level backing for wallboard. At inside of exterior walls, an asphalt felt protection strip shall be installed between each furring channel and the wall. Furring channel and splices shall be provided by nesting channels at least eight (8) inches and securely anchoring to concrete or masonry with two (2) fasteners in each wing.

B. Wallboard Installation: Same as specified under Article 3.4 - "Metal Stud Partitions."

3.4 METAL STUD PARTITIONS

A. Unless otherwise noted, steel framing members shall be installed in accordance with ASTM C 754.

B. Runner Installation: Use channel type. Align accurately at floor according to partition layout. Anchor runners securely sixteen (16) inches o.c. maximum with power-driven anchors to floor slab, with power-driven anchors to structural slab above. See "Stud Installation" below for runners over heads of metal door frames. Where required, carefully remove sprayed-on fireproofing to allow partition to be properly installed.

C. Stud Installation

1. Use channel type, positioned vertically in runners, spaced as noted on drawings, but not more than sixteen (16) inches o.c.

2. Anchor studs to floor runners with screw fasteners. Provide snap-in or slotted hole slip joint bolt connections of studs to ceiling runners leaving space for movement. Anchor studs at partition intersections, partition corners and where partition abuts other construction to floor and ceiling runners with sheet metal screws through each stud flange and runner flange.

3. Connection at ceiling runner for non-rated partitions shall be snap-in or slotted hole slip joint bolt connection that shall allow for movement. Seal studs abutting other construction with 1/8" thick neoprene gasket continuously between stud and abutting construction.

4. Connections for fire rated partitions at ceiling runners shall conform to UL Design #2079.

5. Install metal stud horizontal bracing wherever vertical studs are cut or wallboard is cut for passage of pipes, ducts or other penetrations, and anchor horizontal bracing to vertical studs with sheet metal screws.

6. At jambs of door frames and borrowed light frames, install doubled-up studs (not back to back) from floor to underside of structural deck, and securely anchor studs to jamb anchors of frames and to runners with screws. Provide cross braces from hollow metal frames to underside of slab.

7. Over heads of door frames, install cut-to-length section of runner with flanges slit and web bent to allow flanges to overlap adjacent vertical studs, and securely

anchor runner to adjacent vertical studs with sheet metal screws. Install cut-to-length vertical studs from runner (over heads of door frame) to ceiling runner sixteen (16) inches maximum o.c. and at vertical joints of wallboard, and securely anchor studs to runners with sheet metal screws.

8. At control joints, in field of partition, install double-up studs (back to back) from floor to ceiling runner, with 1/4" thick continuous compressible gasket between studs. When necessary, splice studs with eight (8) inches minimum nested laps and attach flanges together with two (2) sheet metal screws in each flange. All screws shall be self-tapping sheet metal screws.

D. Runners and Studs at Chase Wall: As specified above for "Runners" and "Studs" and as specified herein. Chase walls shall have either a single or double row of floor and ceiling runners with metal studs sixteen (16) inches o.c. maximum and positioned vertically in the runners so that the studs are opposite each other in pairs with the flanges pointing in the same direction. Anchor all studs to runner flanges with sheet metal screws through each stud flange and runner flange following requirements of paragraph 3.4, B. Provide cross bracing between the rows of studs by attaching runner channels or studs set full width of chase attached to vertical studs with one self-tapping screw at each end. Space cross bracing not over thirty-six (36) inches o.c. vertically.

E. Wallboard Installation - Single Layer Application (Screw Attached)

1. Install wallboard with long dimension parallel to framing member and with abutting edge joints over web of framing member. Install wallboard with long dimension perpendicular to framing members above and below openings in drywall extending to second stud at each side of opening. Joints on opposite sides of wall shall be arranged so as to occur on different studs.

2. Boards shall be fastened securely to metal studs with screws as specified. Where a free end occurs between studs, back blocking shall be required. Center abutting ends over studs. Correct work as necessary so that faces of boards are flush, smooth, true.

3. Wallboard screws shall be applied with an electric screw gun. Screws shall be driven not less than 3/8" from ends or edges of board to provide uniform dimple not over 1/32" deep. Screws shall be spaced twelve (12) inches o.c. in the field of the board and 8" o.c. staggered along the abutting edges.

4. All ends and edges of wallboard shall occur over screwing members (studs or furring channels). Boards shall be brought into contact but shall not be forced into place. Where ends or edges abut, they shall be staggered. Joints on opposite sides of a partition shall be so arranged as to occur on different studs.

5. At locations where piping receptacles, conduit, switches, etc., penetrate drywall partitions, provide non-drying sealant and an approved sealant stop at cut board locations inside partition.

F. Wallboard Installation - Double-Layer Application

1. General: See drawings for wallboard partition types required.

2. First Layer (Screw Attached): Install as described above for single layer application.

3. Second Layer (Screw Attached): Screw attach second layer, unless laminating method of attachment indicated on drawings or necessary to obtain required sound rating or fire rating. Install wallboard vertically with vertical joints offset thirty-two (32) inches from first layer joints and staggered on opposite sides of wall. Attach wallboard with 1-5/8" screws sixteen (16) inches o.c. along vertical joints and sixteen (16) inches o.c. in the field of the wallboard. Screw through first layer into metal framing members.

4. Second Layer (Laminated): Install wallboard vertically. Stagger joints of second layer from first layer joints. Laminate second layer with specified laminating adhesive in beads or strips running continuously from floor to ceiling in accordance with manufacturer's instructions. After laminating, screw wallboard to framing members with 1-5/8" screws, spaced twelve (12) inches o.c. around perimeter of wallboard.

G. Wallboard Installation - Laminated Application: Where laminated wallboard is indicated, use specified laminating adhesive, install wallboard vertically and maintain tolerances as specified for screw attached wallboard.

H. Insulation Installation: Install where indicated on drawings. Place blanket tightly between studs.

I. Deflection of Structure Above: To allow for possible deflection of structure above partitions, provide top runners for non-rated partitions with 1-1/4" minimum flanges and do not screw studs or drywall to top runner. Where positive anchorage of studs to top runner is required, anchorage device shall be by means of slotted hole (in clip connection with screw attachment to web of steel through bushings located in slots of clips), or other anchorage device approved by Architect.

J. Control Joints

1. Leave a 1/2" continuous opening between gypsum boards for insertion of surface mounted joint.

2. Back by double framing members.

3. Attach control joint to face layer with 9/16" galvanized staples six (6) inches o.c. at both flanges along entire length of joint.

4. Provide two (2) inch wide gypsum panel strip or other adequate seal behind control joint in fire rated partitions and partitions with safing insulation.

3.5 DRYWALL FASCIAS AND CEILINGS

A. Furnish and install inserts, hanger clips and similar devices in coordination with other work.

B. Secure hangers to inserts and clips. Clamp or bolt hangers to main runners.

C. Space main runners 4'-0" o.c. and space hangers 4'-0" o.c. along runners, except as otherwise shown.

D. Level main runners to a tolerance of 1/4" in 12'-0", measured both lengthwise on each runner and transversely between parallel runners.

E. Metal Furring Channels: Space sixteen (16) inches o.c. maximum. Attach to 1-1/2" main runner channels with furring channel clips (on alternate sides of main runner channels). Furring channels shall not be let into or come in contact with abutting masonry walls. End splices shall be provided by nesting furring channels no less than eight (8) inches and securely wire tying. At any openings that interrupt the furring channels, install additional cross reinforcing to restore lateral stability.

F. Mechanical accessories, hangers, splices, runner channels and other members used in suspension system shall be of metal, zinc coated, or coated with rust inhibitive paint, of suitable design and of adequate strength to support units securely without sagging, and such as to bring unit faces to finished indicated lines and levels.

1. Provide special furring where ducts are over two (2) feet wide.

G. Apply board with its long dimension at right angles to channels. Locate board butt joints over center of furring channels. Attach board with one (1) inch self-drilling drywall screws twelve (12) inches o.c. in field of board at each furring channel; eight (8) inches o.c. at butt joints located not less than 3/8" from edges.

3.6 SHAFT WALLS

A. Runner Installation: Use "J" metal runners at floor and ceiling, with the short leg toward finish side of wall. Securely attach runners to structural supports with power-driven fasteners at both ends and twenty-four (24) inches o.c.

B. Shaft Wall Liner: Cut shaft wall liner panels one (1) inch less from floor to ceiling height and erect vertically between J-runners.

C. C-H Studs: Cut metal studs 3/8" to not more than 1/2" less than floor to ceiling height and install between shaft wall liner panels so that panels are fitted snugly into the one (1) inch wide "H," "T," or "I" portion of the stud. Space studs twenty-four (24) inches o.c., unless otherwise indicated on drawings. Install full-length steel E-Studs or J-runners vertically at T-intersections, corners, door jambs, and columns. Install full length E-Studs or J-runners over shaft wall liner both sides of closure panels. Frame openings cut within a liner panel with J-Runner around perimeter. For openings, frame with vertical E-Stud or J-runner at edges, horizontal runner at head and sill, and reinforcing as shown on the drawings. Suitably frame all openings to maintain structural support for wall. Over metal doors, install a cut to length section of runner and attach to strut-studs with clip angles and 3/8" Type S Screws space twelve (12) inches o.c.

D. Wallboard Installation - Double Layer Installation: Erect gypsum wallboard base layer vertically or horizontally to meet fire rating on one side of studs with end joints

staggered. Fasten base layer panels to studs with one (1) inch Type S screws twenty-four (24) inches o.c. Caulk perimeter of base layer panels. Apply gypsum wallboard face layer vertically over base layer with joints staggered and attached with 1-5/8" Type S screws staggered from those in base, spaced eight (8) inches o.c. and driven into studs.

E. Wallboard Installation (Where Both Sides of Shaft Wall are Finished): Apply gypsum wallboard face layers vertically both sides of studs. Stagger joints on opposite partition sides. Fasten panels with one (1) inch or two (2) inches Type S screws spaced eight (8) inches o.c. in field and along edges into studs.

F. Where handrails are indicated for direct attachment to drywall shaft system, provide not less than a sixteen (16) ga. x eight (8) inches wide galvanized steel reinforcement strip, accurately positioned and secured to studs and concealed behind not less than one 1/2" thick course of gypsum board in the system.

G. Integrate stair hanger rods with drywall shaft system by locating cavity of system as required to enclose rods.

3.7 ERECTION AT COLUMN ENCLOSURES

A. Metal furring supports shall be provided under work of this Section, and shall be cut to lengths as necessary for tight fit such that spacing is not more than sixteen (16) inches o.c.

B. Board shall be fastened securely to supports with screws as specified. Place boards in position with minimum number of joints. Where free ends occur between supports, back-blocking or furring shall be required. Center abutting ends over supports. Correct work as necessary so that faces of boards are flush, smooth and true. Provide clips or cross furring for attachment as required.

C. All layers shall be screw attached to furring.

D. When column finish called for on drawings to be in the same plane as drywall finish layer, maintain even, level plane.

3.8 FINISHING

A. Taping: A thin, uniform layer of compound shall be applied to all joints and angles to be reinforced. Reinforcing tape shall be applied immediately, centered over the joint, seated into the compound. A skim coat shall follow immediately but shall not function as a fill or second coat. Tape shall be properly folded and embedded in all angles to provide a true angle.

B. Filling: After initial coat of compound has hardened, additional compound shall be applied, filling the board taper flush with the surface. The fill coat shall cover the tape and feather out slightly beyond the tape. On joints with no taper, the fill coat shall cover the tape and feather out at least four (4) inches on either side of the tape. No fill coat is necessary on interior angles.

C. After compound has hardened, a finishing coat of compound shall be spread evenly over and extending slightly beyond the fill coat on all joints and feathered to a smooth, uniform finish. Over tapered edges, the finished joint shall not protrude beyond the plane of the surface. All taped angles shall receive a finish coat to cover the tape and taping compound and provide a true angle. Where necessary, sanding shall be done between coats and following the final application of compound to provide a smooth surface, ready for painting.

D. Fastener Depressions: Compound shall be applied to all fastener depressions followed, when hardened by at least two (2) coats of compound, leaving all depressions level with the plane of the surface.

E. Finishing Beads and Trim: Compound shall be applied to all bead and trim and shall be feathered out from the ground to the plane of the surface. When hardened, this shall be followed by two (2) coats of compound each extending slightly beyond the previous coat. The finish coat shall be feathered from the ground to the plane of the surface and sanded as necessary to provide a flat, smooth surface ready for decoration.

F. Gypsum Board Finish Levels: Finish panels to levels indicated below and according to ASTM C 840.

1. Level 1: Ceiling plenum areas, concealed areas, and where indicated.

2. Level 2: Panels that are a substrate for tile, and where indicated.

3. Level 4: Level of finish for surfaces exposed to view shall conform to Level 4 of ASTM C 840 and GA-214 of the Gypsum Association.

G. Drywall construction with defects of such character which will mar appearance of finished work, or which is otherwise defective, will be rejected and shall be removed and replaced at no expense to the Owner.

3.9 CLEANING AND ADJUSTMENT

A. At the completion of installation of the work, all rubbish shall be removed from the building leaving floors broom clean. Excess material, scaffolding, tools and other equipment shall be removed from the building.

B. Work shall be left in clean condition ready for painting or wall covering. All work shall be as approved by Architect.

C. Cutting and Repairing: Include all cutting, fitting and repairing of the work included herein in connection with all mechanical trades and all other trades which come in conjunction with any part of the work and leave all work complete and perfect after all trades have completed their work.

3.10 PROTECTION OF WORK

A. Installer shall advise Contractor of required procedures for protecting drywall work from damage and deterioration during remainder of construction period.

END OF SECTION

SECTION 09 30 13

CERAMIC TILING

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 SECTION INCLUDES

A. Work of this Section includes all labor, materials, equipment, and services necessary to complete the ceramic tiling work as shown on the drawings and/or specified herein, including, but not limited to, the following:

1. Porcelain floor tile.
2. Porcelain and ceramic wall tile and base.
3. Stone saddles.
4. Setting beds, grout and sealant.
5. Waterproofing membrane.

1.3 RELATED SECTIONS

A. Cast-in-Place Concrete - Section 03 30 00.

B. Unit Masonry - Section 04 20 00.

C. Gypsum Drywall - Section 09 29 00.

1.4 REFERENCES

A. ANSI A108 Series/A118 Series - American National Standards for Installation of Ceramic Tile.

B. ANSI A136.1 - American National Standards for Organic Adhesives for Installation of Ceramic Tile.

C. ASTM C 144 - Standard Specification for Aggregate for Masonry Mortar.

D. ASTM C 150 - Standard Specification for Portland Cement.

E. TCNA - Handbook for Ceramic, Glass and Stone Tile Installation; Tile Council of North America.

F. ISO 13007 - International Standards Organization; Classification for Grout and Adhesives.

G. Large Format Tile (LFT): Tile 15" or larger in any direction and/or 144 sq. in. in size.

1.5 QUALITY ASSURANCE

A. Qualifications of Installers: For cutting, installing and grouting of ceramic tile, use only thoroughly trained and experienced journeyman tile setters who are completely familiar with the requirements of this work, and the recommendations contained in the referenced standards, and the installers are Certified Ceramic Tile Installer (CTI) through the Ceramic Tile Education Foundation (CTEF) or Tile Installer Thin Set Standards (ITS) verification through the University of Ceramic Tile and Stone.

B. Codes and Standards: In addition to complying with all pertinent codes and regulations, comply with the following:

1. Manufacture all ceramic tile in accordance with Standard Grade Requirements of ANSI A-137.1.

2. Install all ceramic tile in accordance with the recommendations contained in "Tile Council of North America Handbook for Ceramic, Glass, and Stone Tile Installation (TCNA)," latest edition.

C. All surfaces shall have a minimum wet DCOF AcuTest value of 0.42 and tested per ANSI A326.3 Dynamic Coefficient of Friction of Hard Surface Flooring Materials.

1.6 SUBMITTALS

A. Samples

1. Before any ceramic tile is delivered to the job site, submit to the Architect sample panels, approx. 12" x 12", mounted on hardboard back-up with selected grout color for each color and pattern of ceramic tile and grout specified.

2. Submit 6" length of stone saddles.

3. Submit 12" x 12" samples of waterproofing membrane.

B. Master Grade Certificates: Prior to opening ceramic tile containers, submit to the Architect a Master Grade Certificate, signed by an officer of the firm manufacturing the ceramic tile used, and issued when the shipment is made, stating the grade, kind of tile, identification marks for tile containers, and the name and location of the project.

C. Mock-Ups

1. At an area on the site where approved by the Architect, provide a mock-up ceramic tile installation.

a. Make the mock-up approximately 36" x 36" in dimension.
b. Provide one mock-up for each type, class, and color of installation required under this Section.
c. The mock-ups may be used as part of the Work, and may be included in the finished Work when so approved by the Architect.
d. Revise as necessary to secure the Architect's approval.

2. The mock-ups, when approved by the Architect, will be used as datum for comparison with the remainder of the work of this Section for the purposes of acceptance or rejection.

3. If the mock-up panels are not permitted to be part of the finished Work, completely demolish and remove them from the job site upon completion and acceptance of the work of this Section.

1.7 PRODUCT HANDLING

A. Delivery and Storage

1. Deliver all materials of this Section to the job site in their original unopened containers with all labels intact and legible at time of use.

2. Store all materials under cover in a manner to prevent damage and contamination; store only the specified materials at the job site.

B. Protection: Use all means necessary to protect the materials of this Section before, during, and after installation, and to protect the installed work and materials of all other trades.

C. Replacements: In the event of damage, immediately make all repairs and replacements necessary.

1.8 PROJECT CONDITIONS

A. Maintain environmental conditions and protect work during and after installation to comply with referenced standards and manufacturer's printed recommendations.

B. Vent temporary heaters to exterior to prevent damage to tile work from carbon dioxide buildup.

C. Maintain temperatures at not less than 50 deg. F. in tiled areas during installation and for 7 days after completion.

PART 2 PRODUCTS

2.1 MANUFACTURERS OF TILE

A. Provide tile as scheduled at the end of this Section, or approved equal meeting these specifications. The Architect reserves the right to pick tile from any price group.

2.2 TRIM AND SPECIAL SHAPES

A. Provide external and internal corners, trim shapes at openings, and all other trim and special shapes to match the tile specified herein, as required by field conditions and drawing details.

B. Anodized Aluminum Edge Trim: Schlüter-JOLLY by Schlüter Systems, or approved equal; finish as selected by the Architect.

C. Anodized Aluminum Wall Reveal Trim: Schlüter-DECO-SG by Schlüter Systems or approved equal.

1. Profile: 1/2" channel

2. Finish: Satin anodized aluminum.

2.3 STONE SADDLES

A. Provide sound Group "A" white marble, minimum 3/4" thick, with an abrasive hardness of not less than 10.0, when tested in accordance with ASTM C 241. Cut saddle to fit jamb profile, honed finish.

2.4 SETTING BEDS AND GROUT

A. Portland Cement: ASTM C 150, Type 1.

B. Hydrated Lime: ASTM C 207, Type S.

C. Sand: ASTM C 144, clean and graded natural sand.

D. Reinforcing for Mud Set Systems: 2" x 2" x 16/16 ga. welded wire mesh.

E. Latex Admixture for Mortar Bed

1. MAPEI, Planicrete AC, blended with a 3:1 site mix.

2. Laticrete 333.

3. Pro Spec; Acrylic Additive.

4. Custom Building Products; Custom Crete Thin Set Additive.

F. Latex-Portland Cement Bond Coat, complying with ANSI A118.4 and ISO 13007, C2ES2P2 with minimum compressive strength of 400 psi.

1. MAPEI, Keralastic System thin set mortar, consisting of Kerabond dry-set mortar and Keralastic latex admixture.

2. Laticrete; 211 dry-set mortar and 4237 latex admixture.

3. Pro Spec; Permalastic System consisting of Permalastic Dryset Mortar and Permalastic Admixture

4. Custom Building Products; Pro-Lite.

G. Improved Modified Cement Mortars: For use with LFT, complying with ANSI 118.15 and ISO 13007, CSES2PS.

1. Custom Building Products; Mega-Lite Crack Prevention Mortar (650-725 psi).

2. Laticrete; 220 Marble Granite Mortar (500-540 psi).

3. Mapei; Kerabond T Keralastic (400-600 psi).

4. Pro Spec; StayFlex 590 (460 psi).

H. Wall and Base Tile

1. Over masonry and concrete, use a mortar bed leveling coat conforming to ANSI A108.1A followed by a Latex Portland Cement Bond Coat, MAPEI, Kerabond/Keralastic System, Custom Mega Flex or equal by Laticrete or Pro Spec, conforming to ANSI A118.4, ISO 13007-C2ES2P2, and TCA Detail W-211.

2. Over cement board, use a Latex Portland cement mortar bond coat, MAPEI, Kerabond/Keralastic System, Custom Mega Flex or equal by Laticrete or Pro Spec, conforming to ANSI A118.4, ISO 13007-C2ES2P2, and TCA Detail W-244; coat back of board with waterproof membrane as specified below.

3. Over glass mat water resistant gypsum backer board, use a Latex Portland cement mortar bond coat, MAPEI, Kerabond/Keralastic System, conforming to ANSI A118.4, ISO 13007-C2ES2P2, and TCA Detail W-245.

4. Wall and base tile over existing tile - Epoxy adhesive installation as recommended by setting materials manufacturer and complying with TCNA TR713.

I. Floor Tile and Stone Saddle - Mud Set: Set floor tile and stone saddle using Portland Cement mortar setting bed conforming to ANSI A108.1A and latex modified Portland cement bond coat. Basis of Design: Mapei, Kerabond/Keralastic System, conforming to ANSI A118.4, ISO 13007-C2ES2P2, and TCA Detail F-112.

1. For installation of LFT, Improved Modified Cement Mortars and medium bed; Basis of Design: Custom Building Products, MegaLite Crack Prevention Medium Bed Mortar conforming to ANSI 118.15, ISO 13007-C2ES2P2.

J. Floor Tile and Stone Saddle - Thin Set: Set floor tile and stone saddle using latex modified Portland Cement mortar, Basis of Design, Mapei, Kerabond/Keralastic System, conforming to ANSI A118.4, ISO 13007-C2ES2P2, and TCA Detail F-113.

1. For installation of LFT and Stone Tile, Improved Modified Cement Mortars and medium bed; Basis of Design: Custom Building Products, MegaLite Crack Prevention Medium Bed Mortar conforming to ANSI 118.15, ISO 13007-C2ES2P2.

K. Floor Tile and Stone Saddle - Thin Set over Waterproof Setting Bed: Set floor tile and stone saddle using thin set latex Portland cement bond coat, Basis of Design: Mapei, Kerabond/Keralastic System, conforming to ANSI A118.4, ISO 13007-C2ES2P2, and waterproofing membrane conforming to TCA Detail F-122/122A.

1. For installation of LFT, Improved Modified Cement Mortars and medium bed; Basis of Design: Custom Building Products, MegaLite Crack Prevention Medium Bed Mortar conforming to ANSI 118.15, ISO 13007-C2ES2P2.

L. Floor tile over existing tile - Epoxy mortar installation conforming to ANSI A108.6, as recommended by setting materials manufacturer, and complying with TCNA TR712.

M. Waterproofing Membrane: Complying with ANSI A118.10 and ANSI A118.12; and having IAPMO certification as a shower pan liner; provide "Mapelastic AquaDefense" by Mapei with factory blended "Bio-Block" antimicrobial protection, "Laticrete 9235 with

Microban" made by Laticrete International, ProSpec "B6000," Custom Building Products' "9240," or approved equal.

1. Reinforce membrane with polyester fabric.

N. Water: Clean, fresh and suitable for drinking.

O. Grout: Complying with A118.7; and ISO 13007, CG2WAF; for grouting ceramic tile, provide a commercial Portland cement grout "Ultracolor Plus" (additive not required) made by Mapei, Laticrete "Permacolor," or approved equal; color as selected by the Architect. Add latex additive to grout made by same manufacturer as grout.

1. At server and kitchen provide epoxy grout.

P. Physical Properties: The setting beds and grouts must meet the following physical requirements:

1. Compressive Strength: 3000 psi min.

2. Shear Bond Strength: 500 psi min.

3. Water Absorption: 4.0% max.

4. Service Rating (ASTM C 627): Extra Heavy Duty.

Q. Sealer: Seal all grout joints and all unglazed tile using "Sealer's Choice 15 Gold" as manufactured by Aqua Mix Inc., or approved equal.

R. Temporary Protective Coating: Either product indicated below that is applied in the tile manufacturer's factory and formulated to protect exposed surfaces of tile against adherence of mortar and grout; compatible with tile, mortar, and grout products; and easily removable after grouting is completed without damaging grout or tile.

1. Petroleum paraffin wax, applied hot, fully refined and odorless, containing at least 0.5 percent oil with a melting point of 120 to 140 deg. F. per ASTM D 87.

2. Grout release in form of manufacturer's standard proprietary liquid coating that is specially formulated and recommended for use as temporary protective coating for tile.

S. Tile Cleaner: A neutral cleaner capable of removing soil and residue without harming tile and grout surfaces, specifically approved for materials and installations indicated by tile and grout manufacturers.

T. Stainless Steel Trim: Schluter Jolly edges at all outside corners.

2.5 SEALANT

A. Joint Backing: Preformed, compressible, resilient, non-extruding, non-staining strips of foam neoprene, foam polyethylene, or other material recommended by sealant manufacturer.

B. Bond Breaker: Polyethylene tape, 3 mils thick, or other material recommended by sealant manufacturer.

C. Sealant Primer: Colorless, non-staining, or type to suit substrate surface, as recommended by sealant manufacturer.

D. Sealant: One-part silicone based sanitary sealant, conforming to ASTM C 920, Type S, Grade NS, Class 25. Sealant hardness upon full cure shall be between 20-30 Shore "A" Durometer. Color of sealant to blend with or match adjacent materials, and as selected by the Architect. Sealant shall be equivalent to 1700 Sanitary Sealant made by General Electric or approved equal.

PART 3 EXECUTION

3.1 INSPECTION

A. Examine the areas and conditions where ceramic tile is to be installed and correct any conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions are corrected to permit proper installation of the work.

3.2 CONDITION OF SURFACES

A. Allowable Variations in Substrate Levels in Floors: + 1/8" in 10'-0" distance and 1/4" total max. variation from levels shown.

B. Grind or fill concrete and masonry substrates as required to comply with allowable variations.

C. Concrete substrates must meet ANSI A108.01 tolerances and surface textures in preparation for tile work. Coordinate with concrete trades.

3.3 PREPARATION

A. Coordinate the following with Section 033000:

1. Steel trowel and fine broom finish concrete slabs that are to receive ceramic tile. Cure concrete slabs that are to receive tile before tile application. Do not use liquid curing compounds or other coatings that may prevent bonding of tile setting materials to slabs. Slab shall be dry at time of tile installation.

2. Tile floors with floor drains must have a slope to direction of ¼" per foot; coordinate this with concrete trades.

B. Etch concrete substrate as may be required to remove curing compounds or other substances that would interfere with proper bond of setting bed. Rinse with water to remove all traces of treatment.

C. Blending: For tile exhibiting color variations, verify that tile has been factory blended and packaged so tile units taken from one package show same range of colors as those taken from other packages and match approved samples. If not factory blended, either return to manufacturer or blend tiles at project site before installing.

D. Field Applied Temporary Protective Coating: Pre-coat tile with continuous film of temporary protective coating, taking care not to coat unexposed tile surfaces.

3.4 JOINTS IN TILE WORK

A. Joint Widths: 1/16" wide in ceramic tile.

B. Alignment: Wall, base and floor joints shall align through the field and trim. Direction and location of all joints as directed by Architect.

C. Movement Joints: Conform to TCA Detail EJ171. Locate where movement joints are in back-up material. Provide movement joint at joints between mop receptors and ceramic tile. Provide movement joint at all vertical internal joints of wall tile. Movement joints 1/8" wide in ceramic tile. Fill all movement joints with specified backing and sealant. Use bond breaker where sufficient space for joint backing does not exist.

