SCHOOL FACILITIES MANAGEMENT

CONTRACT MANUAL AND SPECIFICATIONS

for the

RE-BID OF SCHOOL 9
RESTORATION OF EMERGENCY & ELECTRICAL UTILITIES
AND SITE IMPROVEMENTS

SED # 66-23-00-01-0-009-008 YPS JOB # 10460

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School Facilities Management

YONKERS PUBLIC SCHOOLS
One Larkin Center
Yonkers, New York 10701

BID OPENING DATE: June 5, 2014

General Construction Site – Contract 1
Asbestos – Contract 2
Electrical Construction – Contract 3

Prepared by:

Damiano Barile Engineers, PC
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White Plains, NY 10607

Eisenbach & Ruhnke
291 Genesee Street
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Fuller & D’Angelo
45 Knollwood Road
Elmsford, NY 10523

Re-Bid Issue Date: May 14, 2014 DBE Project #: 1332.00

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NOTICE TO CONTRACTORS

The Board of Education will receive bids until 2:00 PM, Thursday, June 5, 2014 for the construction of:

Re-Bid
School 9
Restoration of Emergency & Electrical Utilities and Site Improvements

YPS Job #10460
Schedule #5894-14

Contract No. 1: General Construction - Site
Contract No. 2: Asbestos
Contract No. 3: Electrical Construction

In the Yonkers Public School District in accordance with the plans and specifications available electronically on a Compact Disc (CD) on Wednesday, May 14, 2014 at the Yonkers Public Schools Central Office in the School Facilities Management Department, One Larkin Center, Third Floor, Yonkers, New York 10701. Contact Lee Pavone, Senior Mechanical Engineer at (914) 376-8008. Bidders will be given only one (1) CD and will be required to sign out for receipt, no deposits are required.

It is intended by the YPS to issue a contract to the successful bidder in each trade for work to be done. The successful bidder must be capable of completing the work within the specified milestone dates illustrated in the Milestone Construction Schedule which is enclosed within the bid documents.

SCOPE OF WORK:

General Construction Site: The scope of work for this Contract includes, but is not limited to select demolition of the School’s asphalt playground, retaining walls and fencing; installation of new retaining walls, fencing, asphalt and playground safety surfacing. This work is estimated to be $390,000.

Asbestos: The scope of work for this Contract requires performing asbestos abatement activities for upgrading the School’s Fire Alarm System and Electrical Systems. This work includes, but is not limited to installing fire alarm devices and conduits and making penetrations on walls known to contain asbestos. This work is estimated to be $100,000.

Electrical Construction: The scope of work for this Contract includes, but is not limited to replacement of Fire Alarm System, Intercom/Public Address System, Security System, and exterior lighting, installing a new electrical service from the street to main distribution board and removal of existing, adding new electrical panels and distribution wiring to new receptacles in classrooms. This work is estimated to be $750,000.
Bidders are strongly encouraged to attend the PRE-BID CONFERENCE which is to be held at the school grounds on Thursday, May 22, 2014 at the School 9, located at 53 Fairview Street, Yonkers, NY 10703 at 3:00 PM.

Such proposals must be delivered to, Robert Haines, Purchasing Agent, or his designee, no later than the appointed time on the bid opening date, at the District Administration Office, One Larkin Center, Third Floor, Purchasing Department, Yonkers, NY 10701. 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. 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.
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1 – INVITATION TO BID

A. Sealed proposals are invited by the Board of Education of the Board of Yonkers (“Board”), New York for the **Re-Bid Restoration of Emergency & Electrical Utilities and Site Improvements:**

B. Each proposal to be entitled to consideration must be made in accordance with the following instructions and failure to comply with any part of such instructions shall be held by the Board of Education as sufficient cause for the rejection of said bid.

C. Proposals will be received at the place, date, and time stated below and these will be opened in public and read aloud:

1. PLACE: Yonkers Public Schools
   One Larkin Center
   Third Floor
   Yonkers, New York 10701
   Attn: Robert Haines, Purchasing Agent
   Phone (914) 376-8056   Fax (914) 376-3427
   rhaines@yonkerspublicschools.org (e-mail)

2. DATE:       June 5, 2014

3. TIME:        2:00 pm

4. CONTRACT AWARD TIMETABLE

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<th>Date/Time</th>
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<tr>
<td>Pre-Bid Conference**</td>
<td>May 22, 2014 at 3:00 pm</td>
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<td>Questions cut-off date:</td>
<td>May 27, 2014 at 12:00 pm</td>
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<td>June 7, 2014 at 8:30 am</td>
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<td>Asbestos Interview Apparent 1st Low Bidder</td>
<td>June 7, 2014, at 9:45 am</td>
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<td>June 7, 2014, at 11:00 am</td>
</tr>
<tr>
<td>Bid Opening (see above)</td>
<td>3 weeks after issuance</td>
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<tr>
<td>BOE Approval*</td>
<td>June 18, 2014</td>
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<tr>
<td>Notice to Proceed*</td>
<td>June 19, 2014</td>
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   *The above dates are for informational purposes only. Efforts will be made to adhere to the above schedule, however, the YPS reserves the right to alter or change this as it deems to be in its own best interest. No claims for costs due to failure to meet these dates will be admitted.

   ** Conference is _____ mandatory  ____X____ not mandatory**

5. ADDENDA

   No interpretation of the meaning of the specifications or other contract information will be made to the bidder orally. Every request for such interpretation must be made
in writing (fax and e-mail submissions are encouraged) to the Damiano Barile Engineers, P.C., with copies to Savin Engineers, P.C. and Project Manager for the Yonkers Public Schools, School Facilities Management no later than 3:00 pm on the Question Cut-off Date Listed above. Interpretations will be issued to all bidders in the form of an addendum to these specifications. Such addendum shall become part of these specifications and hence part of the contract documents.

6. DOCUMENTS REQUIRED FOR BIDDING

   a. The following documents are to be executed in blue ink and originals only must be submitted as part of this Bid. Omission of any of these items may render the Bid as non-responsive and the Bid will be rejected.

   i. Sheet B-1 “Indemnification and Hold Harmless Clause”
   ii. Sheet B-2 “Non-Collusive Bidding Certification” (See General Municipal Law 103-d)
   iii. Sheet B-3 “Addenda Acknowledgement”
   iv. Sheet B-4 “Certificate of Insurance Cancellation Clause.” This is to be prepared on the bidder’s letterhead and cosigned by the bidder’s intended insurance carrier.
   v. Sheet B-5 “Acknowledgement of Insurance Requirements” This is to be prepared on the bidder’s letterhead and cosigned by the bidder’s intended insurance carrier.
   vi. Sheets B-6 through the end of the B-numbered sheets. Bid schedule of prices, the total amount bid, and Unit Price Schedule.
   vii. The letter on bidder letterhead stating whether the bidder is a corporation or partnership or otherwise; if a corporation, under laws of what State and affix the corporate seal; if a partnership, the full name of all partners, or, if an assumed name, the full name or names of all interested parties.
   viii. Bid Security as described in Section A, Part 2 – Bid Bond.
   ix. Vendor Background Questionnaire

D. Proposals shall be made upon the forms provided in Section B, and all blank spaces in the forms shall be fully completed; sums shall be recorded both in WRITING AND NUMERICALLY, the signature shall be in long hand; and the completed forms shall be without erasure or deletions unless initialed by bidder.

E. The proposal shall be enclosed and sealed in an opaque envelope addressed to the Board and marked with the name of the bidder and the name of the bid.

G. Each proposal, including drawings and specifications will be placed on file in the office of the Board and will be open for inspection to bidders and citizens of the Board of Yonkers, New York.

H. Each bidder must submit a base bid. In addition, each bidder must also submit an alternate bid for each alternate proposed in the Specifications, and a "unit price" amount, where applicable. The Board expressly reserves the right to entirely reject any proposal for which bidder has not provided a base bid, a bid for each alternate proposed (if any) and "unit price" amount (if any), even if the Board elects not to award the Contract on the basis of one or more of the alternates, or not to use a "unit price" amount.
I. Determination of the apparent low bidder will be made by direct examination of the bid documents at the bid opening. Alternates will be considered if within the original budget set by the Board for this contract.

J. Before submitting a bid, bidder shall carefully examine specifications and plans, the General Conditions of the Board of Education for Construction Contracts, ("Bid Documents"), visit the site and fully inform themselves as to all existing conditions and limitations. All work shown, indicated or implied on the specifications and plans is subject to the actual conditions at the job, and failure to visit the site and fully acquaint himself with all said conditions and to examine the bid documents, will in no way relieve the Bidder of his responsibility to properly execute the work in accordance with bid documents.

K. The Board reserves the right to reject any or all bids and to waive any formalities, or to accept any proposal by any bidder, which in the opinion of the Board will be in the best interest of the Board and the Board of Yonkers.

L. No contract will be awarded to any bidder who is in arrears to the Board or the Board of Yonkers, upon debt or contract, or who is in default as to surety or otherwise upon any other obligation to the Board or the Board of Yonkers.

M. The Board may refuse a contract to any bidder who, in connection with any previous contract with the Board, has failed in any respect to comply with the terms of any obligation including but not limited to any guarantee. The Board may also refuse a contract to any bidder whose former relations with the Board shall have been of such an unsatisfactory nature that the Board feels justified in refraining from entering into any further business relations.

N. The GC Contractor shall not subcontract more than 70% of the total contract price. The Asbestos Contractor shall not subcontract more than 10% of the total contract price. The Electrical Contractor shall not subcontract more than 40% of the total contract price. Any part of the work performed by supervisory personnel (persons above the 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 toward the percentage identified above. (Section C, Art. 7).

O. No bidder may withdraw his bid within 90 days after the date of the opening of bids.

P. To be considered qualified the bidder must demonstrate to the Owner's satisfaction:
   a. The Corporation, partnership, sole proprietorship or principals of the entity in whose name the bid is submitted has no less than the previous five (5) years performing or coordinating the Work which they are bidding on.
   b. The Corporation and Principal(s) have satisfactorily completed no less than five (5) projects of comparable size and type to this project within the past 3 years.
   c. The bidder is not currently involved in bankruptcy proceedings.
   d. The bidder is capable of and intends and intends to perform the work with its own employees in accordance with the Bid Drawings and Contract Manual and Specifications.
   e. The bidder will perform the work with sufficient personnel as required to comply with the schedule.
   f. The bidder or principals of the bidder and each subcontractor must have a minimum of five (5) years experience in the work and/or applicable trade.
   g. Field Superintendent must have at least five (5) years as a working field superintendent and must speak English.
h. All bidders will be required to submit a listing of projects, including addresses, Owner's name, Architect, date work was performed and any other information which would serve to document its ability to perform the work of the character desired and in time required.

2 – BID BOND

A. Each individual bid shall be accompanied by a check upon a duly authorized State, National Bank or Trust Company, certified check in the sum equal to five (5%) percent of the total amount of the bid including "alternates", payable to the Board of Education of Yonkers, New York, or by a bid bond in the amount of 5% of the bid including “alternates”. The bid bond shall guarantee that in the event the successful bidder fails to enter into a contract or fails to provide the required bonds and insurance coverage, payment will be made to the Board in an amount representing the difference between the amount specified in the bid and such larger amount as the Board may in good faith contract with another party to perform work required by said bid. The standard AIA form is acceptable.

B. The check of the bidder to whom a contract has been awarded shall be retained until the contract has been executed and all bonds required of the bidder, together with all approved policies of insurance (or certificates) evidencing the required insurance, are filed with the Purchasing Agent of the Yonkers Public Schools.

3 – INSURANCE REQUIREMENTS

A. If awarded the job, the bidder agrees to obtain polices of insurance for the following coverages in the amounts listed, upon which the “Board of Education of Yonkers and/or the City of Yonkers”, “Damiano Barile Engineers, P.C., with copies to Savin Engineers, P.C.” are named as "additional insureds":

The contractor shall provide adequate proof of coverage (Certificate of Accord Forms) within ten (10) business days of the Award of the contract by the Board of Education at their stated meeting. Failure to provide such proof will void the bidder’s status as the lowest responsible bidder. The District will then engage the services of the next lowest responsible bidder.

The successful bidder, at its sole cost and expense, shall provide YPS with the following insurance coverage whether the operations to be covered thereby are through the successful bidder or by a Subcontractor or by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable:

1. Comprehensive General Liability Insurance with limits of $1,000,000 each occurrence and $2,000,000 aggregate per project per policy, specifically including the following endorsements.
   a. Contractual Liability (written)
   b. Premises/Operations
   c. Products/Completed Operations
   d. Broad Form Comprehensive General Liability
   e. Independent Contractors
   f. Broad Form Property Damage
   g. Personal Injury

2. The Asbestos Abatement Contractor (Subcontractor to the General Contractor), at its sole cost and expense, shall provide Yonkers Public Schools with the following insurance coverage whether the operations to be covered thereby are through the successful bidder or by a
Subcontractor or by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable:

a. Comprehensive General Liability Insurance (all successful bidders) with limits of $5,000,000 each occurrence and $5,000,000 aggregate per project per policy, specifically including the endorsements 3 through 11, listed below.

3. Owner’s Contractor Protective Insurance – Limit of $1,000,000 each occurrence.
   (If required, see summary of insurances, below)

4. Automobile Liability Insurance covering all owned, hired and non-owned vehicles with minimum limits of $1,000,000 combined single limit for bodily injury and/or property damage.

5. Workmen’s Compensation/Employers Liability – Statutory in compliance with the Compensation Law of the State of New York:
   Each Contractor, (employer) shall evidence compliance with Section 57 of the Workers’ Compensation Law and Section 220, Subdivision 8 of the Disability Benefits Law, by submitting to the Yonkers Public Schools for its approval, prior to the start of any part of this contract work, the following attested documentation:
   a. Workers Compensation – statutory, New York State Workers’ Compensation certificate form C-105.2 or State Fund Insurance Company for U-26.3 prescribed for proof of compliance with the Compensation law.
   b. State Workers’ Compensation form DB-120.1, prescribed for proof of compliance with the Disability Benefits’ Law.
   c. If a Contractor (employer) claims that he is not required to carry either a Workers’ Compensation policy or Disability benefits; policy, or both, a temporary permit may be issued if the Contractor (employer) submits two copies of the completed CE-200, one of which will then be sent to the Workers’ Compensation Board, Information Unit, by the District for investigation and report.
   d. If a Contractor (employer) is self-insured for Workers’ Compensation, he shall present a Certificate GSI-105.2 from the New York State Workers’ Compensation Board evidencing that fact.

There are no exceptions made for out-of-state contractors (employers). All contractors must provide the above through insurance carriers licensed in the State of New York.

6. Umbrella Liability Insurance in the amount of $5,000,000 each occurrence and in the aggregate per project for bodily and/or property damage excess of above coverages specified in paragraphs 1 to and including 4.

7. Self Insurance Retention – not greater than $25,000.

8. Builders Risk Insurance shall be provided by the Board for New Construction or Additions. The amount of such coverage shall be at least equal to the Complete Project Costs and shall be increased from time to time to cover cost of all changes, alterations or modifications.

9. Cancellation Notice - All insurance certificates shall state that the policy will not be canceled nor coverage thereunder be reduced or limited without thirty (30) days prior written notice to YPS. It shall further state that a similar thirty (30) days prior written notice will be given to YPS.
prior to the expiration of the policy if renewal coverage is to be refused or such coverage is to be reduced on renewal. Such certificates shall show the name and address of the insured successful bidder, the policy number, the type of coverage, the inception and expiration dates, and it shall clearly state what, if any, coverages are excluded by endorsement or otherwise excepting such as appear in the standard printed policy itself. YPS reserves the right to make direct inquiry to the insurance carrier for an explanation of coverages and the successful bidder agrees to assist in obtaining any such desired information.

10. Pollution Liability:

a. Contractors Pollution Liability coverage of $5,000,000 per Occurrence and $5,000,000 Aggregate, such aggregate must be applicable on a Per Project Basis. A Contractors Pollution or Environmental Liability Umbrella/Excess policy may be utilized to satisfy these limits.

b. Contractors Pollution Liability coverage should be written on an Occurrence Basis. Occurrence Coverage must be maintained for the duration of the project and for a period of three years after the completion of the contract. If written on a Claims Made Basis the policy must have a Retroactive date which is prior to the date of the Contract and it must a have a claims reporting period of no less than three years.

c. Project Owner and all other parties required by the Contract shall be included as Additional Insureds on the policy on a primary and non-contributory basis for on-going and completed operations.

d. Coverage shall provide pollution liability coverage of no less than $1,000,000 for:
   i. Transportation Pollution Liability Coverage
   ii. Non-Owned Disposal Sites Contractors Pollution coverage

11. Insurance Coverage Requirements Summary:

<table>
<thead>
<tr>
<th>Type of Coverage</th>
<th>Policy Limits</th>
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<tbody>
<tr>
<td>Comprehensive General Liability</td>
<td>$1,000,000 Ea. Occur.</td>
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<td>$2,000,000 Aggregate</td>
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<tr>
<td>Owner’s Contractor’s Protective Required:</td>
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<tr>
<td>Required:</td>
<td>$1,000,000. Each Occur.</td>
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<tr>
<td>Not Required: <strong>X</strong></td>
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<tr>
<td>Automobile Liability</td>
<td>$1,000,000 Combined</td>
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<td></td>
<td>Single Limit</td>
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<tr>
<td>Workers Compensation/ Employers Liability</td>
<td>NY Statutory Limits</td>
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<tr>
<td>Disability Benefits</td>
<td>NY Statutory Limits</td>
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<td>Umbrella Liability</td>
<td>$5,000,000 Ea. Occur.</td>
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<tr>
<td>Pollution Liability</td>
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<td>$5,000,000 Aggregate</td>
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</tbody>
</table>
The “Board of Education of Yonkers and/or the City of Yonkers”, “Damiano Barile Engineers, P.C., with copies to Savin Engineers, P.C.” are to be named as the "additional insureds":

12. Submit copy of Certificate of Accord Forms within 10 business days of the Award of the contract by the Board of Education at their stated meeting and upon receiving signed Notice to Proceed Letter from issued by the Yonkers Public Schools School Facilities Management Department, see Attachment-A for sample of the Notice to Proceed Letter.

4. TIME OF PERFORMANCE

A. The work shall commence within ten (10) business days after execution of all required governmental approvals, unless otherwise specified in the bid documents, and shall thenceforth progress continuously and diligently. Contractor shall complete the work contemplated in the bid documents on or before the date listed paragraph C6 in the information for bidders. Inasmuch as the work contracted for is to be devoted to public use, it is specifically understood and expressly agreed that time is of the essence with respect to each and every one of the various undertakings and obligations including, but not limited to, complying with this time of performance provision, set forth in this Agreement.

1. CONTRACT DURATION
   The work encompassed in this contract is to be commenced on June 19, 2014 or as soon thereafter that written notice to proceed is issued, and be completed by December 31, 2014.

2. TIME RESTRAINTS
   The site work hours will be available to the contractor on the dates and times listed below, the contractor must bid accordingly:

| SCHOOL YEAR DATES: | May 22, 2014 through October 30, 2014 |
| DAYS OF WEEK: | Monday through Friday |
| HOURS OF THE DAY: | 3:30 pm to 11:30 pm |
| SUMMER RECESS: | July 1, 2014 through August 22, 2014 |
| DAYS OF WEEK: | Monday through Friday |
| HOURS OF THE DAY: | 8:00 am to 4:00 pm |

Note: Teachers return to their classrooms August 25, 2014. Starting with this date forward all interior construction work will shift to 3:30 pm to 11:30 pm.

Dates and time outside of the above limits may be worked upon with written permission and will require the contractor to pay for custodial worker overtime at a rate of $55/hour, 4 hour minimum and construction inspector at a rate of $75/hour, 4 hour minimum. Additional costs may be required for Holidays or other such costs as may be incurred by the YPS.

Other Restrictions:
- Shop drawing approvals and orders placed no later than July 15, 2014.
Yonkers Public Schools  
Contract Bid Documents – Section A

- Materials which include but not limited to Fire Alarm, Lighting, Public Address, Security, Electrical Panels Boards, Electric Switch Gear, Manhole, Fencing shall be manufactured and delivered to the site no later than August 26, 2014.
- Asbestos abatement work shall start July 16, 2014 and be completed no later than August 22, 2014.
- All Fire Alarm and Public Address Systems testing and commissioning shall be performed after School hours from 3:30 pm 11:00 pm.
- Site related work shall commence upon notice to proceed and can be performed during the hours of 7:00 am to 4:00 pm under the supervision of the YPS Project Manager. This work is to be completed no later than August 31, 2014.
- Electrical shut down for installation of new electrical service shall be performed during weekend or school recess dates listed in the Yonkers Public School’s Academic Calendar.

B. Contractor knowingly, voluntarily, intentionally and irrevocably waives any and all defenses, claims, rights, causes of action, sums of money, and set-offs, in law or equity including, without limitation, claims or demands for general, special or punitive damages, restitution, reimbursement, attorney’s fees, expenses or any other compensation, in connection with any delay in the site being available to bidder for commencement of the Work.