1. Provide sealant between ceramic tile and plumbing fixtures, mirrors, pipes, countertops and other dissimilar materials penetrating or adjacent to ceramic tile.

3.5 INSTALLATION

A. Comply with the following installation standards:

1. Wall tile over cement board or glass mat backer board using dry set mortar with latex additive - ANSI A118.4 and ISO 13007, C2ES2P2.

2. Wall tile over masonry or concrete using dry set mortar with latex additive - ANSI A118.4 and ISO 13007, C2ES2P2.

3. Wall and base tile over existing tile - As recommended by setting materials manufacturer and TCNA TR713.

4. Floor tile using full mud set mortar - ANSI A118.4, A228.15, and ISO 13007, C2ES2P2.

5. Floor tile using dry set mortar with latex additive - ANSI A118.4, A118.15, and ISO 13007, C2ES2P2.

6. Floor tile over waterproofing membrane - ANSI A118.4, 118.5, and ISO 13007, C2ES2P2.

7. Floor tile over existing tile - As recommended by setting materials manufacturer and TCNA TR712.

B. Backs of tile must be cleaned before installation.

C. All setting beds and/or adhesives shall provide for an average contact area of not less than 95% coverage.

D. Allowable Variations in Finished Work: Do not exceed the following deviations from level and plumb, and from elevations, locations, slopes and alignment shown.

1. Floors: 1/8" in 10'-0" run, any direction; +/- 1/8" at any location; 1/32" offset at any location.

2. Walls: 1/8" in 8'-0" run, any direction; 1/8" at any location; offset at any location, 1/32".

3. Joints: +/- 1/32" joint width variation of any location; 1/16" in 3'-0" run deviation from plumb and true.

E. Waterproofing Membrane

1. Install the membrane in strict accordance with manufacturer's written recommendations.

2. Upon completion of work, test horizontal membrane for leaks by flood testing per ASTM D 5957. Inspect for leakage. Make necessary adjustments to stop all leakage and retest until watertight. If membrane is not immediately covered by another surface, provide protection until membrane is covered.

F. Handle, store, mix and apply setting and grouting materials in compliance with the manufacturer's instructions.

G. Extend tile work into recesses and under equipment and fixtures, to form a complete covering without interruptions. Terminate work neatly at obstructions, edges and corners without disruption of pattern or joint alignment.

H. Accurately form intersections and returns. Perform cutting and drilling of tile without marring visible surfaces. Carefully grind cut edges of tile abutting trim, finish, or built-in items for straight, aligned joints. Fit tile closely to electrical outlets, piping and fixtures so that plates, collars, or covers overlap tile.

I. Lay tile in grid pattern. Align joints when adjoining tiles on floor, base, walls and trim are the same size. Lay out tile work and center tile fields both directions in each space or on each wall area. Adjust to minimize tile cutting. Provide uniform joint widths.

3.6 INSTALLATION OF STONE SADDLES

A. Install stone saddles cut to profiles and sizes shown, accurately fitted to jambs, coped at stops, set in full bed of mortar herein specified, and with grouted edge joints as specified for floor tile.

3.7 CLEANING AND PROTECTION OF CERAMIC TILE

A. Cleaning: On completion of placement and grouting, clean all ceramic tile surfaces so they are free of foreign matter.

1. Remove grout residue from tile as soon as possible.

2. Clean grout smears and haze from tile according to tile and grout manufacturer's written instructions but no sooner than 10 days after installation. Use cleaners only after determining that cleaners are safe to use by testing on samples of tile and other surfaces to be cleaned. Protect metal surfaces and plumbing fixtures from effects of cleaning. Flush surfaces with clean water before and after cleaning to insure removal of all cleaning material.

3. Remove temporary protective coating by method recommended by coating manufacturer and that is acceptable to tile and grout manufacturer. Trap and remove coating to prevent drain clogging.

B. Protect installed tile work with Kraft paper or other heavy covering during construction period to prevent staining, damage, and wear. Apply coat of sealer to all grout joints and all unglazed tile.

C. Prohibit foot and wheel traffic from tiled floors for at least seven days after grouting is completed.

D. Before final inspection, remove protective coverings from tile surfaces.

E. Leave finished installation clean and free of cracked, chipped, broken, unbonded or otherwise defective tile work.

3.8 TILE SCHEDULE

Toilet room floor	PT1	Crossville Inc, Argent Series 12" x 24" Memphis Blue A1415, Finish UPS
Toilet room base	CT1	Daltile, Color Wheel Linear, Flat top cove base #Q34C1MOD/ 4x 12 Color: 0182 Suede Grey
	CT2	Daltile, Color Wheel Linear, Bullnose cove base #S44D9/ 4x 12 Color: 0182 Suede Grey
Toilet room walls	CT3	Daltile, Color Wheel Linear, Glossy, 4" x 8-9/16" x 5/16", Field Color-Artic White #0190 with gray grout
Accent wall tile at Toilet room	CT4	Terra Tile, Briarcliff Manor, NY, 3/4" Penny Rounds Color: Blue Grey. Contact Gina for information/pricing at 914-923-4295 x241

END OF SECTION

SECTION 09 51 13

ACOUSTICAL PANEL CEILINGS

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 SECTION INCLUDES

A. Work of this Section includes all labor, materials, equipment, and services necessary to complete the acoustical panel ceilings as shown on the drawings and/or specified herein, including, but not limited to, the following:

1. Acoustical panel units.
2. Exposed "T" suspension system, including hangers and inserts.
3. Provisions for the installation of lighting fixtures, diffusers, grilles and similar items provided under other Sections.
4. Cutting, drilling, scribing and fitting as required for electro-mechanical penetrations.
5. Perimeter and column moldings, trim and accessories for acoustical ceilings.

1.3 RELATED SECTIONS

A. Drywall ceilings - Section 09 29 00.

B. Diffusers, grilles and related frames - Division 23.

C. Lighting fixtures - Division 26.

1.4 QUALITY ASSURANCE

A. Codes and Standards: In addition to complying with all pertinent codes and regulations, comply with all pertinent recommendations published by the Ceilings and Interior Systems Construction Association (CISCA).

B. Qualifications of Installers

1. The suspended ceiling subcontractor shall have a record of successful installation of similar ceilings acceptable to Architect and shall be currently approved by the manufacturer of the ceiling suspension system.

2. For the actual fabrication and installation of all components of the system, use only personnel who are thoroughly trained and experienced in the skills required and completely familiar with the requirements established for this work.

C. The work is subject to the following standards:

1. ASTM C 635 "Standard Specification for Metal Suspension Systems for Acoustical Tile and Lay-In Panel Ceilings," American Society for Testing and Materials.

2. ASTM C 636 "Standard Recommended Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-In Panels," American Society for Testing and Materials.

D. In addition to suspension system specified, provide seismic struts and seismic clips to meet seismic standards as required by prevailing Codes and Ordinances.

1.5 SUBMITTALS

A. Shop Drawings: Submit completely dimensioned ceiling layouts for all areas where acoustical ceilings are required, showing:

1. Any deviations from Architect's reflected ceiling plan layouts, especially lighting fixture and dimensions. Also indicate if any light fixtures will not fit into Architect's ceiling layout due to dimensional restrictions or field conditions.

2. Direction and spacing of suspension members and location of hangers for carrying suspension members.

3. Direction, sizes and types of acoustical units, showing suspension grid members, and starting point for each individual ceiling area.

4. Moldings at perimeter of ceiling, at columns and elsewhere as required due to penetrations or exposure at edge of ceiling tiles.

5. Location and direction of lights, air diffusers, air slots, and similar items in the ceiling plane.

6. Details of construction and installation at all conditions.

7. Materials, gauges, thickness and finishes.

B. Samples and Product Literature: Submit the following samples and related manufacturer's descriptive literature.

1. Twelve (12) inch long components of suspension systems, including moldings.

2. Acoustical units — full size.

1.6 DELIVERY, STORAGE AND HANDLING

A. Deliver acoustical ceiling units to project site in original, unopened packages and store them in a fully enclosed space where they will be protected against damage from moisture, direct sunlight, surface contamination or other causes.

B. Before installing acoustical ceiling units, permit them to reach room temperature and a stabilized moisture content.

C. Handle acoustical ceiling units carefully to avoid chipping edges or damaging units in any way.

1.7 PROJECT CONDITIONS

A. Do not install acoustical ceilings until wet-work in space is completed and nominally dry, work above ceilings has been completed, and ambient conditions of temperature and humidity will be continuously maintained at values near those indicated for final occupancy.

1.8 COORDINATION

A. Coordinate layout and installation of acoustical ceiling units and suspension system components with other work supported by or penetrating through ceilings, including light fixtures, HVAC equipment, fire suppression system components, and partition system.

1.9 EXTRA STOCK

A. Extra Stock: Deliver stock of maintenance material to Owner. Furnish maintenance material matching products installed, packaged with protective covering for storage and identified with appropriate labels.

1. Acoustical Ceiling Units: Furnish quantity of full size units equal to 2.0% of amount installed.

PART 2 PRODUCTS

2.1 ACOUSTICAL UNITS

A. ACT: 24" x 24" x 3/4" Armstrong Ultima #1910 square lay-in tile with 15/16" Prelude grid.

2.2 SUSPENSION SYSTEM

A. The suspension system shall support the ceiling assembly shown on the drawings and specified herein, with a maximum deflection of 1/360 of the span, in accordance with ASTM C 635.

B. Provide min. 12 ga. galvanized wire hangers, soft annealed steel conforming to ASTM A 641, prestretched, Class 1 zinc coating, soft temper, size so that stress at 3 times hanger design load (ASTM C 635, Table 1, Direct Hung) will be less than yield stress of wire.

C. Provide ceiling clips and inserts to receive hangers, type as recommended by suspension system manufacturer, sizes for pull-out resistance of not less than five (5) times the hanger design load, as indicated in ASTM C 635.

D. Suspension systems shall conform to ASTM C 635, intermediate duty.

E. Provide manufacturer's standard wall moldings with off-white baked enamel finish to match suspension systems. For circular penetrations of ceilings, provide edge moldings fabricated to diameter required to fit penetration exactly.

PART 3 EXECUTION

3.1 INSPECTION

A. Examine the areas where acoustical panel ceilings are to be installed and correct any conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions have been corrected to permit proper installation of the layout.

3.2 PREPARATION

A. Coordination: Furnish layouts for inserts, clips, or other supports required to be installed by other trades for support of acoustical ceilings.

B. Measure each ceiling area and establish layout of acoustical units to balance border widths at opposite edges of each ceiling. Avoid use of less-than-half width units at borders, and comply with reflected ceiling plans.

3.3 INSTALLATION

A. Codes and Standards: Install materials in accordance with manufacturer's printed instructions, and to comply with governing regulations and industry standards.

B. Install suspension systems to comply with ASTM C 636, with wire hangers supported only from building structural members. Locate hangers not more than 6" from each end and spaced 4'-0" along direct-hung runner, leveling to tolerance of 1/8" in 12'-0".

C. Secure wire hangers by looping and wire-tying, either directly to structures or to inserts, eye-screws, or other devices which are secure and appropriate for substrate, and which will not deteriorate or fail with age or elevated temperatures.

D. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum which are not part of supporting structural or ceiling suspension system. Splay hangers only where required to miss obstructions and offset resulting horizontal force by bracing, reinforcing, countersplaying or other equally effective means.

E. Install edge moldings at edges of each acoustical ceiling area, and at locations where edge of acoustical units would otherwise be exposed after completion of the work.

1. Secure moldings to building construction by fastening through vertical leg. Space holes not more than 3" from each end and not more than sixteen (16) inches o.c. between end holes. Fasten tight against vertical surfaces.

2. Level moldings with ceiling suspension system, to a level tolerance of 1/8" in 12'-0".

F. Install acoustical units in coordination with suspension system, with edges concealed by support of suspension members. Scribe and cut panels to fit accurately at borders and at penetrations.

G. Install hold-down clips in toilet areas, and in areas where required by governing regulations; space 2'-0" o.c. on all cross tees.

H. Light fixtures or other ceiling apparatus shall not be supported from main beams or cross tees if their weight causes the total load to exceed the deflection capability of the ceiling suspension system. In such cases the load shall be supported by supplemental hangers furnished and installed by this Section of work.

I. Where fixture or ceiling apparatus installation causes eccentric loading on runners, provide stabilizer bars to prevent rotation.

3.4 ADJUST AND CLEAN

A. Clean exposed surfaces of acoustical ceilings, including trim, edge molding, and suspension members; comply with manufacturer's instructions for cleaning and touch-up of minor finish damage. Remove and replace work which cannot be successfully cleaned and repaired to permanently eliminate evidence of damage.

END OF SECTION

SECTION 09 65 13

RESILIENT BASE AND ACCESSORIES

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 SECTION INCLUDES

A. Work of this Section includes all labor, materials, equipment, and services necessary to complete the resilient accessories, as shown on the drawings and/or specified herein, including, but not limited to, the following:

1. Rubber base.

2. Accessories.

1.3 RELATED SECTIONS

A. Gypsum Drywall - Section 09 29 00.

B. Resilient Tile Flooring - Section 09 65 19.

1.4 QUALITY ASSURANCE

A. Qualifications of Installers: Use only personnel who are thoroughly trained and experienced in the skills required and completely familiar with the requirements established for this work.

1.5 SUBMITTALS

A. Manufacturer's Data: For information only, submit manufacturer's technical information and installation instructions for type of resilient base.

B. Samples

1. Submit six (6) inch long samples of base.

2. Submit full-size sample of stair tread.

1.6 DELIVERY AND STORAGE

A. Deliver materials to the project site in the manufacturer's original unopened containers, clearly marked to indicate pattern, gauge, lot number and sequence of materials.

B. Carefully handle all materials and store in original containers at not less than seventy (70) degrees F. for at least forty-eight (48) hours before start of installation.

1.7 JOB CONDITIONS

A. Continuously heat spaces to receive base to a temperature of seventy (70) degrees F. for at least forty-eight (48) hours prior to installation, whenever project conditions are such that heating is required. Maintain seventy (70) degrees F. temperature continuously during and after installation as recommended by the manufacturer, but for not less than forty-eight (48) hours. Maintain a temperature of not less than fifty-five (55) degrees F. in areas where work is completed.

PART 2 PRODUCTS

2.1 RUBBER BASE

A. Provide 4" and 6" high by 1/8" thick, continuous rubber top set cove base, coiled lengths only. Base shall conform to ASTM F 1861, Type TP (Rubber, Thermoplastic), Group 1 (solid); provide "Color-Integrated Wall Base" as manufactured by Armstrong Flooring Inc. or equivalent of Roppe, Burke Mercer, Marley Flexco, or Johnsonite.

1. Color: Armstrong Color-Integrated Wall Base TBD.

2.2 ACCESSORIES

A. Adhesives: Waterproof, stabilized type, as recommended by the manufacturer for the type of service indicated.

B. Concrete Slab Primer: Non-staining type recommended by the tile manufacturer.

C. Leveling Compound: Latex/Portland cement flash patching and leveling compound equal to No. DSP-520 made by H.B. Fuller or No. 226 with 3701 admixture made by Laticrete or equal made by Mapei, or approved equal.

PART 3 EXECUTION

3.1 INSPECTION

A. Examine the areas and conditions where resilient base is to be installed and correct any conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions are corrected to permit proper installation of the work.

3.2 INSTALLATION

A. Bases: In all spaces where base is indicated, install bases tight to walls, partitions, columns, built-in cabinets, etc., without gaps at top or bulges at bottom, with tight joints and flush edges, with molded corner pieces at internal and external corners. Provide end stops adjacent to flush type door frames and where base does not terminate against an adjacent surface. Keep base in full contact with walls until adhesive sets.

3.3 CLEANING AND PROTECTION

A. Remove any excess adhesive or other surface blemishes from base using neutral type cleaners as recommended by the manufacturer.

END OF SECTION

SECTION 09 65 19

RESILIENT TILE FLOORING

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 SECTION INCLUDES

A. Work of this Section includes all labor, materials, equipment, and services necessary to complete the resilient tile flooring, as shown on the drawings and/or specified herein, including, but not limited to, the following:

1. Vinyl composition tile.
2. Transition strips.
3. Accessories.

1.3 RELATED SECTIONS

A. Cast-in-Place Concrete - Section 03 30 00.

B. Resilient Base and Accessories - Section 09 65 13.

1.4 QUALITY ASSURANCE

A. Qualifications of Installers: Use only personnel who are thoroughly trained and experienced in the skills required and completely familiar with the requirements established for this work.

B. Fire-Test-Response Characteristics: As determined by testing identical products according to ASTM E 648 or NFPA 253 by a qualified testing agency.

1. Critical Radiant Flux Classification: Class I, not less than 0.45 watts per square centimeter.

1.5 SUBMITTALS

A. Manufacturer's Data: For information only, submit manufacturer's technical information and installation instructions for type of resilient tile.

B. Samples

1. Submit full-size sample tiles for each type and color required, representative of the expected range of color and pattern variation. Sample submittals will be reviewed

for color, texture and pattern only. Compliance with all other requirements is the exclusive responsibility of the Contractor.

2. Submit six (6) inch long samples of transition strips.

C. Submit manufacturer's warranty as noted herein.

1.6 DELIVERY AND STORAGE

A. Deliver materials to the project site in the manufacturer's original unopened containers, clearly marked to indicate pattern, gauge, lot number and sequence of materials.

B. Carefully handle all materials and store in original containers at not less than seventy (70) degrees F. for at least forty-eight (48) hours before start of installation.

1.7 FIELD CONDITIONS

A. Maintain ambient temperatures within range recommended by manufacturer, but not less than 70 deg F. or more than 95 deg F., in spaces to receive floor tile during the following time periods:

1. 48 hours before installation.

2. During installation.

3. 48 hours after installation.

B. After installation and until Substantial Completion, maintain ambient temperatures within range recommended by manufacturer, but not less than 55 deg F. or more than 95 deg F.

C. Close spaces to traffic during floor tile installation.

D. Close spaces to traffic for 48 hours after floor tile installation.

E. Install floor tile after other finishing operations, including painting, have been completed.

1.8 WARRANTY

A. Provide manufacturers 5-year limited warranty.

PART 2 PRODUCTS

2.1 VINYL COMPOSITION TILE (VCT)

A. VCT: Armstrong Migrations VCT, 12" x 12" Format.

1. Colors

a. VCT1: #Z3531 Emblem Blue
b. VCT2: #Z3547 Hail

2. Pattern/Layout: See Drawings.

2.2 ACCESSORIES

A. Adhesives: Waterproof, stabilized type, as recommended by the tile manufacturer for the type of service indicated.

B. Concrete Slab Primer: Non-staining type recommended by the tile manufacturer.

C. Leveling Compound: Latex/Portland cement flash patching and leveling compound equal to No. DSP-520 made by H.B. Fuller or No. 226 with 3701 admixture made by Laticrete or equal made by Mapei, or approved equal.

D. Edging Strips: 1/8" thick, homogeneous vinyl or rubber composition, tapered or bullnose edge, color as selected by the Architect from manufacturer's standards.

E. Finish for VCT

1. Cleaner shall be equal to "Super Shine All" made by Hillyard Chemical Co., or approved equal.

2. Wax shall be equal to "Super Hil-Brite" made by Hillyard Chemical Co., or approved equal.

PART 3 EXECUTION

3.1 INSPECTION

A. Examine the areas and conditions where resilient tile flooring is to be installed and correct any conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions are corrected to permit proper installation of the work.

3.2 CONDITION OF SURFACES

A. Allowable Variations in Substrate Levels (Floors): ± 1/8" in 10'-0" distance and 1/4" total maximum variation from levels shown.

B. Grind or fill concrete substrates as required to comply with allowable variation.

3.3 PREPARATION

A. Prepare substrates according to floor tile manufacturer's written instructions to ensure adhesion of resilient products.

B. Concrete Substrates: Prepare according to ASTM F 710.

1. Verify that substrates are dry and free of curing compounds, sealers, and hardeners.

2. Remove substrate coatings and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, using mechanical methods recommended by floor tile manufacturer. Do not use solvents.

3. Alkalinity and Adhesion Testing: Perform tests recommended by floor tile manufacturer. Proceed with installation only after substrate alkalinity falls within range on pH scale recommended by manufacturer in writing, but not less than 5 or more than 9 pH.

4. Moisture Testing: Proceed with installation only after substrates pass testing according to floor tile manufacturer's written recommendations, but not less stringent than the following:

    a. Perform anhydrous calcium chloride test according to ASTM F 1869. Proceed with installation only after substrates have maximum moisture-vapor-emission rate of 3 lb. of water/1000 sq. ft. in 24 hours.
    b. Perform relative humidity test using in situ probes according to ASTM F 2170. Proceed with installation only after substrates have a maximum 75 percent relative humidity level.

C. Fill cracks, holes, and depressions in substrates with trowelable leveling and patching compound; remove bumps and ridges to produce a uniform and smooth substrate.

D. Do not install floor tiles until they are the same temperature as the space where they are to be installed.

1. At least 48 hours in advance of installation, move resilient floor tile and installation materials into spaces where they will be installed.

E. Immediately before installation, sweep and vacuum clean substrates to be covered by resilient floor tile.

3.4 INSTALLATION

A. Install tile only after all finishing operations, including painting, have been completed and permanent heating system is operating. Moisture content of concrete slabs, building air temperature and relative humidity must be within limits recommended by tile manufacturer.

B. Place tile units with adhesive cement in strict compliance with the manufacturer's recommendations. Butt tile units tightly to vertical surfaces, thresholds, nosings and edgings. Scribe around obstructions and to produce neat joints, laid tight, even and in straight, parallel lines. Extend tile units into toe spaces, door reveals, and into closet and similar openings.

C. Maintain reference markers, holes, or openings that are in place or plainly marked for future cutting by repeating on the finish tile as marked in the subfloor. Use chalk or other non-permanent marking devices.

D. Lay tile from center marks established with principal walls, discounting minor off-sets, so that tile at opposite edges of the room are of equal width. Adjust as necessary to

avoid use of cut widths less than 1/2 tile at room perimeters. Lay tile square to room axis, unless otherwise shown.

E. Match tiles for color and pattern by using tile from cartons in the same sequence as manufactured and packaged. Cut tile neatly to and around all fixtures. Broken, cracked, chipped or deformed tile is not acceptable.

F. Tightly cement tile to sub-base without open cracks, voids, raising and puckering at joints, telegraphing of adhesive spreader marks through tile, or other surface imperfections.

G. Lay tile with grain in all tile running in the same direction.

H. Place resilient edge strips tightly butted to tile and secure with adhesive. Provide edging strips at all unprotected edges of tile, unless otherwise shown.

3.5 CLEANING AND PROTECTION

A. Remove any excess adhesive or other surface blemishes from tile, using neutral type cleaners as recommended by the tile manufacturer. Protect installed flooring from damage by use of heavy Kraft paper or other covering.

B. Finishing for VCT: After completion of the project and just prior to the final inspection of the work, thoroughly clean tile floors and accessories. Apply two (2) coats of wax and buff using materials as specified herein.

END OF SECTION

SECTION 09 90 00

PAINTING AND FINISHING

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 SECTION INCLUDES

A. Work of this Section includes all labor, materials, equipment, and services necessary to complete the painting and finishing as shown on the drawings and/or specified herein, including, but not limited to, the following:

1. Prime painting unprimed surfaces to be painted under this Section.
2. Painting all items furnished with a prime coat of paint, including touching up of or repairing of abraded, damaged or rusted prime coats applied by others.
3. Painting all ferrous metal (except stainless steel) exposed to view.
4. Painting interior concrete block exposed to view.
5. Epoxy coating on concrete block exposed to view.
6. Painting gypsum drywall exposed to view.
7. Painting of wood exposed to view, except items which are specified to be painted or finished under other Sections of these specifications. Back painting of all wood in contact with concrete, masonry or other moisture areas.
8. Painting pipes, pipe coverings, conduit, ducts, insulation, hangers, supports and other mechanical and electrical items and equipment exposed to view.
9. Painting surfaces above, behind or below grilles, gratings, diffusers, louvers, lighting fixtures, and the like, which are exposed to view through these items.
10. Incidental painting and touching up as required to produce proper finish for painted surfaces, including touching up of factory finished items.
11. Painting of any surface not specifically mentioned to be painted herein or on drawings, but for which painting is obviously necessary to complete the job, or work which comes within the intent of these specifications, shall be included as though specified.

1.3 RELATED SECTIONS

A. Shop priming is required on some, but not all of the items scheduled to be field painted. Refer to other Sections of work for complete description.

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B. Shop Coat on Machinery and Equipment: Refer to the Sections under which various items of manufactured equipment with factory applied shop prime coats are furnished, including, but not necessarily limited to, the following Sections. All items of equipment furnished with prime coat finish shall be finish painted under this Section.

1. Plumbing - Division 22.

2. Heating, Ventilation and Air Conditioning - Division 23.

C. Color Coding of Mechanical Piping and Electrical Conduits – Divisions 22 and 26.

1. This Color Coding consists of an adhesive tape system and is in addition to painting of piping and conduits under this Section, as specified above.

1.4 MATERIALS AND EQUIPMENT NOT TO BE PAINTED

A. Items of equipment furnished with complete factory finish, except for items specified to be given a finish coat under this Section.

B. Factory-finished toilet partitions.

C. Factory-finished acoustical tile.

D. Non-ferrous metals, except for items specified and/or indicated to be painted.

E. Finished hardware, excepting hardware that is factory primed.

F. Surfaces not to be painted shall be left completely free of droppings and accidentally applied materials resulting from the work of this Section.

1.5 QUALITY ASSURANCE

A. Job Mock-Up

1. In addition to the samples specified herein to be submitted for approval, apply in the field, at their final location, each type and color of approved paint materials, applied 10 feet wide, floor to ceiling of wall surfaces, before proceeding with the remainder of the work, for approval by the Architect. Paint mock-ups to include door and frame assembly.

2. These applications when approved will establish the quality and workmanship for the work of this Section.

3. Repaint individual areas which are not approved, as determined by the Architect, until approval is received. Assume at least two paint mock-ups of each color and gloss for approval.

B. Qualification of Painters: Use only qualified journeyman painters for the mixing and application of paint on exposed surfaces.

C. Paint Coordination: Provide finish coats which are compatible with the prime paints used. Review other Sections of these specifications in which prime paints are to be provided to ensure compatibility of the total coatings system for the various substrates. Upon request from other subcontractors, furnish information on the characteristics of

the finish materials proposed to be used, to ensure that compatible prime coats are used. Provide barrier coats over incompatible primers or remove and re-prime as required. Notify the Architect in writing of any anticipated problems using the coating systems as specified with substrates primed by others.

D. All paints must conform to the Volatile Organic Compounds (VOC) standards of prevailing codes and ordinances.

E. VOC Limits: Comply with Adhesives, Sealants, and Sealant Primers VOC Limits Tables, CI 2009 (usgbc.org).

1.6 SUBMITTALS

A. Materials List: Before any paint materials are delivered to the job site, submit to the Architect a complete list of all materials proposed to be furnished and installed under this portion of the work. This shall in no way be construed as permitting substitution of materials for those specified or accepted for this work by the Architect.

B. Samples

1. Accompanying the materials list, submit to the Architect copies of the full range of colors available in each of the proposed products.

2. Upon direction of the Architect, prepare and deliver to the Architect two (2) identical sets of Samples of each of the selected colors and glosses painted onto 8-1/2" x 11" x 1/4" thick material; whenever possible, the material for Samples shall be the same material as that on which the coating will be applied in the work.

C. Manufacturer's Recommendations: In each case where material proposed is not the material specified or specifically described as an acceptable alternate in this Section of these specifications, submit for the Architect's review the current recommended method of application published by the manufacturer of the proposed material.

D. Closeout Submittal

1. Coating Maintenance Manual: Upon conclusion of the project, the Contractor or paint manufacturer/supplier shall furnish a coating maintenance manual such as Sherwin Williams "Custodian Project Color and Product Information" report or equal. Manual shall include an Area Summary with finish schedule, Area Detail designating where each product/color/finish was used, product data pages, MSDS, care and cleaning instructions, touch-up procedures, and color samples of each color and finish used.

1.7 PRODUCT HANDLING

A. Deliver all paint materials to the job site in their original unopened containers with all labels intact and legible at time of use.

B. Protection

1. Store only the approved materials at the job site, and store only in a suitable and designated area restricted to the storage of paint materials and related equipment.

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2. Use all means necessary to ensure the safe storage and use of paint materials and the prompt and safe disposal of waste.

3. Use all means necessary to protect paint materials before, during and after application and to protect the installed work and materials of all other trades.

C. Replacements: In the event of damage, immediately make all repairs and replacements necessary.

1.8 EXTRA STOCK

A. Upon completion of this portion of the Work, deliver to the Owner an extra stock of paint equaling approximately ten (10) percent of each color and gloss used and each coating material used, with all such extra stock tightly sealed in clearly labeled containers.

1.9 JOB CONDITIONS

A. Apply water-based paints only when the temperature of surfaces to be painted and the surrounding air temperatures are between 50 degrees F. and 90 degrees F., unless otherwise permitted by the paint manufacturer's printed instructions.

B. Apply solvent-thinned paints only when the temperature of surfaces to be painted and the surrounding air temperatures are between 45 degrees F. and 95 degrees F. unless otherwise permitted by the paint manufacturer's printed instructions.

C. Do not apply paint in snow, rain, fog or mist; or when the relative humidity exceeds eighty-five (85) percent; or to damp or wet surfaces; unless otherwise permitted by the paint manufacturer's printed instructions.

D. Painting may be continued during inclement weather only if the areas and surfaces to be painted are enclosed and heated within the temperature limits specified by the paint manufacturer during application and drying periods.

PART 2 PRODUCTS

2.1 PAINT MANUFACTURERS

A. Except as otherwise noted, provide the painting products listed for all required painting made by one of the manufacturers listed in the paint schedule (Section 2.4). These companies are Benjamin Moore, PPG Paint (Glidden Professional), and Sherwin Williams (S-W). Comply with number of coats and required minimum mil thicknesses as specified herein. Allow for 6 colors plus black and white.

2.2 MATERIALS

A. Provide undercoat paint produced by the same manufacturer as the finish coats. Use only thinners approved by the paint manufacturer and use only to recommended limits.

B. Colors and Glosses: All colors and glosses shall be as selected by the Architect. Certain colors will require paint manufacturer to prepare special factory mixes to match colors selected by the Architect. Color schedule (with gloss) shall be furnished by the Architect.

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1. Pricing shall be based on the use of 16 base colors plus black and white.

C. Coloring Pigment: Products of or furnished by the manufacturer of the paint or enamel approved for the work.

D. Linseed Oil: Raw or boiled, as required, of approved manufacture, per ASTM D 234 and D 260, respectively.

E. Turpentine: Pure distilled gum spirits of turpentine, per ASTM D 13.

F. Shellac: Pure gum shellac (white or orange) cut in pure denatured alcohol using not less than four (4) lbs. of gum per gallon of alcohol.

G. Driers, Putty, Spackling Compound, Patching Plaster, etc.: Best quality, of approved manufacture.

H. Heat-Resistant Paint: Where required, use heat resistant paint when applying paint to heating lines and equipment.

2.3 GENERAL STANDARDS

A. The various surfaces shall be painted or finished as specified below in Article 2.4. However, the Architect reserves the right to change the finishes within the range of flat, semi-gloss or gloss, without additional cost to the Owner.

1. Provide the following gloss levels at the following locations:

a. Walls: Eggshell
b. Trim: Semi-Gloss
c. Ceilings: Flat

2. Note: General paint must match the District’s existing color; Benjamin Moore #2133-70 Tundra and accent color Behr Marquee #HDC-AC-23A Cabana Blue. Other colors will also be required.

B. All paints, varnishes, enamels, lacquers, stains and similar materials must be delivered in the original containers with the seals unbroken and label intact and with the manufacturer's instructions printed thereon.

C. All painting materials shall bear identifying labels on the containers with the manufacturer's instructions printed thereon.

D. Paint shall not be badly settled, caked or thickened in the container, shall be readily dispersed with a paddle to a smooth consistency and shall have excellent application properties.

E. Paint shall arrive on the job color-mixed except for tinting of under-coats and possible thinning.

F. All thinning and tinting materials shall be as recommended by the manufacturer for the particular material thinned or tinted.

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G. It shall be the responsibility of the Contractor to see that all mixed colors match the color selection made by the Architect prior to application of the coating.

2.4 SCHEDULE OF FINISHES

A. Interior Ferrous Metal

Satin Finish/Latex
Primer: Benj. Moore Ultra Spec HP Acrylic Metal Primer (HP04)
PPG Pitt Tech Plus DTM Acrylic Primer 4020
Sherwin-Williams Pro-Industrial Pro-Cryl Universal Primer B66-3100 Series
First Coat: Benj. Moore Ultra Spec-HP DTM Acrylic Low Luster (HP25)
PPG Pitt Glaze WB1 Pre-Catalyzed Eggshell Epoxy 16-310
S-W Pro Industrial Acrylic Eg-Shel, B66-660 Series
Second Coat: Benj. Moore Ultra Spec-HP DTM Acrylic Low Luster (HP25)
PPG Pitt Glaze WB1 Pre-Catalyzed Eggshell Epoxy 16-310
S-W Pro Industrial Acrylic Eg-Shel, B66-660 Series
a. Total DFT not less than: 3.9 mils

Semi-Gloss Finish/Latex
Primer: Benj. Moore Ultra Spec-HP Acrylic Metal Primer (HP04)
PPG Devflex 4020 PF DTM Primer/Flat Finish
Sherwin-Williams Pro-Industrial Pro-Cryl Universal Primer B66-3100 Series
First Coat: Benj. Moore Ultra Spec HP DTM Acrylic Semi-Gloss (HP29)
PPG Pitt Glaze WB1 Pre-Catalyzed Semi-Gloss Epoxy 16-510
S-W Pro Industrial Acrylic Semi-Gloss, B66-650 Series
Second Coat: Benj. Moore Ultra Spec HP DTM Acrylic Semi-Gloss (HP29)
PPG Pitt Glaze WB1 Pre-Catalyzed Semi-Gloss Epoxy 16-510
S-W Pro Industrial Acrylic Semi-Gloss, B66-650 Series
a. Total DFT not less than: 4.0 mils

B. Interior Concrete Block

Epoxy Coating over Filler
Block Filler: 130 “Envirofill”, 60-80 sq. ft./gallon
First Coat: Series 280 “Tneme Glaze”, 6-10 mils/d.f.t.
Second Coat: “Endura-Shield WB” 2-3 mils d.f.t.

Flat Finish/Vinyl Acrylic Latex over Filler
Block Filler: Benj. Moore Ultra Spec Masonry Int./Ext. High Build Block Filler (571)
PPG Speedhide HI Fill Latex Block Filler 6-15XI
S-W Pro Industrial Heavy-Duty Block Filler, B42-150
First Coat: Benj. Moore Ultra Spec 500 Interior Flat Latex (N536)
PPG Speedhide Zero Interior Latex Flat 6-4110XI
S-W ProMar 200 Zero VOC Interior Latex Flat, B30-12600 Series
Second Coat: Benj. Moore Ultra Spec 500 Interior Flat Latex (N536)
PPG Speedhide Zero Interior Latex Flat 6-4110XI
S-W ProMar 200 Zero VOC Interior Latex Flat, B30-12600 Series
a. Total DFT not less than: 10.7 mils

Eggshell Finish/Vinyl Acrylic Latex over Filler
Block Filler: Benj. Moore Ultra Spec Masonry Int./Ext. High Build Block Filler (571)
PPG Speedhide HI Fill Latex Block Filler 6-15XI
S-W Pro Industrial Heavy-Duty Block Filler, B42-150
First Coat: Benj. Moore Ultra Spec 500 Interior Latex Eggshell (N538)
PPG Speedhide Zero Interior Latex Eggshell 6-4310XI
S-W ProMar 200 Zero VOC Interior Latex Eggshell, B20-1900 Series
Second Coat: Benj. Moore Ultra Spec 500 Interior Latex Eggshell (N538)
PPG Speedhide Zero Interior Latex Eggshell 6-4310XI
S-W ProMar 200 Zero VOC Interior Latex Eggshell, B20-1900 Series
a. Total DFT not less than: 10.9 mils

Semi-Gloss Finish/Vinyl Acrylic Latex over Filler
Block Filler: Benj. Moore Ultra Spec Masonry Int./Ext. High Build Block Filler (571)
PPG Speedhide HI Fill Latex Block Filler 6-15XI
S-W Pro Industrial Heavy-Duty Block Filler, B42-150
First Coat: Benj. Moore Ultra Spec 500 Interior Latex Gloss (N540)
PPG Speedhide Zero Interior Semi-Gloss Latex, 6-4510XI Series
S-W ProMar 200 Zero VOC Interior Latex S. Gloss, B31-2600 Series
Second Coat: Benj. Moore Ultra Spec 500 Interior Latex Gloss (N540)
PPG Speedhide Zero Interior Semi-Gloss Latex, 6-4510XI Series
S-W ProMar 200 Zero VOC Interior Latex S. Gloss, B31-2600 Series
a. Total DFT not less than: 10.7 mils

C. Interior Drywall

Flat Finish/Vinyl Acrylic Latex
Primer: Benj. Moore Ultra Spec 500 Interior Latex Primer (N534)
PPG Speedhide Zero Interior Latex Primer 6-4900XI
S-W ProMar 200 Zero VOC Interior Latex Primer, B28-2600
First Coat: Benj. Moore Ultra Spec 500 Latex Flat (N536)
PPG Speedhide Zero Interior Latex Flat 6-4110XI
S-W ProMar 200 Zero VOC Interior Latex Flat, B30-2600 Series
Second Coat: Benj. Moore Ultra Spec 500 Latex Flat (N536)
PPG Speedhide Zero Interior Latex Flat 6-4110XI
S-W ProMar 200 Zero VOC Interior Latex Flat, B30-2600 Series
a. Total DFT not less than: 3.6 mils

Eggshell Finish/Vinyl Acrylic Latex
Primer: Benj. Moore Ultra Spec 500 Interior Latex Primer (N534)
PPG Speedhide Zero Interior Latex Primer 6-4900XI
S-W ProMar 200 Zero VOC Interior Latex Primer, B28-2600
First Coat: Benj. Moore Ultra Spec 500 Interior Latex Eggshell (N538)
PPG Speedhide Zero Interior Latex Eggshell 6-4310XI
S-W ProMar 200 Zero VOC Interior Latex Eg-Shell, B20-1900 Series
Second Coat: Benj. Moore Ultra Spec 500 Interior Latex Eggshell (N538)
PPG Speedhide Zero Interior Latex Eggshell 6-4310XI
S-W ProMar 200 Zero VOC Interior Latex Eg-Shell B20-1900 Series
a. Total DFT not less than: 3.8 mils

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D. Interior Painted Wood

Satin Finish/Latex
Primer: Benj. Moore Advance Waterborne Int. Alkyd Primer (790)
PPG Seal Grip Interior Primer/Finish 17-951
S-W Multi-Purpose Latex Primer/Sealer B51 Series
First Coat: Benj. Moore Advance Waterborne Int. Alkyd Satin (792)
PPG Speedhide Zero Interior Latex Satin, 6-4410XI
S-W ProMar 200 Zero VOC Interior Latex Eg-Shel, B20-1900 Series
Second Coat: Benj. Moore Advance Waterborne Int. Alkyd Satin (792)
PPG Speedhide Zero Interior Latex Satin, 6-4410XI
S-W ProMar 200 Zero VOC Interior Latex Eg-Shel, B20-1900 Series
a. Total DFT not less than: 4.0 mils

Semi-Gloss Finish/Latex
Primer: Benj. Moore Advance Waterborne Int. Alkyd Primer (790)
PPG Seal Grip Interior Primer/Finish 17-951
S-W Multi-Purpose Latex Primer/Sealer B51 Series
First Coat: Benj. Moore Advance Waterborne Int. Alkyd (793)
PPG Speedhide Zero Interior Semi-Gloss Latex, 6-4510XI
S-W ProMar 200 Zero VOC Interior Latex Semi-Gloss, B31-2600 Series
Second Coat: Benj. Moore Advance Waterborne Int. Alkyd (793)
PPG Speedhide Zero Interior Semi-Gloss Latex, 6-4510XI
S-W ProMar 200 Zero VOC Interior Latex Semi-Gloss, B31-2600 Series
a. Total DFT not less than: 3.8 mils

2.5 PIPING AND MECHANICAL EQUIPMENT EXPOSED TO VIEW

A. Paint all exposed piping, conduits, ductwork and mechanical and electrical equipment. Use heat resisting paint when applied to heating lines and equipment. The Contractor is cautioned not to paint or otherwise disturb moving parts in the mechanical systems. Mask or otherwise protect all parts as required to prevent damage.

B. Exposed Uncovered Ductwork, Piping, Hangers and Equipment: Latex Enamel Undercoater and one (1) coat Acrylic Latex Flat.

C. Exposed Covered Piping, Duct Work and Equipment: Primer/Sealer and one (1) coat Acrylic Latex Flat.

D. Panel Boards, Grilles and Exposed Surfaces of Electrical Equipment: Latex Enamel Undercoater and two (2) coats Latex Semi-Gloss.

E. Equipment or Apparatus with Factory-Applied Paint: Refinish any damaged surfaces to match original finish. Do not paint over name plates and labels.

F. All surfaces of insulation and all other work to be painted shall be wiped or washed clean before any painting is started.

G. All conduit, boxes, distribution boxes, light and power panels, hangers, clamps, etc., are included where painting is required.

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H. All items of Mechanical and Electrical trades which are furnished painted under their respective Contracts shall be carefully coordinated with the work of this Section so as to leave no doubt as to what items are scheduled to be painted under this Section.

PART 3 EXECUTION

3.1 INSPECTION

A. Examine the areas and conditions where painting and finishing are to be applied and correct any conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions are corrected to permit proper installation of the work.

3.2 GENERAL WORKMANSHIP REQUIREMENTS

A. Only skilled mechanics shall be employed. Application may be by brush or roller. Spray application only upon acceptance from the Architect in writing.

B. The Contractor shall furnish the Architect a schedule showing when he expects to have completed the respective coats of paint for the various areas and surfaces. This schedule shall be kept current as the job progresses.

C. The Contractor shall protect his work at all times and shall protect all adjacent work and materials by suitable covering or other method during progress of his work. Upon completion of the work, he shall remove all paint and varnish spots from floors, glass and other surfaces. He shall remove from the premises all rubbish and accumulated materials of whatever nature not caused by others and shall leave his part of the work in clean, orderly and acceptable condition.

D. Remove and protect hardware, accessories, device plates, lighting fixtures, and factory finished work, and similar items, or provide ample in place protection. Upon completion of each space, carefully replace all removed items by workmen skilled in the trades involved.

E. Remove electrical panel box covers and doors before painting walls. Paint separately and re-install after all paint is dry.

F. All materials shall be applied under adequate illumination, evenly spread and flowed on smoothly to avoid runs, sags, holidays, brush marks, air bubbles and excessive roller stipple.

G. Coverage and hide shall be complete. When color, stain, dirt or undercoats show through final coat of paint, the surface shall be covered by additional coats until the paint film is of uniform finish, color, appearance and coverage, at no additional cost to the Owner.

H. All coats shall be dry to manufacturer's recommendations before applying succeeding coats.

I. Do not apply paint behind frameless mirrors that use mastic for adhering to wall surface.

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3.3 PREPARATION OF SURFACES

A. General

1. The Contractor shall be held wholly responsible for the finished appearance and satisfactory completion of painting work. Properly prepare all surfaces to receive paint, which includes cleaning, sanding, and touching-up of all prime coats applied under other Sections of the work. Broom clean all spaces before painting is started. All surfaces to be painted or finished shall be perfectly dry, clean and smooth.

2. Perform all preparation and cleaning procedures in strict accordance with the paint manufacturer's instructions and as herein specified, for each particular substrate condition.

3. Clean surfaces to be painted before applying paint or surface treatments. Remove oil and grease with clean cloths and cleaning solvents prior to mechanical cleaning. Program the cleaning and painting so that dust and other contaminants from the cleaning process will not fall in wet, newly painted surfaces.

B. Metal Surfaces

1. Weld Fluxes: Remove weld fluxes, splatters, and alkali contaminants from metal surfaces in an approved manner and leave surface ready to receive painting.

2. Bare Metal: Thoroughly clean off all foreign matter such as grease, rust, scale and dirt before priming coat is applied. Clean surfaces, where solder flux has been used, with benzene. Clean surfaces by flushing with mineral spirits. For aluminum surfaces, wipe down with an oil free solvent prior to application of any pre-treatment.

3. Shop Primed Metal: Clean off foreign matter as specified for "Bare Metal." Prime bare, rusted, abraded and marred surfaces with approved primer after proper cleaning of surfaces. Sandpaper all rough surfaces smooth.

4. Metal Filler: Fill dents, cracks, hollow places, open joints and other irregularities in metal work to be painted with an approved metal filler suitable for the purpose and meeting the requirements of the related Section of work; after setting, sand to a smooth, hard finish, flush with adjoining surface.

C. Gypsum Drywall Surfaces: Scrape off all projections and splatters, spackles all holes or depressions, including taped and spackled joints, sand smooth. Conform to standards established in Section 092900, "Gypsum Drywall."

D. Wood Surfaces: Sand to remove all roughness, loose edges, slivers, or splinters and then brush to remove dust. Wash off grease or dirt with an approved cleaner. Fill all cracks, splits, nail holes, screw holes, and surface defects with putty after the priming coat has been applied. Putty shall be brought up flush with the surface and sanded smooth and touched-up with primer when dry.

E. Block Masonry Surfaces: Thoroughly clean off all grit, grease, dirt mortar drippings or splatters, and other foreign matter. Remove nibs or projections from masonry surfaces. Fill cracks, holes or voids not filled under the "Masonry" Section, with

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Portland cement grout, and bag surface so that it has approximately the same texture as the adjacent masonry surface.

F. Testing for Moisture Content: Contractor shall test all masonry and drywall surfaces for moisture content using a reliable electronic moisture meter. Contractor shall also test latex type fillers for moisture content before application of top coats of paint. Do not apply any paint or sealer to any surface or to latex type filler where the moisture content exceeds seven (7) percent as measured by the electronic moisture meter.

G. Touch-Up: Prime paint all patched portions in addition to all other specified coats.

3.4 MATERIALS PREPARATION

A. Mix and prepare painting materials in strict accordance with the manufacturer's directions.

B. Store materials not in actual use in tightly covered containers. Maintain containers used in storage, mixing, and application of paint in a clean condition, free of foreign materials and residue.

C. Stir all materials before application to produce a mixture of uniform density, and as required during the application of the materials. Do not stir any film which may form on the surface into the material. Remove the film and, if necessary, strain the material before using.

D. Tint each undercoat a lighter shade to facilitate identification of each coat where multiple coats of the same material are to be applied. Tint undercoats to match the color of the finish coat; provide sufficient difference in shade of undercoats to distinguish each separate coat.

3.5 APPLICATION

A. General: Apply paint by brush or roller in accordance with the manufacturer's directions. Use brushes best suited for the type of material being applied. Use rollers of carpet, velvet back, or high pile sheep's wool as recommended by the paint manufacturer for material and texture required.

1. The number of coats and paint film thickness required is the same regardless of the application method. Do not apply succeeding coats until the previous coat has completely dried. Sand between each enamel or varnish coat application with fine sandpaper or rub surfaces with pumice stone where required to produce an even, smooth surface in accordance with the coating manufacturer's directions.

2. Apply additional coats when undercoats, stains, or other conditions show through the final coat of paint, until the paint film is of uniform finish, color and appearance. Give special attention to insure that all surfaces, including edges, corners, crevices, welds, and exposed fasteners receive a film thickness equivalent to that of flat surfaces.

3. Paint surfaces behind movable equipment and furniture the same as similar exposed surfaces. Paint surfaces behind permanently fixed equipment or furniture with prime coat only.

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a. "Exposed surfaces" is defined as those areas visible when permanent or built-in fixtures, convector covers, covers for finned tube radiation, grilles, etc., are in place in areas scheduled to be painted.

4. Paint interior surfaces of ducts, where visible through registers or grilles, with a flat, non-specular black paint, before final installation of equipment.

5. Paint the back sides of access panels, removable or hinged covers to match the exposed surfaces.

6. Finish doors on tops, bottoms, and side edges the same as the faces, unless otherwise indicated.

7. Enamel finish applied to wood or metal shall be sanded with fine sandpaper and then cleaned between coats to produce an even surface.

8. Paste wood filler applied on open grained wood after beginning to flatten, shall be wiped across the grain of the wood, then with a circular motion, to secure a smooth, filled, clean surface with filler remaining in open grain only. After overnight dry, sand surface with the grain until smooth before applying specified coat.

B. Scheduling Painting

1. Apply the first coat material to surfaces that have been cleaned, pre-treated or otherwise prepared for painting as soon as practicable after preparation and before subsequent surface deterioration.

2. Allow sufficient time between successive coatings to permit proper drying. Do not re-coat until paint has dried to where it feels firm, does not deform or feel sticky under moderate thumb pressure, and the application of another coat of paint does not cause lifting or loss of adhesion of the undercoat.

C. Prime Coats: Re-coat primed and sealed walls and ceilings where there is evidence of suction spots or unsealed areas in first coat, to assure a finish coat with no burn-through or other defects due to insufficient sealing.

D. Pigmented (Opaque) Finishes: Completely cover to provide an opaque, smooth surface of uniform finish, color, appearance and coverage.

E. Touching-Up of Factory Finishes: Unless otherwise specified or shown, materials with a factory finish shall not be painted at the project site. To touch up, the Contractor shall use the factory finished material manufacturer's recommended paint materials to repair abraded, chipped, or otherwise defective surfaces.

3.6 PROTECTION

A. Protect work of other trades, whether to be painted or not, against damage by the painting and finishing work. Leave all such work undamaged. Correct any damages by cleaning, repairing or replacing, and repainting, as acceptable to the Architect.

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B. Provide "Wet Paint" signs as required to protect newly painted finishes. Remove temporary protective wrappings provided by others for protection of their work after completion of painting operations.

3.7 CLEAN UP

A. During the progress of the work, remove from the site all discarded paint materials, rubbish, cans and rags at the end of each work day.

B. Upon completion of painting work, clean window glass and other paint spattered surfaces. Remove spattered paint by proper methods of washing and scraping, using care not to scratch or otherwise damage finished surfaces.

C. At the completion of work of other trades, touch-up and restore all damaged or defaced painted surfaces.

END OF SECTION

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SECTION 10 14 00

SIGNAGE

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 SECTION INCLUDES

A. Work of this Section includes all labor, materials, equipment, and services necessary to complete the signage as shown on the drawings and/or specified herein, including, but not necessarily limited to, the following:

1. Toilet room identification signs.

1.3 QUALITY ASSURANCE

A. For actual installation of the identifying devices, use only personnel who are thoroughly familiar with the manufacturer's recommended methods of installation and who are completely trained in the required skills.

1.4 SUBMITTALS

A. Product Data: Submit manufacturer's technical data and installation instructions for each type of identifying device required.

B. Samples: Submit samples of each identifying device showing finishes, colors, surface textures and qualities of manufacture and design of each sign component including graphics.

C. Shop Drawings: Submit shop drawings for fabrication and erection of identifying devices. Include plans, elevations, and large scale details of sign wording and lettering layout. Show anchorage and accessory items. Furnish location template drawings for items supported or anchored to permanent construction.

1.5 PRODUCT HANDLING

A. Protection: Use all means necessary to protect the materials of this Section before, during and after installation and to protect the installed work and materials of all other trades.

B. Replacements: In the event of damage, immediately make all repairs and replacements necessary.

PART 2 PRODUCTS

2.1 PANEL SIGNS

A. Interior Panel Signs: Provide smooth sign panel surfaces constructed to remain flat under installed conditions within a tolerance of plus or minus 1/16" measured diagonally from corner to corner, manufactured from aluminum, unframed. Comply with requirements indicated for materials, thicknesses, finishes, colors, designs, shapes, sizes, and details of construction.

B. Graphic Content and Style: Provide sign copy that complies with the requirements indicated for size, style, spacing, content, position, material, of letters, numbers, and other graphic devices.

C. Tactile Characters: Characters and Grade 2 Braille raised 1/32" above surfaces, in contrasting color.

D. Basis of Design: Provide .125" MP plastic beveled edge with raised text 1/32" from Best signs to match existing style and color.

1. Colors

a. Letttering, symbols and border (.375"): White #951
b. Background: Bicycle Blue #MP25808

2. Font: Sans Serif

3. Attachment to walls with vinyl foam tape.

PART 3 EXECUTION

3.1 INSPECTION

A. Examine the areas and conditions where signs are to be installed and correct any conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions are corrected to permit proper installation of the work.

3.2 INSTALLATION

A. Install units and components at the locations directed by the Architect, securely mounted with concealed theft-resistant fasteners. Attach to substrates in accordance with the manufacturer's instructions.

B. Install level, plumb, and at the proper height. Cooperate with other trades for installation of sign units to finish surfaces. Repair or replace damaged units as directed by the Architect.

END OF SECTION

SECTION 10 21 13

TOILET PARTITIONS

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 SECTION INCLUDES

A. Work of this Section includes all labor, materials, equipment, and services necessary to complete the toilet partitions as shown on the drawings and/or specified herein, including, but not necessarily limited to, the following:

1. Floor-mounted, overhead-braced, solid plastic toilet partitions.
2. Wall-hung urinal screens.
3. Hardware and accessories.

1.3 RELATED SECTIONS

A. Gypsum Drywall - Section 09 29 00.

B. Ceramic Tiling - Section 09 30 13.

C. Toilet Accessories - Section 10 28 13.

1.4 QUALITY ASSURANCE

A. Field Measurements: Take field measurements prior to fabrication to ensure proper fitting of the work.

B. Inserts and Anchorages: Furnish inserts and anchoring devices which must be built into other work for the installation of toilet partitions and related work. Coordinate delivery with other work to avoid delay.

1.5 SUBMITTALS

A. Shop Drawings: Before any of the materials of this Section are delivered to the job site, submit the following:

1. Room layouts and elevations for all areas, with dimensions based on actual dimensions taken at job site.
2. Materials, finishes, details of construction, gauges of metal, hardware, fastening and anchoring conditions and relation to adjoining constructions.

B. Samples - Submit:

1. Solid plastic panel, each color - 12" x 12".

2. All hardware and fitting items and fastenings for same. Include all items listed under 2.2 F. below.

C. Templates: Submit templates to other trades as required for support of toilet partitions.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Toilet Compartments: Toilet compartment shall be floor-mounted, overhead-braced, 100% post-consumer recycled high density polyethylene (HDPE) solid plastic assemblies with non-corrosive doors, panels, and pilasters equal to "Solid Plastic Headrail Braced" as manufactured by Hadrian Inc., or equivalent product of Scranton Products, Bradley Corporation, Santana Products, Inc., or approved equal.

B. Urinal Screens: Provide wall hung urinal screens of same material as toilet partitions.

2.2 MATERIALS AND COMPONENTS

A. Construction: Doors, panels and pilasters shall be certified CLASS B polyethylene or 100% post-consumer recycled polyethylene solid plastic. The material shall contain no foaming agents, which can cause the formation of air pockets. The self-lubricating surface is resistant to marking and can be maintained effectively with ordinary household cleaners. Material is ideal for toilet partition installations, especially in high abuse and high moisture environments.

1. Solid plastic material shall meet National Fire Protection Association Class B, Uniform Building Code Class I, ASTM E 84 Fire Resistance Standards.