C. Any request for an extension of time must be in writing and accompanied by a release from the bonding company involved.

D. Liquidated Damages shall be assessed against the contractor, at a minimum in the amount of $350.00 per day. Liquidated Damages shall also be assessed against the contractor in the amount of actual costs to the District attributed to the delay, see Article 36 of Section C.

E. Failure of a Prime Contractor to be represented at a job meeting by a competent representative with authority to make decisions on behalf of this contractor shall result in damages in the amount of $350.00 for each occurrence and will be assessed by means of a credit or deduct change order against their contract.

F. If the Contractor is delayed at any time in progress of the Work by an act or neglect of the Owner's own forces, Construction Manager, Architect, any of the other Contractors or an employee of any of them, fire, unavoidable casualties or other causes beyond the Contractor's control, or by delay authorized by the Owner, or by other causes which 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, hand billing, refusal to deliver or work stoppages due to asbestos removal and material procurement delays.
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.

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.

“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.

5. SCHOOLS REGULATIONS

Refer also to the Special Conditions and the Technical Specifications. In the event the stipulations are in conflict, the bidder will provide for the more restrictive requirement.

A. The successful bidder will be working in public schools and as such will be required to:

1. Sign in and out of each building with the head custodian for each site visit.

2. Be restricted to the zone of work and not permitted access to any areas of the building and grounds not specifically related to the work at hand.

3. Furnish, wear and display prominently a photo identification badge at all times.

4. Refrain from any and all fraternization or undue communication with students or teachers.

5. Take direction only from the supervisor of Buildings and Grounds or his agent.

6. Refrain from smoking anywhere on YPS grounds.

7. Comply with OSHA regulations regarding personal protection gear. (e.g., head, eye and ear protection).

6. BIDDING DOCUMENTS; PREPARATION AND SUBMISSION OF BIDS:

A. Bids must be submitted on the forms supplied by the Board. Bids shall be enclosed in a sealed envelope, addressed to the Board and marked with the name and address of the Bidder, the Bid Number, the Bid Opening date and time, and the description of the Project. All blank spaces for bid prices must be filled in, using both words and figures. In the event of a discrepancy between the Bid Amount in words and the Bid Amount in figures, the Bid Amount in words shall govern.
Conditional bids shall be rejected. Bids shall not contain any recapitulation of the Work to be done. No oral, telegraphic, telephonic or faxed bids or modifications shall be considered.

B. Bids that are illegible or that contain omissions, alterations, additions or items not called for in the bidding documents may be rejected as non-responsive. Any bid which modifies, limits, or restricts all or any part of such bid, other than as expressly provided for in the Contract Documents, will be rejected as non-responsive.

C. The Board may reject as non-responsive any bid not prepared and submitted in accordance with the provisions of the Contract Documents.

D. Any bid may be withdrawn prior to the scheduled time for the opening of bids or the postponed date, if any.

E. Any bid received after the date and time that the bids are due will not be accepted.

F. A Bidder may not withdraw its bid during the NINETY (90) calendar day period following the actual date of the opening without prior approval of the Board.

G. Unbalanced bids may be rejected at the discretion of the Board. Unbalanced bids shall be deemed to include any bid on any item which is not, in the opinion of the Board based on a bona fide price for which the bidder can furnish the articles or perform the work covered by said item at cost or with substantially the same percentage of profit as he estimates to receive on the Contract as a whole.

H. The bidding documents consist of all Sections of this document and accompanying drawings.

I. The following items are to be executed in blue ink and originals only must be submitted as part of this Bid. Omission of any of these items may render the Bid as non-responsive and the Bid will be rejected.

1. Sheet B-1 “Indemnification and Hold Harmless Clause”
2. Sheet B-2 “Non-Collusive Bidding Certification” (See General Municipal Law 103-d)
3. Sheet B-3 “Addenda Acknowledgement”
4. Sheet B-4 “Certificate of Insurance Cancellation Clause.” This is to be prepared on the bidder’s letterhead and cosigned by the bidder’s intended insurance carrier.
5. Sheet B-5 “Acknowledgement of Insurance Requirements” This is to be prepared on the bidder’s letterhead and cosigned by the bidder’s intended insurance carrier.
6. Sheets B-6 through B-7 “Low Bid Affidavit”.
7. Sheet B-8 “Wick’s Law List of Sub-Contractors”.
8. Sheets B-9 through the end of the B-numbered sheets. Bid schedule of prices, the total amount bid and Unit Price Schedule.
9. The letter on bidder letterhead stating whether the bidder is a corporation or partnership or otherwise; if a corporation, under laws of what State and affix the corporate seal; if a
partnership, the full name of all partners, or, if an assumed name, the full name or names of all interested parties.

10. Bid Security as described in Section A, Part 2 – Bid Bond

11. Vendor Background Questionnaire

12. A complete list of sub-contractors to include company name, address, resume and proposed scope and cost of sub-contract as detailed in Section C, Part 7.

13. A contractor’s construction schedule as detailed in Section C, Part 12.

7. DETERMINATION OF BIDDER RESPONSIBILITY

A. Prior to the award of a contract, the Yonkers Public School District will conduct such investigations as the District deems necessary to determine the responsibility of any bidder and/or to determine the ability of any bidder to perform the Work. All apparent low bidders are subject at the time of bid to a financial analysis. The Yonkers Public School District may require the bidder to submit one or more of the following:

1. Further detailed breakdown of its bid amount in a format and level of detail acceptable to the District,

2. The names and resumes of key personnel (down to level of superintendent) the bidder intends to assign to the work if awarded a contract,

3. The portions of the Work that the bidder intends to subcontract by trade and estimated dollar amount of each,

4. A list of contracts, award dates, award amounts and Owner contact persons for projects the bidder has recently been awarded or is currently working on.

The bidder shall furnish the above information within three (3) business days of its receipt of the District’s written request. The Yonkers Public School District reserves the right to reject any bid if the information required by the District is not submitted as required or if the information submitted fails to satisfy the School District 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.

8. VENDOR BACKGROUND QUESTIONNAIRE

A. Bidders will be obligated to submit completed Vendor Background Questionnaires with this bid as set forth in this paragraph. If this bid is $100,000.00 or more, or if this bid when added to the sum total of all contracts, concessions, and franchises that the bidder received from the Yonkers Public School District including any subcontracts received over the past twelve months, equals or exceeds $100,000.00 the Background Questionnaire must be completed and submitted with this bid. Bidders who have submitted Vendor Background Questionnaires within the last three years may attach a copy of the previously submitted form, making all necessary updates to assure the accuracy at the time of the bid.
9. OSHA TEN HOUR BILL REQUIREMENTS

A. On all public work projects of at least $250,000.00, all laborers, workers and mechanics employed in the performance of the contract or subcontract to be certified, prior to performing any work on the project as having successfully completed a 10-hour course. The complete Rules and Regulations are posted on the NYSDOL website www.labor.state.ny.us. For training information contact the NYS Department of labor website at www.labor.state.ny.us/workerprotection/safetyhealth/DOSH_ONSITECONSULTATION.shtm.

10. POST BID INFORMATION

A. Within 96 hours of the bid opening, the apparent low bidder shall furnish in writing, the following to the Architect:
   1. Statement that the project can be completed within the established time.
   2. Preliminary progress schedule showing the dates for major elements of construction and dates by which major sub-contracts will be awarded.
   3. List of proposed major subcontractors.
   4. List of MAJOR manufacturers, products and suppliers.

B. Within 96 hours of the bid opening, the apparent low bidder shall furnish in writing, the following to the Architect if his bid is 10% or more lower than the second low bidder:
   1. Low Bid Affidavit – See Section B.

11. PREVAILING WAGES

A. The successful bidder shall pay its employees "prevailing rate of wage" as defined in Section 220 of the New York Labor Law, Schedule of Wage Rates.

   Prevailing Rate Case Number (PRC# 2014002626) has been assigned to the project.

   To view the PDF file of your schedule, type http://wpp.labor.state.ny.us/wpp/publicViewProject.do?method=showIt&id=1010079 into your browser.
VENDOR BACKGROUND QUESTIONNAIRE

This questionnaire has been developed to collect information from vendors/contractors wishing to do business with the Yonkers Board of Education.

Please complete the questionnaire carefully, answering all questions accurately. Answers must be typewritten or printed in black or blue ink. If you need more space to answer a question, type or print the answer on company letterhead and attach it to the questionnaire. ANSWER ALL QUESTIONS - DO NOT LEAVE BLANKS. Failure to submit a complete and accurate questionnaire may result in your bid or proposal being rejected as non-responsive and, therefore, ineligible for award.

GENERAL INFORMATION
Initial Application: YES □ NO □ Revision: YES □ NO □

1. Submitting Business Name
   EIN/SSN
   Dun & Bradstreet #
   “Doing Business As” Name(s), if any
   Business Address and date business located at this address
   Other business addresses, if any (satellite offices, plants, warehouses, branch offices headquarters, etc.)
   Mailing address, if different from above

   Telephone Number
   Fax Number
   E-Mail
   Contact Person and Title

2. Does this business now, or has it in the past 10 years, used an EIN, SSN, Name, Trade Name or abbreviation other than those given in the above question? YES □ NO □ If YES, please provide details and explain:

3. Has this business changed address(es) in the past five years? YES □ NO □. If YES, please provide all complete former addresses:
4. a. Date business was formed ____________________________
   b. Date business was incorporated ____________________________

5. **Type of Organization (Please circle one)**
   a. Business Corporation
      State/County in which incorporated ____________________________
      Name of individuals/entities incorporating business ________________
   b. Sole Proprietorship
   c. General Partnership/ Limited Partnership
      State or County where partnership certificate/agreement is filed ________________
   d. Joint Venture
   e. Non Profit
   f. Not for Profit
   g. Other (Explain) ____________________________

6. **Type of Business (Please circle one)**
   a. Manufacturing
   b. Distribution
   c. Retail
   d. Commercial Service
   e. Professional Service, Non Construction, Non-Law
   f. Bank
   g. Construction Manager
   h. Architect
   i. Engineer
   j. General Contractor
   k. Consultant (Specify) ____________________________
   l. Laboratory Testing and Analysis
   m. Law Firm
   n. Other (Explain) ____________________________

7. Has this business been certified by a government entity (SBA, NYC, etc.) as a Minority Business, Women-Owned Business, Disadvantaged Business or Small Business Enterprise? YES□, NO□. If YES, please explain. ____________________________________________________________

   a. Do you perform outreach to any of these Enterprises to perform subcontracting work? YES□, NO□

   b. Will you use one of these Enterprises as a subcontractor on work performed for the Yonkers Board of Education? YES□, NO□ If YES, explain. ____________________________________________________________

**BUSINESS HISTORY**

8. Was this business purchased as an existing business by its present owners? YES□, NO□
   If YES, please provide date of purchase and name(s) of previous owner(s).

9. Does this business own□, rent□, or lease□ its office facilities? (Please check one)
   If leased or rented, please provide name, address, and telephone number of building owner/landlord. ____________________________________________________________
10. Does this business share office space, staff, equipment, or expenses with any other business or not-for-profit organization? YES☐, NO☐. If YES, please provide the name and address of the other entity and nature of relationship to this business. 

11. Will this business use or occupy any real property, other than the addresses listed in response to Question 1, to carry out the terms of any contract you may receive from the Yonkers Board of Education? YES☐, NO☐. If YES, please provide details and explain.

BUSINESS PRINCIPALS

12. For all proprietors, partners, directors, officers, shareholders of 5% or more of the businesses’ issued stock, any manager or individual who takes part in overall policy making or financial decisions for the business, and any person in a position to control or direct the businesses’ overall operations, please provide name, home address, date of birth, social security number, title, percentage of ownership, and business telephone number.

13. Number of Employees ______________

14. Is this business now or has it been in the last five years a subsidiary of another business? YES☐, NO☐. In this period, has another business been a partner in this business, or has another business been affiliated with this business through common ownership, management or agreement, or has another business owned 5% or more of this business? YES☐, NO☐. If YES, please provide details and explain.

15. Has this business or any other business listed in response to question 14 pledged or hypothecated 5% or more of its stock to another business or to an individual to guarantee payment for a debt or obligation? YES☐, NO☐. If YES, please provide details and explain.

16. Is this business or any business listed in response to question 14 now or has it been in the last five years:
   a. The owner of 5% or more or in control of another business, an affiliate or a subsidiary? YES☐, NO☐.
   b. A vendor of or contractor to the Yonkers Board of Education? YES☐, NO☐.
   c. A subcontractor on any contract with the Yonkers Board of Education? YES☐, NO☐.
   If YES to any above, please provide details and explain.

17. Are any of the persons listed in answer to question 12 now or have been in the past, elected or appointed officials or officers or employees of the Yonkers Board of Education? YES☐, NO☐.
   If YES, please provide details and explain.

18. Has this business or any business listed in response to question 14 at present or has it ever been:
   a. Debarred by any agency* from entering contracts? YES☐, NO☐.
   b. Found not responsible by any government agency? YES☐, NO☐.

VBQ 3 of 7
c. Declared in default and/or terminated for cause on any contract, and/or had any contract cancelled for cause? YES□, NO□.

d. Suspended by any government agency from entering any contract with it? YES□, NO□.

e. Party to any action pending that could formally debar or otherwise affect this business' ability to bid or propose on contracts? YES□, NO□.

f. A respondent before the Grand Jury or any Federal, State or City Board? YES□, NO□

g. Unable to execute a contract with a government agency because it could not provide the required security or obtain a surety bond? YES□, NO□.

h. Required to pay liquidated damages on a contract? YES□, NO□.

i. In default on any obligation to, or subject to any unsatisfied judgement or lien obtained by a government agency, including judgements based on taxes owed? YES□, NO□.

j. Filed a bankruptcy petition or been subject to any involuntary bankruptcy proceedings? YES□, NO□.

k. Subject of termination for cause or revocation of permits, licenses, concessions, franchises, or leases? YES□, NO□.

l. Subject of a criminal investigation** or civil anti-trust investigation by any Federal, State or Local prosecutorial or investigative agency? YES□, NO□.

m. Subject of an investigation by any government agency, including regulatory agencies (Security Exchange Commissions, Federal Communications Commission, Department of Consumer Affairs, etc.) YES□, NO□.

If you answered YES TO ANY OF THE QUESTIONS IN ITEM 18, please provide details including dates, agency/entity names, and disposition ________________________

* Government agency includes City, State and Federal Public Agencies, quasi-public agencies, authorities and corporations, public development corporations and local development corporations.

** An investigation includes an appearance before a grand jury by a person or representatives of a business entity, any oral or written inquiry or review of documents by a public agency, temporary commission or other investigative body, or questioning concerning the general operation or a specific project or activities of business entity or the activities of a person.

19. In the last five years, have any of the persons listed in response to question 12:

a). Been the subject of an investigation involving any alleged violation of criminal law? YES□, NO□.

b). Been arrested, indicted or named as an unindicted co-conspirator in any indictment or other legal instrument? YES□, NO□.

c). Been convicted, after trial or by plea, of any felony under State or Federal Law? YES□, NO□.


e). Entered a plea of nolo contendere in a legal proceeding? YES□, NO□.

f). Entered a consent decree? YES□, NO□.

g). Been granted immunity from prosecution for any business-related conduct constituting a crime under State or Federal Law? YES□, NO□.

If you answered YES TO ANY OF THE QUESTIONS IN ITEM 19, please provide details including dates, agency/entity names, and disposition ________________________

20. Has any person listed in response to question 12 been employed by or affiliated with any person or business that has:
a. Been the subject of an investigation involving any alleged violation of criminal law? 
   YES ☐, NO ☐.

b. Been arrested, indicted or named as an unindicted co-conspirator in any indictment or other legal 
   instrument YES ☐, NO ☐.

c. Been convicted, after trial or by plea, of any felony under State or Federal Law? 
   YES ☐, NO ☐.

d. Been convicted of any misdemeanor involving business-related crimes? YES ☐, NO ☐

e. Entered a plea of nolo contendere in a legal proceeding? YES ☐, NO ☐.

f. Entered a consent decree? YES ☐, NO ☐.

g. Been granted immunity from prosecution for any business-related conduct constituting a crime 
   under State or Federal Law? YES ☐, NO ☐.

If you answered YES TO ANY OF THE QUESTIONS IN ITEM 20, please provide details 
including dates, agency/entity names, and disposition __________________________

21. Has this or any business listed in response to question 14 or any person listed in response to question 12 failed to pay any applicable Federal, State or Local government taxes for the past five years? 
   YES ☐, NO ☐. If YES, explain __________________________

22. In the past five years, has this or any business listed in response to question 14 or any person listed in 
   response to question 12 committed any act of collusion, bid rigging or price fixing in submitting a 
   competitive bid? YES ☐, NO ☐.
   If YES, explain __________________________

23. Licensing: List jurisdiction and trade categories in which your organization is legally qualified to do 
   business (if applicable), and attach legible copies of registrations and/or licenses.

   Jurisdiction

   __________________________________________________________

   __________________________________________________________

   __________________________________________________________

   __________________________________________________________

   __________________________________________________________

   Trade Category

   __________________________________________________________

   __________________________________________________________

   __________________________________________________________

   __________________________________________________________

   __________________________________________________________

   __________________________________________________________

   __________________________________________________________
24. **Attach** a list of **ALL** this business’ projects, clients, and customers for the **last two years**. Explain any missing information or gaps in time. **Provide this list on company letterhead and include the following information in this format:**

- Agency/Owner
- Contract #
- Name & Location of Project
- Surety Company for the Job
- Sub or Prime Contractor
- Goods or Services Provided
- Start and Completion Dates
- Contract Amount
- Contact Name & Telephone No.
CERTIFICATION

A materially false statement willfully or fraudulently made in connection with this questionnaire is sufficient cause for rendering the business entity not responsible with respect to the present bid or proposal and future bids or proposals, and in addition, may subject the person and/or entity making the false statement to criminal charges, including but not limited to New York State Penal Law sections 175.35 (Offering a false statement for filing) and 210.40 (Sworn false statement) and/or Title 18 U.S.C. sections 1001 (False or fraudulent statement) and 1341 (Mail fraud).

I, ________________________________, being duly sworn, state that I am the Print or Type Name of Bidder/Proposer Authorized Representative

________________________________________ of ________________________________, and Print or Type Title of Bidder/Proposer Authorized Representative Print or Type Name of Entity Submitting Bid/Proposal

I have read and understand the questions contained in the attached questionnaire and its appendices. I certify that to the best of my knowledge the information given in response to each question and appendices is full, complete, and truthful.

I will notify the Yonkers Board of Education in writing of any change in circumstances occurring after the submission of this questionnaire and before the execution of any contract with the City.

I acknowledge that the Yonkers Board of Education may, by means it deems appropriate, determine the accuracy and truth of the statements made in this questionnaire.

I recognize that all information submitted is for the express purpose of inducing the Yonkers Board of Education to enter a contract with the submitting business entity.

I authorize the Yonkers Board of Education to contact any entity or person named in this questionnaire, for purposes of verifying the information submitted.

__________________________________________________________
Signature of Bidder/Proposer Authorized Representative

STATE OF ____________ )

____________________ ) ss:
COUNTY OF ____________ )

On the _____ day of __________________, in the year ______, before me personally came ____________________________, to me known and known to me to be the person Print or Type Name of Bidder/Proposer Authorized Representative described in and who executed the foregoing instrument, and he/she duly acknowledged that he/she executed the same.