B. Doors: 1” thick by 55” high straight cut with fine radius edges.

C. Panels: 1” thick by 55” high straight cut with fine radius edges.

D. Pilasters: ” thick by 82” high straight cut with fine radius edges.

E. Headrail: 1.25” by 1.75” extruded anodized aluminum with anti-grip design. Wall thickness shall be 0.060” and shall be securely attached to wall and pilasters with manufacturer’s fittings in such a way as to make a rigid installation. All joints in headrails shall be made at a pilaster.

F. Hardware and Fittings: Doors are installed with 1/8” thick heavy extruded clear anodized aluminum hinges, which wrap around both the door and pilaster. Hinges are fastened to door and pilaster with tamper-proof 6-lobe security head stainless steel thru-bolts and fastened to the edge of the door and pilaster with a #10 x 1” screw. Top hinges have adjustable nylon cams. Strike-keeper and throw latch are extruded clear anodized aluminum. Three heavy-duty aluminum brackets are used at the panel to wall connection and a full-height continuous aluminum channel is used at the panel to

pilaster connection. Combination coat hook and bumper features a solid cast zinc hook and oversized black rubber bumper that functions as both a door stop and bag hook. Fasteners are theft-proof 6-lobe security head stainless steel screws. Pilasters shall be securely and rigidly fastened to the floor with 3” high stainless steel anchor shoes. Plastic anchor shoes are also available in colors to complement the partitions.

2.3 FINISH

A. Doors, panels, and pilasters shall be certified CLASS B polyethylene or 100% post-consumer recycled polyethylene with uniform color throughout.

1. Colors

a. Girls Toilet Rooms: 239 Gray
b. Boys Toilet Rooms: 212 Blueberry

PART 3 EXECUTION

3.1 INSPECTION

A. Examine the areas and conditions where toilet partitions are to be installed and correct any conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions are corrected to permit proper installation of the work.

3.2 INSTALLATION

A. Install work of this Section in a rigid and permanent manner, straight and plumb, with all horizontal lines level.

B. Install panels and doors twelve (12) inches above finished floor, unless otherwise indicated. Toilet compartment doors shall be centered on water closets, unless otherwise indicated.

C. Maintain uniform clearance of approximately 1/2" between pilasters and panels, and 1/2” between pilasters or panels and finished wall.

D. Maintain uniform clearance of 1/4" or less between vertical edges of doors and pilasters.

E. Secure pilasters to floor and level, plumb, and tighten. Set pilasters with anchors penetrating not less than 1-3/4" into structural floor unless otherwise indicated in manufacturer's written instructions. Secure continuous head rail to each pilaster with no fewer than two fasteners. Hang doors to align tops of doors with tops of panels and adjust so tops of doors are parallel with overhead brace when doors are in closed position.

END OF SECTION

SECTION 10 28 13

TOILET ACCESSORIES

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 SECTION INCLUDES

A. Work of this Section includes all labor, materials, equipment, and services necessary to complete the toilet accessories as shown on the drawings and/or specified herein, including, but not limited to, the following:

1. Mirrors.
2. Grab bars.
3. Paper towel dispenser at single user toilet room.

1.3 RELATED SECTIONS

A. Unit Masonry - Section 04 20 00.

B. Gypsum Drywall - Section 09 29 00.

C. Ceramic Tiling - Section 09 30 13.

D. Toilet Partitions - Section 10 21 13.

1.4 QUALITY ASSURANCE

A. Inserts and Anchorages: Furnish inserts and anchoring devices which must be set in concrete or built into masonry; coordinate delivery with other work to avoid delay.

B. Accessory Locations: Coordinate accessory locations with other work to avoid interference and to assure proper operation and servicing of accessory units. Accessories shall be installed at heights in compliance with prevailing Handicapped Code.

C. Products: Unless otherwise noted, provide products of same manufacturer for each type of unit and for units exposed in same areas.

1.5 SUBMITTALS

A. Product Data: Submit manufacturer's technical data, catalog cuts and installation instructions for each toilet accessory.

B. Setting Drawings: Provide setting drawings, templates, instructions, and directions for installation of anchorage devices in other work

C. Submit schedule of accessories indicating quantity and location of each item.

1.6 PRODUCT HANDLING

A. Deliver accessories to the site ready for use in the manufacturer's original and unopened containers and packaging, bearing labels as to type or material, manufacturer's name and brand name. Delivered materials shall be identical to approved samples.

PART 2 PRODUCTS

2.1 MATERIALS

A. Stainless Steel: AISI Type 302/304, with polished No. 4 finish, 22 gauge minimum, unless otherwise indicated.

B. Brass: ASTM B 19 flat products; ASTM B 16, rods, shapes, forgings, and flat products with finished edges; or ASTM B 30, castings.

C. Galvanized Steel Sheet: ASTM A 653, G60.

D. Chromium Plating: Nickel and chromium electro-deposited on base metal, ASTM B 456, Type SC 2.

E. Mirrors: ASTM C 1503, mirror glazing quality, clear glass mirrors, nominal 1/4" thick.

2.2 FASTENING DEVICES

A. Exposed Fasteners: Theft-proof type, chrome plated, or stainless steel; match finishes on which they are being used.

B. Concealed Fasteners: Galvanized (ASTM A 123) or cadmium plated.

C. No exposed fastening devices permitted on exposed frames.

D. For metal stud drywall partitions, provide ten (10) gauge galvanized sheet concealed anchor plates for securing surface mounted accessories.

2.3 FABRICATION

A. General: Stamped names or labels on exposed faces of toilet accessory units are not permitted. Unobtrusive labels on surfaces not exposed to view are acceptable. Where locks are required for a particular type of toilet accessory, provide same keying throughout project. Furnish two keys for each lock.

B. Surface-Mounted Toilet Accessories, General: Fabricate units with tight seams and joints, exposed edges rolled. Hang doors or access panels with continuous stainless steel piano hinge. Provide concealed anchorage.

C. Recessed Toilet Accessories, General: Fabricate units of all welded construction, without mitered corners. Hang doors of access panels with full-length stainless steel piano hinge. Provide anchorage that is fully concealed when unit is closed.

2.4 ACCESSORY SCHEDULE

A. Mirrors: See Drawings.

B. Grab Bars: See Drawings.

C. Paper Towel Dispenser: Bradley; Model 250-15 Surface Mounted C-Fold Towel Dispenser; satin stainless steel finish.

D. Owner Furnished, Contractor Installed Toilet Accessories: See Drawings.

PART 3 EXECUTION

3.1 INSPECTION

A. Examine the areas and conditions where toilet accessories are to be installed and correct any conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions are corrected to permit proper installation of the work.

3.2 PREPARATION

A. Accessories that are to be partition mounted shall be closely coordinated with other trades, so that the necessary reinforcing is provided to receive the accessories.

B. Contractor shall coordinate and provide blocking as required for Owner furnished toilet accessories.

C. Furnish templates and setting drawings and anchor plates required for the proper installation of the accessories at gypsum drywall and masonry partitions. Coordinate the work to assure that base plates and anchoring frames are in the proper position to secure the accessories.

D. Verify by measurements taken at the job site those dimensions affecting the work. Bring field dimensions that are at variance with those on the approved shop drawings to the attention of the Architect. Obtain decision regarding corrective measures before the start of fabrication of items affected.

E. Cooperate in the coordination and scheduling of the work of this Section with the work of other Sections so as not to delay job progress.

3.3 INSTALLATION

A. Install accessories at locations indicated on the drawings, using skilled mechanics, in a plumb, level and secure manner.

B. Concealed anchor assemblies for gypsum drywall partitions shall be securely anchored to metal studs to accommodate accessories. Assemblies shall consist of plates and/or angles tack welded to studs.

C. Secure accessories in place, at their designated locations by means of theft-proof concealed set screws, so as to render removing of the accessory with a screwdriver impossible.

D. Unless otherwise indicated, accessories shall conform to heights from the finished floor as shown on the drawings. Where locations are not indicated, such locations shall be as directed by the Architect.

E. Installed accessories shall operate quietly and smoothly for use intended. Doors and operating hardware shall function without binding or unnecessary friction. Dispenser type accessories shall be keyed alike. Prior to final acceptance, master key and one duplicate key shall be given to Owner's authorized agent.

F. The Architect shall be the sole judge of workmanship. Workmanship shall be of the highest quality. Open joints, weld marks, poor connections, etc., will not be permitted. The Architect has the right to reject any accessory if he feels the workmanship is below the standards of this project.

G. Grab bars shall be installed so that they can support a three hundred (300) lb. load for five minutes per ASTM F 446.

3.4 CLEANING AND PROTECTION

A. Upon completion of the installation, clean accessories of dirt, paint and foreign matter.

B. During the installation of accessories and until finally installed and accepted, protect accessories with gummed canvas or other means in order to maintain the accessories in acceptable condition.

C. Replace and/or repair, to the Owner's satisfaction, and at no additional cost to the Owner, installed work that is damaged or defective.

END OF SECTION

SECTION 220100

GENERAL CONDITIONS

PART 1 - GENERAL

Applicable Provisions of the Conditions of the Contract and Division 1 General Requirements govern the work in this section.

1.1 GENERAL CONDITIONS

A. Before submitting a proposal, Bidders shall examine all Drawings related to this work and shall become fully informed as to the extent and character of the work required and its relation to the other work in the building.

B. Before commencing work, the Contractor will examine all conditions of the project upon which his work is in any way dependent for perfect workmanship according to the intent of this Specification. No "waiver of responsibility" for incomplete, inadequate or defective adjoining work will be considered unless notice has been filed by this Contractor and acceded to by the Owner's representative in writing before the Contractor begins any part of the work.

C. The Contractor will pay for all licenses, permits and inspection fees required by civil authorities having jurisdiction. Comply with all laws, ordinances, regulations, fire underwriters requirements applicable to work herein specified without additional expense to the Owner. (Also, local building code requirements).

D. It is specifically intended that anything (whether material or labor) which is usually furnished as a part of such equipment as is hereinafter called for (and which is necessary for the completion and proper operation) shall be furnished as part of this Contract without additional cost the Owner, whether or not shown in detail on the Drawings or described in the Specifications.

E. When Drawings and Specifications conflict or there is a question as to the proper intent of this Contract, the Contractor shall assume the more expensive method in his pricing. All questions shall be directed to the Architect/Engineer in writing only and only up to ten (10) days prior to bidding.

F. The Drawings indicate the general runs of the piping, ductwork, etc. systems and the location of equipment and apparatus, but is shall be understood that the right is reserved by the Architect/Engineer to change the location of piping work, ductwork, equipment and apparatus to a reasonable extent as building conditions may dictate, prior to their installation without extra cost to the Owner.

G. Small scale drilling through walls and floors which may contain asbestos shall be performed by a person with a “restricted asbestos handler allied trades certificate” and shall have a copy of it in his possession at all times while working on the project.

H. Any changes from the Drawings and Specifications and any interpretation thereof shall have the prior approval of the Architect/Engineer. The Contractor shall submit in writing, at the time of signing the Contract, any items of necessary labor and materials, which, in his opinion, are lacking in requirements of the Drawings and Specifications to insure a complete job in all respects. No consideration will be granted to alleged misunderstanding of materials to be furnished, work to be done, or conditions to be complied with, it being understood that the tender of a proposal carries with it the agreement to all items and conditions referred to herein or indicated on the accompanying Drawings.

END OF SECTION 220100

SECTION 220125

SCOPE OF WORK

PART 1 - GENERAL

Applicable Provisions of the Conditions of the Contract and Division 1 General Requirements govern the work in this section.

1.1 SCOPE OF WORK

A. The work under this section includes all labor, materials, equipment, tools, transportation, cutting and patching, excavation and backfill and the performance of all work necessary and required for the furnishing and installation complete of all Plumbing and Drainage work as shown on Contract Drawings, as specified herein and as otherwise required by job conditions or reasonably implied, including but not necessarily limited to the following:

1. Provide complete new and altered sanitary, and vent piping from all new plumbing fixtures connecting to existing sanitary and vent system. See front end spec for bedding requirements.

2. Provide complete new and altered hot and cold water piping to all new plumbing fixtures, equipment, etc. as indicated.

3. Provide all new plumbing fixtures where indicated, complete including traps, stops, drains, strainers, tailpieces, faucets, escutcheons, etc.

4. Provide complete new piping and final connections to equipment furnished under other Divisions.

5. Provide all demolition, removal disconnecting, capping, sealing of all existing plumbing piping, apparatus, equipment, fixtures, specialties, accessories, etc. which are not included or incorporated in the new layout.

6. Provide all required temporary connections to maintain all plumbing services without interruption.

7. Pipe insulation.

8. Tests and adjustments.

9. This Contractor shall obtain all permits, bonds, approvals, etc. at no additional cost to the Owner.

10. This Contractor shall provide shop drawings for all plumbing fixtures, piping, valves, insulation, equipment, etc.

11. Furnish minimum 18” x 18” access doors for all valves, cleanouts, etc. in all inaccessible walls, ceilings, etc. Installation by General Contractor.

12. Cutting and Patching: See Front End Specifications for Trade Responsibilities.

13. Excavation and Backfill: See Front End Specifications for Trade Responsibilities.

14. Fire stopping per FM/UL and NFPA. Refer to Division 1.

B. Coordination Drawings (if applicable): Attention is directed to Division 1 for coordination drawing requirements for this project. These drawings are critical to the proper execution of the work and failure to honor these requirements may become the basis for denial of any and all claims for either or both “time” and “money”.

1.2 ALTERATION WORK

A. All equipment, piping, plumbing, fixtures, etc. to be removed, shall be disposed of or salvaged as directed by the Owner. They shall not be removed from the premises without Owners approval.

B. All piping to be removed shall be properly plugged or capped so that upon completion of all new work, all abandoned piping shall be concealed in finished areas.

C. No dead ends shall be left on any piping upon completion of job.

D. The existing systems shall be left in perfect working order upon completion of all new work.

E. Location and sizes of existing piping are approximate. Exact sizes and locations of all existing piping shall be verified on the job.

F. All removals shall be removed from the site.

END OF SECTION 220125

SECTION 220130

WATER SUPPLY SYSTEM

PART 1 - GENERAL

Applicable Provisions of the Conditions of the Contract and Division 1 General Requirements govern the work in this section. Submit shop drawings for checking and approval.

1.1 DESCRIPTION OF WORK

A. Furnish and install a complete cold-water distribution system to supply water to all new fixtures, water consuming equipment, and valved outlets for the use of other trades and connect to existing piping.

B. The water supply system shall be complete with all pipe, fittings, valves, mains, risers, branches, shock absorbers, air chambers, hangers, anchors, expansion loops, connections to existing piping, covering, tests, etc. all as shown on the Drawings, as hereinafter specified.

C. Furnish and install a complete hot water distribution system to supply water to all new fixtures and equipment requiring heated water.

PART 2 - PRODUCTS

2.1 PIPING, FITTINGS AND MATERIALS

A. All components of water supply system shall confirm to all “No Lead” requirements including NSF/ANSI-372.

B. The domestic water systems shall be of the following material and shall be in accordance with the latest ASTM and ASME Standards.

C. Domestic water piping within the buildings shall be seamless drawn or extruded tubing type "L" copper. Both shall be of Chase, Anaconda, Revere, and approved equal, hard temper ASTM B88 with solder joint sweat end fittings. Fittings for use with copper tubing shall be cast brass of Muellers "Streamlin" pattern or approved equal.

D. Joints for copper tubing shall be made with 95-5 (lead and antimony free) solder. Flanges where required shall be cast brass. Provide dielectric adapters between ferrous and non-ferrous pipe joints.

2.2 VALVES

A. All shut-off valves 2” and smaller shall be ball valves equal to Apollo 70 Series or Milwaukee BA100 Series Valve. Bronze body with chrome plated trim

B. This Contractor shall furnish all valves as indicated on the Drawings, or as may be required for the proper control of the pipe lines installed under this Specification, so that any fixture, line or piece of apparatus may be cut out for repair without interference or interruption of the service to the rest of the Facility.

C. All domestic water valves shall have a minimum working pressure of 125 psig, steam rated unless otherwise noted on the Drawings or specified herein. All valves shall be of one manufacture as manufactured by Milwaukee Valve or Hammond.

D. All gate valves within the buildings shall be wedge gauge valves with painted iron wheel handles, shall have gland followers in stuffing boxes, and shall be so constructed that they may be repacked while open and under pressure. All valves shall have the name of the manufacturer and working pressure cast or stamped thereon.

E. All gate valves shall be all bronze with sweat or screwed joint ends as required by the piping system in which they are installed.

F. Globe valves shall be of all bronze with composition disc, threaded or sweat joint ends as required by piping system in which they are installed.

G. Check valves shall be all bronze swing check type with threaded or sweat joint ends. Check valves 4 inch and larger shall be iron body bronze mountings and shall be provided with screwed or flanged joint ends as required by piping system in which they are installed.

H. Drain valves, at risers and at low points, shall be 3/4 inch heavy cast brass with composition washers with male thread for hose connections.

2.3 SHOCK ABSORBERS

A. Shock absorbers shall be similar and equal to J.R. Smith 5000 series or Zurn Z1700 series with stainless steel pressurized shell sized in accordance with P.D.I. Bulletin WH-201.

B. Provide shock absorbers on all fixtures and equipment having quick closing valves whether or not indicated on the Drawings.

C. Provide access doors where shock absorbers are concealed.

2.4 VACUUM BREAKERS

A. Provide vacuum breakers on water supply piping to each fixture and equipment with submerged inlets, and on faucets and outlets, within the facility to which hose can be, or is attached forming a submerged inlet.

B. Set vacuum breakers in exposed readily accessible locations at least four inches above floor rim level of fixture, or high point of equipment.

C. Vacuum breakers shall be chrome-plated brass. "Watts" or other approved.

D. Vacuum breakers under constant pressure shall be of the continuous pressure type No. 9 "Watts" or Wilkins BFP-8CH or approved equal.

2.5 EXPANSION JOINTS, ANCHORS AND GUIDES

A. The entire piping installation shall be installed with adequate provision for expansion. No rigid connections will be permitted. Refer to Drawings for locations of expansion joints and related guides and anchors. The joints, guides and anchors shall be as manufactured by Flexonics Products, Metraflex or Flex-weld.

B. Branches shall be of sufficient length and have three elbow swings to allow for pipe expansion.

C. Any breaks in the piping within the guarantee period due to improper provision for expansion must be replaced at the expense of this Contractor, and the conditions corrected to prevent future recurrence.

D. Any damages to surrounding areas and equipment due to this failure shall also be repaired and paid for at the expense of this Contractor.

E. Joints to have 150 psi rating, ANSI-B16.5 with liner and cover.

2.6 STERILIZATION

A. The entire domestic water piping system shall be thoroughly sterilized with chlorine before acceptance for domestic operation.

B. The amount of chlorine applied shall be such as to provide a dosage of not less than 50 parts per million for 24 hours or 200 p.p.m. for one hour. The chlorinating material shall be either liquid chlorine or sodium hypochlorite solution and shall be introduced into the system and drawn to all points of the system. If possible to do so, the lines shall be thoroughly flushed before introduction of the chlorinating material. After a contact period of not less than 24 hours, the system shall be flushed with clean water until the residual content is not greater than 0.2 parts per million. All valves in the lines being sterilized shall be opened and closed several times during the contact period.

C. Sterilization and tests for purity of water in the entire piping system shall be performed by the Contractor through an approved independent testing laboratory and a certificate shall be furnished to the Architect certifying the quality of purity.

D. Per ANSI/AWWA Standard C651-05.

PART 3 - EXECUTION

3.1 INSTALLATION

A. It is the intent that each part of the plumbing system shall be complete in all details and water lines provided with all control valves as indicated on Drawings, or as may be required for the proper control of the pipe lines under this Specification so that any fixture, line or piece of apparatus may be cut out for repair without interference or interruption of the service to the rest of the facility.

B. This Contractor shall examine carefully the Architectural Drawings in detail and familiarize himself with all conditions relative to the installation of piping, particularly where same is concealed behind furring or in hung ceilings.

C. In no case shall this Contractor permit his pipes to be exposed beyond finished walls or ceilings unless specifically shown on Drawings. He shall consult with the Contractors of other trades in the building and install his piping in such a way as to least interfere with the installation of other trades.

D. The water piping shall all be installed so as to drain to a valve provided by this Contractor and branches shall not be trapped but shall have continuous pitch. Where necessary to raise or lower mains, the same shall be provided with a drip and shall be properly valved.

E. Piping shall be installed, whether indicated or not, so as to rise and/or drop to clear any and all conduits, lighting fixtures, ductwork and heating mains to maintain the desired clear heights. This Contractor shall consult with the Contractors of other trades and facilitate the erection of the equipment and piping.

F. Run piping straight and as direct as possible, in general forming right angles with or parallel to walls or other piping. Risers shall be erected plumb and true.

G. After cutting, all pipes shall be reamed out to full bore and before erection the inside of all pipes shall be thoroughly cleaned.

H. No piping or work shall be concealed or covered until all required tests have been satisfactorily completed and work has been approved by the Architect.

I. All materials shall be new and installed in a first class manner.

J. In erecting pipe, friction wrenches and vises shall be used exclusively, and any pipe cut, dented or otherwise damaged shall be replaced by this Contractor.

K. All ferrous to non-ferrous pipe connections shall be made with approved dielectric pipe or flange unions isolating joints to prevent any electrolytic action between dissimilar materials.

L. Any piece of pipe 6 inches in length or less shall be considered a nipple. All nipples with unthreaded portion 1-1/2 inch and less shall be of weight corresponding to fitting connected. Only shoulder nipples shall be used, close nipples will not be accepted.

M. Revised water service shall be in accordance with the local water supply department requirements. All water lines are to be protected from freezing. Install new piping for water service below frost line and provide concrete separations when crossing other utilities. Provide concrete thrust mass at changes of pipe direction conforming to authorities having jurisdiction.

END OF SECTION 220130

SECTION 220160

SANITARY AND STORM DRAINAGE SYSTEMS

PART 1 - GENERAL

Applicable Provisions of the Conditions of the Contract and Division 1 General Requirements govern the work in this section. Submit shop drawings for checking and approval.

1.1 DESCRIPTION OF WORK

A. The work under this section includes all labor, materials, equipment and appliances necessary and required to completely install all drainage systems as required by the Drawings; code and as specified herein, including but not limited to the following:

B. Complete sanitary drainage and venting systems including connections to the existing sanitary drainage and venting systems.

C. Piping and final connections for equipment furnished under other Divisions.

D. Alterations and removals to existing sanitary and vent systems.

E. Tests.

PART 2 - PRODUCTS

2.1 PIPING AND FITTING MATERIALS

A. All indoor underground storm soil, waste and vent piping shall be service weight cast iron with fittings of bell and spigot type. All exterior underground storm soil and waste piping shall be extra heavy cast iron. Each length shall have the size, weight per foot and the manufacturer's name clearly cast or stamped thereon. Weight shall be as defined by the Plumbing Code. Fittings and traps shall be similarly marked and of corresponding weights.

B. All above ground storm, soil, waste and vent piping and fittings 3" and larger shall be service weight and fittings of bell and spigot type as specified in paragraph above. Above ground waste and vent piping 2" and smaller shall be galvanized steel, fittings on waste piping shall be galvanized cast iron, recessed drainage pattern, fitting on vent piping shall be galvanized cast iron, beaded pattern, screwed joints shall be made up to be perfectly tight without the use of lead or filler of any kind, except oil or graphite. Nipples for galvanized pipe shall be shoulder type. No close nipples shall be permitted.

C. Joints shall be made with compression gaskets conforming the International Plumbing Code (IPC 705.4.2. See 2.1, E. for aboveground joint options where permitted.

D. All galvanized pipe and fittings shall be galvanized with prime western spelter by hot drip process.

E. The Contractor has the option of using the following types of joints with hubless cast iron pipe only if approved by the governing agencies. These joints shall be used throughout the project. No mixing of joints shall be permitted.

1. Neoprene gasketed joints similar to Ty-Seal (for above and underground application).

2. Hubless cast iron pipe with neoprene gaskets and stainless steel clamps (by Clamp-All or equal) above ground only. All in accordance with Cast Iron Soil and Pipe Institute Standard 301 latest edition. Hangers and supports shall be in accordance with manufacturer's recommendations.

3. Copper DWV system with 50-50 tin antimony solder, DWV with solvent welded or screwed joints meeting CS-270-65.

2.2 CLEANOUTS

A. Provide easily accessible cleanouts where indicated at base of vertical stacks at ends of horizontal drainage lines and at intervals not exceeding 50 ft.; at each change of direction; on handholes of running traps, and where necessary to make entire drainage system accessible for rodding. Provide at least 18" clearance to permit access to cleanout plugs.

B. Cleanouts for cast iron pipe shall consist of tarpped extra heavy cast iron ferrule caulked into cast iron fittings and extra heavy brass tapered screw plug with solid hexagonal unit. Cleanouts for wrought iron pipe shall consist of extra heavy brass screw plug in drainage fitting.

C. Cleanouts turning out through walls and up through floors shall be made by long sweep ells or "Y" and 1/8 bends with plugs and face or deck plates to conform to Architectural finish in the room. Where no definite finish is indicated on the Architectural and/or Mechanical Drawings, wall plates shall be chrome plated cast brass and floor plates shall be nickel bronze.

D. Cleanouts shall be full size at the pipe up to 6" inclusive. On larger size piping 6" size plugs shall be used.

E. Cleanout fittings in vertical stacks shall consist of tapped tees capable of receiving a rough brass raised head cleanout plug, J.R. Smith S-4730, Zurn Z1445-A-BP or approved equal.

F. All cleanout plugs shall be brass lubricated with graphite before installation.

G. Cleanouts occurring in cast iron soil pipe above floor at change of direction of pipe run and at ends of horizontal runs shall be J.R. Smith S-4425, Zurn Z1441-A-BP or approved equal with cast iron ferrule for caulk connection and fitted with a straight threaded tapered bronze plug with raised hex head.

H. Cleanout deck plates for finished areas shall be similar and equal to J.R. Smith 4020 series, Zurn ZB1400-X or approved equal with cast iron ferrule, scoriated cutoff sections, brass cleanout plus collar with brass bolts for waterproofed slabs. In tile floor areas the cleanout deck plates shall be recessed to tile.

2.3 FLASHING

A. Provide 6 lb. lead flashing extending at least 10" beyond edge of all floor drains and vents through roof and all floor sleeves in floors with waterproofing or vapor barriers. Flashing shall be held securely in by clamping devices.

B. All floor drains shall be provided with flashing rings and 24" square 6 lb. sheet lead flashing, properly flashed into flashing ring of the drain.

2.4 SANITARY DRAINAGE

A. A complete system of drainage shall be provided as shown on the Drawings. The system shall include all drains, leaders, branches, house drains with all pipe fittings, hangers, anchors, etc. to make a complete sanitary drainage system. The systems shall extend through house drains and terminate as indicated on the Drawings.

B. Piping shall be sizes as indicated on the Drawings. The sanitary drains shall have a pitch of 1/8" per ft. minimum unless otherwise noted. Branch connections to stacks and house drains shall pitch a minimum of 1/8" per ft.

2.5 PIPING AND FITTINGS

A. Provide piping of one of the following materials, of weight/class indicated. Provide pipe fittings and accessories of same material and weight/class as pipes, with joining method as indicated.

PART 3 - EXECUTION

3.1 INSTALLATION OF PIPING

A. The size of soil, waste and vent piping shall be as determined by the State codes, rules and regulations for plumbing and drainage, except where specifically noted to be larger by the Specifications or Drawings and all fixed rules of installation, as set forth in the codes, rules and regulations, shall be followed as part of the Specifications.

B. This Contractor shall examine carefully the Architectural plans in detail and familiarize himself with all conditions relative to the installation of piping, particularly where same is concealed behind furring or in hung ceilings.

C. In no case shall this Contractor permit his pipes to be exposed beyond finished plaster lines unless specifically shown on Drawings. He shall consult with the Contractors of other trades in the building and install his piping in such a way as to least interfere with the installation of other trades.

D. Piping shall be installed, whether indicated or not, so to rise and/or drop to clear any and all conduits, lighting fixtures, ductwork and heating mains to maintain the desired cleat heights. This Contractor shall consult with the Contractors of other trades and facilitate the erection of the equipment and piping.

E. Run piping straight and as direct as possible in general forming right angles with or parallel to walls or other piping. Risers and stacks shall be erected plumb and true. After cutting, all pipes shall be reamed out to full bore and before erection the inside of all pipes shall be thoroughly cleaned.

F. No piping or work shall be concealed or covered until all required tests have been satisfactorily completed and work had been approved by the Architect and all other authorities having jurisdiction.

G. Branch connections shall be made with "Wye" and long "Tee-Wye" fittings, short 1/4 bends, common offsets and double hubs will not be permitted. Short "Tee-Wye" fittings are to be used in vertical piping only. All fittings shall conform to code requirements.

H. Cleanouts shall be provided at foot of all stacks, at changes of directions, at the ends of branch runs where shown and as required by code and shall be terminated as described under cleanouts.

I. The house drains must be run at a minimum grade of 1/8" per ft. downward in the direction of flow. Wherever possible, a 1/4" per ft. pitch shall be maintained. Branch connections to stacks from fixtures shall pitch 1/4" per ft. where possible. Attention is again called to the necessity of maintaining the ceiling heights established.

J. Furnish and install complete systems of vent pipes from the various plumbing fixtures and other equipment to which drainage connections are made. Vent pipes shall be connected to the discharge of each trap and shall be carried to a point above the ultimate overflow level of the fixture before connecting with any other vent pipe; in general, this will be approximately 3'-6" above the finished floor. Branches shall be arranged to pitch back to fixtures.

K. The individual vent pipes shall be collected together in branch vent lines and connected to existing vent connections through roof.

L. Any existing vents through roof, damaged, or if flashing on roof comes loose while connecting new vent to them shall be repaired and reflashed to the roof as required to maintain waterproofing the satisfaction of the Architect.

END OF SECTION 220160

SECTION 220300

PLUMBING FIXTURES AND EQUIPMENT

PART 1 - GENERAL

Applicable Provisions of the Conditions of the Contract and Division 1 General Requirements govern the work in this section. Submit shop drawings for checking and approval.

1.1 DESCRIPTION OF WORK

A. The work under this section shall consist of furnishing all labor, materials, equipment and appliances necessary and required to completely do all plumbing fixture work, as required by the Drawings and as specified herein, including but not limited to the following: plumbing fixtures, traps, fittings, trimmings, brackets, plates, anchor, chair carriers and supports.

B. Just before the Owner's taking over the work in the building, this Contractor shall thoroughly clean all fixtures furnished and set under this Contract, leaving every fixture in perfect condition and ready for use.

C. Submit shop drawings and roughing sheets for all equipment for checking and approval.

PART 2 - PRODUCTS

2.1 PLUMBING FIXTURES AND EQUIPMENT

A. All fixtures shall be free from imperfections, true as to line angles, curves and color, smooth, watertight, complete in every respect and practically noiseless in operation, Fixtures specified are given as the typical standard required as manufactured by American Standard and they or other similar approved fixtures as made by Kohler of Eljer Companies shall be furnished, set and connected in good substantial, neat workmanlike manner.

B. The letter designations hereinafter correspond with the schedule on the Drawings.

1. Water Closet - Type A1
Flush valve type, wall mounted 2257.103 "Afwall" vitreous china, siphon jet action, elongated bowl, 1-1/2" top spud, Sloan Royal 115-1.6 or Zurn Z6000AV-2-WS1 low consumption flush valve, Olsonite #95 open front seat cover. Provide floor mounted carrier equal to Zurn Z1203 series or Z1204 series.

2. Water Closet - Type A2 (Handicapped) Same as above except Handicapped.

3. Lavatory - Type B1 (Handicapped)
Kohler Model “Pinoir” K-2035-1 Single Faucet Hole, Anglestop, P-Trap Drain treatment, Cast Iron treatment, Hangers, Rubber pads. Shroud accessory pack. Chicago Faucet 333-665E39 Vandal proof metering.

4. Mixing Valve for Tempered Water: Lawler 911 thermostatic mixing valve with cold water bypass. Provide on all lavatories.

5. Urinal - Type C
6590.001 "Washbrook" white vitreous china, siphon jet urinal, wall hanger, 3/4" top spud, outlet connection threaded 2" inside, Sloan Royal 186-1 or Zurn Z-6003AV-WS1 low consumption flush valve with vacuum breaker and angle stop, Josam series 17800 or Zurn Z-1222 concealed chair carrier.

6. Electric Water Cooler - Type D1
Elkay Cooler Wall Mount Fully Recessed Non-Filtered Refrigerated 12 GPH Stainless Model EFRCM12K.

7. Electric Water Cooler – Type D2 (Handicapped)
Elkay EZH20 Bottle Filling Station with Single ADA Cooler Filtered Refrigerated Stainless Model LZS8WSSK.

8. Floor Drains:
Josam series 30000A or Zurn Z415 type “B” coated cast iron, two piece body with double drainage flange, flashing collar, weepholes, bottom outlet and adjustable strainer.

9. Floor Drain Trap Seal:
Zurn model Z1072 “Z-Shield” barrier trap seal device ASSE 1072.

10. Wall Hydrants (Interior): J.R. Smith 5609 QT bronze nickel plated quarter turn with 3/4” hose connection, integral vacuum breaker with vandal resistant cap and T-handle key. Install under lavatories in all toilet rooms.

PART 3 - EXECUTION

3.1 INSTALLATION

A. All fixtures shown on Drawings shall be set, connected and tested by the Contractor. He shall also make all water; soil, waste, vent and other service connections to fixtures as shown on Drawings or as directed and shall set, furnish, connect and test all necessary fittings.

B. All pipes at fixtures passing into walls, floors or partitions shall be provided with heavy cast brass escutcheons and security (tamperproof) set screws finished to match the pipe. No "waiving" of this section will be permitted.

C. All fittings escutcheons, faucets, traps, exposed piping etc. shall be brass, chrome plated over nickel plate with polished finish. Any visible hanger nuts shall be security (tamperproof) type and shall likewise be chrome plated over nickel plate.

D. This Contractor shall be responsible for protecting all plumbing fixtures including in these Specifications against injury from the building materials, tools and equipment. Any fixtures damaged during the construction period shall be replaced new. After all fixtures are set, this Contractor shall carefully grout all around fixtures.

END OF SECTION 220300

SECTION 220420

SUPPORTS, SLEEVES AND PLATES

PART 1 - GENERAL

Applicable Provisions of the Conditions of the Contract and Division 1 General Requirements govern the work in this section. Submit shop drawings for checking and approval.

1.1 DESCRIPTION OF WORK

A. This Contractor shall furnish and install all plates, hangers and supports for his piping.

B. All piping shall be hung or supported from structural members only.

PART 2 - PRODUCTS

2.1 PIPING

A. All piping shall be supported from building structure in a neat and workmanlike manner wherever possible, parallel runs of horizontal piping shall be grouped together on trapeze hangers. Vertical risers shall be supported at each floor line with steel pipe clamps. Use of wire perforated metal to support pipes will not be permitted. Hanging pipes from other pipes will not be permitted.

B. Necessary structural members, hangers and supports of approved design to keep piping in proper alignment and prevent transmission of injurious thrusts and vibrations shall be furnished and installed. In all cases where hangers, brackets, etc., are supported from concrete construction, care shall be taken not to weaken concrete or penetrate waterproofing.

C. All hangers and supports shall be capable of screw adjustment after piping is erected. Hangers supporting piping expanding into loops, bends and offsets shall be secured to the building structure in such a manner that horizontal adjustment perpendicular to the run of piping supported may be made to accommodate displacement due to expansion. All such hangers shall be finally adjusted, both in the vertical and horizontal direction, when the supported piping is hot.

D. Pipe hangers shall be as manufactured by Grinnell, whose catalog numbers are given herein, or equivalent Carpenter and Paterson, or F&S Mfg. Co.

E. Piping shall be supported as follows unless otherwise indicated on the Drawings:

1. Piping: 1-1/2 inch and smaller Fig. #260 adjustable clevis hanger. 2 inch and larger Fig. #174 one-rod swivel roll hanger.

2. Two-rod hangers shall be used for piping close to the ceiling slab or where conditions prohibit use of other hanger types.

3. Anchors for hanger rods shall be Phillips "Red Head" self-drilling type. Anchors shall be placed only in vertical surfaces.

4. Spacing of pipe supports shall not exceed 6 feet for pipes up to 1-1/2 inch and 10 feet on all other piping.

5. Hangers shall pass around insulation and a 16 gauge steel protective band; 12 inch long shall be inserted between hangers and insulation.

6. All piping shall be supported to allow free movement where expanding or contracting. Pipe shall be anchored as required or directed.

7. All lateral runs of piping shall be securely supported on hangers, rolls, brackets, etc. and in a manner to allow for proper expansion and elimination of vibration.

8. 2 inch and smaller pipe, where run on walls, shall be supported on wrought iron "J" hook brackets with anchor bolts.

9. All horizontal pipe, where run overhead or on walls, shall be supported as follows unless otherwise indicated: On adjustable steel clevis type hangers suspended on hanger rods, pipe sizes up to and including 4 inch.

F. Space limitations in hung ceilings spaces and conditions in other locations may require use of other type of hangers than those specified above. Suitable and approved pipe hangers shall be provided for such job conditions.

G. All supports shall be fastened to structural members or additional steel supports furnished by this Contractor.

H. Hanger rods shall be steel, threaded with nuts and lock nuts, sizes in accordance with following schedule:

Pipe Size	Rod Size
3/4" to 2" inclusive	3/8”
2-1/2" and 3" inclusive	1/2”
4" and 5" inclusive	5/8”
6”	3/4”
8" to 12" inclusive	7/8”

I. Cast iron piping shall be supported at intervals of not more than (5) feet (at each hub) on straight runs.

PART 3 - EXECUTION

3.1 PIPING

A. Where pipes pass through masonry, concrete walls, foundations, or floors, this Contractor shall set sleeves as are necessary for passage of pipes. These sleeves shall be of sufficient size to permit insulation where required to be provided around pipe passing through. This Contractor shall be responsible for exact location of these sleeves.

B. Sleeves shall not be used in any portion of building where use of same would impair strength or construction features of the building. Inserts for supporting lateral pipes and equipment shall be placed and secured to form work, and all sleeves inserts locations shall be thoroughly checked with Architect so as not to conflict with other trades.

C. Where pipes pass through floor or walls, they shall be provided with chromium plated escutcheons.

D. Anchor horizontal piping where indicated and wherever necessary to localize expansion or prevent undue strain on branches. Anchors shall be heavy forged construction entirely separate from supports.

E. Anchor vertical piping wherever indicated and wherever necessary to prevent undue strains on offsets and branches. Anchors, unless otherwise noted shall be heavy steel clamps securely bolted and welded to pipes. Extension ends shall bear on building construction.

F. Auxiliary steel supports that may be required for all mechanical equipment shall be furnished and installed by this Contractor.

G. All operating equipment including pumps, piping, etc. shall be supported so as to produce minimum amount of noise transmission.

END OF SECTION 220420

SECTION 220430

INSULATION

PART 1 - GENERAL

Applicable Provisions of the Conditions of the Contract and Division 1 General Requirements govern the work in this section. Submit shop drawings for checking and approval.

1.1 DESCRIPTION OF WORK

A. The work under this section shall consist of furnishing all labor, materials, equipment and appliances necessary and required to completely do all insulation work as required by the Drawings and as specified herein including but not limited to the following: Insulation, covering, bands, tie wire.

PART 2 - PRODUCTS

2.1 INSULATION

A. The materials as specified have been selected from the catalogs of Owens-Corning Fiberglass Corp. and Johns-Manville Sales Corporation and are representative of the quality, design and finish desired. Insulation as manufactured by Gustin Bacon Co., or other approved manufacturer may be submitted for approval provided the product meets fully in all respects (such as density, moisture absorption, alkalinity, thermal-conductivity, jackets) to the materials as delineated below.

B. All insulation shall be UL rated non-combustible type classified flame spread-25, smoke-developed-50.

2.2 PIPING, FITTINGS AND VALVES

A. All insulation thickness shall be in accordance with the latest edition of the New York State Energy Conservation Construction Code.

B. Insulation thickness per ECCC Table C403.11.3.

C. Domestic cold, hot water hot water return indirect waste, storm and piping aboveground. All piping shall be insulated with sectional glass fiber insulation, Owens-Corning 2 piece ASJ/SSL. Joints between sections shall be sealed with factory supplied 3 inch wide sealing strips. Sealing by means of Owens Corning self-sealing lap will also be acceptable. Install (anti-sweat) vapor barriers on all cold water piping.

D. Domestic hot and cold water valves and fittings - Fittings, valves, etc. shall be insulated with flexible blanket insulation compressed to 1/2 its thickness, tied on with jute twine over which shall be applied a flood coat of Insul-Coustic IC-102 and 10-20 open weave glass cloth. Glass cloth to be finished within additional coat of IC-102. Insulation blanket shall be Owens-Corning wrap.

PART 3 - EXECUTION

3.1 INSTALLATION

A. All insulation on pipes running through walls, floors, partitions and beams shall be continuous through sleeves and openings.

B. Insulation shall be installed only after all tests of the piping system have been completed.

C. All insulation shall fit snugly.

D. All surfaces shall be clean and dry when insulation is applied.

E. Longitudinal joints shall be on least conspicuous side off the pipe.

F. Valves shall be insulated up to the packing unit.

G. As specified hereinbefore, all horizontal runs of piping will be supported on adjustable clevis or group trapeze type hangers. Pipe hangers will be installed outside of the insulation. Where hangers occur, prefabricated insulation protective saddles shall be "Insul-Shield-Multi-Purpose-Saddle" as manufactured by Insul-Coustic Corp. or approved equal.

H. Hot and cold water branch piping extending through slab or knockout panels to serve equipment shall be insulated to a point 4 inch above the top of sleeve provided for pipe.

I. The use of staples shall not be permitted.

J. It is the intent of this Specification that all vapor barriers be continuous throughout. Reinstate existing piping at point of new pipe connections.

END OF SECTION 220430

SECTION 220470

TESTS AND ADJUSTMENTS

PART 1 - GENERAL

Applicable Provisions of the Conditions of the Contract and Division 1 General Requirements govern the work in this section. Submit shop drawings for checking and approval.

1.1 TESTS AND ADJUSTMENTS

A. The Contractor shall, at his own expense, during the progress of the work or upon its completion as ordered make such tests as are specified or as required by and in the presence of the Architects, Building Inspectors, etc. At least 48 hours' notice shall be given in advance of all tests.

B. The Contractors shall provide all apparatus, temporary work or other requirements necessary for all tests. He shall take all due precautions to prevent damage to the building, its contents or the work of the other Contractors, that may be incurred by all tests. This Contractors shall also be responsible for the work of other Contractors that may be damaged or disturbed by the tests or the repair or replacement of his work, and he shall without extra charges, restore to its original condition, any work of other Contractors to do the work of restoration.

C. Tests on the various systems may be conducted in sections as the work progresses or when the systems are completed.

D. No caulking of pipe joints to remedy leaks will be permitted except where joints are made with lead and oakum.

E. Each section of the sanitary, storm and vent piping tested shall have all openings tightly closed with screw plugs, or equal device. The drainage and vent systems shall be filled with water and proven tight under a 10'-0" head for a minimum of four (4) hours. Water level must remain constant through test without adding water.

F. Upon final completion of the sanitary systems and when all fixtures and appurtenances have been set and the systems are in complete working order, all traps in the systems shall be filled with water and a thick penetrating smoke shall be introduced into the entire system.

G. As smoke appears at the stack openings on the roof, such openings on the roof shall be tightly closed and a pressure equivalent to 1-1/2 inch of water shall be maintained during the test. Oils of peppermint shall be added at the smoke making machines so that any leakage is readily discernible.

H. Before any covering is applied to the domestic water piping systems, the entire domestic water piping systems shall be hydrostatically tested for eight (8) hours to a hydraulic pressure of 125 psig.

I. At the completion of the test, Contractor shall furnish the Owner with one (1) copy of test certificates as issued by the insurance company.

J. Adjustments: Tests and adjustments shall be repeated as often as necessary until the systems are tight and are to the entire satisfaction of the Plumbing Inspector, Engineers and any other authorities having jurisdiction.

1. Contractor is to thoroughly instruct the building custodian in the proper care and operation of the entire system. Contractor shall prepare for use by custodian, detailed brochures of instructions in non-technical terms, describing the maintenance and operation of all fixtures, apparatus, valves, controls etc. furnished by him.

2. Should any part of the work performed under this Contract fail to function because of cracked piping, obstructions, debris in piping, leaks in piping or any other cause, this Contractor shall disconnect, clean and reconstruct the work at his own expense and pay for any damages to adjoining work.

3. Water flow is to be balanced and adjusted to all flush valves, faucets, etc.

4. All parts of the plumbing system are to be thoroughly flushed until cleared of all grease and sediment and all dirt pockets cleaned. Repeat as often as necessary, open all cleanouts and reset in graphite.

5. All new motors shall be oiled as required.

6. All new valves are to have stuffing boxes packed and adjusted.

END OF SECTION 220470

SECTION 220480

TAGS, CHARTS AND IDENTIFICATION

PART 1 - GENERAL

Applicable Provisions of the Conditions of the Contract and Division 1 General Requirements govern the work in this section. Submit shop drawings for checking and approval.

1.1 TAGS, CHARTS AND IDENTIFICATION

A. Every valve installed under this Contract shall be tagged or labeled as follows: Tag shall be etched brass securely fastened to valve handwheels with heavy brass "S" hooks, soldered closed. At lock shield and similar type valves, tags for same shall be securely wired to valve body.

B. Charts shall be provided for each piping system, as approved and shall consist of schematic diagrams of piping layouts showing and identifying each valve and piece of equipment etc., and its use. Upon completion one (1) copy of diagrams and valve charts suitably framed under glass, shall be furnished and mounted where directed. One (1) copy of diagrams and valve charts shall be delivered to Owner.

C. This Contractor shall provide on all piping, semi-rigid, wrap around plastic identification markers equal to Seton Snap-Around and/or Seton Strap-On pipe markers.

D. Each marker background is to be appropriately color coded with a clearly printed legend to identify the contents of the pipe. Directions of flow arrows are to be included on each marker.

E. Identification of all piping shall be adjacent to each valve, at each pipe passage through wall, floor and ceiling construction and at each branch and riser take-off.

F. Identification shall be on all horizontal pipe runs, marked every 15 ft. as well as at each inlet outlet of equipment at changes in direction.

END OF SECTION 220480

SECTION 220490

GUARANTEE

PART 1 - GENERAL

Applicable Provisions of the Conditions of the Contract and Division 1 General Requirements govern the work in this section.

1.1 GUARANTEE

A. The Contractor shall remove, replace and/or repair at his own expense and at the convenience of the Owner, any defects in workmanship, materials, ratings, capacities and/or characteristics occurring in the work within one (1) year or within such longer period as may be provided in the Drawings and/or Section of the Specifications, which guarantee period shall commence with the final acceptance of the entire Contract in accordance with provisions stated in the General Conditions, and the Contractor shall pay for all damage to the system resulting from defects in the work and all expenses necessary to remove, replace and/or repair and any other work which may be damaged in removing, replacing and/or repairing the work.

END OF SECTION 220490

SECTION 230100

GENERAL CONDITIONS

PART 1 - GENERAL

Applicable Provisions of the Conditions of the Contract and Division 1 General Requirements govern work in this section.

1.1 GENERAL CONDITIONS

A. Before submitting a proposal, Bidders shall examine all related to this work and shall become fully informed as to the extent and character of the work required and its relation to the other work in the building.

B. Before commencing work, the Contractor will examine all conditions of the project upon which his work is in any way dependent for perfect workmanship according to the intent of this Specification. No "waiver of responsibility" for incomplete, inadequate or defective adjoining work will be considered unless notice has been filed by this Contractor and acceded to by the Owner's representative in writing before the Contractor begins any part of the work.

C. The Contractor will pay for all licenses, permits and inspection fees required by civil authorities having jurisdiction. Comply with all laws, ordinances, regulations, and fire underwriter’s requirements applicable to work herein specified without additional expense to the Owner. (Also, local building code requirements).

D. It is specifically intended that anything (whether material or labor), which is usually furnished as a part of such equipment, as is hereinafter called for (and which is necessary for the completion and proper operation) shall be furnished as part of this Contract without additional cost the Owner, whether or not shown in detail or described in the Specifications.

E. When Drawings and Specifications conflict or there is a question as to the proper intent of this Contract, the Contractor shall assume the greater quantity, the higher quality and/or the more expensive method in his pricing. All questions shall be directed to the Architect/Engineer in writing only and only up to ten (10) days prior to bidding.

F. The Drawings indicate the general runs of the piping, ductwork, etc. systems and the location of equipment and apparatus, however it shall be understood that the right is reserved by the Architect/Engineer to change the location of piping work, ductwork, equipment and apparatus to a reasonable extent as building conditions may dictate, prior to their installation without extra cost to the Owner.

G. Small scale drilling through walls and floors or cutting of piping insulation which may contain asbestos shall be performed by a person with a “restricted asbestos handler allied trades certificate” and shall have a copy of it in his possession at all times while working of the project. This shall also apply to removal of piping, ductwork or equipment insulation.

H. Any changes from the Drawings and Specifications and any interpretation thereof shall have the prior approval of the Architect/Engineer. The Contractor shall submit in writing, at the time of signing the Contract, any items of necessary labor and materials, which, in his opinion, are lacking in requirements of the Drawings and Specifications to insure a complete job in all respects. No consideration will be granted to allege misunderstanding of materials to be furnished, work to be done, or conditions to be complied with, it being understood that the tender of a proposal carries with it the agreement to all items and conditions referred to herein or indicated on the accompanying Drawings.

END OF SECTION 230100

SECTION 230110

SCOPE OF WORK

PART 1 - GENERAL

Applicable Provisions of the Conditions of the Contract and Division 1 General Requirements govern work in this section.

1.1 SCOPE OF WORK

A. The work under this section includes all labor, materials, equipment, tools, transportation, and the performance of all work necessary and required for the furnishing and installation complete of all work as shown on the Contract Documents, including but not necessarily limited to the following:

1. Exhaust, supply fans and related appurtenances.

2. Sheetmetal ductwork and related accessories.

3. Duct insulation.

4. Registers, diffusers, and dampers.

5. Rigging of equipment.

6. Furnish all combination motor starter/disconnects for equipment (with the exception of starters and electric items already mounted on equipment or equipment not requiring same). Fan motor starter/disconnects shall have contacts for ATC connection and a terminal block connection for Fire Alarm fan shutdown. Starters per manufacturers recommendations. Underwriters inspection and certificate required. Coordinate with Electrical Contractor.

7. Air Balancing.

8. Testing, adjusting and start-up of equipment.

9. Painting and identification of all equipment and piping.

10. Firestopping per NFPA requirements (UL approved systems).

11. Furnish minimum 18” x 18” access doors for all valves, dampers, etc. in all inaccessible walls, ceilings, etc. Installation by General Contractor.

12. Operating and maintenance instructions.

13. As-Built Drawings - Refer to Division 1.

14. Cutting and Patching - Refer to Division 1.

B. Coordination Drawings (if applicable): Attention is directed to Division 1 for coordination drawing requirements for this project. These drawings are critical to the proper execution of the work and failure to honor these requirements may become the basis for denial of any and all claims for either or both “time” and “money”.

1.2 REMOVALS

A. Removals should be coordinated with other trades affected.

B. Piping which penetrates the construction may be cut and capped provided capping is done beneath the finished surfaces so that construction over it can be achieved.

C. Soot Removal: In connection with the dismantling of boilers, Contractor shall gather together with a vacuum-cleaning machine all accumulations of soot. He shall remove all soot from the base of the chimney.

D. All removals shall be removed from the site.

1.3 ALTERATION WORK

A. All equipment, piping, control components, etc. to be removed, shall be disposed of or salvaged as directed by the Owner. They shall not be removed from the premises without the Owner’s approval.

B. All piping to be abandoned shall be properly plugged or capped so that upon completion of all new work, all abandoned piping shall be concealed in finished areas.

C. No dead ends shall be left on any piping upon completion of job. The existing system shall be left in perfect working order upon completion of new work.

D. Location and sizes of existing piping, ductwork, equipment, etc. are approximate. Exact sizes and locations of all existing work shall be verified on the job.

END OF SECTION 230110

SECTION 230400

SHEETMETAL WORK AND RELATED ACCESSORIES

PART 1 - GENERAL

Applicable Provisions of the Conditions of the Contract and Division 1 General Requirements shall govern work in this section. Submit shop drawings for checking and approval.

PART 2 - PRODUCTS

2.1 SHEETMETAL DUCTWORK

A. Contractor shall furnish and install all sheetmetal ducts as shown on the Drawings. While the Drawings shall be adhered to as closely as possible, the Engineer reserves the right to vary the run and size to meet the field conditions. Any duct size not shown shall be sized in proportion to the air carried at the same resistance in similar ductwork, or of size as directed.

B. All ductwork shall be constructed of galvanized steel gauges in accordance with the latest edition of the ASHRAE/SMACNA Guide. Bracing angles for ductwork shall be hot dipped galvanized for steel ductwork and appropriate gauge for aluminum ductwork. All ducts 18" and over in width shall be cross broken to prevent flutter.

C. Round ductwork shall be galvanized steel, spiral lock seam construction of gauges in accordance with the latest edition of ASHRAE/SMACNA guide. Fittings shall be constructed in standing seam manner. All seams, joints and collars shall be sealed in accordance with SMACNA guidelines for medium pressure ductwork to minimize noise and streaking. Ductwork and fittings shall be connected with sheetmetal couplings and sealed as to allow no leakage.

D. Ducts shall be braced as follows:

1. All ducts not exceeding 24" on one side shall be assembled with airtight slip joints.

2. 25" to 40" larger dimension 1" x 1" x 1/8" angles.

3. 41" to 60" larger dimension 1-1/2" x 1-1/2" x 1/8" angles.

4. All bracing angles shall be a minimum of 4' apart along the length of the duct.

5. Furnish and install all angles and frames for all registers, diffusers, grilles, and louvers.

6. Support horizontal ducts with hangers spaced not more than 8' apart. Place hangers at all changes in direction. Use strap hangers for cuts up to 30" wide.

E. Comply with all State and Local regulations regarding fire stopping and fireproofing. Provide fusible link fire dampers as required by State, local and Underwriter authorities and where indicated on the Drawings. Each fire damper shall be installed in such a manner as to permit ready access for inspection and maintenance purposes.

F. Provide splitter and butterfly dampers, deflecting vanes for control of air volume and direction and for balancing systems, where indicated, specified, directed and as required for the proper operation of the systems. Dampers shall be of the same material as the duct, at least one gauge heavier that the duct, reinforced where indicating quadrant and locking device for adjusting damper and locking in position.

G. Where ducts fewer than 100 square inches penetrate a rated wall, steel ductwork system of a minimum 0.0127 inch thickness shall be used.

H. All elbows shall have a minimum center line radius of 150% of duct width. If the radius is smaller, turning vanes shall be used: Turning vanes shall be double thickness, fitted into slide strips and screwed or riveted to duct below.

I. Contractor shall furnish and install all access doors in ducts as required. Access doors shall be of the pan type 1" thick and shall be provided with two galvanized hinges and suitable latched. Access doors insulated with same thickness material as duct and shall be double casing construction.

2.2 REGISTERS AND DIFFUSERS

A. Registers and diffusers shall be installed where shown on the Drawings and shall be of the sizes specified and the type indicated on the drawing schedule.