__________________________________________________________
Notary Public

Place Notary Public Stamp Here:
**YONKERS PUBLIC SCHOOLS**  
**2014-2015 SCHOOL CALENDAR**

### JULY 2014

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**Total Days Schools in Session:** 182  
**Total Days Teachers in Attendance:** 185  
**Total Days for Teaching Assistants:** 188
## YONKERS PUBLIC SCHOOLS
### 2014-2015 SCHOOL CALENDAR

### JANUARY 2015

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1. **CENTRAL OFFICE CLOSED (NEW YEARS DAY 1/1)**
2. **SCHOOLS CLOSED – HOLIDAY RECESS**
3. **SCHOOLS REOPEN AFTER HOLIDAY RECESS**
4. **SCHOOLS/CENTRAL OFFICE CLOSED - MARTIN LUTHER KING, JR. DAY**
5. **TENTATIVE REGENTS EXAMS/RATING — HIGH SCHOOLS ONLY**

### FEBRUARY

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1. **SCHOOLS CLOSED – WINTER RECESS**
2. **CENTRAL OFFICE CLOSED – PRESIDENTS’ HOLIDAYS**
3. **SCHOOLS REOPEN AFTER WINTER RECESS**

### MARCH

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1. **ALL STUDENTS REPORT TO SCHOOL, ½ DAY FOR ELEMENTARY STUDENTS (PARENT CONFERENCES); FULL DAY FOR STAFF**
2. **SCHOOLS CLOSED – SPRING RECESS**

### APRIL

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1. **SCHOOLS CLOSED – SPRING RECESS**
2. **CENTRAL OFFICE CLOSED (GOOD FRIDAY)**
3. **SCHOOLS REOPEN AFTER SPRING RECESS**
4. **NEW YORK STATE ELA ASSESSMENTS**
5. **NEW YORK STATE MATH ASSESSMENTS**

### MAY

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1. **SCHOOLS/CENTRAL OFFICE CLOSED — MEMORIAL DAY**
2. **SCHOOLS/CENTRAL OFFICE CLOSED — MEMORIAL DAY**

### JUNE

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1. **REGENTS EXAMS (ELA/GEOMETRY - COMMON CORE)**
2. **TENTATIVE DATE FOR FINAL EXAMS TO BEGIN**
3. **TENTATIVE REGENTS EXAMS/RATING — HIGH SCHOOLS ONLY (RATING DAY 6/25)**
4. **HALF DAY FOR ELEMENTARY STUDENTS**
5. **LAST DAY OF SCHOOL FOR STUDENTS & HOURLY STAFF (HALF-DAY FOR STUDENTS/HOURLY STAFF)**

### MAKE-UP DAY CALENDAR

**PLEASE DO NOT MAKE ANY PLANS FOR THE MAKE-UP DAYS LISTED**

- The first two emergency closing days are built into the calendar – no make-up
- 3 Emergency Closing Days Used – Schools will be open April 6
- 4 Emergency Closing Days Used – Schools will be open March 30
- 5 Emergency Closing Days Used – Schools will be open March 31
- 6 Emergency Closing Days Used – Schools will be open April 1
ATTACHMENT A

SAMPLE NOTICE TO PROCEED
Month Day, Year

First & Last Name, President
Name of Firm
Street Address
City, State Zip

Re: Project Title
Yonkers Public Schools Job #_ _ _ _
Notice to Proceed, Contract Value in the Amount of $________.___

Dear Mr. or Ms. __________,

With regard to the above mention project, the Yonkers Public Schools (YPS) School Facilities Management Department (SFMD) is pleased to inform you that your company has been selected as the low responsive bidder and that your contract was recommended for award by the Board of Education at the meeting of Month Day, Year.

Please use this letter as a “Notice to Proceed” for your company to begin working on the project, Start date Month Day, Year in accordance with the Bid Plans and Contract Manual and Specifications for submitting the following by Month Day, Year and or sooner:

1. Purchasing of Payment and Performance Bonds.
2. Approved Construction Schedule
3. Approved Schedule of Values
4. Submitting asbestos abatement submittals as required under the asbestos abatement specifications.
5. Prior to any persons of your employ being on site, including Sub-Contractors shall submit the following:
   a. Submission of Correct Insurances
   b. Submission of 24 hour, 7 day week emergency contact numbers
   c. Submission of your list of Sub-Contractors
   d. Submission of your list of Vendors and suppliers

Not until after the Purchasing Department has approved your contract, after receiving your correct insurances and Payment and Performance Bonds you may begin to perform the following:

1. Purchasing of materials and equipment.
2. Starting of Construction on the Job Site.
3. Asbestos Abatement and related construction work to begin as outlined in Contract Manual and Specifications.

If you should have any questions, please do not to hesitate to give me a call at (914) 376-8008.
Respectfully,

First & Last Name
Title of YPS Project Manager

cc: John P. Carr, Executive Director, YPS jcarr@yonkerspublicschools.org; Project Manager Name, A/E Firm Name - email address; Project Manager Name, CM Firm Name - email address; Project Manager Name, Environmental Consulting Firm Name - email address
ATTACHMENT B

DIRECTIONS TO DELIVER BIDS
Directions to Deliver Bids for Yonkers Public Schools

- Travel to One Larkin Plaza, Yonkers, NY
- On the corner of Wells Avenue and River Street, there is an entrance to the building which also houses the Yonkers Public Library.
- Enter the building at the entrance on the corner of Wells Avenue and River Street. Once you enter the building proceed to the Yonkers Public School Main Entrance and check in at the main security desk (Not Yonkers Public Library).
- Take the elevator to the third floor.
- When you exit the elevator, there is a set of double doors in front of you. Go through the double doors and the Purchasing Department is in front of you.
- Turn in your bid to one of the staff in the purchasing department.

This is the only place where bids may be turned in to be considered. Failure to find the office is the responsibility of the Contractor. It is your responsibility to get to the Purchasing Department early enough to ensure that the YPS Purchasing Department staff can receive and clock in your bid before the time it is due.

See attached map of area.
INDEMNIFICATION AND HOLD HARMLESS CLAUSE

RE-BID
SCHOOL 9
RESTORATION OF EMERGENCY & ELECTRICAL UTILITIES AND SITE IMPROVEMENTS

Contractor Agrees to indemnify and save harmless the Yonkers Board of Education, the City of Yonkers, and any of their agents, assigns, employees or independent contractors, the Architect/Engineer and persons in his employ, from any and all liability for damages for injury to the person or property of another and from all suits and actions and all costs and damages to which such parties may be subjected resulting from the Contractor’s performance of this contract, whether such performance be by the Contractor, or by any Subcontractor or employee.

I certify that I have been duly authorized to execute this Agreement on behalf of:_______________________________________________________________

(Name of Contractor)

Dated: _____________  Signed_______________________________________________________

(Print Name)

(Title)
NON-COLLUSIVE BIDDING CERTIFICATION

RE-BID
SCHOOL 9
RESTORATION OF EMERGENCY & ELECTRICAL UTILITIES AND SITE IMPROVEMENTS

By submission of this bid, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid each party thereto certifies as to its own organization, under penalty of perjury, that to the best of knowledge and belief:

1. the prices in this bid have been arrived at independently without collusion, consultation, communication, or agreement, for the purpose of restricting competition, as to any matter relating to such prices with any other bidder or with any competitor;

2. unless otherwise required by law, the prices which have been quoted in this bid have not been knowingly disclosed by the bidder and will not knowingly be disclosed by the bidder prior to opening, directly or indirectly, to any other bidder or to any competitor; and,

3. no attempt has been made or will be made by the bidder to induce any other person, partnership or corporation to submit or not to submit a bid for the purpose of restricting competition.

Date: ____________________

______________________________
NAME OF BIDDER

______________________________
BY:

______________________________
TITLE
ADDENDA ACKNOWLEDGEMENT

RE-BID
SCHOOL 9
RESTORATION OF EMERGENCY & ELECTRICAL UTILITIES AND SITE IMPROVEMENTS

Acknowledgement is hereby made of the following addenda supplements to the bid documents, plans or specifications:

ADDENDUM NO. _________ DATED ___________ NO. OF PAGES _______
ADDENDUM NO. _________ DATED ___________ NO. OF PAGES _______
ADDENDUM NO. _________ DATED ___________ NO. OF PAGES _______
ADDENDUM NO. _________ DATED ___________ NO. OF PAGES _______
ADDENDUM NO. _________ DATED ___________ NO. OF PAGES _______
ADDENDUM NO. _________ DATED ___________ NO. OF PAGES _______
Mr. Robert J. Haines  
Purchasing Agent  
Yonkers Public Schools  
One Larkin Center  
Yonkers, NY 10701

RE: Certificate of Insurance Cancellation Clause

RE-BID  
SCHOOL 9  
RESTORATION OF EMERGENCY & ELECTRICAL UTILITIES AND SITE IMPROVEMENTS

Dear Mr. Haines:

Notwithstanding any language contained in the certificate of insurance which has been provided by this agency to the Yonkers Public Schools, this agency will provide at least thirty days notice to the Yonkers Public Schools prior to termination of any of the policies issued to the insured naming the Yonkers Board of Education and “Damiano Barile Engineers, P.C., with copies to Savin Engineers, P.C.” as additional insureds.

Very truly yours,

Contractor: ________________________________  
(Print Full Name)

Contractor: ________________________________  
(Signature)

Insurance Broker: _________________________  
(Print Full Name)

Insurance Broker: _________________________  
(Signature)
Mr. Robert J. Haines  
Purchasing Agent  
Yonkers Public Schools  
One Larkin Center  
Yonkers, NY 10701

RE: ACKNOWLEDGEMENT OF INSURANCE REQUIREMENTS  
RE-BID  
SCHOOL 9  
RESTORATION OF EMERGENCY & ELECTRICAL UTILITIES AND SITE IMPROVEMENTS

By submission of this form my Insurance Provider and I have read and acknowledged the requirements of Insurance requirements of the Yonkers Public Schools as outlined in the following Contract Bid Documents:

- Section A, Paragraph 3.A.1 through Paragraph 3.A.11
- Section C, Part 23, WORKER'S COMPENSATION
- Section C, Part 24, LIABILITY INSURANCE
- Section C, Part 25, PROPERTY DAMAGE INSURANCE
- Section C, Part 27, AUTOMOBILE LIABILITY INSURANCE

It is understood that the Yonkers Public Schools reserves the right to consider any bid submission that omits this acknowledgement to be unresponsive and subject to rejection. It is further understood that failure to produce the required coverage in time for the award of the contract by the BOE may be considered to be irresponsible and may also result in rejection of the bid, with forfeiture of the bid bond.

Very truly yours,

Contractor: ________________________________  
(Print Full Name)

Contractor: ________________________________  
(Signature)

Insurance Broker: _________________________  
(Print Full Name)

Insurance Broker: _________________________  
(Signature)
LOW BID AFFIDAVIT

RE-BID
SCHOOL 9
RESTORATION OF EMERGENCY & ELECTRICAL UTILITIES AND SITE IMPROVEMENTS

I [insert name] as [insert title] of [insert company name] (hereinafter “Bidder”) submitted a bid to the ____________ School District concerning the ____________ Project on [insert date]. I understand that I am the apparent low bidder and that my bid amount is ten (10%) percent or more lower than the next bidder on the project. Accordingly, in accordance with General Municipal Law Section 103(13), I make the following statements, sworn to under oath:

1. Bidder is aware of the requirements of §270 of the Labor Law and will pay all employees wages pursuant to the applicable prevailing wage schedule as established by the New York State Department of Labor as well as provide all applicable supplements as required by law;

2. Bidder will require each of its subcontractors to pay the prevailing wage plus supplements to any of the subcontractor’s employees;

3. Bidder hereby certifies that in the event of a failure to pay the applicable wages and supplements pursuant to the applicable prevailing wage schedule as established, by the New York State Department of Labor by either the Bidder or by any subcontractor to the Bidder, The Bidder and the principals of Bidder personally guaranty said payments of wages due and owing to any employee or subcontractor’s employee;

4. Bidder agrees to repay any investigative and/or enforcement cost incurred by any agency if the company is subsequently found liable for any violation of the Labor Law in connection with the performance of the subject contract;

5. Bidder agrees to repay any enforcement and/or court cost incurred by any person or entity if the Bidder is subsequently found liable for any violation of the New York State Labor Law in connection with the performance of the subject contract;

6. Bidder agrees to an inspection of all books and records associated with the performance of the subject contract by the Attorney General, or fiscal officer at any time deemed appropriate by such agency for a commencing with the award of the subject contract and continuing until three (3) years after completion of the subject contract; and,

7. Attached, as an attachment, is the Bidder’s calculation of labor and material costs for the project, including a schedule of the number of workers necessary to complete the project, the classification or classifications of each worker, and the rates of wages to be paid to each worker.
Bidder submits the above information and makes the above statements under penalty of perjury and with the intent to have the School District rely on them in accordance with General Municipal Law §103 (13) for consideration of the Bidder’s bid.

[Principal] [Date]

Title

Sworn to before me this
___________Day of__________, 200___.

Notary Public – State of New York
CERTIFICATION OF COMPLIANCE WITH THE IRAN DIVESTMENT ACT
RE-BID
SCHOOL 9
RESTORATION OF EMERGENCY & ELECTRICAL UTILITIES AND SITE IMPROVEMENTS

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 _______________ 201___

Notary Public: _________________________

OR
DECLARATION OF BIDDER’S INABILITY TO PROVIDE CERTIFICATION OF COMPLIANCE WITH THE IRAN DIVESTMENT ACT

RE-BID
SCHOOL 9
RESTORATION OF EMERGENCY & ELECTRICAL UTILITIES AND SITE IMPROVEMENTS

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 _______________ 201_
NEW YORK STATE WICK'S LAW

A. Effective July 1, 2008, construction contracts of one million five hundred thousand dollars or less will not require the preparation of separate contracts for plumbing and gas fitting; steam heating, hot water heating, ventilation and air conditioning apparatus; and electric wiring and standard illuminating fixtures.

B. Each bidder must submit with its bid, a separate sealed list that names each subcontractor that the bidder will use to perform work on the contract, and the agreed upon amount to be paid to each for: (a) plumbing and gas fitting; (b) steam heating, hot water heating, ventilation and air conditioning apparatus; and (c) electric wiring and standard illuminating fixtures.

C. After the low bid is announced, the sealed list of subcontractors submitted with the bid shall be opened and the names of such subcontractors shall be announced. Thereafter, any changes of subcontractors or agreed-upon amount to be paid to each shall require the approval of the Owner upon a showing of legitimate construction need for such change.

D. The sealed lists of subcontractors submitted by all other bidders shall be returned to them unopened after the contract award.

HEREWITH IS THE LIST OF SUBCONTRACTORS REFERENCED IN THE BID SUBMITTED BY:

(BIDDER) ____________________________________________

TO (OWNER) YONKERS PUBLIC SCHOOLS

DATED ______________ AND WHICH IS AN INTEGRAL PART OF THE BID FORM.

THE FOLLOWING WORK WILL BE PERFORMED (OR PROVIDED) BY SUBCONTRACTORS AND COORDINATED BY US:

<table>
<thead>
<tr>
<th>WORK SUBJECT</th>
<th>SUBCONTRACTOR NAME</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLUMBING</td>
<td>____________________</td>
<td>$ ______</td>
</tr>
<tr>
<td>HVAC</td>
<td>____________________</td>
<td>$ ______</td>
</tr>
<tr>
<td>ELECTRICAL</td>
<td>____________________</td>
<td>$ ______</td>
</tr>
</tbody>
</table>
ALLOWANCE
BID FORM

RE-BID
SCHOOL 9
RESTORATION OF EMERGENCY & ELECTRICAL UTILITIES AND SITE IMPROVEMENTS

The following UNIT PRICES are to be completed by the bidder and submitted as a part of the bid submission. When unit prices as entered by the bidder have been accepted by the Owner, the Bidder agrees that such unit prices shall prevail. Unit prices shall govern addition to or deduction from the Lump Sum Bid and Alternate Proposals.

Unit prices entered by the Bidder shall include all costs associated with the supplying of all materials, including but not limited to material purchases, taxes, and shipping, and all labor cost associated with the installation of same. In addition to these requirements, Bidder is to include all overhead and profit mark-up in the unit prices. There will be no additional mark-up allowed for Unit Pricing.

All quantities shall be verified by the Contractor and reviewed by the Owner, or its representative. If actual unit quantities are stated in the Unit Price Schedule, the bidder is to base his unit cost on that approximate number of units, based upon work as detailed, described, or otherwise referenced in these contract documents.

The Owner reserves the right to accept any or all items as detailed in the Unit Price Schedule. If in the Owner's opinion, any unit prices are not within generally accepted costs associated with the work item, then he may reject that unit cost and enter into negotiations with the successful bidder for an alternate value, based upon similar work to be installed as detailed in the contract documents.

SEE BID FORMS B-12 AND ON:
YONKERS PUBLIC SCHOOLS
PROJECT NO. YPS#10460

RE-BID
SCHOOL 9
RESTORATION OF EMERGENCY & ELECTRICAL UTILITIES AND SITE IMPROVEMENTS
SITEWORK - Contract No. 1

<table>
<thead>
<tr>
<th>LINE NO.</th>
<th>QUANTITY (A)</th>
<th>UNITS</th>
<th>ITEMS WITH UNIT PRICES WRITTEN IN WORDS</th>
<th>UNIT BID PRICE (B)</th>
<th>AMOUNT BID (AxB)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Base Bid: Lump Sum Price to Complete All Sitework as Described in the Contract Documents for the School 9.</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>LUMP SUM</td>
<td>For and</td>
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<td>$ ____ 00 00</td>
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<td></td>
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<td></td>
<td>/100 Dollars per LUMP SUM.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>LUMP SUM</td>
<td>Site Alternate: For All Work Associated with Decorative Ornamental Fencing.</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>For and</td>
<td></td>
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<td>$ ____ 00 00</td>
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<td></td>
<td>/100 Dollars per LUMP SUM.</td>
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<td></td>
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<tr>
<td></td>
<td></td>
<td>NEC</td>
<td>Miscellaneous Additional Work: Allowance for additional owner directed work, if so desired by the District.</td>
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<td></td>
<td></td>
<td>Ten Thousand</td>
<td>$ 10,000 00</td>
<td>$ 10,000 00</td>
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<td></td>
<td></td>
<td>00/100 DOLLARS PER NECESSARY</td>
<td></td>
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</tr>
</tbody>
</table>

TOTAL SITEWORK AMOUNT BID FOR SCHOOL 9 (SUM OF ITEMS 1 THROUGH 3) WITH PRICE

__________________________________________________________________________

/100 Dollars

TOTAL AMOUNT BID WITH PRICE WRITTEN IN NUMERALS

__________________________________________________________________________

DOLLARS  CTS.

$ ________  ____

CONTRACTOR:

ADDRESS:

PHONE No.:

PREPARED BY: (Print Name)

DATE: (Month, Day Year)

B-12
YONKERS PUBLIC SCHOOLS

SCHOOL FACILITIES DEPARTMENT

PROJECT NO. YPS#10460

RE-BID

RE-BID

SCHOOL 9

RESTORATION OF EMERGENCY & ELECTRICAL UTILITIES AND SITE IMPROVEMENTS

ASBESTOS ABATEMENT/GENERAL CONSTRUCTION - Contract No. 2

<table>
<thead>
<tr>
<th>LINE NO.</th>
<th>QUANTITY</th>
<th>UNITS</th>
<th>ITEMS WITH UNIT PRICES WRITTEN IN WORDS</th>
<th>UNIT BID PRICE (B)</th>
<th>AMOUNT BID (AxB)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>LUMP SUM</td>
<td>For and Base Bid: Lump Sum Price to Complete All Asbestos Abatement/General Construction Work as Described in the Contract Documents for the School 9.</td>
<td>$ _______</td>
<td>$ _______</td>
</tr>
<tr>
<td>2</td>
<td>6</td>
<td>TENTS</td>
<td>For and Unit Price #1: Repair up to 6 SF of Sheetrock per Section 01 2200 for School 9.</td>
<td>$ _______</td>
<td>$ _______</td>
</tr>
<tr>
<td>3</td>
<td>20</td>
<td>SF</td>
<td>For and Unit Price #2: Repair Sheetrock (per square foot) per Section 01 2200 for School 9.</td>
<td>$ _______</td>
<td>$ _______</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td>NEC</td>
<td>For and Miscellaneous Additional Work: Allowance for additional owner directed work, if so desired by the District. Ten Thousand $10,000/100 DOLLARS PER NECESSARY</td>
<td>$ 10,000 00</td>
<td>$ 10,000 00</td>
</tr>
</tbody>
</table>

TOTAL ASBESTOS ABATEMENT/GENERAL CONSTRUCTION BID FOR SCHOOL 9 (SUM OF ITEMS 1 THROUGH 4) WITH PRICE WRITTEN IN WORDS:

$10,000/100 DOLLARS PER NECESSARY

TOTAL ASBESTOS ABATEMENT/GENERAL CONSTRUCTION BID FOR SCHOOL 9 (SUM OF ITEMS 1 THROUGH 4) WITH PRICE WRITTEN IN NUMERALS:

$_______ 00

CONTRACTOR:

ADDRESS:

PHONE No.:

PREPARED BY: (Print Name) (Signature)

DATE: (Month, Day Year)

DOLLARS CTS.