B. All registers and diffusers shall be installed in accordance with manufacturer's recommendations.

C. Registers and diffusers shall be as manufactured by Carnes, Hart and Cooley or Anemostat Co.

PART 3 - EXECUTION

3.1 INSPECTION

A. Inspect equipment space locations before beginning installation. Verify that the space is correct for entry and access. Do not proceed with installation of the equipment until unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Comply with manufacturer's instructions and recommendations for installation of equipment, accessories and components.

B. All heating, ventilating and air conditioning equipment shall be carefully designed, constructed and installed so as to prevent any objectionable noise or vibration reaching any part of the building outside of the mechanical equipment room. Care shall also be taken to prevent transmission of noise or odor through ductwork into other spaces. The Contractor shall be required to rectify or replace at his own expense, any equipment not complying with the foregoing requirements.

3.3 CLEANING

A. Clean interior and exterior surfaces promptly after installation of equipment and components. Take care to avoid damage to protective coatings and finishes. Remove excess sealants, lubrication, dirt and other foreign substances.

END OF SECTION 230400

SECTION 230420

SUPPORTS, SLEEVES AND PLATES

PART 1 - GENERAL

Applicable Provisions of the Conditions of the Contract and Division 1 General Requirements govern work in this section. Submit shop drawings for checking and approval.

1.1 DESCRIPTION OF WORK

A. This Contractor shall furnish and install all plates, hangers and supports for his equipment including piping, headers, fans expansion tank, ductwork, etc.

B. All ductwork, piping and equipment shall be hung or supported from structural members only.

PART 2 - PRODUCTS

2.1 PIPING, DUCTWORK AND EQUIPMENT

A. All piping shall be supported from building structure in a neat and workmanlike manner wherever possible, parallel runs of horizontal piping shall be grouped together on trapeze hangers. Vertical risers shall be supported at each floor line with steel pipe clamps. Use of wire perforated metal to support pipes will not be permitted. Hanging pipes from other pipes will not be permitted.

B. Necessary structural members, hangers and supports of approved design to keep piping in proper alignment and prevent transmission of injurious thrusts and vibrations shall be furnished and installed. In all cases where hangers, brackets, etc., are supported from concrete construction, care shall be taken not to weaken concrete or penetrate waterproofing.

C. All hangers and supports shall be capable of screw adjustment after piping is erected. Hangers supporting piping expanding into loops, bends and offsets shall be secured to the building structure in such a manner that horizontal adjustment perpendicular to the run of piping supported may be made to accommodate displacement due to expansion. All such hangers shall be finally adjusted, both in the vertical and horizontal direction, when the supported piping is hot.

D. Pipe hangers shall be as manufactured by Grinnell, whose catalog numbers are given herein, or equivalent Carpenter and Paterson, or F&S Mfg. Co.

E. Piping shall be supported as follows unless otherwise indicated on the Drawings:

1. Piping shall be 1-1/2 " and smaller Fig. #260 adjustable clevis hanger. 2" and larger Fig. #174 one-rod swivel roll hanger.

2. Two-rod hangers shall be used for piping close to the ceiling slab or where conditions prohibit use of other hanger types.

3. Anchors for hanger rods shall be Phillips "Red Head" self-drilling type. Anchors shall be placed only in vertical surfaces.

4. Spacing of pipe supports shall not exceed 8 feet for pipes up to 1-1/2" and 10 feet on all other piping.

5. Hangers shall pass around insulation and a 16 gauge steel protective cradle; 12" long shall be inserted between hangers and insulation. Insulation under cradle shall be high density calcium silicate or approved equal to prevent crushing.

6. All piping shall be supported to allow free movement where expanding or contracting. Pipe shall be anchored as required or directed.

7. All lateral runs of piping shall be securely supported on hangers, rolls, brackets, etc. and in manner to allow for proper expansion and elimination of vibration.

8. 2" and smaller pipe, where run on walls, shall be supported on wrought iron "J" hook brackets with anchor bolts.

9. All horizontal pipes, where run overhead or on walls, shall be supported as follows unless otherwise indicated:

   a. On adjustable steel clevis type hangers suspended on hanger rods, pipe sizes up to and including 4".

F. Space limitations in hung ceilings spaces and conditions in other locations may require use of other type of hangers than those specified above. Suitable and approved pipe hangers shall be provided for such job conditions.

G. All supports shall be fastened to structural members or additional steel supports furnished by this Contractor.

H. Hanger rods shall be steel, threaded with nuts and lock nuts sizes in accordance with the following schedule:

Pipe Size	Rod Size
3/4" to 2" inclusive	3/8"
2-1/2" and 3' inclusive	1/2"
4" and 5" inclusive	5/8"
6"	3/4"
8" to 12" inclusive	7/8"

I. Hangers for copper tubing shall be tacked up with formed lead sheet on which tubing or pipe shall be placed.

J. Where pipes pass through masonry, concrete walls, foundations, or floors, this Contractor shall set sleeves as are necessary for passage of pipes. These sleeves shall be of sufficient size to permit insulation where required to be provided around pipe passing through. This Contractor shall be responsible for exact location of these sleeves.

K. Sleeves shall not be used in any portion of building where use of same would impair strength of construction features of the building. Inserts for supporting lateral pipes and equipment shall be placed and secured to form work, and all sleeves inserts locations shall be thoroughly checked with Architect so as not to conflict with other trades.

L. Where pipes pass through floor or walls, they shall be provided with chromium plated escutcheons.

M. Anchor horizontal piping where indicated and wherever necessary to localize expansion or prevent undue strain on branches. Anchors: Heavy forged construction entirely separate from supports.

N. Anchor vertical piping wherever indicated and wherever necessary to prevent undue strain on offsets and branches. Anchors, unless otherwise noted: Heavy steel clamps securely bolted and welded to pipes. Extension ends shall bear on building construction.

O. Ducts shall be hung with 1" x 1/8" metal straps. When width of duct is less than 48", hangers shall be fastened to side of ducts. Auxiliary steel supports that may be required for all mechanical equipment shall be furnished and installed by this Contractor. All operating equipment including fans, piping, etc. shall be supported so as to produce minimum amount of noise transmission.

P. Refer to "General Conditions" as well.

PART 3 - EXECUTION

3.1 INSPECTION

A. Inspect equipment space locations before beginning installation. Verify that the space is correct for entry and access. Do not proceed with installation of the equipment until unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Comply with manufacturer's instructions and recommendations for installation of equipment, accessories and components.

B. All heating, ventilating and air conditioning equipment shall be carefully designed, constructed and installed so as to prevent any objectionable noise or vibration reaching any part of the building outside of the mechanical equipment room. Care shall also be taken to prevent transmission of noise or odor through ductwork into other spaces. The Contractor shall be required to rectify or replace at his own expense, any equipment not complying with the foregoing requirements.

3.3 CLEANING

A. Clean interior and exterior surfaces promptly after installation of equipment and components. Take care to avoid damage to protective coatings and finishes. Remove excess sealants, lubrication, dirt and other foreign substances.

END OF SECTION 230420

SECTION 230430

INSULATION AND COVERINGS

PART 1 - GENERAL

Applicable Provisions of the Conditions of the Contract and Division 1 General Requirements govern work in this section. Submit shop drawings for checking and approval.

1.1 DESCRIPTION OF WORK

A. Furnish insulation for all piping, equipment and sheetmetal work as noted.

B. Insulate no piping, ducts or equipment until tested and approved for tightness. All piping and ducts shall be dry when covered. Where existing insulation has been damaged, altered of removed during the course of the work, it shall be replaced with new insulation in a neat manner to match the adjacent insulation.

C. All insulation must be done by an approved Sub-Contractor or by mechanics skilled in this line of work.

D. Fire hazard classification shall be 2550 per ASTM E-84, NFPA 255 and UL 723. Insulation shall be rated non-combustible type classified flame spread - 25, smoke developed - 50.

E. Section includes a Thermal Blanket Material: Thermal Blankets are a custom fit high quality pre-engineered insulation system designed to save energy, retain radiant heat, minimize insulation maintenance and improve the surrounding work environment. The silicone impregnated fiberglass cloth jacketing is capable of withstanding various weather conditions and chemical environments. It is flexible and easy to install, easy to remove and reinstall allowing quick access and easy equipment serviceability.

1.2 REFERENCES

A. ASTM C 1086-88 Standard Specification for Glass Fiber Felt Thermal Insulation. Service temperature up to 1200˚F (649˚C).

B. ASTM C 335 Standard Test Method for Steady-State Heat Transfer Properties of Pipe Insulation.

C. ASTM E 1222 – 90 Standard Test Method for The Laboratory Measurement of the Insertion Loss of Pipe Lagging Systems.

D. Silicone Impregnated Fiberglass Composite - Material Weight 17 oz/yd² (577g/m²)Silicone & Fiberglass Respective Continuous Service Temperature 480˚F (249˚C)1000˚F (538˚C) - Tensile Strength of Silicone Jacketing Warp: 350 lbs./in (3128 N/50 mm) Fill: 300 lbs./in (2681 N/mm).

1.3 SUBMITTALS

A. Product Data: Manufacturer's descriptive Literature for Thermal Blanket. Drawing: Including component item data, physical sizes, material densities, fastening and/or attachment methods.

B. Assembly/Installation Drawings: May include plans, elevations, sections, details, joints, splices, locations of joints and splices, intersections, transitions, fittings, and attachments to other work for clarity, must depict how components interconnect to achieve continuity.

C. Manufacturer's Certificate: Provide document that the product(s) meet or exceed specified acoustic attenuation and/or thermal performance requirements.

D. Sample: Upon bid submittal, blanket design samples must be presented for review and product approval. Two 7"x 9" (178mm x 229mm) samples will be required and must incorporate all characteristics mentioned in the above design criteria. Any deviations from the stated design criteria may result in rejection.

1.4 DELIVERY, STORAGE AND HANDLING

A. Inspect material upon arrival to the site. Immediately log damaged materials with the shipping company and report to the manufacturer. Report flaws or defects in the material to the manufacturer within 24 hours of delivery.

B. Store material in a secure, dry, clean, and dust free environment away from high traffic areas. Store material in such a manner to prevent damage to insulation core or jacketing material. Do not pile on top of other components.

C. Keep material in its original packaging until installation.

PART 2 - PRODUCTS

2.1 DUCTWORK (INDOOR)

A. All supply, outside air intake and exhaust (on discharge side of fan) and return (in unconditioned spaces) ductwork shall be covered with fiberglass with aluminum foil vapor barrier. All joints shall be lapped so maximum coverage is achieved.

B. All insulated ductwork shall be insulated with thick fiberglass board insulation with canvas finish in areas where ductwork is exposed.

C. Insulation thickness shall be in accordance with the latest edition of the New York State Energy Conservation Construction Code.

D. Provide thermal acoustic lining in ductwork with a minimum of 20 linear feet from HVAC unit fans, a minimum of 10 linear feet from VAV Boxes, and where indicated on drawings. Lining shall be 1-1/2" thickness closed cell elastomeric thermal acoustic liner unless otherwise noted. The lining shall meet the Life Safety Standards as established by NFPA 90A and 9B and conform to the requirements of ASTMC 1071 and be installed per manufacturers requirements.

2.2 DUCTWORK (OUTDOOR)

A. All exposed ductwork shall be insulated with 2” thick flexible elastomeric thermal insulation with 12 mil laminated covering with pressure sensitive adhesive. Provide 6” wide seam tape with matching cladding. Manufactured by Polyguard Model Type Alumaguard; Armacell Model Type Armatuff or approved equal.

PART 3 - EXECUTION

3.1 INSPECTION

A. Inspect equipment space locations before beginning installation. Verify that the space is correct for entry and access. Do not proceed with installation of the equipment until unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Comply with manufacturer's instructions and recommendations for installation of equipment, accessories and components.

B. All heating, ventilating and air conditioning equipment shall be carefully designed, constructed and installed so as to prevent any objectionable noise or vibration reaching any part of the building outside of the mechanical equipment room. Care shall also be taken to prevent transmission of noise or odor through ductwork into other spaces. The Contractor shall be required to rectify or replace at his own expense, any equipment not complying with the foregoing requirements.

3.3 CLEANING

A. Clean interior and exterior surfaces promptly after installation of equipment and components. Take care to avoid damage to protective coatings and finishes. Remove excess sealants, lubrication, dirt and other foreign substances.

END OF SECTION 230430

SECTION 230440

DAMPERS AND MISCELLANEOUS

PART 1 - GENERAL

Applicable Provisions of the Conditions of the Contract and Division 1 General Requirements govern work in this section. Submit shop drawings for checking and approval.

PART 2 - PRODUCTS

2.1 DAMPERS AND MISCELLANEOUS

A. Furnish and install where shown on Drawings ARROW PIN-LOCK Dampers No. OBDPL-507 (Opposed) as manufactured by the Arrow Louver & Damper Corp. of Maspeth, NY 11378, or approved equal. Frames and blades to 1/8" extruded aluminum.

B. Blades to be single unit PIN-LOCK design 6" wide, with the PIN-LOCK an integral section within the blade center axis. Frames to be a combination of 4" extruded aluminum channel and angle, with reinforcing bosses and groove inserts for vinyl seals.

C. Pivot rods to be 1/2" diameter extruded aluminum, PIN-LOCK design interlocking into blade section. Bearings to be "Double-Sealed" type with Celcon inner bearing on rod riding in Merlon Polycarbonate outer bearing inserted in frame so that outer bearing cannot rotate.

D. Blade linkage hardware is to be installed in angle or channel frame section out of air stream. All hardware to be of non-corrosive reinforced material or to be cadmium plated.

E. Rod bearing to be designed for minimum air leakage by means of overlapping design and by extruded vinyl seals to fit into integral ribbed groove inserts in both frames and blades. All dampers in excess of 10 sq. ft. free area to have reinforced corners by means of gusset plates.

F. Dampers shall be sized by the Control Manufacturer to properly control the flow of air and ensure minimum air stratification in mixing applications. Sizing shall be submitted for approval with information similar to that submitted on valve when sizing valve.

2.2 FIRE DAMPERS

A. Dampers shall be multi blade construction UL labeled and be installed in accordance with UL 555, with breakaway connections. The units shall have stainless steel actuator springs with locking devices for horizontally mounted type.

PART 3 - EXECUTION

3.1 INSPECTION

A. Inspect equipment space locations before beginning installation. Verify that the space is correct for entry and access. Do not proceed with installation of the equipment until

unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Comply with manufacturer's instructions and recommendations for installation of equipment, accessories and components.

B. All heating, ventilating and air conditioning equipment shall be carefully designed, constructed and installed so as to prevent any objectionable noise or vibration reaching any part of the building outside of the mechanical equipment room. Care shall also be taken to prevent transmission of noise or odor through ductwork into other spaces. The Contractor shall be required to rectify or replace at his own expense, any equipment not complying with the foregoing requirements.

3.3 CLEANING

A. Clean interior and exterior surfaces promptly after installation of equipment and components. Take care to avoid damage to protective coatings and finishes. Remove excess sealants, lubrication, dirt and other foreign substances.

END OF SECTION 230440

SECTION 230480

GENERAL LABELING, VALVE CHARTS AND PIPING IDENTIFICATION

PART 1 - GENERAL

Applicable provisions of the conditions of the Contract and Division 1 General Requirements govern the work in this section. Submit shop drawings for checking and approval.

1.1 GENERAL LABELING AND VALVE CHARTS

A. This Contractor shall have appropriate descriptive labels, identification tags and nameplates of equipment, valves, etc. furnished and installed under this Contract and shall be properly placed and permanently secured to (or adjacent to) the item being installed. All such labels, identifications, tags, nameplates, etc. shall be selected by the Architect/Engineer.

B. In general, labels shall be the lamacoid type of sufficient size to permit easy identification, black coated, white edged, with letters 3/16" high. Major equipment, apparatus, control panels, etc. shall have 8" x 4" lamacoid plates with lettering of appropriate size.

C. Provide tags for all valves, automatic and manual dampers. Tags shall be Type #2020 anodized aluminum of #1420 lamacoid engraved. Tags may not necessarily be standard. Fasten tags to valve or damper with brass chain.

D. All nameplates, labels, identifications and tags shall be as manufactured by the Seton Name Plate Co., of New Haven, CT or approved equal. Submit complete schedules, listings and descriptive data together with samples for checking and approval before purchasing. Labeling shall include the "number" of the equipment, valve, dampers, switch, etc. and service of the valve.

E. Mount on laminated plastic boards with transparent surface all valves, wiring diagrams, control diagrams, instruction charts, permits, etc. Valve chart shall be non-fading with original copies laminated.

1.2 IDENTIFICATION OF PIPING

A. This Contractor shall provide on all piping, semi-rigid, wrap around plastic identification markers equal to Seton Snap-Around and/or Seton Strap-On pipe markers.

B. Each marker background is to be appropriately color coded with a clearly printed legend to identify the contents of the pipe. Directions of flow arrows are to be included on each marker.

C. Identification of all piping shall be adjacent to each valve, at each pipe passage through wall, floor and ceiling construction and at each branch and riser take-off.

D. Identification shall be on all horizontal pipe runs, marked every 15 ft. as well as at each inlet outlet of equipment.

END OF SECTION 230480

SECTION 230490

GUARANTEE

PART 1 - GENERAL

Applicable Provisions of the Conditions of the Contract and Division 1 General Requirements govern work in this section.

1.1 GUARANTEE

A. The Contractor shall remove, replace and/or repair at his own expense and at the convenience of the Owner, any defects in workmanship, materials, ratings, capacities and/or characteristics occurring in the work within one (1) year or within such longer period as may be provided in the Drawings and/or Section of the Specifications, which guarantee period shall commence with the final acceptance of the entire Contract in accordance with the guarantee provisions stated in the General Conditions, and the Contractor shall pay for all damage to the system resulting from defects in the work and all expenses necessary to remove, replace, and/or repair any other work which may be damaged in removing, replacing and/or repairing the work.

END OF SECTION 230480

SECTION 260100

GENERAL CONDITIONS

PART 1 - GENERAL

Applicable provisions of the conditions of the Contract and Division 1 General Requirements govern the work in this section.

1.1 DESCRIPTION OF WORK

A. It is the intention of the Specification and Drawings to call for finish work, tested and ready for operation.

B. Any apparatus, appliance material or work not shown on the Drawings but mentioned in the Specifications, or vice versa, or any incidental accessories or ancillary devices necessary to make ready for operation even if not particularly specified, shall be furnished, delivered and installed under their respective Division without additional expense to the Owner.

C. Minor details not usually shown or specified, but necessary for proper installation and operation, shall be included in the work as though they were hereinafter specified or shown.

D. Work under each section shall include giving written notice to the Architect of any materials or apparatus believed inadequate or unsuitable, in violation of laws, ordinances, rules and regulations of authorities having jurisdiction; and any necessary items of work omitted. In the absence of such written notice, it is mutually agreed that work under each section has included the cost of all necessary items for the approved satisfactory functioning of the entire system without extra compensation.

E. Small scale drilling through walls and floors which may contain asbestos shall be performed by a person with a “restricted asbestos handler allied trades certificate” and shall have a copy of it in his possession at all times while working of the project.

1.2 DRAWINGS

A. Drawings are diagrammatic and indicate the general arrangement of the system and work included in the Contract. (Do not scale the drawings). Consult the Architectural Drawings and details for exact location of fixtures and equipment; where same are not definitely located, obtain this information from the general construction supervisor.

B. Work under each section shall closely follow Drawings in layout of work; check Drawings of other Divisions to verify spaces in which work will be installed. Maintain maximum headroom; do not begin work until unsatisfactory conditions are corrected.

C. Make reasonable modifications in the layout as needed to prevent conflict with work of other Sections of the Specifications or for proper execution of the work.

D. It shall be understood that the right is reserved by the Architect/Engineer to change the location of equipment and apparatus to a reasonable extent as building conditions may dictate, prior to their installation without extra cost to the Owner.

1.3 SURVEYS AND MEASUREMENTS

A. Base all measurements, both horizontal and vertical, from established benchmarks. All work shall agree with these established lines and levels. Verify all measurements at site and check the correctness of same as related to the work.

B. Before proceeding with the work resolve discrepancies between actual measurements and those indicated, which prevent following good practice or intent of the Drawings or Specifications.

1.4 CODES AND STANDARDS – Coordinate with Division 1

A. The Codes and Standards listed below apply to all Electrical work codes or standards that are mentioned in these Specifications; the latest edition or revision shall be followed:

1. NEMA - Standards
2. ANSI CI - National Electrical Code (NFPA 70)
3. ANSI C50.13 - Rotating Electrical Machinery
4. NEMA MG2 - Construction and guide for selection, installation and use of electric motors.
5. NEMA MG1 - Motors and Generators

B. The following State and Local Codes shall apply: New York State Uniform Fire Prevention and Building Code, and Local Building Codes.

C. The following abbreviations are used within this Division of the Specifications:

1. IES - Illuminating Engineering Society.
2. NEC - National Electrical Code
3. ANSI - American National Standards Institute
4. ASTM - American Society for testing and materials
5. EPA - Environmental Protection Agency
6. IEEE - Institute of Electrical and Electronic Engineers
7. NEMA - National Electrical Manufacturers Association
8. NFPA - National Fire Protection Association.
9. OSHA - Occupational Safety and Health Administration
10. UL - Underwriter's Laboratories

1.5 PERMITS AND FEES

A. Give all necessary notices, obtain all permits and pay all Government and State sales taxes and fees where applicable, and other costs, including utility connections or extensions in connection with work of this Division. File all necessary plans, prepare all documents and obtain all necessary approvals of all Governmental and State departments having jurisdiction; obtain all necessary certificates of inspections for his work and deliver a copy to the Architect before request for acceptance and final payment for the work. Pay fees for utility construction/connections.

B. Include in the work, without extra cost to the Owner, any labor, materials, services, and apparatus, Drawings in order to comply with all applicable laws, ordinances, rules and regulations, whether or not shown on the Drawings and/or specified.

C. All materials furnished and all work installed shall comply with the rules and recommendations of the National Fire Protection Association, with the requirements of the local utility companies, with the recommendations of fire insurance rating organization having jurisdiction and with the requirements of all governmental departments having jurisdiction.

D. All materials and equipment for the electrical portion of the mechanical systems shall bear the approval label of or shall be listed by the Underwriter's Laboratories, Inc.

1.6 TEMPORARY LIGHT AND POWER – See Division 1

A. The Contractor shall furnish, install, maintain and, upon direction to do so, remove system of temporary lighting and power for the use of all construction trades.

B. The Electrical Contractor shall provide adequate electrical service for the needs of all Contracting Trades.

C. Wiring shall be provided for temporary use during building construction, including grounding and fused main cut-off switches. Temporary electric lines with branch switches shall be provided for lighting and for taps for electric tools, pumps and other temporary equipment; all connected to a main line looped through floor spaces and up stair wells or shafts. All power outlets shall be grounded to an equipment ground wire in an approved manner. Electric lines shall be extended to power tools, which cannot be located within reach of extension cords.

D. Light bulbs shall be provided in sufficient quantity to light the building for safety purposes. Extension cords shall be provided as may be essential to the proper execution of the work. Temporary lighting shall be provided for all stairs and other locations where needed for safety or the proper execution of the work.

E. The Electrical Contractor shall maintain temporary lighting and power systems in good working condition, including the relocation and reinstallation when required to avoid interference with the progress of construction.

F. Provide ground-fault personnel ampere protection for all single phase, 15 and 20 ampere receptacles. All receptacles and portable cord connectors shall have NEMA standard locking type configurations.

G. The Electrical Contractor shall turn lights on and off at the beginning and end of each working day of any trade unless otherwise directed. He shall arrange for all temporary light and power for all trades which do not have holidays (days off) similar to the electrical trade. The Electrical Contractor shall patch and repair all openings left damaged by the installation and removal of the temporary light and power.

1.7 MANUFACTURER'S IDENTIFICATION

A. Manufacturer's nameplate, name or trademark and address shall be attached permanently to all equipment and materials furnished under this Division. The nameplate of a contractor or distributor may not be used.

1.8 SHOP DRAWINGS – See Division 1

A. Submit for approval detailed shop drawings of all equipment and materials in accordance with working procedures.

B. Furnish all necessary templates and patterns for installation work and for the purpose of making adjoining work conform; furnish setting plans and shop details to other trades as necessary.

C. Submit shop drawings for the following:

1. Light fixtures.
2. Receptacles, switches, occupancy sensors.
3. Overcurrent protective devices.
4. Panelboards.
5. Clocks and P.A. system components.
6. Fire alarm system.

1.9 MATERIALS AND WORKMANSHIP

A. All materials and apparatus necessary for the work, except as specifically indicated otherwise, shall be new, of first class quality and shall be furnished, delivered, erected, connected and finished in every detail and shall be so selected and arranged as to fit properly into the building spaces. Where no specific kind or quality of material is given, a first class standard article as accepted by the Architect shall be furnished.

B. Furnish the services of an experienced Superintendent who shall be constantly in charge of the installation of the work, together with all skilled workmen, helpers, and labor to unload, transfer, erect, connect up, adjust, start, operate and test each system.

C. Unless otherwise specifically indicated on the Drawings or Specifications, all equipment and materials shall be installed in accordance with the recommendations of the manufacturer. This includes the performance of such tests as the manufacturer recommends.

1.10 PROTECTION

A. Work under each Section shall include protecting the work and materials of all other Sections from damage from work or workmen, and shall include making good all damage thus caused. Be responsible for work and equipment until finally inspected, tested, and accepted; protect 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 obstructing or other foreign material.

B. Work under each section includes receiving, unloading, uncrating, storing, protecting, setting in place and connecting up completely of any equipment supplied under each section. Work under each section shall also include exercising special care in handling and protecting equipment and fixtures, and shall include the cost of replacing any of the above equipment and fixtures which are missing or damaged by reason of mishandling of failure to protect on the part of the Contractor.

1.11 BASES AND SUPPORTS

A. Unless specifically noted otherwise, provide all necessary supports, pads, bases, and piers required for all equipment under this Division. Provide all temporary bases and supports as required.

B. All equipment, unless shown otherwise, shall be securely attached to the building structure. Attachments shall be of a strong and durable nature; any attachments that are, insufficient, shall be replaced as directed by the Architect.

1.12 SLEEVES, INSERTS AND ANCHOR BOLTS

A. All conduits passing through floors, walls or partitions shall be provided with sleeves having an internal diameter one inch larger than the outside diameter of the conduit, or insulation enclosing the conduit.

B. Furnish all sleeves, inserts, and anchor bolts necessary to be installed under other sections of the Specifications to accommodate work of this section.

C. Sleeves through outside walls shall be cast iron sleeves with intermediate integral flange. Sleeves shall be set with ends flush with each face of wall. The remaining space shall be packed with oakum to within 2 inches of each face of the wall. The remaining shall be packed and made watertight with a waterproof compound.

D. Sleeves through concrete floors or interior masonry walls shall be schedule 40 black steel pipe, set flush with finished walls or ceiling surfaces but extending 2 inches above finished floors.

E. Sleeves through interior partitions shall be 22 gauge galvanized sheet steel, set flush with finished surfaces or partitions.

F. Inserts shall be individual or strip type of pressed steel construction with accommodation for removable nuts and threaded rods up to 3/4” inch diameter, permitting lateral adjustment. Individual inserts shall have an opening at the top to allow reinforcing rods up to 1/2” diameter to be passed through the insert body. Strip inserts shall have attached rods having hooked ends to allow fastening to reinforcing rods. Inserts shall be as manufactured by Carpenter and Patterson, Inc. or Grinnell Co., Inc.

G. Penetrations through fire-rated walls, ceilings and floors in which cables, conduits pass, shall be sealed by a UL approved fire stop fitting classified for an hourly rating equal to the fire rating of the floor, wall or ceiling shall be Gedney Fire Seal Type CFSF of CAPS.

1.13 PAINTING – See Division 1; all work required shall be performed by this Contractor.

A. All finish painting in finished areas shall be performed by others.

B. All materials shipped to the job site under the Division, such as panels and plates, shall have a prime coat and standard manufacturer's finish unless otherwise specified.