TOTAL AMOUNT BID WITH PRICE WRITTEN IN NUMERALS: $ _______ 00
<table>
<thead>
<tr>
<th>LINE NO.</th>
<th>QUANTITY (A)</th>
<th>UNITS</th>
<th>ITEMS WITH UNIT PRICES WRITTEN IN WORDS</th>
<th>UNIT BID PRICE (B)</th>
<th>AMOUNT BID (AxB)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>LUMP SUM</td>
<td>Base Bid: Lump Sum Price to Complete All Electrical Work as Described in the Contract Documents for the School 9.</td>
<td>$ 100,000.00</td>
<td>$ 100,000.00</td>
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<tr>
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<td></td>
<td></td>
<td>and</td>
<td>/100 Dollars per LUMP SUM.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>LUMP SUM</td>
<td>Alternate E1: Replacement of Wiremold - see Specification Section 01 23 00. Electrical Work to be Completed for School 9.</td>
<td>$ 100,000.00</td>
<td>$ 100,000.00</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>For and</td>
<td>/100 Dollars per LUMP SUM.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>LUMP SUM</td>
<td>Alternate E2: Replacement of existing panelboards - see Specification Section 01 23 00. Electrical Work to be Completed for School 9.</td>
<td>$ 100,000.00</td>
<td>$ 100,000.00</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>For and</td>
<td>/100 Dollars per LUMP SUM.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>LUMP SUM</td>
<td>Alternate E3: Receptacle Installation - see Specification Section 01 23 00. Electrical Work to be Completed for School 9.</td>
<td>$ 100,000.00</td>
<td>$ 100,000.00</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>For and</td>
<td>/100 Dollars per LUMP SUM.</td>
<td></td>
</tr>
<tr>
<td>LINE NO.</td>
<td>QUANTITY</td>
<td>UNITS</td>
<td>ITEMS WITH UNIT PRICES WRITTEN IN WORDS</td>
<td>UNIT BID PRICE (B)</td>
<td>AMOUNT BID (AxB)</td>
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<td>(A)</td>
<td></td>
<td></td>
<td>DOLLARS</td>
<td>DOLLARS CTS.</td>
</tr>
<tr>
<td>5</td>
<td>1</td>
<td>NEC</td>
<td>Miscellaneous Additional Work: Allowance for additional owner directed work, if so desired by the District. Thirty Thousand 00/100 DOLLARS PER NECESSARY</td>
<td>$ 30,000 00</td>
<td>$ 30,000 00</td>
</tr>
</tbody>
</table>

TOTAL ELECTRICAL AMOUNT BID FOR SCHOOL 9 (SUM OF ITEMS 1 THROUGH 5) WITH PRICE WRITTEN IN WORDS: $__________ /100 Dollars

TOTAL AMOUNT BID WITH PRICE WRITTEN IN NUMERALS: $__________ _____

CONTRACTOR: ______________________

ADDRESS: ______________________

PHONE No.: ______________________

PREPARED BY: ______________________ (Print Name) (Signature)

DATE: ______________________ (Month, Day Year)
SECTION C – GENERAL CONDITIONS

1 - DEFINITIONS

A. The Contract Documents consist of the Agreement between the Board and the Contractor; General and Special Conditions of the Contract; Specifications; Drawings; addenda issued prior to execution of the Contract; other documents which may be listed in the Contract; and Modifications issued after the execution of the Contract. A "Modification" is (1) a written amendment to the Contract signed by 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 A/E. These documents form the Contract and are as fully binding on both parties to the Contract as if the documents had been fully set forth therein.

B. The term "Board" as used herein shall refer to the Board of Education, Yonkers City School District. “Yonkers Public Schools” and “Board” are interchangeable.

C. The term "Authorized Representative" shall mean the Director for Operations of the Board or such other person as may be designated by him.

D. The term “A/E” as employed herein shall mean the professional Architect or Engineer employed by the Board whose name appears on the specifications.

E. The term “CM” as employed herein shall mean the Construction Manager employed by the Board.

F. The term "Inspector" as employed herein shall mean the person employed by the Board as Clerk-of-works or Inspector.

G. The term "Subcontractor" as employed herein includes only those having a direct contract with the Contractor, and it includes one who furnishes material worked to a special design according to the Specifications, but does not include one who merely furnishes material not so worked.

H. The term "Work" includes all labor or materials required for the completion of the project according to the Specifications, regardless of whether such labor or materials are supplied by Contractor or by a Subcontractor, or both.

I. "Or Equal" Clause

1. Whenever a material, article or piece of equipment is identified on the plans or in the specification by reference to manufacturers’ or vendors’ names, trade names, catalogue number, or make, said identification is intended to establish a standard. Any materials, articles or equipment of other manufacturers and vendors which performs the same duties imposed by the general design may be considered equally acceptable provided that, in the opinion of the Yonkers Public Schools, the material, article or equipment so proposed is of equal quality, substance and function. It is the responsibility of the Contractor to show that the proposed substitution is equal. It is the responsibility of the Contractor to identify any substitutions and to provide a point-by-point comparison and backup, such that a reasonable review can be made. The Contractor shall not provide, or install any such proposed material, article or equipment without the prior written approval of the Yonkers Public Schools.

2. Where the Yonkers Public Schools, pursuant to the provisions of this Article, approves a product proposed by the Contractor and the proposed product requires a revision or design of any part of the work, all such revisions and redesigns and all new drawings, and details
required therefore shall be provided by the Contractor and shall be approved by the Yonkers Public Schools. Where the Yonkers Public Schools, pursuant to the provisions of this Article, approves a product proposed by the Contractor and the proposed product results in additional work or added costs, the Contractor proposing the product is solely responsible for such costs and added work.

3. When in the specifications, two or more kinds, types, brands, or manufactures or materials named, they are regarded as the required standard of quality, and are presumed to be equal. The Contractor may select one of these items or, if the Contractor desires to use any kind, type, brand, or manufacturer or material other than those named in the specifications, he shall indicate in writing, prior to award of contract, what kind, type, brand, or manufacturer is included in the base bid for the specified item.

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

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

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

2 – ARCHITECT/ENGINEER’S STATUS

A. The Architect/Engineer (A/E) will provide administration of the Contract as described in the Contract Documents, and will be the Board's representative (1) during construction, (2) until final payment is due and (3) with the Board's concurrence, from time to time during the correction period. The A/E will advise and consult with the Board. The A/E will have authority to act on behalf of the Board only to the extent provided in the Contract Documents, unless otherwise modified by written instrument in accordance with other provisions of the Contract.

B. The A/E will have authority to reject Work which does not conform to the Contract Documents. Whenever the A/E considers it necessary or advisable for implementation of the intent of the Contract Documents, the A/E will have authority to require additional inspection or testing of the Work, whether or not such Work is fabricated, installed or completed.

C. The A/E 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 A/E's action will be taken with such reasonable promptness as to cause no delay in the Work or in the activities of the Board, Contractor or separate contractors, while allowing sufficient time in the A/E's professional judgment to permit adequate review. Review of such submittals is not conducted for the purpose of determining the accuracy and completeness of other details such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the Contractor as required by the Contract Documents. The A/E's review of the Contractor's submittals shall not relieve the Contractor of its obligations under the Contract. The A/E's review shall not constitute approval of safety precautions or, unless otherwise specifically stated by the A/E, of any construction means,
methods, techniques, sequences or procedures. The A/E’s approval of a specific item shall not indicate approval of an assembly of which the item is a component.

D. The A/E will prepare Change Orders and Construction Change Directives.

E. The A/E will conduct inspections to determine the date or dates of Substantial Completion and the date of final completion, will receive and forward to the Board for the Board's review and records written warranties and related documents required by the Contract and assembled by the Contractor, and will issue a final Certificate for Payment upon compliance with the requirements of the Contract Documents.

F. Interpretations and decisions of the A/E 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 A/E will endeavor to secure faithful performance by both Board and Contractor, will not show partiality to either and will not be liable for results of interpretations or decisions so rendered in good faith.

G. The A/E’s decisions on matters relating to aesthetic effect will be final if consistent with the intent expressed in the Contract Documents.

3 – CONFORMITY TO LAW

A. All Federal, State, and Municipal laws and regulations now in force, or which may hereafter be adopted, which are applicable to the Work to be performed under this Agreement, shall govern the performance of the work. Should any provisions of the Contract Documents appear to the Contractor to conflict with such laws or regulations, he shall at once notify the A/E of such uncertainty.

4 – PERMITS AND REGULATIONS

A. The Contractor shall obtain and pay for all permits and licenses, but not permanent easements, and shall give all notices, pay all fees and comply with all laws, ordinances, rules and regulations bearing on the conduct of the Work, as drawn and specified. If the Contractor performs any work knowing it to be contrary to such laws, ordinances, rules and regulations, he shall be liable for all damages to persons of property, direct or indirect, of any nature and shall bear all costs arising there from.

5 – AMBIGUITIES AS TO SCOPE OF WORK

A. Figures, dimensions and existing conditions on all drawings shall be checked by the Contractor who shall note any discrepancies and inform the A/E. The Contractor shall not alter specifications, drawings or figures nor make alterations in or additions to the quantity, character or arrangements of the materials or work whether same shall involve additional expense or not, unless same shall be agreed upon first in writing, as provided in the contract; this provision, however, shall not abridge in any way the A/E's rights as to the interpretation of the specifications, drawings and figures thereon.

B. Where work is to be fabricated which must fit the conditions on the job, it shall be the responsibility of the Contractor or person supplying such fabrication to take field dimensions to insure the proper installation of his material. The A/E's approval of shop drawings does not in any way relieve the Contractor from the responsibility for the proper fitting and construction of the work.
C. The Contractor and each Subcontractor shall visit and familiarize themselves with existing conditions at the building and site before submitting proposals. Any existing conditions which will prevent him from performing perfect work shall be reported to the A/E.

D. Should any conflict occur in or between the Drawings and Specifications, the Contractor shall be deemed to have estimated on the more costly method of doing the work, unless he shall have asked for and obtained a decision in writing from the A/E before the submission of his bid, as to what shall govern.

E. Should the Contractor claim that any instructions, drawings, or specifications involve extra cost under the Agreement, Contractor shall give the A/E written notice of that claim before proceeding to execute the work, and, in any event, within two (2) weeks of receiving such instructions, specifications, or drawings.

6 – COORDINATION OF WORK WITH OTHER CONTRACTORS

A. Contractor shall lay out and install his work at such time or times and in such manner as not to delay or interfere with the carrying forward of the work of the other Contractors.

B. Contractor shall do such cutting, fitting, or patching of the work as may be required to make its several parts come together properly, and fit to receive or to be received by work of other Contractors shown upon or reasonably implied by the drawings and specifications for the completed project.

C. In the event a Contractor falls out of timely compliance with the construction schedule and thereby incurs additional costs, such additional costs shall be the Contractor's sole responsibility.

D. If performance of any part of the Contractor's work is dependent upon the work of any other contractor, Contractor shall inspect and promptly report to the A/E and the Supervisor any defects in such work that render it unsuitable for proper execution and results.

E. In the event of any dispute arising as to allegations of interference amongst the various contractors as might impede the progress of the work, the dispute shall be resolved by the A/E, whose decision in this matter shall be final, binding, and conclusive as to the affected parties.

7 – AWARD OF SUBCONTRACTS AND OTHER CONTRACTS FOR PORTIONS OF THE WORK

A. Unless otherwise stated in the Contract Documents or the bidding requirements, the Contractor, 48 hours after the bid opening, shall furnish in writing to the Board through the A/E, the name and address of all intended proposed Subcontractors, (including those who are to furnish materials or equipment fabricated to a special design) along with identifying the portion and cost of the work and materials which that Subcontractor is to perform and furnish. In addition the Contractor shall include the Subcontractor’s qualifications which may include but not be limited to a company resume and a list of five (5) references of similar project size and scope over the last five (5) years. Subcontractor qualifications must demonstrate that the firm has the necessary facilities, skill, integrity, past experience and financial resources to perform the work in accordance with the terms and conditions of this Contract. The A/E will promptly reply to the Contractor in writing stating whether or not the Board or the A/E, after due investigation, has reasonable objection to any such proposed person or entity. Failure of the Board or A/E to reply promptly shall constitute notice of no reasonable objection.
Yonkers Public Schools  
Contract Bid Documents – Section C

B. The Contractor shall not make subcontracts totaling in amount more than the percentage specified in the Section “A” of this General Agreement of the total Contract price without special written permission from the Board.

C. If an approved Subcontractor elects to subcontract any portion of his subcontract, the proposed sub-subcontract shall be submitted in the same manner as directed above. Wherever the word Subcontractor appears herein, it also means sub-subcontractor.

D. The Board’s approval of a Subcontractor shall not relieve the Contractor of any of his responsibilities, duties and liabilities hereunder. The Contractor shall be solely responsible to the Board for the acts or defaults of his Subcontractor and of such Subcontractor’s officers, agents and employees, each of who shall, for this purpose, be deemed the agent or employee of the Contractor to the extent of his Subcontract.

E. No Subcontractor shall be permitted, on the site unless he is approved, nor shall any Subcontractor be permitted to perform work at the site unless he has furnished satisfactory proof of insurance as defined in Section A, Part 3 Insurance Requirements.

F. The Contractor shall promptly, upon request, file with the A/E a confirmed copy of the Subcontract, with cost of Subcontract.

G. The Contractor shall require all agreements with or between Subcontractors to be in writing. Every Subcontract shall provide expressly that such Subcontract (and all rights of any Subcontractor thereunder) is subject in all respects whatsoever to all requirements of this Contract and that all work under the Subcontract shall comply with all requirements of this Contract. Each Subcontract shall include a provision authorizing termination for necessity or convenience by the Contractor and a provision under which the Subcontractor agrees that the Subcontractor’s obligations shall be assigned to the City, at the City’s election, upon a termination of Contractor’s rights to perform the Contract. Each Subcontract shall contain the same terms and conditions as to method of payment for work, and as to retained percentages, as are set forth in this Contract; and Contractor shall pay each Subcontractor in accordance with the terms of the applicable subcontract for work performed by Subcontractor.

H. If the Board or A/E has a reasonable objection to a person or entity proposed by the Contractor, the Contractor shall propose another to whom the Board or A/E has no reasonable objection. The Contract Sum shall not be increased by such change.

I. The Contractor shall not change a Subcontractor, person or entity previously selected if the Board or A/E makes reasonable objection to such change.

J. **If project is declared an emergency by the project title the Contractor shall include in his Bid the list of proposed sub-contractors, address, resumes and cost for the proposed sub-contract.**

8 – CHANGES TO THE CONTRACT

A. **Change Orders**

The Board may, at any time, and without notice to the sureties, in writing signed by the Board's authorized representative, order:

1. changes in the work within the scope of the contract; and
2. changes in the time for performance of the contract that does not alter the scope of the contract.

B. Adjustments of Price or Time for Performance

If any change order increases or decreases the Contractor's cost of, or the time required for, performance on any part of the work under this Contract, whether or not changed by the order, an adjustment shall be made and the Contract modified in writing accordingly. Any adjustment in price made pursuant to this clause shall be determined in accordance with the Price Adjustment Clause of these specifications. Failure of the parties to agree to an adjustment shall not excuse the Contractor from proceeding with the Contract as changed, provided that the Board shall promptly make a provisional adjustment in payments or time for performance as may be reasonable. By proceeding with the work, the Contractor shall not be deemed to have prejudiced any claim for additional compensation, or an extension of time for completion. (see corresponding Articles 37)

C. Claim Barred After Final Payment

No claim by the Contractor for an adjustment hereunder shall be allowed if notice is not given prior to final payment under the Contract.

9 - TIME

A. The date of commencement of the Work is the date established in the Agreement. The date shall not be postponed by the failure to act of the Contractor or of persons or entities for which the Contractor is responsible. The Contractor shall not knowingly, except by agreement or instruction of the Board in writing, prematurely commence operations on the site or elsewhere prior to the effective date of insurance required to be furnished by the Contractor. The date of commencement of the Work shall not be changed by the effective date of such insurance. Unless the date of commencement is established by a notice to proceed given by the Board, the Contractor shall notify the Board in writing not less than five days or other agreed period before commencing the Work.

B. Unless otherwise provided, the Contract Time is the period of time, including authorized adjustments, allotted in the Contract Documents for Substantial Completion of the Work. The Contractor shall proceed expeditiously with adequate forces and shall achieve Substantial Completion within the Contract Time. 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.

C. Contractor expressly understands that he must fully comply with the Contract Time even if the date of commencement is postponed due to no fault of contractor. In this event, contractor shall be obligated to do whatever necessary to fully comply with the Contract Time including, but not limited to, providing round the clock work crews seven (7) days a week. The provisions of Section 8, Changes to the Contract, shall then apply.

D. The date of Substantial Completion is the date certified by the A/E in accordance with Paragraph “10 A”, General Conditions, below.

E. The term "day" as used in the Contract Documents shall mean calendar day unless otherwise specifically defined.
10 – SUBSTANTIAL COMPLETION

A. 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 Board can occupy or utilize the Work for its intended use.

B. Contractor reiterates and confirms his express understanding that he waives all defenses in connection with any delay in receiving the site to commence work pursuant to Section “A,” Paragraph 4 – “Time of Performance”, Instructions to Bidders, and that his obligation is to fully comply with the Contract Time under all circumstances pursuant to Section “9 C”, General Conditions, above. This waiver and obligation to complete is given as a material inducement for the Board to execute this Agreement.

C. When the Contractor considers that the Work, or a portion thereof which the Board agrees to accept separately, is substantially complete, the A/E will make an inspection to determine whether the Work or designated portion thereof is substantially complete. The A/E or Inspector shall prepare and submit to the Contractor a comprehensive list of items to be completed or corrected. The Contractor shall proceed promptly to complete and correct items on the list. 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.

11 - SUPERINTENDENT

A. The Contractor shall employ a competent superintendent and necessary assistants who shall be in attendance at the Project Site during performance of the Work. The superintendent shall represent the Contractor, and communications given to the superintendent shall be binding as if given to the Contractor. Important communications shall be confirmed in writing. Other communications shall be similarly confirmed on written request in each case.

B. Superintendent is required to attend weekly and/or bi-weekly Project Coordination Meetings as determined by the Owner, A/E and CM as required by the progress of the work. At each Project Coordination Meeting the Superintendent is required to provide an updated submittal log and a Two-Week look ahead schedule.

C. The Superintendent is required to provide the Owner, A/E and CM with Daily Reports, that shall include, but not be limited to, a daily description of construction activity, on-site manpower and materials delivered.

D. The Superintendent is required to conduct weekly Tool Box Safety meetings with their personnel and provide copies of the meeting minutes as evidence of the meetings to the Owner, A/E and CM.

E. The Superintendent is required to provide the Owner, A/E and CM with a copy of the Contractors’ Company Health and Safety Manual, signed by a certified Hygenist. The company’s Health and Safety Manual is to be provided prior to the submission of the first Application and Certificate for Payment.
12 - CONTRACTOR'S CONSTRUCTION SCHEDULES

A. The Contractor, shall, within 15 calendar days of being awarded the Contract, prepare and submit for the Owner's, A/E's and CM’s information a Contractor's construction schedule for the Work. The schedule shall not exceed time limits current under the Contract Documents, shall be revised at appropriate intervals as required by the conditions of the Work and Project, shall be related to the entire Project to the extent required by the Contract Documents, and shall provide for expeditious and practicable execution of the Work.

B. The schedule shall be in a bar graph format listing all discrete items of work including the submission and review of all shop drawings.

C. The Contractor shall prepare and keep current for the A/E's and CM’s approval, a schedule of submittals which is coordinated with the Contractor's construction schedule and allows the A/E reasonable time to review submittals. The schedule of submittals is to be provided prior to the submission of the first Application and Certificate for Payment.

D. The schedule shall be updated to reflect any and all changes in the progress of the work. Revised schedules are to be submitted with each monthly payment. The Contractor shall conform to the most recent schedules.

E. If project is declared an emergency by the project title the Contractor shall include in his Bid a Contractor's construction schedule.

13 – DOCUMENTS AT THE SITE

A. The Contractor shall maintain at the site for the Board one record copy of the Drawings, Specifications, addenda, Change Orders, and other Modifications, in good order and marked currently to record changes and selections made during construction, and in addition approved Shop Drawings, Product Data, Samples and similar required submittals. These shall be available to the A/E and shall be delivered to the A/E for submittal to the Board upon completion of the Work.

B. The Contractor shall also maintain at the site for the Board two (2) copies of the project’s Manufacturer’s Safety Data Sheets and Contractor’s Health & Safety/Emergency Action Plan Manual. Each copy shall be bound in its own three (3) ring binder and be properly labeled. One copy shall be distributed to the School’s Head Custodian and the other maintained at the Contractor’s field office.

14 – SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

A. 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.

B. 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.

C. Samples are physical examples, which illustrate materials, equipment or workmanship and establish standards by which the Work will be judged.
D. Shop Drawings, Product Data, Samples and similar submittals are not Contract Documents. The purpose of their submittal is to demonstrate for those portions of the Work for which submittals are required the way the Contractor proposes to conform to the information given and the design concept expressed in the Contract Documents. Review by the A/E is subject to the limitations of Subparagraph “2 C”.

E. The Contractor shall review, approve and submit to the A/E and with copies to the CM, Shop Drawings, Product Data, Samples and similar submittals required by the Contract Documents with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of the Board or of separate contractors. Submittals made by the Contractor which are not required by the Contract Documents may be returned without action.

F. The Contractor shall perform no portion of the Work requiring submittal and review of Shop Drawings, Product Data, Samples or similar submittals until the respective submittal has been approved by the A/E. Such Work shall be in accordance with approved submittals.

G. By approving and submitting Shop Drawings, Product Data, Samples and similar submittals, the Contractor represents that the Contractor has determined and verified materials, field measurements and field construction criteria related thereto and has checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.

H. The contractor shall not be relieved of responsibility for deviations from requirements of the Contract Documents by the A/E’s approval of Shop Drawings, Product Data, samples or similar submittals unless the Contractor has specifically informed the A/E in writing of such deviation at the time of submittal and the A/E has given written approval to the specific deviation. The Contractor shall not be relieved of responsibility for errors or omissions in Shop Drawings, Product Data, Samples or similar submittals by the A/E’s approval thereof.

I. 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 A/E on previous submittals.

J. Informational submittals upon which the A/E is not expected to take responsive action may be so identified in the Contract Documents.

K. When professional certification of performance criteria of materials, systems or equipment is required by the Contract Documents, the A/E shall be entitled to rely upon the accuracy and completeness of such calculations and certifications.

LABOR AND MATERIALS

15 - CONTRACTOR’S RESPONSIBILITY

A. 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.
16 – ASBESTOS CONTAINING MATERIALS

A. Contractor agrees not to use or permit the use of any asbestos containing material in or on any property belonging to the Yonkers Public Schools. For purposes of this paragraph, asbestos-containing material is defined as any material containing asbestos, whether or not such material is friable or non-friable, and without regard to the purpose for which such material is used.

B. Within seven (7) calendar days the Contractor and Sub-Contractors shall address to the Yonkers Public Schools on company letter head, confirmation that all persons who will be surveying and performing construction activities in the school(s) will review the School’s AHERA Books and asbestos specifications contained in the Contract Manual to determine where asbestos containing building materials are located in order to ensure their construction activities will not disturb asbestos containing building materials. All persons employed under the Contractor and Sub-Contractors shall sign in at the Asbestos Short Term Worker sign in logs at the schools.

17 – LEAD CONTAINING MATERIALS

A. Contractor also agrees that if any part of this agreement pertains to work on plumbing systems which are or may be used to provide drinking water, that any materials used, including pipes, solder, etc. shall be lead-free materials.

18 - WARRANTIES

A. The Contractor warrants to the Board and A/E that materials and equipment furnished under the contract will be of good quality and new unless otherwise required or permitted by the Contract Documents, that the Work will be free from defects not inherent in the quality required or permitted, and that the Work will conform with the requirements of the Contract Documents. Work not conforming to these requirements, including substitutions not properly approved and authorized, may be considered defective. If required by the A/E, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment.

19 - ALLOWANCES

A. 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 Board may direct, but the Contractor shall not be required to employ persons or entities against which the Contractor makes reasonable objection.

B. Unless otherwise provided in the Contract Documents:

1. materials and equipment under an allowance shall be selected promptly by the Board to avoid delay in the Work;

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

3. Contractor's costs for overhead and profit for stated allowance amounts shall be included in the Contract Sum and not in the allowances;

4. whenever costs are more than or less than allowances, the Contract Sum shall be adjusted accordingly by Change Order.
20 – UNCOVERING AND CORRECTION OF WORK

A. If a portion of the Work is covered contrary to the A/E’s request or to requirements specifically expressed in the Contract Documents, it must, if required in writing by the A/E, be uncovered for the A/E’s observation and be replaced at the Contractor's expense without change in the Contract Time.

B. If a portion of the Work has been covered which the A/E has not specifically requested to observe prior to its being covered, the A/E may request to see such Work and it shall be uncovered by the Contractor. If such Work is in accordance with the Contract Documents, costs of uncovering and replacement shall, by appropriate Change Order, be charged to the Board. If such Work is not in accordance with the Contract Documents, the Contractor shall pay such costs.

C. The Contractor shall promptly correct Work rejected by the A/E or failing to conform to the requirements of the Contract Documents whether or not fabricated, installed or completed. The Contractor shall bear costs of correcting such rejected Work, including additional testing and inspections and compensation for the A/E's services and expenses made necessary thereby.

D. If, within two years after the date of Final Completion of the Work or designated portion thereof, or after the date for commencement of warranties established by terms of an applicable special warranty or 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 written notice from the Board to do so unless the Board has previously given the Contractor a written acceptance of such nonconforming condition. This period of two years shall be extended with respect to portions of Work first performed after Final Completion by the period of time between Final Completion and the actual performance of the Work. This obligation under this Subparagraph shall survive acceptance of the Work under the Contract and termination of the Contract. The Board shall give such notice promptly after discovery of the condition.

E. The Contractor shall remove from the site portions of the Work, which are not in accordance with the requirements of the Contract Documents and are neither corrected by the Contractor nor accepted by the Board. If the Contractor fails to correct non-conforming Work within a reasonable time, the Board may correct it. If the Contractor does not proceed with correction of such non-conforming Work within a reasonable time fixed by written notice from the A/E, the Board may remove it and store the salvageable materials or equipment at the Contractor's expense. If the Contractor does not pay costs of such removal and storage within ten days after written notice, the Board may upon ten additional days' written notice sell such materials and equipment at auction or at private sale and shall account for the proceeds thereof, after deducting costs and damages that should have been borne by the Contractor, including compensation for the A/E's services and expenses made necessary thereby. If such proceeds of sale do not cover costs, which the Contractor should have borne, the Contract Sum shall be reduced by the deficiency. If payments then or thereafter due the Contractor are not sufficient to cover such amount, the Contractor shall pay the difference to the Board.

F. The Contractor shall bear the cost of correcting destroyed or damaged construction, whether completed or partially completed, of the Board or separate contractors caused by the Contractor's correction or removal of the Work which is not in accordance with the requirements of the Contract Documents.
G. Nothing contained in this Paragraph shall be construed to establish a period of limitation with respect to other obligations, which the Contractor might have under the Contract Documents. Establishment of the time period of two years as described herein 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.

21 - HOURS WAGES AND SUPPLEMENTS

A. No laborer, workman, or mechanic in the employ of the Contractor, Subcontractor or other person doing or contracting to do the whole or part of the work contemplated by the Contract shall be permitted or required to work more than eight hours in any one calendar day or more than five days in any one week except in cases of extraordinary emergency including fire, flood, or danger to life or property.

B. Each laborer, workman, or mechanic employed by the Contractor, any Subcontractor, or other person about or upon the job site shall be paid the prevailing rate for a day's work in the same trade or occupation in the locality, as described in 220 of the Labor Law of the State of New York and as set by the Regulations of the Industrial Commissioner.

C. Each laborer, workman, or mechanic, employed by the Contractor, Subcontractor, or other person about or upon the job site shall be provided supplements in accordance with prevailing practice, as described in 220 of the Labor Law of the State of New York and as set by the regulations of the Industrial Commissioner. The prevailing schedule of supplements as set from time to time by the Industrial Commissioner are incorporated by reference into and are constituted a part of the General Conditions.

D. In accordance with Article 8, Section 220 of the New York State Labor Law, every contractor and sub-contractor on this project shall submit to the Yonkers Board of Education within thirty days after issuance of its first payroll, and every thirty days thereafter, a transcript of the original payroll records pertaining to the project. Transcripts shall be subscribed and affirmed to be true under penalties of perjury.

22 – DUST HAZARD

A. If the contract is one wherein a harmful dust hazard is created for which appliances or methods for the elimination of harmful dust have been approved by the Board of Standards and Appeals, Contractor shall be required to install, maintain and effectively operate such appliances and methods. If this section is not complied with, the Contract shall be void.

INSURANCE, INDEMNIFICATION AND GUARANTEES

23 - WORKER'S COMPENSATION AND DISABILITY BENEFITS

A. Contractor shall insure all of its employees under the New York State Worker's Compensation Law and Disability Benefits Law, as required by General Municipal WCL 57 and 220. Contractor understands and agrees that this Contract shall be void and of no effect unless the person or corporation making or performing such Contract shall secure compensation for the benefit of, and keep insured during the life of such contract, such employees, in compliance with the provisions of the Worker's Compensation Law and Disability Benefits Law.
24 – LIABILITY INSURANCE

A. Contractor shall carry general liability insurance in the amount set forth in the Contract protecting the Board, the City of Yonkers, the Architect/Engineer and Contractor against damages, including defense costs, sustained by reason of Contractor's performance of this Agreement.

25 – PROPERTY DAMAGE INSURANCE

A. Contractor shall carry property damage insurance in the amount set forth in the Contract protecting the Board, the City of Yonkers, the Architect/Engineer and the Contractor against damages, including defenses costs, sustained by reason of Contractor's performance of this Agreement.

26 - OWNER'S CONTRACTOR'S PROTECTIVE INSURANCE

A. If so listed in Section A Art. 3, in addition to the liability and property damage insurance set forth above, Contractor shall provide the Board evidence of Owner's Contractor's Protective coverage insuring the Board's interests under this Agreement.

27 - AUTOMOBILE LIABILITY INSURANCE

A. Contractor shall maintain automobile liability insurance for all vehicles used in connection with Contractor's performance of this Agreement. Automobile insurance coverage shall be in the amount set forth in the Contract.

28 - BUILDER'S RISK (New Buildings or Additions Only)

A. The Board of Education of the City of Yonkers shall secure Builder's Risk insurance to effectively cover the interests of the Board for the period from inception of the work up to completion and acceptance by the Board. Notice as to when the Builder's Risk insurance is required shall be contained in the Contract.

29 – HOLD HARMLESS

A. Contractor shall execute a Hold Harmless clause in the form provided in these specifications.

30 – EVIDENCE OF COVERAGE

A. Prior to commencement of any work pursuant to this Agreement, Contractor shall provide to the Board a Certificate of Insurance in a form acceptable to the Board and actual Insurance Policy, provided as part of these specifications demonstrating proof of all required insurance coverages and policy limits.

B. Notice of Cancellation - All insurance certificates shall state that the policy will not be canceled nor coverage thereunder be reduced or limited without thirty (30) days prior written notice to YPS. It shall further state that a similar thirty (30) days prior written notice will be given to YPS prior to the expiration of the policy if renewal coverage is to be refused or such coverage is to be reduced on renewal. Such certificates shall show the name and address of the insured successful bidder, the policy number, the type of coverage, the inception and expiration dates, and it shall clearly state what, if any, coverages are excluded by endorsement or otherwise excepting such as appear in the standard printed policy itself. YPS reserves the right to make direct
inquiry to the insurance carrier for an explanation of coverages and the successful bidder agrees to assist in obtaining any such desired information.

C. Contractor shall, upon demand at any time during the performance of this Agreement, provide satisfactory evidence of continuing coverage in the required amounts.

31 – PERFORMANCE AND PAYMENT BONDS

A. For all contracts awarded which exceed the minimum competitive bidding level required by the New York State General Municipal Law, the following bonds or security shall be delivered to the Board and shall become binding on the parties upon the execution of the Contract:

1. a performance bond satisfactory to the Board, executed by a surety company authorized to do business in New York State, or otherwise secured in a manner satisfactory to the Board, in an amount equal to 100 percent of the price specified in the contract remaining in effect for the duration of contractor base and special warranties, except the minimum duration is through twelve months and maximum is through twenty four months from the date of acceptance of the Work; and

2. a payment bond satisfactory to the Board, executed by a surety company authorized to do business in the State of New York or otherwise secured in a manner satisfactory to the Board for the protection of all persons supplying labor and materials to the Contractor or its Subcontractors for the performance of the work provided for in the contract. The bond shall be in an amount equal to 100 percent of the price specified in the contract.

B. The Board reserves the right to waive the requirement of performance and/or payment bonds in whole or in part where it deems it to be in its best interests to do so.

C. Nothing in this section shall be construed to limit the authority of the Board to require a performance or payment bond or other security in addition to those bonds, or in circumstances other than those specified in subsection A of this Section.

D. The actual cost of the premium of the performance bond may be included in the Contractor's first request for payment.

E. The bonding companies must be licensed to provide insurance in New York State and must be rated superior (A+) or excellent (A or A-) by Best's Rating Service. The insurance companies must have a Best's Financial Category rating of Class VII or larger. “Cut-through” endorsements will not be acceptable.

F. Performance and Payment Bonds shall be submitted the School Facilities Management Department Project Manager within ten (10) business days of the Award of the contract by the Board of Education at their stated meeting and or upon receiving signed Notice to Proceed Letter issued by the Yonkers Public Schools School Facilities Management Department. See Attachment-A for sample of the Notice to Proceed Letter.
32 – TERMINATION BY THE BOARD

A. If the Contractor fails or neglects to carry out the work in accordance with Contract Documents and also fails within seven (7) days after written notice to correct such failure to perform, the Board may, upon seven (7) days additional written notice to the Contractor, and without prejudice to any other remedy the Board may have, terminate the Contract and finish the Contractor's Work by whatever method the Board may deem expedient. If the cost of completing the work is less then the balance then remaining due to the Contractor, then the cost of completion of the work shall be deducted from such balance and the remainder paid to Contractor. If the cost of completion exceeds the balance due Contractor, the Contractor shall pay the difference to the Board.

33 - BOARD'S RIGHT TO CARRY OUT WORK

A. If the Contractor shall neglect, refuse or be unable to provide a sufficient and suitable number of workers and/or materials to enable the work to proceed according to schedule, then the Board may, at its option, provide such labor and materials as it deems necessary for the furtherance of the work, and shall have the right to charge any amounts expended for such purpose against any amounts due and owing to Contractor.

34 - BOARD'S RIGHT TO STOP WORK

A. If the Contractor fails to correct Work which is not in accordance with the requirements of the Contract Documents or persistently fails to carry out Work in accordance with the Contract Documents, the Board, by written order signed by an agent specifically so empowered by the Board in writing, may order the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, the right of the Board to stop the work shall not give rise to a duty on the part of the Board to exercise this right for the benefit of the Contractor or any other person or entity.

35 – SUSPENSION BY THE BOARD FOR CONVENIENCE

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

B. An adjustment shall be made for increases in the cost or performance of the Contract, including profit on the increased cost of performance, caused by suspension, delay or interruption. No adjustment shall be made to the extent:

1. that performance is, was or would have been so suspended, delayed or interrupted by another cause for which the Contractor is responsible; or

2. that an equitable adjustment is made or denied under another provision of this Contract.

C. Adjustments made in the cost of performance may have a mutually agreed fixed or percentage fee.
36 – LIQUIDATED DAMAGES FOR UNEXCUSED DELAY

A. Contractor realizes that time is of the essence on this Contract and the date of Completion shall be no later than the date specified in Article 4, Paragraph A of Section A of this Contract Manual. In the event the contractor fails to complete all the Work for each phase under this Contract by said schedule date, the sum per calendar day, in the amount of specified in Article 4, Paragraph D of Section A, will be subtracted from the Final Payment due the Contractor (or, if the amount due Contractor as Final Payment is insufficient, any deficiency shall be paid by the Contractor to the Owner), except in cases where a delay is due to unforeseeable causes beyond the control and without the fault or negligence of the Contractor, including, but not limited to acts of God, or of the public enemy; acts of Government, in either its sovereign or contractual capacity; fires; floods; epidemics; quarantine restrictions; or delays of Subcontractors or Suppliers due to such causes. Delay in acquisition of materials other than by reason of strike or freight embargoes will not constitute a delay excusable under this provision excusable under this provision unless approved by the Owner in writing.

B. Within three (3) calendar days from the occurrence of any such delay, the Contractor shall notify the Owner in writing of the cause of the delay. The Owner will ascertain the facts and extent of the delay, and extend the time for completing the Work when in his/her judgement the findings of fact justify such an extension, Owners’ findings of fact will be final.

C. In addition to Liquidated Damages described above, the Contractor shall be liable for all additional costs incurred by the Owner due to the failure of the Contractor to complete each phase as required. The additional costs shall include, but not be limited to the following:

1. Owner’s Custodial Staff as required, to make the facility accessible to the Contractor, at the hourly rate of Fifty Five Dollars and Zero Cents [$55.00]
2. For the Architectural/Engineering Consultants, Construction Managers, and Owners Representatives to attend meetings and perform inspections after the completion date of each phase.
3. Expenses and costs incurred by the Owner for additional services of the Owners Representative
4. The cost of additional meetings and inspections by the Architectural/Engineering Consultants, Construction Managers, and Owners Representatives will be at the hourly rate of Two Hundred Dollars and Zero Cents [$200.00]
5. The cost incurred by the Owner in providing alternate facilities, transportation to and from such alternate facilities, additional rents, and staff support.

D. The said sum per calendar day shall constitute the Liquidated Damages incurred by the owner for each day of delay beyond the date of Completion. Such Liquidated Damages shall be in addition to any other damages (other than by reason of delay) the Owner may incur as a result of Contract’s breach of Contract.

E. In the event the Contractor fails to complete all the work under this Contract by said schedule date, the Contractor will not be permitted to perform any work during the normal hours. Such work shall only be performed after normal school hours, Saturdays, Sundays, Holidays or periods when the building is unoccupied at no additional cost to the Owner, and the Contractor shall be responsible for the costs of and payment to Owner for all reasonable costs incurred by the owner, including additional Architect/Engineering fees, Construction Manager fees and Owner’s Representatives fees and other Owner fees after the date of substantial completion, for work performed by the Contractor during after hours, Saturdays, Sundays, Holidays or periods when the building is unoccupied.
F. All costs will be subtracted from payment due the Contractor (or, if the amount due the Contractor for payment is insufficient, any deficiency shall be paid by the Contractor to the Owner).

G. This section shall in no way prevent the Owner from enforcing any other remedies it may be entitled to pursuant to the Contract, including right of termination, and in the cases of termination, any damages suffered by the Owner shall not be considered damages by reason of delay, regardless of the reason for termination.

37 – NO DAMAGES FOR DELAY

A. In the event the Contractor’s performance of this Contract is delayed or interfered with for any reason, including by reason of the acts or omissions of the Owner or anyone acting on behalf of the Owner, Contractor may request an extension of time for the performance of this Contract as provided for in, and subject to the provisions of Section “8 A” of these specifications, but Contractor shall not be entitled to any increase in the Contract price or to damages or additional compensation as a consequence of such delays or interference.

38 – NON CONFORMING WORK

A. In the event that the Contractor performs work that does not meet contract specifications, then the Board may, at its option, require that the Contractor remedy the nonconforming work or may accept the work and deduct from the Contract price the difference between the value of the work as specified and the value of the work as performed. Should the Board require that the nonconforming work be remedied, such work will be provided by Contractor at no additional cost to the Board.

39 – CLAIMS FOR DEFECTIVE PERFORMANCE AFTER COMPLETION

A. Neither acceptance of the work nor final payment shall operate to relieve the Contractor of liability for faulty materials or workmanship. In such cases, Contractor shall remain liable for all damages; "direct, consequential, or otherwise" incurred as a result to Contractor's defective performance. The Board may, at its option, permit the Contractor to remedy the defective condition, or may have the work performed by someone other than Contractor, with the costs to be borne by Contractor. This remedy shall be available in addition to any other remedies which may be available to the Board under this Agreement or at law.

40 – DAMAGE AT JOB SITE

A. The Contractor shall be responsible for damage of any kind, sort of description to the structure, trees, grass, shrubbery, sidewalks, roads, walks, steps, fences, walls, furniture, equipment, building contents, etc., occasioned by or through the activities of himself, his employees, his Subcontractors or their employees and he shall make good immediately upon notification by the A/E without extra expense to the Board.

41 – WEATHER CONDITIONS

A. In the event of temporary suspension of work, or during inclement weather, or whenever so directed by the A/E, work and materials shall be protected against the elements by Contractor. All work or material found to be damaged by the elements shall be removed and replaced without cost to the Board.
B. No masonry or plasterwork shall be done in freezing or sub-freezing weather without written permission from the A/E, whose decision as to the temperature at which such work shall be done is final.

42 – RISK OF LOSS

A. The Board neither assumes responsibility for the condition of existing buildings and structures and other property involved in the Contractor's performance of work under this Agreement, nor does it assume responsibility for their continuance in the condition existing at the time of issuance of the Invitation for Bids or thereafter. No adjustment of Contract Price or allowances for any changes in conditions which may occur after the Invitation for Bids has been issued will be made except as otherwise might be provided for in this Agreement.

43 – SECURITY

A. The Contractor shall be solely responsible for damage, loss or liability at the job site due to theft or vandalism. Contractor, with requested permission, may employ a watchman or security guard, at no additional cost to the Board, for protection at night, and on weekends and holidays.

44 – DISPUTE RESOLUTION

A. Any controversy or claim between the Board and the Contractor arising out of or related to this Agreement shall initially be referred to the A/E for decisions. In the event that either party shall be aggrieved by the decision of the A/E, then the dispute shall be settled either by arbitration to be conducted in accordance with the Construction Industry Arbitration Rules of the American Arbitration Association or, at the option of the Board, by the appointment of a Judicial Hearing Officer to hear and determine the dispute in accordance with the provisions of Part 122 of the Rules of the Chief Administrator of the Courts of the State of New York, and 202.43 and 202.44 of the Uniform Rules for Trial courts in the State of New York.

B. No demand for arbitration, or for a reference to a Judicial Hearing Officer, as set forth above, may be made until the earlier of:

1. the date on which the A/E has rendered his written decision, or
2. the tenth day after the parties have presented their evidence to the A/E or have been given a reasonable opportunity to do so, if the A/E has not rendered his written decision by that date.