C. Inaccessible conduits, hangers, supports and anchors and ducts shall be coated prior to installing.

D. All components of the fire alarm system raceway shall be painted red. This includes but is not limited to conduit, junction boxes, pull boxes.

1.14 CUTTING AND PATCHING – See Division 1

A. All cutting and patching required for the work of this Division shall be done by this Division.

B. Work under this Division shall include furnishing, locating and setting inserts and/or sleeves. Do all drilling and cutting necessary for the installation.

C. All holes cut through concrete slabs and structural steel shall be punched or drilled from the underside. No structural member shall be cut without the written acceptance of the Architect and all such cutting shall be done in a manner directed by him.

D. Refer to Division 1 for additional requirements.

1.15 SCAFFOLDING, RIGGING AND HOISTING – Coordinate with Division 1

A. Furnish all scaffolding, rigging, hoisting, and services necessary for erection and delivery into the premises of any equipment and apparatus furnished under this Division. Remove same from premises when no longer needed.

1.16 EXCAVATING AND BACKFILLING

A. All excavation and backfilling for the work of this Division shall be performed by Division 2.

1.17 WATERPROOFING

A. Where any work penetrates waterproofing, including waterproof concrete and floors in wet areas. Submit proposed method of installation for review by the Architect before beginning work. Furnish all necessary sleeves, caulking and flashing necessary to make opening absolutely watertight.

1.18 ACCESSIBILITY AND ACCESS PANELS

A. Be responsible for the sufficiency of the size of shafts and chases, the adequate thickness of partitions, and the adequate clearance in double partitions and hung ceilings for the proper installation of the work of this Division.

B. Locate all equipment, which must be serviced, operated or maintained in fully accessible positions. Minor deviations from Drawings may be allowed for better accessibility with approval of the Architect.

1.19 SHUTDOWNS – See Division 1

A. When installation of a new system necessitates the temporary shutdown of an existing utility operating system the connection of the new system shall be performed at such time as designated by and in consultation with the Utility Company. Work required after normal business hours shall be done so at no additional cost to the Owner.

1.20 CLEANING - Coordinate with Division 1

A. Thoroughly clean all equipment of all foreign substances inside and out before being placed in operation.

B. If any foreign matter should stop any part of a system after being placed in operation, the system shall be disconnected, cleaned and reconnected whenever necessary to locate and remove obstructions. Any work damaged in the course of removing obstructions shall be repaired or replaced when the system is reconnected at no additional cost to the Owner.

C. Upon completion of work remove from the premises all rubbish, debris, and excess materials. Any oil or grease stains on floor areas caused by work of this Division shall be removed and floor areas left clean.

1.21 RECORD DRAWINGS – Work shall be governed by requirements set forth in Division 1

A. Maintain at the job site a record set of Electrical Drawings on which any changes in location of equipment, panels, devices, and major conduits shall be recorded. Indicate dimensions of all items installed underground or in concrete.

1.22 OPERATING INSTRUCTIONS – Coordinate with requirements set forth in Division 1

A. Upon completion of all work and all tests, the Contractor shall furnish the necessary skilled labor and helpers for operating his system and equipment for a period specified under each applicable Section of this Division. During this period, he shall instruct the Owner or his representative fully in the operation, adjustment and maintenance of all equipment furnished. Give at least 7 days notice to the Owner in advance of this period.

B. The manufacturer shall attest in writing that his equipment has been properly installed prior to start. The following is some of the equipment necessary for this inspection: fire alarm system. These letters will be bound into the operating and maintenance books.

1.23 ADJUSTING AND TESTING

A. After all equipment and accessories to be furnished are in place, they shall be put in final adjustment and subjected to such operating tests as will assure the Architect that they are in proper adjustment and in satisfactory permanent operating condition.

B. This particular work shall include the services of a factory engineer to inspect the installation and assist in the initial startup and adjustment to the equipment. The period of these services shall be for such time as necessary to secure proper installation and adjustments. After the equipment is placed in permanent operation, there shall be furnished the service of said engineer for the purpose of supervising the initial operation of the equipment and to instruct the personnel responsible for operation and maintenance of the equipment.

C. At the completion of the job when all panels, devices, etc. are at full working load the Contractor shall provide infrared scan thermographic inspection test of all connection points, terminals, etc. of wires #8 AWG and larger to detect "hot-spots" in the electrical current flow. Correct all hot-spots.

1.24 UNDERWRITER'S LABEL

A. All electrical equipment and materials shall be new and shall comply with the standards of and shall bear the label of the Underwriter's Laboratories.

1.25 ELECTRICAL SAFETY INSPECTION

A. Electrical Contractor shall arrange for an Electrical Safety Inspection to be performed by the Local Inspection Agency (i.e.: New York Electrical Inspection Services, Atlantic Inland, Middle Department Inspection Agency). A Certificate of Compliance “Underwriter’s Certificate” shall be issued to the Owner. All costs and coordination required shall be included in this Contractors Base Bid.

1.26 REMOVALS – Coordinate with Division 1 and Division 2

A. The scope of removals shown on the Drawings are diagrammatic only and indicate the intent of the work to be performed and not the complete scope of demolition and/or removal work. It shall be the responsibility of this Contractor to remove any electrical devices even if not specifically indicated to be removed on these Drawings in order to accommodate new work.

B. All power conductors, control wiring and conduit associated with mechanical equipment such as fans, pumps, etc. designated for removal on the HVAC Drawings shall be removed clear back to the source of power and disconnected. All motor starters, disconnect switches, control devices, etc. shall be removed. Refer to HVAC Drawings for extent of HVAC removals.

C. Any device removed shall include (but shall not be limited to) the removal of all associated wiring, conduit, boxes, and auxiliary devices back to the previous device on the circuit, or back to the panelboard or origin of the circuit or any other items that are not incorporated in new layout, until such removal is complete. If the removal of any device interrupts service of any other device that is to remain, the Contractor shall provide all materials and labor to ensure continuity of service to those devices to remain.

D. Junction boxes, pullboxes, wireways, conduits, or any other devices required to reconnect circuitry shall be installed concealed within the ceilings, partitions and/or walls, floors, no surface or exposed circuiting shall be permitted, unless specifically indicated.

E. The Electrical Contractor shall patch all openings in walls, ceilings or roof that are left open as a result of removals. Refer to cutting and patching section.

F. Any electrical device removed including but not limited to disconnect switches, panelboards, etc. shall be cleaned, protected and turned over to the Owner or disposed of as directed by Owner.

END OF SECTION 260100

SECTION 260125

SCOPE OF WORK

PART 1 - GENERAL

Applicable Provisions of the Conditions of the Contract and Division 1 General Requirements govern work in this section.

1.1 SCOPE OF WORK

A. The work under this section includes all labor, materials, equipment, tools, transportation and the performance of all work necessary and required for furnishing and installing all Electrical work shown on the Contract Documents, as specified herein and as otherwise required by job conditions or reasonably implied, including, but not necessarily limited to the following:

1. The addition of new fire alarm devices (i.e., automatic fan shutdown, for new HVAC equipment) and the replacement of the existing ones as shown on Drawings.

2. The contractor shall dispose of all debris, including but not limited to fixtures, equipment, lamps, ballast, wiring devices and the like in accordance with, as defined by governing law and regulations of the jurisdiction where the work is being performed.

3. Removal of existing public address system in the existing to be renovated building.

4. Modifications to existing electrical distribution system as indicated on the Drawings.

5. Conduit, conduit fittings, junction and pull boxes and all appurtenances necessary for the raceway systems including necessary supports and fasteners.

6. Electrical conductors, connectors, fittings and connection lugs.

7. Branch circuit devices, outlet boxes, pull boxes, motor disconnect switches, etc.

8. Power wiring to HVAC and Plumbing equipment including disconnect switches as shown and/or required by NEC.

9. Lighting fixtures and lamps including site lighting and occupancy sensor.

10. Public address speakers and clocks.

11. Core drilled holes for conduit passing through walls, ceilings and floors.

12. All necessary cutting, patching and core drilling incidental to the electrical work.

13. Licenses, permits, inspection and approvals.

14. Grounding as required as per NEC.

15. Sleeves for conduit and watertight caulking between conduit and sleeve.

16. Testing.

B. Coordination Drawings (if applicable): Attention is directed to Division 1 for coordination drawing requirements for this project. These drawings are critical to the proper execution of the work and failure to honor these requirements may become the basis for denial of any and all claims for either or both “time” and “money”.

1.2 WORK NOT INCLUDED

A. The following related items will be done by others:

1. Furnishing motors and controllers.

2. Concrete work.

3. Excavation and backfill.

END OF SECTION 260125

SECTION 260150

APPROVED MANUFACTURERS

PART 1 - GENERAL

Applicable provisions of the Conditions of the Contract and Division 1 General Requirements govern work in this section.

1.1 APPROVED MANUFACTURERS

A. The following list of manufacturers constitutes an approved list:

1.	Panelboards	Siemens, Square D, GE
2.	Disconnect Switches	Siemens, Square D, GE
3.	Conduit (steel)	Wheatland, Allied, Republic Conduit
4.	Conduit Fittings (steel)	Appleton, Crouse-Hind, O-Z, T&B, M&W
5.	Wire and Cable	General, South Wire, Rome, Cerro
6.	Splicing Connectors	3M, O-Z, Thomas & Betts
7.	Outlet Boxes	Appleton, National, Steel City, Raco
8.	Wiring Devices	Arrow-Hart, Hubbell, P & S
9.	Fuses	Bussman, Ferraz-Shawmut, Littlefuse
10.	Lamp	GE, Sylvannia, Philips
11.	Motion Sensors	Watt Stopper, Sensorswitch
12.	Fluorescent Ballasts	GE, Universal, Advance
13.	Fire Alarm System	Simplex-Grinnell, Pyrotronics, Edwards System Technologies or approved equal
14.	Public Address system	Rauland-Borg,Bogen or approved equal
15.	Generators	Cummins or Caterpillar

B. All materials and appliances shall have listing of Underwriters Laboratories, Inc. and be so labeled, or shall conform to their requirements, in which case certified statements to that effect shall be furnished by the manufacturer with a copy of an examination report by a recognized independent testing laboratory acceptable to the Architect and his Engineer. Use new materials and appliances throughout.

C. Where several types or makes of materials are specified, the Contractor has the option of using any of these, but after a type or make has been selected and has received the approval of the Architect, it shall be used throughout.

D. The Contractor shall provide all structural supports for the proper attachment of equipment supplied by him and also for all equipment supplied to him under other sections of the Specifications for mounting and connections.

E. Secure all equipment to the building structure independently. Do not secure to work of other trades such as ceiling lath, piping racks, etc., unless specified or noted otherwise.

F. Wall mounted equipment shall be directly secured to wall by means of steel bolts. Maintain at least 1/4" air space between equipment and supporting wall. Pre-fabricated steel channels providing a high degree of mounting flexibility, such as those manufactured by Kindorf and Unistrut, shall be used for mounting arrays of equipment.

G. All fastening, supports, hangers, anchors, etc., shall be of a type made for the specific purpose. On masonry walls, metallic expansion shield and machine screws shall be used. Screws with wooden plugs or anchors will not be acceptable on any part of the work.

END OF SECTION 260150

SECTION 260200

CONDUIT

PART 1 - GENERAL

Applicable provisions of the conditions of the Contract and Division 1 General Requirements govern the work in this section. Submit shop drawings for checking and approval.

1.1 WORK INCLUDED

A. The work under this section shall include the furnishing of all material, labor, tools and services necessary to install rigid metal conduit, electrical metallic tubing and liquid tight flexible metal conduit, including all fittings to complete all work shown on the Drawings or specified herein.

1.2 RELATED WORK

A. Cutting and patching.

B. Trenching: Excavation and backfill for conduit and utility on site.

C. Sheet metal flashing and trim.

1.3 REFERENCE FOR METAL RACEWAY

A. UL 5 - Surface Metal Raceways and Fittings.

B. UL 870 - Wireways, Auxiliary Gutters, and Associated Fittings.

PART 2 - PRODUCTS

2.1 RIGID STEEL CONDUIT

A. Industry standard heavy wall conduit.

B. Minimum 3/4" trade size.

C. Threaded.

D. Hot dipped galvanized finish by means of plating after cutting of threads.

2.2 INTERMEDIATE METAL CONDUIT

A. Industry standard steel conduit.

B. Minimum 3/4" trade size.

C. Threaded.

D. Hot dipped galvanized finish by means of plating after cutting of threads.

2.3 ELECTRICAL METALLIC TUBING

A. Industry standard thin wall conduit of galvanized steel only.

B. Minimum 3/4" trade size.

C. Maximum 4" trade size.

2.4 FLEXIBLE METAL CONDUIT

A. Galvanized steel tape formed into an industry standard interlocking coil.

B. Minimum 3/4" trade size except for connection of lighting fixtures.

C. Grounding type.

D. Separate ground conductor.

E. Use for short connections to motor terminal box, other vibrating equipment using a minimum length of 18" with 50% slack and a maximum of 6'.

F. From outlet box to recessed lighting fixtures with a maximum length of 6'.

2.5 WIREWAYS

A. Lay-in type, UL listed as wireway or auxiliary gutter.

B. Wireway shall be of code gauge steel construction (UL standard for Wireway Auxiliary Gutters and Associated Fittings) with removable cover. Tamperproof screws shall be provided for sealing covers to prevent access by unauthorized personnel. Wireway shall be provided with knockouts.

C. Connector and covers shall be attached so that removal of connectors is not necessary to utilize the lay-in feature.

D. Finish: All sheet metal parts shall be provided with a rust inhibiting phosphating coating and baked enamel finish. All hardware shall be plated to prevent corrosion. All screws extending into the wireway shall be protected by spring nuts or otherwise guarded to prevent wire insulation damage.

2.6 CONDUIT SUPPORTS

A. Conduit clamps, straps and supports: Steel or malleable iron.

2.7 CONDUIT FITTINGS

A. Use compression fittings for all EMT in exposed areas. Utilize set screw fittings only above hung ceilings and concealed areas.

2.8 SURFACE METAL RACEWAY

A. Metal raceway shall be of a two-piece design with a base and snap-on cover.

B. Raceway and all components shall be listed by Underwriters Laboratories

C. Single Channel: Steel, zinc plated, off-white finish suitable for repainting. Two piece design with metal base and snap-on cover. Wire Mold V700, Hubbell Inc. 750 Series, or Panduit PMR5/PMR7

D. Dual Channel: Steel, galvanized, off-white finish but suitable for repainting. Two-piece design with metal base and snap-on cover, minimum 0.04" thick base and cover. Base shall be divided by a removable barrier section. Provide duplex receptacles mounted in top cell and communication outlets in the bottom cell. Coordinate communications jack requirements with owner's IT personnel. Wiremold V4000, Wiremold DS4000 Series, Hubbell Inc. 4000 Series or Panduit PMR40.

PART 3 - EXECUTION

3.1 CONDUIT SIZING, ARRANGEMENT AND SUPPORT

A. Minimum size - 3/4". Provide grounding bushings on all conduits 1-1/4" and larger.

B. Arrange conduit to maintain headroom and present a neat appearance.

C. Route exposed conduit and conduit above accessible ceilings parallel and perpendicular to walls and adjacent piping.

D. Draw up couplings and fittings full and tight. Protect threads cut in field from corrosion. Paint newly threaded joints of steel conduit with T & B "Kopershield" compound before installation. Running threads prohibited; use three-piece unions or split couplings instead. Use only compression fittings for all EMT in areas where it will be exposed in finished and unfinished areas. Provide set screw fittings only when installed above hung ceilings.

E. Maintain minimum 6-inch clearance between conduit and piping. Maintain 12-inch clearance between conduit and heat sources such as flues; steam pipes and heating appliances.

F. Arrange conduit supports to prevent distortion of alignment by wire pulling operations. Fasten conduit using galvanized straps, lay-in adjustable hangers, clevis hangers, or bolted split stamped galvanized hangers.

G. Group conduit in parallel runs where practical and use conduit rack constructed of steel channel with conduit straps or clamps. Provide space for 25 percent additional conduit.

H. Do not fasten conduit with wire or perforated pipe straps. Remove all wire used for temporary conduit support during construction, before conductors are pulled.

I. Exposed conduit on ceiling shall be parallel or perpendicular to wall and vice versa to ceiling when installed on wall. Secure conduit clamps and supports to masonry materials by toggle bolt, expansion bolt or steel insert. Spacing or conduit supports shall not exceed 7 feet.

3.2 CONDUIT INSTALLATION

A. Cut conduit square using a saw or pipe cutter, Deburr cut ends.

B. Bring conduit to the shoulder of fittings and couplings and fasten securely.

C. Use conduit hubs or sealing locknuts for fastening conduit to cast boxes and for fastening conduit to sheet metal boxes in damp or wet locations.

D. Install no more than the equivalent of three 90-degree bends between boxes.

E. Use conduit bodies to make sharp changes in direction, as around beams.

F. Use hydraulic one-shot conduit bender or factory elbows for bends in conduit larger than 2-inch size.

G. Avoid moisture traps where possible; where unavoidable, provide junction box with drain fitting at conduit low point.

H. Use suitable conduit caps to protect installed conduit against entrance of dirt and moisture.

I. Provide No. 12 AWG insulated conductor or suitable pull string in empty conduit, except sleeves and nipples.

J. Install expansion-deflection joints where conduit crosses building expansion or seismic joints.

K. Where conduit penetrates fire-rated walls and floors, provide pipe sleeves two sizes larger than conduit; Pack void around conduit with fire-stop fittings with UL listed fire rating equal to wall or floor ratings; Seal opening around conduit with UL listed foamed silicone elastomer compound.

L. Installation of conduit in slab shall comply with ACI 318.

M. Route conduit through roof openings for piping and duct work where possible; otherwise, route through roof with pitch pocket.

N. Maximum size conduit in slabs above grade: 1 inch. Do not route conduits to cross each other in slabs above grade. Conduits crossing each other may not be larger than 3/4 inch.

O. All conduit used for fire alarm system shall be painted red.

P. For Surface Metal Raceway

1. When installing surface metal raceway contractor shall provide boxes from the same manufacturer of the surface metal raceway.

2. Install separate grounding conductor. Grounding conductors for surface metal raceways.

3. Surface metallic raceways in close proximity of other trades, shall be arranged to allow for proper clearance for servicing and headroom. Surface metallic raceway shall be installed parallel to walls, floors and ceilings in a neat workmanlike manner.

3.3 CONDUIT INSTALLATION OF SCHEDULE

A. Underground installations: PVC minimum Schedule 40, unless otherwise noted on Drawings.

B. Installations in or under concrete slab: PVC minimum Schedule 40, unless otherwise noted on Drawings.

C. Exposed outdoor locations: Rigid galvanized steel conduit.

D. Wet interior locations: Rigid galvanized steel conduit.

E. Concealed dry interior locations and above accessible ceiling for receptacle and lighting branch wiring: Electrical metallic tubing up to first junction box and flexible metallic tubing (MC cable only) thereafter.

F. Concealed dry interior locations other than receptacle and lighting branch wiring: Electrical metallic tubing.

G. Concealed dry interior locations and above accessible ceiling for fire alarm runs: Fire alarm armored cable type MC with red stripe as manufactured by AFC series 1800.

H. Concealed and exposed dry interior location for feeder runs: Electric metallic tubing.

I. Exposed dry interior in unfinished locations other than Boiler Rooms: Electric metallic tubing.

J. Final connections to motors: Flexible metallic tubing (MC cable). Minimum of 10” to maximum of 6’ for connections to motors.

K. Existing exposed dry interior locations (finished spaces), for branch wiring and fire alarm wiring, one-piece steel raceway (similar to Wiremold V-500, V-700).

L. Final connections to motors: Flexible metallic tubing (MC cable). Minimum of 18” to maximum of 6’ for connections to motors.

M. All conduit installed in boiler room up to 10’-0” AFF and lower shall be rigid galvanized steel conduit. All conduit above 10’-0” shall be electric metallic tubing.

N. Final connections to equipment and/or motors in boiler room, outdoors and potentially wet indoor areas: liquid tight, flexible; minimum of 18” to maximum 6’-0” connections.

END OF SECTION 260200

SECTION 260300

WIRE AND CABLE

PART 1 - GENERAL

Applicable provisions of the conditions of the Contract and Division 1 General Requirements govern the work in this section. Submit shop drawings for checking and approval.

1.1 WORK INCLUDED

A. The work under this section shall include the furnishing of all material, labor, tools and services necessary to wire and cable in raceway specified in other sections to complete all work shown on the Drawings or specified herein.

PART 2 - PRODUCTS

2.1 BUILDING WIRE

A. Thermoplastic-insulated building wire: Type THHN.

B. Rubber insulated building wire: NEMA WC 3.

C. Feeders and branch circuits larger than number 6 AWG: Copper, stranded conductor, 600 volt insulation, type THHN.

D. Feeder and branch circuits 6 AWG and smaller: Copper conductor, 600 volt insulation, THWN/THHN, 6 and 8 AWG, stranded conductor; Smaller than 8 AWG, solid conductor.

E. Service feeders and branch circuits in conduit in contact with earth shall be type XHHW.

F. Control circuits: Copper, stranded conductor 600 volt insulation, THHN.

2.2 ARMORED CABLE

A. BX or pre-manufactured cables are not acceptable except for Type MC for branch wiring after the first junction box (for receptacle and lighting branch circuits) and final connections to motors in interior dry accessible locations, minimum length shall be 18” with a maximum length of 6’ for motors. Except for outdoor and boiler room equipment and/or motors. Provide flexible liquid tight conduit.

B. Type MC fire alarm cable with red stripe for concealed fire alarm wiring as manufactured by AFC series 1800.

C. Armored cable, Type MC size 14 through 6 AWG: Copper conductor, 600 volt thermoplastic insulation, rated 90 degrees C., with separate green ground conductor.

2.3 REMOTE CONTROL AND SIGNAL CABLE

A. Control cable for class 2 or class 3 remote control and signal circuits:

B. Copper conductor, 300 volt insulation, rated 60 degree C, individual conductors twisted together shielded and covered with a nonmetallic jacket; UL listed for use in air handling ducts, hollow spaces used as ducts and plenums. Verify wiring type with manufacturer.

2.4 COLOR CODING

A. All wiring shall be color-coded. Neutral wire shall be white throughout and each phase wire shall be identified any place in the system by its color code. All conductors in panel boxes and junction boxes shall be properly tagged with red non-flammable tags properly attached.

B. Wire shall be color coded as follows:

120/208 volt system		480/277 volt system		Fire Alarm
A Phase	Black	A Phase	Brown	Red
B Phase	Red	B Phase	Orange	
C Phase	Blue	C Phase	Yellow	

Equipment ground wires or ground jumpers shall be Green.

C. In addition to the basic color-coding described the following additional identification and tagging shall apply.

1. The switch legs for the local wall switches and in switch panel shall have distinctive stripes. In instances where color-coding is not practicable, such as short runs of heavy feeder cables, taping the ends of the cable with coded colors as indicated above or tagging will be permitted.

2. Cables shall be tagged in all pull boxes, wireways and wiring gutters of panels.

3. Where two (2) or more circuits run to or through a control device, outlet box or junction box, each circuit shall be tagged as a guide in making connections.

4. Tags shall identify wire or cable by number and/or piece of equipment served as shown on the Drawings.

PART 3 - EXECUTION

3.1 GENERAL WIRING METHODS

A. Use no wire smaller than 12 AWG for power and lighting circuits, and no smaller than 14 AWG for control wiring.

B. Use 10 AWG conductor for 20 ampere, 120 volt branch circuit home runs longer than 75 feet and for 20 ampere.

C. Use 10 AWG conductor for 20 ampere, 277 volt branch circuit home runs longer than 200 feet for 20 ampere.

D. Place an equal number of conductors for each phase of a circuit in same raceway or cable. No more than one of each phase shall be supported by a single neutral.

E. Splice only in junction or outlet boxes.

F. Neatly tag, identify, train and lace wiring inside boxes, equipment and panelboards.

G. Make conductor lengths for parallel circuits equal.

3.2 WIRING INSTALLATION IN RACEWAYS

A. Pull all conductors into a raceway at the same time. Use UL listed wire pulling lubricate for pulling 4 AWG and larger wires.

B. Completely and thoroughly swab raceway system before installing conductors.

C. Install wire in raceway after interior of building has been physically protected from the weather and all mechanical work likely to injure conductors has been completed.

3.3 CABLE INSTALLATION

A. Support cables above accessible ceilings; do not rest on ceiling tiles. Use spring metal clips or metal cable ties to support cables from structure (not ceiling suspension system). Include bridle rings or drive rings.

B. Use suitable cable fitting and connectors.

3.4 WIRING CONNECTIONS AND TERMINATIONS

A. Splice only in accessible junction boxes.

B. Use solderless pressure connections with insulating covers for copper wire splices and tape, 8 AWG and smaller. For 10 AWG and smaller, use insulated spring wire connectors with plastic caps.

C. Provide extended gutters and tap blocks or pull boxes with tap rail systems similar to Burndy MT Series or Burndy Electrorail system for wire splices 6 AWG and larger.

D. Tape uninsulated conductors with electrical tape to 150 percent of the insulation value of conductor.

E. Thoroughly clean wires before installing lugs and connectors.

F. Make splices, taps and terminations to carry full ampacity of conductors without perceptible temperature rise.

G. Terminate spare conductors with electrical tape.

3.5 FIELD QUALITY CONTROL

A. Field inspection and testing will be performed under provisions of the Specifications.

B. Inspect wire and cable for physical damage and proper connection.

C. Torque test conductor connections and terminations to manufacturer's recommended values.

D. Perform continuity test on all power and equipment branch circuit conductors. Verify proper phasing connections.

3.6 WIRE AND CABLE INSTALLATION SCHEDULE

A. All wiring and cable shall be installed in conduit unless otherwise noted. Refer to conduit section 260200 for conduit types at various locations.

END OF SECTION 260300

SECTION 260320

OVERCURRENT PROTECTIVE DEVICES

PART 1 - GENERAL

Applicable Provisions of the Conditions of the Contract and Division 1 General Requirements govern the work in this section. Submit shop drawings for checking and approval.

1.1 WORK INCLUDED

A. Work of this section includes all labor, materials, equipment and services necessary to complete the electrical work as shown of the Drawings and specified herein, including, but not limited to, the following:

B. Fuses

1. Current limiting cartridge fuses.
2. Time delay cartridge fuses.

C. Circuit Breakers

1. Standard molded case circuit breakers "bolted in" type.
2. Solid state circuit breakers.
3. Current limiting circuit breakers.
4. Enclosed circuit breakers.

1.2 SUBMITTALS

A. Shop drawings showing dimensions, location of equipment and method of installation.

B. Product Data: Manufacturer’s printed data, catalog cuts.

1.3 DISCONNECT SWITCHES

A. Fusible switch assemblies: Quick-make, quick-break, load interrupter enclosed knife switch with externally operable handle interlocked to prevent opening front cover when switch is in ON position. Handle lockable in OFF position. Fuse clips shall be designed to accommodate Class R, J fuses.

B. Non-fusible switch assemblies: Quick-make, quick-break, load interrupter enclosed knife switch with externally operable handle interlocked to prevent opening front cover when switch is in ON position. Handle lockable in OFF position.

C. Enclosures: NEMA Type 1, 3R or 4 as required.

1.4 FUSES

A. Voltage ratings of fuses shall be suitable for the supply characteristics to which they are applied.

B. Fuse type and size shall be suitable for installation in related disconnect switch or circuit breaker.

C. Current limiting fuses shall be as follows:

1. Regardless of actual available fault current, they shall, at full recovery voltage, be capable of safely interrupting fault currents of 200,000 amperes RMS symmetrical or 280,000 amperes RMS asymmetrical, deliverable at the line side of the fuse.

2. They shall have average melting time-current characteristics to meet the Underwriters' Laboratories requirements for "Class RK-1" 0-600 amp fuses.