C. No demand for arbitration or for reference to a Judicial Hearing Officer with regard to a claim, dispute, or other matter covered by such a decision may be made later than thirty days after the date on which the party making the demand received the decision of the A/E, or the date upon which the decision was due but not rendered. The failure to demand arbitration or a reference to a Judicial Hearing Officer within said thirty days period will result in the A/E's decision becoming final and binding upon the Board and the Contractor.

D. In no event shall either the demand for arbitration or request for agreement to a reference be made after the date when institution of legal or equitable proceedings based on such claim, dispute, or other matter in question would be barred by the applicable statute of limitations.
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E. Pending final resolution of any dispute, unless otherwise agreed in writing, Contractor shall proceed diligently with performance of the Contract and the Board shall continue its payments to Contractor except for those sums which the Board deems to be in dispute.

45 - NOTICES

A. Written notices shall be deemed to have been served upon the date of mailing to the parties at their last known address as listed on the Contract.

46 – PAYMENTS

A. Based upon Applications for Payment submitted to the A/E by the Contractor and Certificates for Payment issued by the A/E, the Board shall make progress payments on account of the Contract Sum to the Contractor as provided below and elsewhere in the Contract Documents.

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

C. Once an Application for Payment is approved by the A/E and CM, the Owner shall make payment to the Contractor not later than seventy (70) days after the Yonkers Public Schools receives the Application for Payment. The Contractor must bid and finance the project accordingly.

D. SCHEDULE OF VALUES: Within ten (10) days of notice of intent to award the Contractor shall submit to the A/E and CM a Schedule of Values allocated to various portions of the Work, prepared in such form and supported by such data to substantiate its accuracy as the A/E and CM may require. This schedule, unless objected to by the A/E and CM, shall be used as a basis for reviewing the Contractor's Applications for Payment.

E. Each Application for Payment shall be based upon the Schedule of Values submitted by the Contractor in accordance with the Contract Documents.

F. Applications for Payment shall indicate the percentage of completion of each portion of the Work as of the end of the period covered by the Application for Payment.

G. Payment Applications are to be made in a format and on forms acceptable to the A/E and CM, this format and/or form is to be similar to or as per AIA Document G702/CMa-1992 version, Application and Certificate for Payment, Construction Manager – Advisor Edition.

1. When making an application for payment the Contractor shall provide as part of the application for payment the following:

   a. Certified Payroll
   b. Partial Waiver of Liens for that portion of the work, materials, Sub-contractors and or Suppliers.
   c. Updated Construction Schedule
   d. Tool Box Safety Meeting Minutes
   e. Certificate of Liability insurance.
   f. Copies of Certificate for OSHA 10 Hour Course for all contractors and sub-contractor employees.
All of the above documents shall be paper clipped, not stapled. Incomplete applications for payment will not be considered.

H. Prerequisites to the initial application for payment that are to be submitted to the A/E and CM are as follows:

1. Fully signed and executed contracts between the Contractor and the Contractors Sub-contractor(s) (includes suppliers).
2. Certificate of liability insurance as stipulated for the project.
3. Labor & Material payment bonds
4. Performance bond
5. Approved Schedule of Values
6. Construction Schedule
7. Submittal Schedule
8. Emergency Phone Numbers and Contacts

All of the above documents shall be paper clipped, not stapled. Incomplete applications for payment will not be considered.

I. Subject to the provisions of the Contract Documents, the amount of each progress payment shall be computed as follows:

1. take that portion of the Contract Sum properly allocable to completed Work as determined by multiplying the percentage completion of each portion of the Work by the share of the total Contract Sum allocated to that portion of the Work in the Schedule of Values, less retainage of five (5%) percent. Pending final determination of cost to the Owner of changes in the Work, amounts not in dispute may be included even though the Contract Sum has not yet been adjusted by Change Order;

2. add that portion of the Contract Sum properly allocable to materials and equipment delivered and suitably stored at the site for subsequent incorporation in the completed construction (or, if approved in advance by the Board, suitably stored off the site at a location agreed upon in writing), less retainage of five (5%) percent;

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

4. subtract amounts, if any, for which the A/E has withheld or nullified a Certificate for Payment as provided in the General Conditions.

47 – EFFECT OF ISSUANCE OF CERTIFICATE FOR PAYMENT

A. The issuance of a Certificate for Payment will constitute a representation by the A/E to the Board, based on the A/E’s observations at the site and the data comprising the Application for Payment, that the Work has progressed to the point indicated and that, to the best of the A/E’s knowledge, information and belief, quality of the Work is in accordance with Contract Documents. The foregoing representations 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 minor deviations from the Contract Documents correctable prior to completion and to specific qualifications expressed by the A/E. The issuance of a Certificate for Payment will further constitute a representation that the Contractor is entitled to payment in the amount certified.
48 – CERTIFICATE OF PAYMENTS WITHHELD OR NULLIFIED

A. The A/E and CM may withhold, or nullify the whole or any part of any certificate for payment to protect the Board from loss on account of:

1. defective work not remedied,
2. claims filed (or liens) or reasonable evidence indicating probable filing of claims,
3. the failure of the Contractor to make payments properly to Subcontractors or for materials or labor,
4. reasonable doubt that the contract can be completed for the balance remaining then unpaid,
5. damage to another Contractor,
6. should the Contractor fail to promptly pay Subcontractors such amounts as, in accordance with their contract, are properly due, he shall not be entitled to receive the succeeding payment due him on his account with the Board, provided, however, he shall furnish satisfactory reasons to the A/E for the withholding of payments, normally due to the Subcontractor. Then the above ruling shall not apply, but in default of same, it shall not be obligatory upon the A/E to issue further certificates covering payments due him until above requirements shall have been complied with,
7. a sufficient reason for refusal on the part of the A/E to issue a certificate shall be evidence of any liens or claims properly chargeable to the Contractor for which, if established, the Board may be liable,
8. the evidence above referred to shall be construed to mean the receipt by the A/E of a statement from any party or parties furnishing work or material to the amount of his contract on this building, to the effect that the Contractor has failed to properly indemnify or compensate them therefore, in accordance with the terms of his agreement with them, whether or not lien or liens therefore shall have been filed by the party or parties.
9. incomplete applications for payment, as noted in paragraph 46.G. and 46.H.

49 – PRICE ADJUSTMENT

A. Price Adjustment Methods

Any adjustment in contract price pursuant to this agreement shall be made in one of the following ways:

1. by agreement on a fixed price adjustment before commencement of the pertinent performance or as soon thereafter as practicable,
2. by unit prices specified in the contract or subsequently agreed upon;
3. by the costs attributable to the event or situation, plus appropriate 5% overhead and 5% profit, all as specified in the contract or subsequently agreed upon;
4. in such other manner as the parties may mutually agree; or

5. in the absence of agreement by the parties, by a unilateral determination by the Board of costs of the event or situation, plus appropriate profit or fee, all as computed by the Board in accordance with generally accepted accounting principles, and subject to all of Contractor's legal and contractual remedies available under this Agreement and at law.

B. Submission of Cost or Pricing Data

The Contractor shall, upon request by the Board and within a reasonable time, provide any cost or pricing data requested by the Board for the purpose of making a price adjustment under this clause.

50 – FINAL COMPLETION AND FINAL PAYMENT

A. Upon receipt of written notice that the Work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the A/E will promptly make such inspection and, when the A/E finds the Work acceptable under the Contract Documents and the Contract fully performed, the A/E will promptly issue a final Certificate for Payment stating that to the best of the A/E's knowledge, information and belief, and on the basis of the A/E's observations and inspections, the Work has been completed in accordance with terms and conditions of the Contract Documents and that the entire balance found to be due the Contractor and noted in said final Certificate is due and payable. The A/E's final Certificate for Payment will constitute a further representation that conditions, precedent to the Contractor's being entitled to final payment have been fulfilled.

B. Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to the A/E (1) an affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the Board or the Board's property might be responsible or encumbered (less amounts withheld by the Board) 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 and will not be cancelled or allowed to expire until at least 30 days' prior written notice has been given to the Board, (3) a written statement that the Contractor knows of no substantial 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 and (5) if required by the Board, other data establishing payment or satisfaction of obligations, such as receipts, releases and waivers of liens (sub-contractors and material suppliers), claims, security interests or encumbrances arising out of the Contract, to the extent and in such form as may be designated by the Board. If a Subcontractor refuses to furnish a release or waiver required by the Board, the Contractor may furnish a bond satisfactory to the Board to indemnify the Board against such lien. If such lien remains unsatisfied after payments are made, the Contractor shall refund to the Board all money that the Board may be compelled to pay in discharging such lien, including all costs and reasonable attorneys' fees.

C. Acceptance of final payment by the Contractor, a Subcontractor or material 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.

D. Final payment shall not be made until all commissioning, acceptance testing and close-out documents have been submitted and approved. For close-out documents see Article
E. In the event the work is not completed by the schedule date, listed in Section 01100 Summary of Work, and in addition to the other remedies described, the Architect will not review progress payment requisitions submitted after the construction completion date, and the District will not issue any progress payments after that date, until all work is completed. Only one requisition for work performed, after the construction completion date, may be submitted, and it may be submitted only when all work is complete and a Punch List inspection is conducted; said requisition may be submitted when the work at 100% complete, less 5% retainage.

51 – VERIFICATION OF AMOUNTS DUE FOR WAGES AND SUPPLEMENTS

A. Upon receiving from the Board a schedule of prevailing wages and applicable supplements, Contractor shall provide same to any and all of its Subcontractors.

B. Contractor shall obtain from each of its Subcontractors a verified statement attesting that the Subcontractor has received and reviewed such schedule of wages and supplements.

C. Before final payment is made by or on behalf of the Board for any sum or sums due on account of the Contract, Contractor must file every verified statement required to be obtained by the Contractor from its Subcontractors pursuant to subdivision A of this section and to file a statement in writing in form satisfactory to the Board certifying to the amounts then due and owning from such Contractor filing such statement to or on behalf of any and all laborers for daily or weekly wages or supplements on account of labor performed upon the work under the Contract, setting forth therein the names of the persons whose wages or supplements are unpaid and the amount due to each or on behalf of each respectively. Such statement shall also set forth the amounts known by the Contractor to be then due and owing from each Subcontractor, or for a Subcontractor of such Subcontractor, for wages or supplements, or shall certify that the Contractor has no knowledge of such amounts owing to or on behalf of any laborers of its Subcontractors, and that in the event it is determined by the Commissioner of Labor that the wages or supplements or both of any employees of such Subcontractors have not been paid or provided pursuant to the appropriate schedule of wages and supplements, the Contractor shall be responsible for payment of such wages or supplements pursuant to the provisions of section two hundred twenty-three of the Labor Law of the State of New York. Such statement so to be filed shall be verified by the oath of the Contractor that he or she has read such statement subscribed by him or her and knows the contents thereof, and that the same is true of his or her own knowledge except with respect to wages and supplements owing by Subcontractors which may be certified upon information and belief.

MISCELLANEOUS

52 – ASSIGNMENT PROHIBITED

A. Contractor is prohibited from assigning, transferring, conveying, subletting, or otherwise disposing of this Contract, or of Contractor's right, title or interest herein, or his power to execute this Contract, to any other person or corporation without the previous consent in writing of the Board.

53 - EMERGENCIES

A. In an emergency affecting the life or safety of individuals, or of damage to structures belonging to the Board or adjoining property, Contractor shall take immediate action upon the instructions or authorization of the A/E or Authorized Representative, as might be necessary to attempt to prevent such loss, injury, or damage. In the event the A/E or Supervisor is not immediately available for
such instruction or authorization; Contractor shall take such actions as might be necessary in any event.

B. Contractor shall furnish the Board and the A/E, in writing, with the names, addresses, and telephone numbers of members of his organization to be contacted in the event of any emergency.

54 – MAINTENANCE OF JOB SITE

A. The Contractor shall, at all times, keep the premises free from excess waste material or rubbish caused by his employees or work and at the completion of the work, he shall remove all rubbish from and about the building and all his tools, scaffolding, and surplus materials and shall leave his work "Broom clean" or its equivalent, unless more exactly specified. In case of dispute, the Board may remove such rubbish and charge such cost to the Contractor, as the A/E shall deem to be just.

B. From start to finish of work under this Contract, the Contractor shall be responsible for any damage, of any kind, caused to the present building and site due to any of Contractor's activities under this Agreement.

C. Contractor, unless otherwise directed, shall close up all exterior openings in a suitable and effective manner, and maintain such enclosure until permanent work is in place, or until directed by A/E or the Supervisor to remove the enclosures.

55 – DEMOLITION - PROTECTION

A. The Contractor shall do all demolition, protection, etc., in the existing building(s) that is required in order to execute the work shown on the drawings and hereinafter specified. Dust-tight enclosures shall be provided by the Contractor wherever demolition work is to be done. The Contractor shall make such temporary provisions for weather protection and protect the interior of the building(s) and contents from damage as may be necessary. The Contractor shall carefully take down all work shown to be removed in such manner as to cause the least possible amount of damage and protect all existing portions of the building(s) and contents in any manner necessary to preserve same from damage by the elements, from dust or by the work. Any damage to the present building and its contents must be made good by the Contractor causing same, without extra expense to the Board, and to the satisfaction of the A/E.

56 – USE OF BUILDINGS DURING WORK

A. In the event that progress of the work herein corresponds with the use or occupancy of Board facilities or buildings, Contractor agrees to carry on the work in such a manner as not to interfere with the free and comfortable use of the Board's facilities or buildings for school purposes.

B. Construction areas which are under the control of a contractor and therefore not occupied by district staff or students shall be separated from occupied areas. Provisions shall be made to prevent the passage of dust and contaminants into occupied parts of the building. Periodic inspection and repairs of the containment barriers must be made to prevent exposure to dust or contaminants. Gypsum board must be used in exit ways or other areas that require fire rated separation. Heavy duty plastic sheeting may be used only for a vapor, fine dust or air infiltration barrier, and shall not be used to separate occupied spaces from construction areas.
C. A specific stairwell and/or elevator should be assigned for construction worker use during work hours. In general, workers may not use corridors, stairs or elevators designated for students or staff.

D. Large amounts of debris must be removed by using enclosed chutes or a similar sealed system. There shall be no movement of debris through halls of occupied spaces of the building. No material shall be dropped or thrown outside the walls of the building.

E. All occupied parts of the building affected by renovation activity shall be cleaned at the close of each workday. School buildings occupied during a construction project shall maintain required health, safety and educational capabilities at all times that classes are in session.

F. “Construction and maintenance operations shall not produce noise in excess of 60 dba in occupied spaces or shall be scheduled for times when the building or affected building spaces are not occupied or acoustical abatement measures shall be taken.”

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

H. “The contractor shall be responsible to ensure that activities and materials which result in “off-gassing” of volatile organic compounds such as glues, paints, furniture, carpeting, wall covering, drapery, etc. are scheduled, cured or ventilated in accordance with manufacturers recommendations before a space can be occupied.”

57 – FORCE MAJEURE

A. Notwithstanding any other provision of this Agreement, Contractor will be afforded the opportunity to extend the time for performance under the following terms and conditions:

1. if the delay in the completion of the work arises from causes such as acts of God; acts of the public enemy; acts of the State and any other governmental entity in either a sovereign or contractual capacity; acts of another contractor in the performance of a contract with the State; fires; floods; epidemics; quarantine restrictions; strikes or other labor disputes; freight embargoes; unusually severe weather; delays of subcontractors due to cause similar to those set forth above; or shortage of materials; provided, however, that no extension of time will be granted for a delay caused by a shortage of materials, unless the Contractor furnishes to the A/E and Authorized Representative proof that the Contractor has diligently made every effort to obtain such materials from all known sources within reasonable reach of the work, and further proof that the inability to obtain such material when originally planned did in fact cause a delay in final completion of the entire work which could not be compensated for by revising the sequence of the Contractor's operations; and

2. the Contractor, within ten days from the beginning of any such delay (unless the A/E or Authorized Representative grants a further period of time before the date of final payment under the Contract), notifies the A/E or Authorized Representative in writing of the causes of delay. The A/E or Authorized Representative shall ascertain the facts and the extent of the delay and extend the time for completing the work when, in the judgment of the A/E or Authorized Representative, the findings of fact justify such an extension.
58 – DISCRIMINATION PROHIBITED ON ACCOUNT OF RACE, CREED, COLOR OR NATIONAL ORIGIN

A. In the hiring of employees for the performance of work under this Contract or any Subcontract hereunder, no Contractor or Subcontractor, nor any person acting on behalf of such Contractor or Subcontractor, shall by reason of race, creed, color, disability, sex or national origin discriminate against any person who is qualified and available to perform the work to which the employment relates;

B. No contractor, subcontractor, 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, creed, color, disability, sex or national origin;

C. There may be deducted from the amount payable to the Contractor by the Board under this Contract a penalty of fifty ($50) dollars for each person for each calendar day during which each person was discriminated against or intimidated in violation of the provisions of the Contract;

D. This Contract may be cancelled or terminated by the Board, and all moneys 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.

59 – PROTECTION OF PERSONS AND PROPERTY

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

B. In the event the Contractor encounters on the site material reasonably believed to be asbestos or polychlorinated biphenyl (PCB) which has not been rendered harmless, the Contractor shall immediately stop Work in the area affected and report the condition to the Board and A/E in writing. The Work in the affected area shall not thereafter be resumed except by written agreement of the Board and Contractor if in fact the material is asbestos or polychlorinated biphenyl (PCB) and has not been rendered harmless. The Work in the affected area shall be resumed in the absence of asbestos or polychlorinated biphenyl (PCB), or when it has been rendered harmless, by written agreement of the Board and Contractor, or in accordance with final determination by the A/E on which Dispute Resolution has not been demanded, or by Dispute Resolution under Paragraph 44.

C. The Contractor shall not be required to perform without consent any Work relating to asbestos or polychlorinated biphenyl (PCB).

D. 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 or the Contractor's Subcontractors or Sub subcontractors; and

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.
E. The Contractor shall 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 owners and users of adjacent sites and utilities.

F. 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.

G. 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 Board and A/E.

60 - SUCCESSORS AND ASSIGNS

A. The Board and Contractor respectively bind themselves, their partners, successors, assigns and legal representatives to the other party hereto and to partners, successors, assigns and legal representatives of such other party in respect to covenants, agreements and obligations contained in the Contract Documents. Neither party to the Contract shall assign the Contract as a whole without written consent of the other. If either party attempts to make such an assignment without such consent, the party shall nevertheless remain legally responsible for all obligations under the Contract.

61 - GENERAL SAFETY AND SECURITY STANDARDS FOR CONSTRUCTION PROJECTS

A. The successful bidder will be working in public schools and as such will be required to:

1. The Contractor shall comply with all requirements of 8 NYCRR Section 155.5 as they address "General Safety and Security Standards for Construction Projects."

2. Sign in and out of each building with the head custodian for each site visit.

3. Be restricted to the zone of work and not permitted access to any areas of the building and grounds not specifically related to the work at hand.

4. Wear and display prominently a photo identification badge at all times.

5. Refrain from any and all fraternization or undue communication with students or teachers.

6. Take direction only from the supervisor of Buildings and Grounds or his agent.

7. Refrain from smoking anywhere on Yonkers Public Schools grounds.

8. Comply with OSHA regulations regarding personal protection gear, (e.g., head, eye and ear protection).

9. May be restricted from working in an occupied building. Work hours may be restricted. Please refer to Section Special Conditions.
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B. All construction materials shall be stored in a safe and secure manner.

C. Fences around construction supplies or debris shall be maintained.

D. Gates shall always be locked unless a worker is in attendance to prevent unauthorized entry.

E. During exterior renovation work, overhead protection shall be provided for any sidewalks or areas immediately beneath the work site or such areas shall be fenced off and provided with warning signs to prevent entry.

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

G. The contractor shall be responsible to ensure that activities and materials which result in “off-gassing” of volatile organic compounds such as glues, paints, furniture, carpeting, wall covering, drapery, etc. are scheduled, cured or ventilated in accordance with manufacturers recommendations before a space can be occupied.

H. The Contractor shall erect and maintain temporary partitions separating occupied areas from work areas, equipment and stored materials.

I. Construction projects must not jeopardize the health and safety of building occupants or construction crews. Failure to separate occupied areas from work areas; unattended or unsecured construction equipment; and inappropriate or unauthorized use of school facilities, such as student toilets used by construction personnel, will not be tolerated.

J. Large and small asbestos abatement projects as defined by 12NYCRR56 shall not be performed while the building is occupied.

   1. It is the interpretation of the New York State Education Department that the term “building”, as referenced in this section, means a wing or major section of a building that can be completely isolated from the rest of the building with sealed non combustible construction. The isolated portion of the building must contain exits that do not pass through the occupied portion and ventilation systems must be physically separated and sealed at the isolation barrier.

   2. Exterior work such as roofing, flashing, siding, or soffit work may be performed on occupied buildings provided proper variances are in place as required, and complete isolation of ventilation systems and at windows is provided. Care must be taken to schedule work so that classes are not disrupted by noise or visual distraction.

K. Lead Abatement / Lead Paint

   1. Refer to Section A, Part 11 Lead Safe School Regulations.

   2. In the event undocumented lead based paint is discovered during the work, the Contractor shall immediately notify the Architect/Engineer and/or Owner for instructions as to procedures to be taken.
62 - FACILITY REGULATIONS

A. Construction and maintenance operations shall not produce noise in excess of 60dbA in occupied spaces or shall be scheduled for times when the building or affected building spaces are not occupied or acoustical abatement measures shall be taken.

B. A plan detailing how exiting required by the applicable building code will be maintained. Existing exits from occupied portions of buildings must be continuously maintained or alternative exits provided.

C. Existing fire safety systems, such as fire alarms and exit and emergency lights, must be continuously maintained or provisions made to provide equivalent safety. In addition, the fire department must be notified of any non-operating systems.

D. Provide and follow a plan detailing how adequate ventilation will be maintained during construction.

63 - BOARD OF EDUCATION’S RIGHT TO AUDIT AND INSPECTION OF RECORDS

A. The Contractor shall maintain and keep and shall require any subcontractor to maintain and keep, for a period of at least six (6) years after the date of final acceptance, all records and other data relating to the work.

B. Contractor’s records shall be subject to audit and such records shall include but not be limited to accounting records, written policies and procedures; subcontract files (including proposals of successful and unsuccessful bidders, bid recaps, etc.); original estimates; estimating work sheets; correspondence; change order files (including documentation covering negotiated settlements); backcharge logs and supporting documentation; general ledger entries detailing cash and trade discounts earned, insurance rates and dividends; and any other Contractor records which may have a bearing on matters of interest to the Board of Education in connection with the Contractor’s work for the Board of Education all of the foregoing hereinafter referred to as “records” shall be open to inspection and subject to audit and/or reproduction by the Board of Education or its authorized representative to the extent necessary to adequately permit evaluation and verification of:

1. Contractor compliance with Contract requirements;
2. compliance with the Board of Education business ethics policies set for herein;
3. and compliance with provisions for pricing change orders, invoices or claims submitted by the Contractor or any of his payees.

Other specific records subject to audit include all information, materials and data of every kind and character such as documents, subscriptions, recordings, computerized information, agreements, purchase order, leases, contracts, commitments, arrangements, notes, daily diaries, superintendent reports, drawings, receipts, vouchers and memoranda, and any and all other agreements, sources of information that may in the Board of Education’s judgment have any bearing on or pertain to any matters, rights, duties or obligations under or covered by any Contract Document. Such records subject to audit shall also include those records necessary to evaluate and verify direct and indirect costs, (including overhead allocations) as they may apply to costs associated with this Contract. In those situations where Contractor’s records have been generated from computerized data (whether mainframe, mini-computer, or PC based computer systems), Contractor agrees to provide the Board of Education’s representatives with extracts of data files in computer readable format on data disks or suitable alternative computer data exchange formats.
C. The Board of Education or its designee shall be entitled to audit all of the Contractor’s records for a period of six (6) years after final payment or longer if required by law.

D. Contractor shall require all payees (including those entering into lump sum subcontracts and lump sum major purchase orders), to comply with the provisions of this Article by insertion of the requirements hereof in a written contract agreement between Contractor and payee. Requirements to include flow-down audit provisions in contracts with payees will apply to subcontractors, sub-subcontractors, material suppliers, etc. When working under any type of contract including lump sum agreement, unit price agreements, time and material agreements, cost plus agreements, etc., Contractor will cooperate fully and will cause all payees to cooperate fully in furnishing or in making available to the Board of Education from time to time whenever requested in an expeditious manner any and all such information, materials and data required by this Article of the Contract.

E. The Board of Education through its authorized representative(s) shall have access to the Contractor’s facilities, shall be allowed to interview all current or former employees to discuss matters pertinent to the performance of this Contract, shall have access to all necessary records, and shall be provided adequate and appropriate work space, in order to conduct audits in compliance with this article.

F. If an audit inspection or examination in accordance with this article, discloses overpricing or overcharges (of any nature) by the Contractor to the Board of Education in excess of one-half of one percent (.5%) of the total Contract billings, in addition to repayment or credit for the overcharges, the reasonable actual cost of the Board of Education’s audit shall be reimbursed to the Board of Education by the Contractor. Any adjustments and/or payments which must be made as a result of any such audit or inspection of the Contractor’s invoices and/or records shall be made within a reasonable amount of time (not to exceed 90 days) from presentation of Board of Education’s findings to Contractor.

64 - BUSINESS ETHICS

A. During the course of pursuing contracts with the Board of Education and while performing contract work in accordance with this agreement, Contractor agrees to maintain business ethics standards which are aimed at avoiding any real or apparent impropriety or conflict of interest which could be construed to have an adverse impact on the dealings with the Board of Education.

B. Contractor shall permit interviews of employees, reviews and audits of accounting or other records by the Board of Education representative(s) to evaluate compliance with the business ethics standards. Such reviews and audits will encompass all dealings and activities of Contractor’s employees, agents, representatives, vendors, Subcontractors and other third parties paid by Contractor in their relations with the Board of Education’s current or former employees or employee relatives.

C. Contractor shall take reasonable actions to prevent any actions or conditions which could result in a conflict with the Board of Education’s best interests. These obligations shall apply to the activities of Contractor employees, agents, subcontractors, etc. in their dealings and relations with the Board of Education’s current and former employees and their relatives. For example, Contractor employees, agents or subcontractors shall not make or provide to be made any gifts, entertainment, payments, loans, or other considerations to the Board of Education’s representatives, employees or their relatives.
Yonkers Public Schools  
Contract Bid Documents – Section C

D. Contractor agrees to notify the Board of Education within 48 hours of any instance where the Contractor becomes aware of a failure to comply with the provisions of this Article.

65 - INVESTIGATIONS

A. The Contractor agrees to cooperate fully and faithfully with any investigation, audit or inquiry conducted by the Board of Education or by an inspector general or other investigatory authority of a Federal, State of New York or City of Yonkers governmental agency or conducted by a Federal, State or governmental Agency or authority that is empowered directly or by designation to compel the attendance of witnesses and to examine witnesses under oath;

1. if any person who has been advised that his or her statement, and any subsequent criminal proceeding refuses to testify before a grand jury or other governmental agency or authority empowered directly or by designation to compel the attendance of witnesses and to examine witnesses under oath concerning the award of or performance under any transaction, agreement, lease, permit, contract, or license entered into with the Board of Education, City, State, or any political subdivision or public authority of New York or other public corporation thereof, or the Port Authority of New York and New Jersey, or any local development corporation within the City, or any public benefit corporation organized under the laws of the State; or,

2. if any person refuses to testify for a reason other than the assertion of his or her privilege against self incrimination in any investigation, audit or inquiry by any agency empowered directly or by designation to compel the attendance of witnesses and to take testimony under oath, or by the Board of Education or by an inspector general or other investigatory authority of a State or City governmental agency that is a part of interest in, and is seeking testimony concerning the award of or performance under, any transaction, agreement, lease, permit, Contract, or license entered into with the Board of Education the State or other political subdivision or public authority or other public corporation thereof or any local development corporation within the City, or any public benefit corporation organized under the laws of the States, then,

3. the Board of Education may convene a hearing, upon not less than five (5) days notice to the parties involved, to determine if any penalties should attach for the failure of a person to testify,

4. if any non-governmental party to such a hearing requests an adjournment, the Contractor agrees for itself and for those acting on its behalf that the Board of Education may, upon granting the adjournment, suspend any contract, lease, permit or license pending the final determination pursuant to paragraph E below without the Board of Education incurring any penalty or damages.

B. The Contractor agrees for itself and for those acting on its behalf that the penalties which may be imposed by the Board of Education after such a hearing and a final determination by the Board of Education may include but shall not exceed:

1. the disqualification for a period not to exceed five (5) years from the date of such a determination of any person, or any entity of which such a person was a member at the time the testimony was sought, from obtaining any contract lease, permit or license with or from the Board of Education; and/or
2. the cancellation or termination of any and all existing contracts, leases, permits or licenses that the refusal to testify concerns and that have not been assigned as permitted thereunder, nor the proceeds of which pledged, to an unaffiliated and unrelated institutional lender for fair value prior to the issuance of the notice scheduling the hearing, without the Board of Education’s incurring any penalty or damages on account of such cancellation or termination; monies lawfully due for goods delivered, work done, rentals or fees accrued prior to the cancellation or termination shall be paid by the Board of Education.

C. The Board of Education shall consider and address in reaching its determination and in assessing an appropriate penalty the factors in paragraphs (1) and (2) below. The Board of Education may also consider, if relevant and appropriate, the criteria established in paragraphs (3) and (4) below in addition to any other information which may be relevant and appropriate;

1. the parties’ good faith endeavors or lack thereof to cooperate fully and faithfully with any governmental investigation or audit, including but not limited to the discipline, discharge, or disassociation of any person failing to testify, the production of accurate and complete books and records, and the forthcoming testimony of all other members, agents, assignees or fiduciaries whose testimony is sought;

2. the relationship of the person who refused to testify to any entity that is a party to the hearing, including, but not limited to whether the person whose testimony is sought has an ownership interest in the entity and/or the degree of authority and responsibility the person has within the entity;

3. the nexus of the testimony sought to the subject entity and its contracts, leases, permits or licenses; and

4. the effect a penalty may have on an unaffiliated and unrelated party or entity that has a significant interest in any entity subject to penalties under paragraph D above, provided that the party or entity has given actual notice to the Board of Education upon the acquisition of the interest, or at the hearing called for in paragraph C (1) above gives notice and proves that such interest was previously acquired. Under either circumstance the party or entity must

6. present evidence at the hearing demonstrating the potential adverse impact a penalty will have on such person or entity.

D. Definitions

1. The term “license” or “permit” as used herein shall be defined as a license, permit, franchise or concession not granted as a matter of right.

2. The term “person” as used herein shall be defined as any natural person doing business alone or associated with another person or entity as a partner, director, officer, principal or employee.

3. The term “entity” as used herein shall be defined as any firm, partnership, corporation, association, or person that receives monies, benefits, licenses, leases or permits from or through the Board of Education or otherwise transacts business with the Board of Education.
4. The term “member” as used herein shall be defined as any person associated with another person or entity as a partner, director, officer, owner, other principal or employee.

E. The Board of Education in its sole discretion may terminate this Contract upon not less than three (3) days’ notice in the event the Contractor fails to promptly report in writing to the City’s Police Commissioner or the City’s Inspector General any solicitation for money, goods, future employment or other benefit or thing of value by or on behalf of any employee of the Board of Education or any other person, firm corporation or entity for any purpose which may be related to the procurement or obtaining of this Contract by the Contractor, or affecting the performance of this Contract.

66 – SOLID WASTE REMOVAL

A. Contractors and their sub-contractors hauling solid waste from the Yonkers Public Schools property shall be removed by Haulers who have been issued licenses by the Westchester County Solid Waste Commission.

1. “Solid Waste" means all putrescible and non-putrescible materials or substances, except as described in Paragraph 4 of 6 NYCRR Part 360-1.2(a), and/or regulated under 6 NYCRR Part 364, that are discarded or rejected as being spent, useless, worthless or in excess to the owners at the time of such discard or rejection including, but not limited to, garbage, refuse, commercial waste, rubbish, ashes, incinerator residue and construction and demolition debris. "Solid Waste" shall not be understood to include Recyclables as defined in this chapter.

a. Construction and Demolition Debris" as defined by Chapter 826-a of the Laws of Westchester County, means uncontaminated Solid Waste resulting from the construction, remodeling, repair and demolition of structures and roads, and uncontaminated Solid Waste consisting of vegetation resulting from land clearing and grubbing, utility line maintenance and seasonal and storm-related cleanup. Such waste includes, but is not limited to, bricks, concrete and other masonry materials, soil, rock, wood, wall coverings, plaster, drywall, plumbing fixtures, non-asbestos insulation, roofing shingles, asphaltic pavement, glass, plastics that are not sealed in a manner that conceals other wastes, electrical wiring and components containing no hazardous liquids, metals, and trees or tree limbs that are incidental to any of the above.

2. "Hauler" means any person excluding Municipalities, the County and any County district including, but not limited to, Refuse Disposal District No. 1 and all County sewer and water districts, who, for a fee or other consideration, collects, stores, processes, transfers or disposes of Solid Waste, Recyclables or construction and demolition debris that is generated or originated within the County or brought within the boundaries of the County for disposal, storage, transfer or processing.
67 – CLOSEOUT DOCUMENTS

The Contractor shall provide three (3) copies of Closeout Documents neatly collated in a hard bound three (3) ring binder and three (3) copies saved in PDF format to Flash Drives or CD. Close-out Documents shall include the following separated by tabs and correctly labeled:

1. Certificates of Substantial Completion produced by the Architect.
2. Contract, Change Orders and Change Order Log
3. Contractors Warrantees
4. Manufacturer’s Warrantees
5. Waiver of Liens
6. Affidavit for Debt & Claims
7. Consent of Surety
8. Operations and Maintenance Manuals
9. Approved Shop Drawings Submittals with each specification section separated by tabs.
10. Approved Asbestos Abatement Closeout submittals
11. As-Built Built Drawings
   1. As-Built Drawings shall be provided in paper copy and electronic copy for each 3 ring binder. Electronic copies shall consist of a PDF and in AutoCAD 2008 software).
   2. As-Built Drawings developed by hand mark-ups/sketching of Plan Drawings will not be accepted. As-Built Drawings are to be 100% drawn in AutoCAD, accurate and to scale. The Contractor may request the AutoCAD drawings from the Architect/Engineer as a baseline, however, the Contractor is to confirm and correct all field dimensions and changes. This includes but is not limited to floor plans, elevation plans, details, riser diagrams and schedules. Drawing notes shall also require revisions to meet the changes noted on the floor plans, elevation plans, details, riser diagrams and schedules.

68. LEAD SAFE SCHOOL REGULATIONS

A. Comply with the EPA’s Lead-Based Paint Renovation, Repair and Painting Program Rule for Contractors

SECTION D

PREVAILING WAGE RATES
Yonkers Public Schools  
Vincent Restivo, Senior Electrical Engineer  
Damiano Barile Engineers, PC  
77 Tarrytown Road  
Yonkers NY 10607

Yonkers Public Schools  
Vincent Restivo, Senior Electrical Engineer  
Damiano Barile Engineers, PC  
77 Tarrytown Road  
Yonkers NY 10607

Schedule Year: 2013 through 2014  
Date Requested: 03/27/2014  
PRC#: 2014002626

Location: 53 Fairview Street  
Project ID#: YPS10460  
Project Type: Removal and new installation of panelboards and Electric Service, removal and new installation of Fire Alarm System, Emergency Lighting, New P.A. System, Wireless Clock and Site Work

PREVAILING WAGE SCHEDULE FOR ARTICLE 8 PUBLIC WORK PROJECT

Attached is the current schedule(s) of the prevailing wage rates and prevailing hourly supplements for the project referenced above. A unique Prevailing Wage Case Number (PRC#) has been assigned to the schedule(s) for your project.

The schedule is effective from July 2013 through June 2014. All updates, corrections, posted on the 1st business day of each month, and future copies of the annual determination are available on the Department's website www.labor.state.ny.us. Updated PDF copies of your schedule can be accessed by entering your assigned PRC# at the proper location on the website.

It is the responsibility of the contracting agency or its agent to annex and make part, the attached schedule, to the specifications for this project, when it is advertised for bids and/or to forward said schedules to the successful bidder(s), immediately upon receipt, in order to insure the proper payment of wages.

Please refer to the "General Provisions of Laws Covering Workers on Public Work Contracts" provided with this schedule, for the specific details relating to other responsibilities of the Department of Jurisdiction.

Upon completion or cancellation of this project, enter the required information and mail OR fax this form to the office shown at the bottom of this notice, OR fill out the electronic version via the NYSDOL website.

NOTICE OF COMPLETION / CANCELLATION OF PROJECT

Date Completed: ___________________________  Date Cancelled: ___________________________

Name & Title of Representative: __________________________________________________________

Phone: (518) 457-5589  Fax: (518) 485-1870  
W. Averell Harriman State Office Campus, Bldg. 12, Room 130, Albany, NY 12240
<table>
<thead>
<tr>
<th>Contracting Agency</th>
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| Yonkers Public Schools  
Lee Pavone  
Senior Engineer  
One Larkin Center  
Yonkers NY 10701  
(914) 376-8008  
(914) 376- 8620 Fax  
LPAVONE@YonkersPublicSchools.org | Vincent Restivo  
Senior Electrical Engineer  
Damiano Barile Engineers, PC  
77 Tarrytown Road  
Yonkers NY 10607  
(914) 328 -6060 Ext: 16  
(914) 328-9304 Fax  
vrestivo@damianobarile.com |

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<th>Applicable Counties</th>
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<td>Westchester</td>
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THE FOLLOWING DRAWINGS ACCOMPANY THIS PROJECT MANUAL AND ARE A PART THEREOF. DRAWINGS ARE THE PROPERTY OF THE ENGINEER AND SHALL NOT BE USED FOR ANY OTHER PURPOSE OTHER THAN CONTEMPLATED BY THE DRAWINGS AND PROJECT MANUAL.

DRAWINGS

REFERENCE THE DRAWING COVER PAGE FOR A LIST OF ALL DRAWINGS
SECTION F

TECHNICAL SPECIFICATION
SUMMARY OF CONTRACTS

PART 1 GENERAL

1.01 PROJECT
A. Project Name: Building Renovations at School 9.
B. Yonkers Public School District.
C. Engineer's Name: Damiano Barile Engineers, P.C.
D. The Project consists of the following:
   1. Sitework – Contract No. 1
   2. Asbestos Abatement/General Construction – Contract No. 2
   3. Electrical Work – Contract No. 3

1.02 CONTRACT DESCRIPTION
A. Contract Type: Three prime contracts based on Stipulated Prices as described in Section 01 10 00.
   1. Sitework – Contract No. 1
      a. Provide Sitework to coordinate with playground equipment being provided by others.
   2. Asbestos Abatement/General Construction – Contract No. 2
      a. This contract covers asbestos abatement, replacement of materials abated, repairs to damaged
         materials, abatement of pipe insulation including re-insulation, and providing door signs as
         indicated on the door sign drawings.
   3. Electrical Work – Contract No. 3
      a. Provide all electrical work including but not limited to fire alarms, emergency power and security.

1.03 DESCRIPTION OF ALTERATIONS WORK
A. Scope of work is shown on the Drawings.

1.04 OWNER OCCUPANCY
A. Yonkers Public School District intends to occupy the Project upon Substantial Completion.
B. Cooperate with Yonkers Public School District to minimize conflict and to facilitate Yonkers Public
   School District's operations.
C. Schedule the Work to accommodate Yonkers Public School District occupancy.

1.05 CONTRACTOR USE OF SITE AND PREMISES
A. Construction Operations: Limited to areas noted on Drawings.
B. Arrange use of site and premises to allow:
   1. Yonkers Public School District occupancy.
   2. Work by Others.
   4. Use of site and premises by the public.
C. Provide access to and from site as required by law and by Yonkers Public School District:
   1. Emergency Building Exits During Construction: Keep all exits required by code open during
      construction period; provide temporary exit signs if exit routes are temporarily altered.
   2. Do not obstruct roadways, sidewalks, or other public ways without permit.
D. Utility Outages and Shutdown:
   1. Limit disruption of utility services to hours the building is unoccupied.
   2. Do not disrupt or shut down life safety systems, including but not limited to fire sprinklers and fire
      alarm system, without 7 days notice to Yonkers Public School District and authorities having
      jurisdiction.
   3. Prevent accidental disruption of utility services to other facilities.
1.06 WORK SEQUENCE

A. Coordinate construction schedule and operations with Damiano Barile Engineers, P.C. and Yonkers Public School District.

PART 2 PRODUCTS - NOT USED
PART 3 EXECUTION - NOT USED

END OF SECTION
PART 1 GENERAL

1.01 SECTION INCLUDES
   A. Contingency allowance.

1.02 CONTINGENCY ALLOWANCE
   A. Contractor's costs for products, delivery, installation, labor, insurance, payroll, taxes, bonding, equipment rental, overhead and profit will be included in Change Orders authorizing expenditure of funds from this Contingency Allowance.
   B. Funds will be drawn from the Contingency Allowance only by Change Order.
   C. At closeout of Contract, funds remaining in Contingency Allowance will be credited to Owner by Change Order.

1.03 ALLOWANCES SCHEDULE
   A. Electrical Contractor - Include the stipulated sum of Thirty Thousand Dollars ($30,000) to cover changes in the actual cost of work that is beyond the scope of the Contract Documents.
   B. Asbestos Abatement/General Construction - Include the stipulated sum of Ten Thousand Dollars ($10,000) to cover changes in the actual cost of work that is beyond the scope of the Contract Documents.
   C. Sitework - Include the stipulated sum of Ten Thousand Dollars ($10,000) to cover changes in the actual cost of work that is beyond the scope of the Contract Documents.