D. Regardless of actual available fault current, they shall be capable of limiting peak let through current to the following values based on 200,000 amperes RMS symmetrical or 280,000 amperes asymmetrical being available:

Rating In Amperes	Peak Let Through Current In Amps
15-30	6,000
35-50	8,000
70-100	12,000
125-200	20,000
225-601	38,000

E. Fuses shall be rejection type. Fuse clip shall be rejection type.

F. Fuse Type and Application Table:

Category of Application	Acceptable Fuse Types (Bussman Designations @ 600V)
Motor feeder	LPS below 600A
Power panel feeders	LPS below 600A
Safety switches	LPS

1.5 CIRCUIT BREAKERS

A. "Bolted-In" type, manually operated, quick-make, quick-break, mechanically trip-free operating mechanisms for simultaneous operation, of all poles, with contacts, arc interrupters and trip elements for each pole. "Plug-in" breakers are not permitted. New circuit breakers to be installed in existing panelboards shall be U.L. certified for installation in those panelboards and be labeled with make and model.

B. Tripping units shall be "thermal-magnetic" type having bimetallic elements for time delay overload protection, and magnetic elements for short circuit protection.

C. Manually operable by mean of toggle type operating handles having tripped positions midway between the "on-off" position. Handle to be clearly labeled as to breaker rating.

D. Minimum frame size for all circuit breakers, 1, 2, or 3 pole shall be 100 amperes.

E. Their interrupting rating shall not be less than 25,000 amperes RMS symmetrical at 208 volt for distribution panels and 10,000 amperes for power panels.

1.6 APPLICATIONS

A. Category of Application for Fuses:

1. Feeders on switchboards.

2. Branch fused switch unit in distribution panel.

3. Fused safety switch.

4. Combination motor starters.

B. Category of Application for Circuit Breakers:

1. Panelboards.

2. Switchboards.

3. Individual enclosures.

4. Combination motor starters.

1.7 SPARE FUSES

A. Upon Engineer's acceptance of the electrical distribution system, provide spare fuses as follows: 10% of each type and rating installed 600 amperes and smaller (minimum of 3). Provide spare fuse cabinet with directory to store all spare fuses. Locate as directed by Engineer and/or Owner.

1.8 APPROVED MANUFACTURERS

A. Fuses: Bussman, Ferraz-Shawmut.

B. Circuit Breakers: Siemens, General Electric, Square D.

1.9 INSTALLATION

A. All material installation shall be in accordance with manufacturer recommendations and the provisions of all applicable codes.

B. All fuses and circuit breakers shall be selectively coordinated.

C. Install disconnect switches where indicated on Drawings.

D. Install fuses in fusible disconnect switches.

E. Disconnects shall have NEMA 3R enclosure.

1.10 RECORD DRAWINGS

A. Shop drawings showing dimensions, location of equipment and method of installation.

B. Product Data: Manufacturer’s printed data, catalog cuts, performance curves.

END OF SECTION 260320

SECTION 260350

BOXES

PART 1 - GENERAL

Applicable provisions of the conditions of the Contract and Division 1 General Requirements govern the work in this section. Submit shop drawings for checking and approval.

1.1 WORK INCLUDED

A. The work under this section shall include the furnishing of all material, labor, tools and services necessary to install wall and ceiling outlet boxes, floor boxes, pull and junction boxes to complete all work shown on the Drawings or specified herein.

1.2 RELATED WORK

A. Access doors.

B. Wiring devices: Service fittings and fire-rated poke-through fittings for floor boxes.

C. Cabinets and enclosures.

PART 2 - PRODUCTS

2.1 OUTLET BOXES

A. Sheet metal outlet boxes: ANSI/NEMA OS 1; Galvanized steel, with 1/2 inch male fixture studs where required.

B. Cast boxes: Cast feralloy, deep type, gasketed cover, threaded hubs.

C. Typical receptacle box shall be 4" square metal boxes, 30.8 cubic inch capacity with brackets as required. Provide 4" square raised device covers.

2.2 PULL AND JUNCTION BOXES

A. Sheet metal boxes: ANSI/NEMA OS 1; Galvanized steel.

B. Sheet metal boxes larger than 12 inches in any dimension: hinged enclosure in accordance with Section 26 04 50.

C. Cast metal boxes for outdoor and wet location installations: NEMA 250; Type 4 and type 6, flat-flanged, surface-mounted junction box, UL listed as raintight. Galvanized cast iron box and cover with ground flange, neoprene gasket, and stainless steel cover screws.

D. Cast metal boxes for underground installation: NEMA 250; Type 4, inside flanged, recessed cover box for flush mounting, UL listed as raintight. Galvanized cast iron box and plain cover with neoprene gasket and stainless cover screws.

PART 3 - EXECUTION

3.1 COORDINATION OF BOX LOCATIONS

A. Provide electrical boxes as required in excess of that shown on Drawings and as required for splices, taps, wire pulling, equipment connections and code compliance.

B. Electrical box locations shown on Contract Drawings are approximate unless dimensioned. Verify location of floor boxes and outlets in offices and work areas prior to rough-in.

C. Locate and install boxes to allow access. Where installations are accessible, coordinate locations and sizes of required access doors with Division 1.

D. Locate and install to maintain headroom and to present neat appearance.

3.2 OUTLET BOX INSTALLATION

A. Do not install boxes back-to-back in walls. Provide minimum 6 inch separation, except provide minimum 24 inch separation in acoustic-rated walls.

B. Locate boxes in masonry walls to require cutting of masonry unit corner only. Coordinate masonry cutting to achieve neat openings for boxes.

C. Provide knockout closures for unused openings.

D. Support boxes independently of conduit except for cast iron boxes that are connected of rigid metal conduits, both supported within 12 inches of box.

E. Use multiple-gang boxes where more than one device is mounted together; do not use sectional boxes. Provide barriers to separate wiring of different voltage systems.

F. Install boxes in wall without damaging wall insulation.

G. Coordinate mounting heights and locations of outlets mounted above counters, benches and backspaces.

H. Position outlets to locate luminaries as shown on reflected ceiling plans.

I. In inaccessible ceiling areas, position outlets and junction boxes within 6 inches of recessed luminaire, to be accessible through luminaire ceiling opening.

J. Provide recessed outlet boxes in finished areas; secure boxes to interior wall and partition studs, accurately positioning to allow for surface finish thickness. Use stamped steel stud bridges for flush outlets in hollow stud wall, and adjustable steel channel fasteners for flush ceiling outlet boxes.

K. Align wall-mounted outlet boxes for switches, thermostats, and similar devices.

L. Provide cast outlet boxes in exterior locations exposed to the weather and wet locations.

3.3 PULL AND JUNCTION BOX INSTALLATION

A. Locate pull boxes and junction boxes above accessible ceilings or in unfinished areas.

B. Support pull and junction boxes independent of conduit.

3.4 FLOOR BOX INSTALLATION

A. Set boxes level and flush with finish flooring material.

B. Use cast iron floor boxes for installation in slab on grade.

END OF SECTION 260320

SECTION 260400

WIRING DEVICES

PART 1 - GENERAL

Applicable Provisions of the Conditions of the Contract and Division 1 General Requirements govern work in this section. Submit shop drawings for checking and approval.

1.1 WORK INCLUDED

A. The work under this section shall include the furnishing of all materials, labor, tools and services necessary to install receptacles, service fittings device plates and box covers to complete all work shown on the Drawings or specified herein.

1.2 REFERENCES

A. FS W-C-596 - Electrical power connector, plug, receptacles and cable outlet.

B. FS W-S-896 - Switch, toggle.

C. NEMA WD 1 - General purpose wiring devices.

D. NEMA WD 5 - Specific-purpose wiring devices.

1.3 SUBMITTALS

A. Submit product data under Provisions of Contract and Division 1.

B. Provide product data showing configurations, finishes, dimensions and manufacturer's instructions.

PART 2 - PRODUCTS

2.1 RECEPTACLES

A. Convenience and straight-blade receptacles: 125 V, 2 pole, 3 wire, 20 ampere specification grade, ground fault interrupting or isolated ground type.

B. Internal ground clip of receptacles shall be in one piece with the receptacle mounts.

C. Receptacles with riveted ground clips will not be accepted.

D. Isolated ground type receptacle shall be orange in color.

2.2 WALL SWITCHES

A. Wall switches for lighting circuits and motor loads under 1/2 hp: AC general use snap switch with toggle handle, rated 20 amperes and 120-277 volts AC.

B. Handle: Ivory plastic.

C. Pilot light type: Lighted handle. Pilot strap in adjacent gang.

D. Locator type: Lighted handle.

2.3 COVER PLATES

A. Decorative cover plate: Stainless steel 302/304 smooth Hubbell "S" series.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install receptacles on roof along parapet wall.

B. Install specific use receptacles at heights shown on contract drawings.

C. Drill opening for poke - through fitting installation in accordance with manufacturer's instructions.

D. Install plates on switch, receptacle, and blank outlets in finished areas, using jumbo size plates for outlets installed in masonry walls.

E. Install galvanized steel plates on outlet boxes and junction boxes in unfinished areas, above accessible ceilings and on surface mounted outlets.

F. Install devices and wall plates flush and level.

END OF SECTION 260400

SECTION 260410

LIGHTING FIXTURES AND LAMPS

PART 1 - GENERAL

Applicable Provisions of the Conditions of the Contract and Division 1 General Requirements govern work in this section. Submit shop drawings for checking and approval.

PART 2 - PRODUCTS

2.1 FIXTURES

A. The Contractor shall provide and install lighting fixtures, one for each outlet. Each fixture shall be of the best of its kind and care shall be exercised in the installation, fixtures shall not interfere with any ductwork, etc. Provide all necessary metal supports for mounting of fixtures.

B. Where indicated existing fixtures shall be disconnected and removed with new fixtures provided and installed complete.

C. Contractor shall furnish all fixtures complete with lamp, ballasts, globes, guards, etc. as specified. All exposed parts shall be finished in baked white enamel unless otherwise indicated.

D. All ballasts shall be of the high power factor ETL approved energy savings, class P type. Ballasts shall be advance Mark V electronic ballast or approved equal guaranteed for two years from date of acceptance of manufacturer for materials and labor if defects should develop. All exterior ballasts shall be minus 20 degrees F.

E. Fixture shall be suitable for installation in a Class I, Division II location as indicated in N.E.C. Article 501.

F. Ballasts for metal halide fixtures shall be core and coil class H, 180 C.

2.2 LAMPS

A. Fluorescent lamps shall be cool white or as directed energy saving T8 F32 and shall be rapid start. Incandescent lamps shall be rated 130 volts with brass base.

B. Electrical Contractor shall submit lamp schedule for all fixtures, etc., indicating wattage, types, colors and catalog numbers. At completion of job, submit the above list for approval.

2.3 SUPPORTS

A. The Contractor shall provide all necessary rods, clamps, etc. from structural steel. In areas where existing ductwork and/or piping occur, a trapeze type of support shall be provided using Kindorf "U" channels of equal across bottom of ducts and/or piping. Coordinate installation in field with H&V Contractor.

2.4 FIXTURE SCHEDULES

A. See Fixture Schedule for fixture types to be supplied and installed.

PART 3 - EXECUTION

3.1 LIGHTING FIXTURE CONNECTION WIRING

A. Wire used for connection lighting fixtures to the circuit conductors shall be 600 volt insulated of the following types:

B. For fixtures in dry locations where temperatures do exceed 125 degrees C., U.L. type AF stranded cable conforming to U.L. Standard No. 115.

C. For wiring within fixtures only, where sizes No. 14 AWG for smaller are required, lighting hookup wire shall be one of the following types: For temperatures which do not exceed 150 degrees C. Type PF conforming to U.L. Standard No. 62, for temperatures which do not exceed 200 degrees C. Type SF-2 conforming to U.L. Standard No. 62.

END OF SECTION 260410

SECTION 260500

SUPPORTING DEVICES

PART 1 - GENERAL

Applicable Provisions of the Conditions of the Contract and Division 1 General Requirements govern work in this section. Submit shop drawings for checking and approval.

1.1 WORK INCLUDED

A. The work under this section shall include the furnishing of all material, labor, tools and services necessary to install rigid metal conduit, electrical metallic tubing and flexible metal conduit, including all fittings to complete all work shown on the Drawings or specified herein.

1.2 RELATED WORK

A. Conduit and equipment supports.

B. Fastening hardware.

1.3 REFERENCES

A. Conduit supports.

1.4 QUALITY ASSURANCE

A. Support system shall be adequate for weight of equipment and conduit, including wiring, which they carry.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Support channel: Galvanized or painted steel.

B. Hardware: Corrosion resistant.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Fasteners in Pre-Cast Concrete: Fastener system of type for suitable for application indicated, fabricated from corrosion-resistant materials, with clips or other necessary devices for attaching hangers of type required and with capability to sustain, without failure, a load equal to 10 times that imposed by ceiling construction, as determined by testing in accordance to ASTM E1190 conducted by a qualified independent agency. Anchors shall not be installed where reinforcing strands are located in plank. Review pre-cast plank shop drawings to determine location.

B. Refer to pre-cast concrete plank shop drawings for location of strand reinforcing and cores. Do not anchor where reinforcing is located. Use fasteners in concrete, toggle bolts or thru-core anchors with plates supported on top of plank in cores.

C. Fasten hanger rods, conduit clamps, outlet, junction boxes to building structure using preset inserts, beam clamps and spring steel clips.

D. Use toggle bolts or hollow wall fasteners in hollow masonry, plaster, or gypsum board partitions and walls; Expansion anchors or preset inserts in solid masonry walls; self-drilling anchors or expansion anchors on concrete surfaces; sheet metal screws in sheet metal studs and wood screws in wood construction.

E. Do not fasten supports to piping, ductwork, mechanical equipment, or conduit.

F. Do not use powder-actuated anchors.

G. Fabricate supports from structural steel or steel channel, rigidly welded or bolted to present a neat appearance. Use hexagon head bolts with spring lock washers under all nuts.

H. In wet locations install free-standing electrical equipment on concrete pads.

I. Install surface mounted cabinets and panelboards with minimum of four anchors. Provide steel channel supports to stand cabinet one inch off wall.

J. Bridge studs top and bottom with channels to support flush mounted cabinets and panelboards in stud walls.

END OF SECTION 260500

SECTION 260575

INTERIOR LUMINAIRES

PART 1 - GENERAL

Applicable provisions of the Conditions of the Contract and Division 1 General Requirements govern work in this section. Submit shop drawings for checking and approval.

1.1 WORK INCLUDED

A. Interior luminaires and accessories.

B. Emergency lighting units.

C. Exit signs.

D. LED Driver.

E. LED dimming and controls.

F. LED emergency power supply.

G. Lamps.

H. Luminaire accessories.

1.2 REFERENCES

A. ANSI/IES RP-16-10 – Nomenclature and Definitions for Illuminating Engineering.

B. ANSI C78.37 7 – Specifications for the Chromaticity of Solid-State Lighting (SSL) Products.

C. IES LM-79-08 – Electric and Photometric Measurements of Solid-State Lighting Products.

D. IES LM-80-08 – Measuring Lumen Maintenance of LED Light Sources.

E. IES 7M-21-11 – Projecting Long Term Lumen Maintenance of LED Light Sources.

F. IES LM-82-11 – IES Approved Method for the Characterization of LED Light Engines and LED Lamps for Electrical and Photometric Properties as a Function of Temperature.

G. UL 8750 – LED Equipment for Use in Lighting Products.

H. NEMA WD 6 - Wiring Devices – Dimensional Requirements.

I. NFPA 70 - National Electrical Code.

J. NFPA 101- Life Safety Code.

1.3 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing the Products specified in this section with minimum five (5) years documented experience.

1.4 REGULATORY REQUIREMENTS

A. Conform to requirements of NFPA 70 and to requirements of NFPA 101.

B. Products: Listed and classified by Underwriters Laboratories, Inc. (UL), American National Standards Institute (ANSI) and Illuminating Engineering Society (IES).

1.5 SUBSITITUTIONS

A. All proposed substitutions must be submitted with each light fixture specification cutsheet, accompanied with footcandle calculation for all spaces, provided for Architect and Engineer's review, prior to approval.

B. If the substitution is accepted, the contractor accepts responsibility and associated costs for all required modifications to circuitry, devices, and wiring.

PART 2 - PRODUCTS

2.1 LUMINAIRES

A. Furnish Products as scheduled.

2.2 EXIT SIGNS

A. Manufacturers: As scheduled.

B. Description: Exit sign fixture suitable for use as emergency lighting unit.

C. Housing: Extruded aluminum or steel as per schedule.

D. Face: Aluminum stencil face with red letters, unless otherwise noted.

E. Directional Arrows: Universal type for field adjustment, direction per drawing.

F. Mounting: Universal, for field selection or per drawing.

G. Lamps: L.E.D.

H. Input Voltage: As scheduled.

2.3 LED DRIVERS

A. Manufacturers: As scheduled.

B. Voltage: As scheduled.

2.4 LAMPS

A. Lamp Types: As specified for luminaire. LED source.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install suspended luminaires and exit signs using pendants supported from swivel hangers. Provide pendent length required to suspend luminaire at indicated height.

B. Support luminaires 2 x 4 foot (600 x 1200 mm) and larger in size independent of ceiling framing.

C. All lay-in luminaries shall be supported with chains to building structure.

D. Install surface mounted luminaires and exit signs plumb and adjust to align with building lines and with each other. Secure to prevent movement.

E. Exposed Grid Ceilings: Support surface mounted luminaires on grid ceiling directly from building structure. Provide auxiliary members spanning ceiling grid members to support surface mounted luminaires. Fasten surface mounted luminaires to ceiling grid members using bolts, screws, rivets, or suitable clips.

F. Install wall mounted luminaires, emergency lighting units and exit signs at 80” above finished floor, unless otherwise noted.

G. Install accessories furnished with each luminaire.

H. Make wiring connections to branch circuit using building wire with insulation suitable for temperature conditions within luminaire.

I. Bond products and metal accessories to branch circuit equipment grounding conductor.

J. Install specified lamps in each emergency lighting unit, exit sign, and luminaire.

3.2 FIELD QUALITY CONTROL

A. Operate each luminaire after installation and connection. Inspect for proper connection and operation.

3.3 ADJUSTING

A. Aim and adjust luminaires as indicated.

B. Position exit sign directional arrows as indicated.

3.4 CLEANING

A. Clean electrical parts to remove conductive and deleterious materials.

B. Remove dirt and debris from enclosures.

C. Clean photometric control surfaces as recommended by manufacturer.

D. Clean finished and touch up damage.

3.5 PROTECTION OF FINISHED WORK

A. Relamp luminaires that have failed lamps as substantial completion.

END OF SECTION 260575

SECTION 260650

GROUNDING

PART 1 - GENERAL

Applicable provisions of the conditions of the Contract and Division 1 General Requirements govern the work in this section. Submit shop drawings for checking and approval.

1.1 WORK INCLUDED

A. The work under this section shall include the furnishing of all materials, labor, tools and services necessary to install the power system grounding to complete all work shown on the Drawings or specified herein.

1.2 RELATED WORK

A. Panelboards.

B. Raceways.

C. Connection Equipment.

D. Electric Equipment.

E. Tests and Acceptance.

F. Transformers.

G. Electric Service.

1.3 SUBMITTALS

A. Manufacturers' data, catalog cuts of ground rods, connectors, bushings, etc., along with recommended installation procedures.

PART 2 - PRODUCTS

2.1 WIRING

A. All wiring used for grounding shall be insulated copper, unless otherwise noted. Size shall be in accordance with code for the application, minimum #12.

B. Where used in conjunction with computer equipment, grounding conductors shall be equal in size to the phase conductors.

C. Avoid splices in ground conductors.

2.2 RACEWAY

A. Grounding continuity shall be maintained for all metallic raceways.

B. Provide bonding jumpers across metal parts separated by non-conducting materials.

C. Where a grounding conductor is installed as a supplement to metallic raceway serving as the equipment grounding conductor, bonding conductor to the raceway at each end.

D. All raceway accessories, such as locknuts, bushings, expansion fittings, etc. shall be installed to provide maximum metal-to-metal bonding.

2.3 CLAMPS

A. Provide approved ground clamps for connecting grounding conductors to pipe, conduits, wireways, building steel, grounding rods, etc.

B. Where bond will be in an inaccessible location or as an alternate to ground clamps, provide exothermic weld, similar to Cadweld.

2.4 ACCESSORIES

A. Provide all necessary accessories of appropriate size and material for connection or termination of grounding conductors including:

1. Straps.
2. Clamps.
3. Lugs.
4. Bars and buses.
5. Isolators (where applicable).
6. Locknuts and bushings.

2.5 ACCEPTABLE MANUFACTURERS

A. Copperweld.

B. Cadweld (for exothermic welds).

C. O.Z. Gedney.

D. Burndy.

PART 3 - EXECUTION

3.1 SERVICE ENTRANCE/SWITCH

A. Coordinate all bonding and grounding requirements of the service entrance with the utility company.

B. Provide ground lug in each switchboard, minimum 25% of phase bus, along entire length of switchboard.

C. Separately connect each ground to existing grounding electrode. Test existing grounding electrode for proper resistance values and provide all necessary modifications required.

3.2 TRANSFORMERS

A. Bond each transformer secondary neutral to nearest building structural column or beam via transformer case grounding stud.

B. Provide jumper between transformer case and all conduit bushings.

C. Where a separate equipment-grounding conductor is provided the primary and/or secondary feeders; bond to transformer grounding stud.

D. Where isolation shield is provided, bond to transformer grounding stud.

E. Where a separate ground riser is provided in addition to or instead of building steel; bond transformer-grounding stud to the ground riser.

3.3 STRUCTURAL STEEL BUILDINGS

A. Select a column common to aligned electric closets as the bonding column for grounding of transformer neutrals, isolated grounds and separate equipment grounding conductors.

B. All grounding conductors in each closet shall be bonded in close proximity to one another.

C. Where a grounding conductor to be bonded is not in proximity to the common column, bond to the nearest column or structural beam.

D. Provide bonding jumper strap across all structural expansion joints where the grounding integrity of the structural system is reduced

3.4 RACEWAYS

A. Grounding continuity is to be maintained for all metallic raceways. Provide necessary clamps, bushings, straps and locknuts to assure continuity.

B. For non-metallic or flexible raceways, provide a separate equipment-grounding conductor bonded to both ends.

C. Where indicated, an additional equipment-grounding conductor shall be provided in metallic raceway.

D. Where indicated, an isolated ground conductor shall be provided in addition to the equipment-grounding conductor. Bond at each end to the isolated ground terminal identified.

3.5 EQUIPMENT

A. All equipment shall be grounded.

B. Where isolated grounding is indicated, it shall be for the isolation of internal equipment components only. All metallic enclosures of such equipment shall be connected to the equipment ground system.

3.6 PANELBOARDS

A. All panelboards and distribution panels shall be provided with a ground bar bonded to the enclosure. Provide an isolated ground bar connected to the incoming feeder ground where indicated.

3.7 TESTING

A. Upon completion of the installation, confirm the grounding continuity of all raceways, conductors and equipment. Maximum allowable resistance is 25 ohms.

3.8 RECORD DRAWINGS

A. Submit record As-Built Drawings indicating the location of all points where grounding conductors are bonded to steel, rods, plates, etc.

B. Indicate the location of all grounding buses not installed within distribution equipment.

END OF SECTION 260650

SECTION 260800

FIRE ALARM SYSTEM

PART 1 - GENERAL

Applicable Provisions of the Conditions of the Contract and Division 1 General Requirements govern work in this section. Submit shop drawings for checking and approval.

1.1 FIRE ALARM SYSTEM

A. The existing fire alarm system is an addressable system. The fire alarm control panel is located in the boiler room.

B. Add and modify as required to the existing system, as specified/shown on the drawings and as per field requirements. All devices shall be suitable for operation and compatible with existing system. Provide relays modules, cards, power supplies, etc. as required.

C. Provide sufficient quantity of relays for fan shutdown as specified/shown on Drawings.

D. Connect, test and leave the system in first class operating condition.

E. The system shall maintain all applicable Local, State and National Codes including the National Electrical Code, NPFA-72, NFPA-101, ADA 1971 and NEC. The system shall be listed by Underwriter's Laboratories, Inc.

F. The Electrical Contractor shall provide a manufacturers certified technician to supervise installation, adjustments, final connection and system testing.

G. Fire alarm wiring and cable shall be per manufacturer's requirements.

H. Fire alarm system test shall be in accordance with NFPA-72 and local fire department requirements.

END OF SECTION 260800

SECTION 260825

PUBLIC ADDRESS AND CLOCK SYSTEM

PART 1 - GENERAL

Applicable Provisions of the Conditions of the Contract and Division 1 General Requirements govern work in this Section. Submit shop drawings for checking and approval.

1.1 DESCRIPTION OF WORK

A. The Contractor shall furnish all equipment, accessories and material required for the installation of communication devices in strict compliance with these Specifications and applicable Contract Drawings. Any material and/or equipment necessary for the proper operation of the system, which is not specified or described herein, shall be deemed part of this specification.

PART 2 - PRODUCTS

2.1 SPEAKERS

A. Flush Speaker Baffles (ceiling): Ceiling Speakers shall be Rauland USO-188/ACC1000 white semi-gloss enamel steel grille with 8" speaker, 25/70 volt 7 watt transformer and 6 oz. magnet mounted on a # ACC1101 steel protective cover and a ACC1104 tile bridge support.

B. Enhanced Staff Stations

1. Room phones shall be Rauland Model 2554W-VP vandal proof, where indicated. Enhanced staff stations can dial administrative stations, initiate emergency calls, and enable or disable the reception of program material at their location. Depending upon the level of system access, enhanced staff stations can dial other staff stations, perform all-call, zone pages, conference calls and call transfer.

2. Staff stations can be assigned to initiate calls at three levels; normal/emergency, urgent/emergency, and emergency. Emergency calls ring the administrative phone with a special tone and will interrupt a non-emergency call in progress. An integral emergency announce feature (no external amplifier necessary) gets prompt attention when needed by routing unanswered emergency calls to a designated emergency station. Emergency calls continue to ring until answered.

C. Clock/Speaker Baffles (room)

1. The room flush mount clock/speaker/ baffle shall be a Lowell BP-300 combination baffle mounted on a flush back box PC-312 with 8” speaker, 25 volt 7 watt transformer, 6 oz. magnet and 9” system secondary clock. Speakers shall be a Rauland USO 188 Speaker/Transformer with 8”, 25/70 volt 7 watt transformer and 6 oz. magnet. Clocks shall be National Time 030-12EX-LL-SP analog synchronous secondary clocks with hourly and daily correction.

D. Analog Synchronous Clock with Minute and Second Hands

1. The secondary clock shall be a National Time 030-12EX-LL-SP series clock. It shall be designed to be 3-wire system with Rauland TC-21 Master Clock systems. The secondary clock shall have a microprocessor-based movement and shall be capable of being used as a stand-alone clock. The clock shall have a low-profile /semi-flush smooth surface metal case. The crystal shall be shatterproof polycarbonate with no visible molding marks. Glass is unacceptable. The clock shall have black hour and minute hands and a red second hand. The clock shall have U.L., Cul and F.C.C. compliance's.

END OF SECTION 260825

SECTION 260900

GUARANTEE

PART 1 - GENERAL

Applicable Provisions of the Conditions of the Contract and Division 1 General Requirements govern work in this section.

1.1 GUARANTEE

A. The Contractor shall remove, replace and/or repair at his own expense and at the convenience of the Owner, any defects in workmanship, materials, ratings, capacities and/or characteristics occurring in the work within one (1) year or within such longer period as may be provided in the Drawings and/or Section of the Specifications, which guarantee period shall commence with the final acceptance of the entire Contract in accordance with the guarantee provisions stated in the General Conditions, and the Contractor shall pay for all damage to the system resulting from defects in the work and all expenses necessary to remove, replace, and/or repair any other work which may be damaged in removing, replacing and/or repairing the work.

END OF SECTION 260900