PART 2 PRODUCTS - NOT USED
PART 3 EXECUTION - NOT USED

END OF SECTION
RFI FORM

CONTRACTOR'S REQUEST FOR INFORMATION NO. _______ E&R RFI NO:_______

NAME OF PROJECT:
BUILDING RENOVATIONS AT SCHOOL 9

NAME OF OWNER: Yonkers Public School District

DATE: _______________________________________

A/E PROJECT NO: 1332.00

ARCHITECT/ENGINEER: Damiano Barile Engineers, P.C.

77 Tarrytown Road
White Plains, New York 10607

914.328.6060 Fax: 914.328.9304

FROM (CO. NAME): _______________________________________________

EMAIL/FAX NO.________________

CONTACT NAME: ______________________________

SUBJECT: ______________________________

DISCIPLINE/TRADE: ______________________________

DWG./SPEC. REFERENCE: ______________________________

QUESTION:

___ FIELD CONDITION

___ DRAWING/SPEC

___ DISCREPANCY

___ OWNER CHANGE

___ CLARIFICATION

___ CONTRACTOR’S SUGGESTION (IF APPLICABLE):

ANSWER

_________________________________________________________________________________

________________________________________________________________________________

________________________________________________________________________________

ARCHITECT'S/ENGINEERS SIGNATURE: ____________________________________

DATE: __________________

Note: review and any responses to this request for information by the architect/engineer is strictly for design intent only and does not constitute acknowledgement or acceptance of any cost or schedule implications unless specifically presented by the contractor. By submission of this request for information, the contractor assumes all responsibility in the absence of an approved change order or work directive.

END OF SECTION
PART 1 GENERAL

1.01 SECTION INCLUDES
A. List of unit prices, for use in preparing Bids.

1.02 COSTS INCLUDED
A. Unit Prices included on the Bid Form shall include full compensation for all required labor, products, tools, equipment, plant, transportation, services and incidentals; erection, application or installation of an item of the Work; overhead and profit.

1.03 UNIT QUANTITIES SPECIFIED
A. Quantities indicated in the Bid Form are for bidding and contract purposes only. Quantities and measurements of actual Work will determine the payment amount.

1.04 PAYMENT
A. Payment for Work governed by unit prices will be made on the basis of the actual measurements and quantities of Work that is incorporated in or made necessary by the Work and accepted by the Engineer, multiplied by the unit price.

B. Payment will not be made for any of the following:
   1. Products wasted or disposed of in a manner that is not acceptable.
   2. Products determined as unacceptable before or after placement.
   3. Products placed beyond the lines and levels of the required Work.
   4. Products remaining on hand after completion of the Work.
   5. Loading, hauling, and disposing of rejected Products.

1.05 DEFECT ASSESSMENT
A. Replace Work, or portions of the Work, not conforming to specified requirements.

B. The authority of Engineer to assess the defect and identify payment adjustment is final.
C. The authority of Yonkers Public School District to assess the defect and identify payment adjustment is final.

1.06 SCHEDULE OF UNIT PRICES

A. Unit Price No. 1 – Repair damage to sheetrock walls and ceilings containing asbestos joint compound

   1. The bid is to include repairs to sheetrock walls and ceilings identified as asbestos containing.
   2. Construct a tent and decontamination unit as defined in NYS Industrial Code Rule 56 to repair the asbestos materials.
   3. The contractor will include up to six square feet of repairs in each tent.
   4. The repairs will include priming and painting the surface after the repairs are complete.
   5. Include all labor, equipment and material to complete the work.
   6. Unit of Measure - Per 6 square foot area.

B. Unit Price No. 2 – Repair damage to sheetrock walls and ceilings containing asbestos joint compound

   1. The bid is to include repairs to sheetrock walls and ceilings identified as asbestos containing.
   2. The contractor will include the repair of additional square feet of repair that is above the six square feet included in Unit Price #1.
   3. The repairs will include priming and painting the surface after the repairs are complete.
   4. Include all labor, equipment and material to complete the work.
   5. Unit of Measure - Per square foot.
   7. Holes and repairs smaller than 1 square foot will be counted as 1 square foot.
PART 2 PRODUCTS - NOT USED
PART 3 EXECUTION - NOT USED

END OF SECTION
PART 1 GENERAL

1.01 SECTION INCLUDES
A. Description of alternates.

1.02 RELATED REQUIREMENTS
A. Section B - Bid Schedule of Prices

1.03 ACCEPTANCE OF ALTERNATES
A. Alternates quoted on Bid Forms will be reviewed and accepted or rejected at Yonkers Public School District's option. Accepted alternates will be identified in the Owner-Contractor Agreement.
B. Coordinate related work and modify surrounding work to integrate the Work of each alternate.
C. Alternates will be prioritized and accepted based on available funds from the District.

1.04 SCHEDULE OF ALTERNATES
A. ELECTRICAL - CONTRACT NO. 3
   1. Alternate E1 - Wiremold replacement:
      a. The Contractor shall state the amount to be ADDED TO the Base Bid to provide all labor, equipment, and material required to replace existing plastic wiremold with 70'-0" length of steel wiremold to include length in between existing receptacle to receptacle as shown on the Drawings. Include installation of new junction box at entrance point within classroom to interface with existing branch circuit. Reuse existing branch circuit wiring and reuse of existing receptacle within room.
   2. Alternate E2 - Panelboard replacement:
      a. The Contractor shall state the amount to be ADDED TO the Base Bid to provide all labor, equipment, and material required to replace existing panelboards with new as indicated on the construction documents.
   3. Alternate E3 – Receptacle installation:
      a. The Contractor shall state the amount to be ADDED TO the Base Bid to provide all labor, equipment, and material required to install new computer receptacles for classrooms, general convenience receptacles and panelboards as indicated on construction documents.

B. SITEWORK - CONTRACT NO. 1
   1. Site Alternate
      a. The Contractor shall state the amount to be ADDED TO the Base Bid to provide all labor, equipment, and material associated with the Decorative Ornamental Fencing.

PART 2 PRODUCTS - NOT USED
PART 3 EXECUTION - NOT USED

END OF SECTION
PART 1 GENERAL

1.01 SECTION INCLUDES
   A. Electronic document submittal service.
   B. Preconstruction meeting.
   C. Progress meetings.
   D. Construction progress schedule.
   E. Submittals for review, information, and project closeout.
   F. Number of copies of submittals.
   G. Submittal procedures.

1.02 RELATED REQUIREMENTS
   A. Section 01 10 00 - Summary of Contracts:
   B. Section 01 70 00 - Execution and Closeout Requirements: Additional coordination requirements.
   C. Section 01 78 00 - Closeout Submittals: Project record documents.

1.03 PROJECT COORDINATION
   A. Project Coordinator: Damiano Barile Engineers, P.C.
   B. During construction, coordinate use of site and facilities through the Project Coordinator.
   C. Comply with Project Coordinator's procedures for intra-project communications; submittals, reports and records, schedules, coordination drawings, and recommendations; and resolution of ambiguities and conflicts.
   D. Comply with instructions of the Project Coordinator for use of temporary utilities and construction facilities.
   E. Coordinate field engineering and layout work under instructions of the Project Coordinator.
   F. Make the following types of submittals to Engineer through the Project Coordinator:
      1. Requests for interpretation.
      2. Requests for substitution.
      3. Shop drawings, product data, and samples.
      4. Test and inspection reports.
      5. Manufacturer's instructions and field reports.
      6. Applications for payment and change order requests.
      7. Progress schedules.
      8. Coordination drawings.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

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

B. Project Closeout: Engineer will determine when to terminate the service for the project and is responsible for obtaining archive copies of files for Yonkers Public School District.

3.02 PRECONSTRUCTION MEETING
A. Damiano Barile Engineers, P.C. will schedule a meeting after Notice of Award.
B. Attendance Required:
   1. Yonkers Public School District.
   2. Engineer.
   3. Contractor.
C. Agenda:
   1. Execution of Yonkers Public School District- Contractor Agreement.
   2. Submission of executed bonds and insurance certificates.
   4. Submission of list of Subcontractors, list of Products, schedule of values, and progress schedule.
   5. Procedures and processing of field decisions, submittals, substitutions, applications for payments, proposal request, Change Orders, and Contract closeout procedures.
   7. Owner's requirements and occupancy prior to completion.
   8. Location of Personnel and waste decontamination unit.
   9. Location of dumpsters.
D. Damiano Barile Engineers, P.C. will record minutes and distribute copies within 5 days after meeting to participants. Contractor shall distribute all entities of the Contractor affected by decisions made.

3.03 SITE MOBILIZATION MEETING
A. Engineer will schedule a meeting at the Project site prior to Contractor occupancy.
B. Attendance Required:
   1. Contractor.
   2. Yonkers Public School District.
   3. Engineer.
   4. Contractor's Superintendent.
   5. Major Subcontractors.
C. Agenda:
   1. Use of premises by Yonkers Public School District and Contractor.
   2. Yonkers Public School District's requirements and occupancy prior to completion.
   3. Construction facilities and controls provided by Yonkers Public School District.
   4. Temporary utilities provided by Yonkers Public School District.
   5. Survey and building layout.
   7. Schedules.
   8. Application for payment procedures.
   9. Procedures for testing.
   11. Requirements for start-up of equipment.
12. Inspection and acceptance of equipment put into service during construction period.
D. Damiano Barile Engineers, P.C. will record minutes and distribute copies within 5 days after meeting to participants. Contractor shall distribute all entities of the Contractor affected by decisions made.

3.04 PROGRESS MEETINGS
A. Schedule and administer meetings throughout progress of the Work at maximum monthly intervals.
B. Engineer will make arrangements for meetings, prepare agenda with copies for participants, preside at meetings.
C. Attendance Required: Job superintendent, major Subcontractors and suppliers, Yonkers Public School District, Engineer, as appropriate to agenda topics for each meeting.
D. Agenda:
   1. Review minutes of previous meetings.
   2. Review of Work progress.
   3. Field observations, problems, and decisions.
   4. Identification of problems that impede, or will impede, planned progress.
   5. Review of submittals schedule and status of submittals.
   6. Review of off-site fabrication and delivery schedules.
   7. Maintenance of progress schedule.
   8. Corrective measures to regain projected schedules.
   9. Planned progress during succeeding work period.
  10. Coordination of projected progress.
  11. Maintenance of quality and work standards.
  12. Effect of proposed changes on progress schedule and coordination.
  13. Other business relating to Work.
E. Record minutes and distribute copies within two days after meeting to participants, with two copies to Engineer, Yonkers Public School District, participants, and those affected by decisions made.

3.05 CONSTRUCTION PROGRESS SCHEDULE
A. Within 10 days after date of the Agreement, submit preliminary schedule defining planned operations for the first 60 days of Work, with a general outline for remainder of Work.
B. If preliminary schedule requires revision after review, submit revised schedule within 10 days.
C. Within 20 days after review of preliminary schedule, submit draft of proposed complete schedule for review.
   1. Include written certification that major contractors have reviewed and accepted proposed schedule.
D. Within 10 days after joint review, submit complete schedule.
E. Submit updated schedule with each Application for Payment.

3.06 SUBMITTALS FOR REVIEW
A. When the following are specified in individual sections, submit them for review:
   1. Product data.
   2. Shop drawings.
   3. Samples for selection.
   4. Samples for verification.
B. Submit to Engineer for review for the limited purpose of checking for conformance with information given and the design concept expressed in the contract documents.
C. The Engineer/Architect shall review and approve or take other appropriate action on the Contractor submittals, such as shop drawings, product data, samples and other data, which the Contractor is required to submit, but only for the limited purpose of checking for conformance with the design concept and the information shown in the Construction Documents. This review shall not include review of the accuracy or completeness of details, such as quantities, dimensions, weights or gauges, fabrication processes, construction means or methods, coordination of the work with other trades or construction safety.
precautions, all of which are the sole responsibility of the Contractor. The Engineer/Architect's review shall be conducted with reasonable promptness while allowing sufficient time in the Engineer/Architect's judgment to permit adequate review. Review of a specific item shall not indicate that the Engineer/Architect has reviewed the entire assembly of which the item is a component. The Engineer/Architect shall not be responsible for any deviations from the Construction Documents not brought to the attention of the Engineer/Architect, in writing, by the Contractor. The Engineer/Architect shall not be required to review partial submissions or those for which submissions of correlated items have not been received.

D. Initial Review: Allow 20 working days for initial review of each submittal. Allow additional time if processing must be delayed to permit coordination with subsequent submittals. Engineer/Architect will advise Contractor when a submittal being processed must be delayed for coordination.

E. Allow 15 working days for processing each re-submittal.

F. Engineer/Architect will review the original submittal and one (1) re-submittal. Additional reviews will be additional services provided to the Owner and charged accordingly. The Owner will back charge the contractor accordingly.

G. Deviations: Highlight, encircle, or otherwise identify deviations from the Contract Documents on submittals.

H. Engineer/Architect will review the original submittal and one (1) re-submittal. Additional reviews will be additional services provided to the Owner and charged accordingly. The Owner will back charge the contractor accordingly.

I. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing.

J. Marking or comments on shop drawings shall not be construed as relieving the Contractor from compliance with the contract project plans and specifications, nor departure therefrom. The contractor remains responsible for details and accuracy for conforming and correlating all quantities, verifying all dimensions, for selecting fabrication processes, for techniques of assembly and for performing their work satisfactorily and in a safe manner.

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

L. After review, provide copies and distribute in accordance with SUBMITTAL PROCEDURES article below and for record documents purposes described in Section 01 78 00 - CLOSEOUT SUBMITTALS.

3.07 SUBMITTALS FOR INFORMATION

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

B. Submit for Engineer's knowledge as contract administrator or for Yonkers Public School District. No action will be taken.

3.08 SUBMITTALS FOR PROJECT CLOSEOUT

A. When the following are specified in individual sections, submit them at project closeout:
   1. Project record documents.
   2. Operation and maintenance data.
   3. Warranties.
   5. Other types as indicated.

B. Submit for Yonkers Public School District's benefit during and after project completion.
3.09 NUMBER OF COPIES OF SUBMITTALS
A. Documents: Submit one electronic copy in PDF format; an electronically-marked up file will be returned. Create PDFs at native size and right-side up; illegible files will be rejected.
B. Samples: Submit the number specified in individual specification sections; one of which will be retained by Engineer.
   1. After review, produce duplicates.
   2. Approved sample will be retained at the project site.
   3. Retained samples will not be returned to Contractor unless specifically so stated.

3.10 SUBMITTAL PROCEDURES
A. Transmit each submittal with approved form.
B. Shop drawings are the product and the property of the Contractor. The Owner, Owner's Representative, or Architect shall not be responsible for the contractor's construction means, methods or techniques: safety precautions or programs; Acts or admissions; or failure to carry out the work in accordance to the contract documents.
C. Sequentially number the transmittal form. Revise submittals with original number and a sequential alphabetic suffix.
D. Identify Project, Contractor, Subcontractor or supplier; pertinent drawing and detail number, and specification section number, as appropriate on each copy.
E. Apply Contractor's stamp, signed or initialed certifying that review, approval, verification of Products required, field dimensions, adjacent construction Work, and coordination of information is in accordance with the requirements of the Work and Contract Documents.
   1. Contractor's submittal of shop drawings certifies that the contractor has reviewed and coordinated this shop drawing and they are in conformance to the plans, specifications, applicable codes and other provisions of the Contract Documents.
F. Schedule submittals to expedite the Project, and coordinate submission of related items.
G. For each submittal for review, allow 15 days excluding delivery time to and from the Contractor.
H. Identify variations from Contract Documents and Product or system limitations that may be detrimental to successful performance of the completed Work.
I. Provide space for Contractor and Engineer review stamps.
J. When revised for resubmission, identify all changes made since previous submission.
K. Distribute reviewed submittals as appropriate. Instruct parties to promptly report any inability to comply with requirements.
L. Submittals not requested will not be recognized or processed.

3.11 ENGINEER'S/ARCHITECTS ACTION
A. General: Engineer will not review submittals that do not bear Contractor's approval stamp and will return them without action.
B. General: Except for submittals for the record and similar purposes, where action and return on submittals is required or requested, the Architect/Engineer will review each submittal, mark with appropriate "Action".
C. Action Submittals: Engineer/Architect will review each submittal, make marks to indicate corrections or modifications required, and return it. Engineer/Architect will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action taken, as follows:
D. Final Unrestricted Release: Where the submittals are marked as follows, the work covered by the submittal may proceed provided it complies with the requirements of the contract documents; acceptance of the work will depend upon that compliance.
   1. Marking: "No Exceptions Taken"
E. Final-But-Restricted Release: When the submittals are marked as follows, the work covered by the submittal may proceed provided it complies with both the Engineer's/Architect's notations or corrections
on the submittal and with the requirements of the contract documents; acceptance of the work will
depend on that compliance.
1. Markings: "Make Correction Noted"

F. Returned for re-submittal: When the submittal is marked as follows, do not proceed with the
work covered by the submittal, including purchasing fabrication, delivery or other activity. Revise the
submittal or prepare a new submittal in accordance with the Engineer's/Architect's notations stating the
reasons for returning the submittal; resubmit the submittal without delay. Repeat if necessary to obtain a
different action marking. Do not permit submittals with the following marking to be used at the project
site, or elsewhere where work is in progress.
1. Marking: "Revise and Resubmit"

G. Marking: "Rejected"

H. Other Action: Where the submittal is returned, marked with the Engineer's/Architect's explanation, for
special processing or other Contractor activity, or is primarily for information or record purposes, the
submittal will not be marked.

END OF SECTION
CONSTRUCTION PROGRESS SCHEDULE

PART 1 GENERAL

1.01 SECTION INCLUDES
   A. Preliminary schedule.
   B. Construction progress schedule, bar chart type.

1.02 RELATED SECTIONS
   A. Section 01 10 00 - Summary of Contracts: Work sequence.

1.03 REFERENCES
   A. AGC (CPSM) - Construction Planning and Scheduling Manual; Associated General Contractors of America; 2004.

1.04 SUBMITTALS
   A. Within 10 days after date of Agreement, submit preliminary schedule defining planned operations for the first 60 days of Work, with a general outline for remainder of Work.
   B. If preliminary schedule requires revision after review, submit revised schedule within 10 days.
   C. Within 5 days after review of preliminary schedule, submit draft of proposed complete schedule for review.
   D. Within 10 days after joint review, submit complete schedule.
   E. Submit updated schedule with each Application for Payment.
   F. Submit under transmittal letter form specified in Section 01 30 00.
   G. The Contractor is hereby notified that payment requisitions will not be processed by the Engineering and Owner's representative nor paid by the Owner until all schedules are reviewed and approved by the Contractor and the Engineer and Owner's Representative.

1.05 QUALITY ASSURANCE
   A. Scheduler: Contractor's personnel or specialist Consultant specializing in CPM scheduling with one years minimum experience in scheduling construction work of a complexity comparable to this Project, and having use of computer facilities capable of delivering a detailed graphic printout within 48 hours of request.
   B. Contractor's Administrative Personnel: 3 years minimum experience in using and monitoring CPM schedules on comparable projects.

1.06 SCHEDULE FORMAT
   A. Listings: In chronological order according to the start date for each activity. Identify each activity with the applicable specification section number.
   B. Submit schedule in electronic PDF format.
   C. Diagram Sheet Size: Maximum 22 x 17 inches or width required.
   D. Scale and Spacing: To allow for notations and revisions.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 PRELIMINARY SCHEDULE
   A. Prepare preliminary schedule in the form of a horizontal bar chart.

3.02 CONTENT
   A. Show complete sequence of construction by activity, with dates for beginning and completion of each element of construction.
   B. Identify each item by specification section number.
C. Show accumulated percentage of completion of each item, and total percentage of Work completed, as of the first day of each month.
D. Provide legend for symbols and abbreviations used.

3.03 BAR CHARTS
A. Include a separate bar for each major portion of Work or operation.
B. Identify the first work day of each week.

3.04 REVIEW AND EVALUATION OF SCHEDULE
A. Participate in joint review and evaluation of schedule with Engineer at each submittal.
B. Evaluate project status to determine work behind schedule and work ahead of schedule.
C. After review, revise as necessary as result of review, and resubmit within 10 days.

3.05 UPDATING SCHEDULE
A. Maintain schedules to record actual start and finish dates of completed activities.
B. Indicate progress of each activity to date of revision, with projected completion date of each activity.
C. Annotate diagrams to graphically depict current status of Work.
D. Identify activities modified since previous submittal, major changes in Work, and other identifiable changes.
E. Indicate changes required to maintain Date of Substantial Completion.
F. Submit reports required to support recommended changes.

3.06 DISTRIBUTION OF SCHEDULE
A. Distribute copies of updated schedules to Contractor's project site file, to Subcontractors, suppliers, Engineer, Yonkers Public School District, and other concerned parties.
B. Instruct recipients to promptly report, in writing, problems anticipated by projections shown in schedules.

END OF SECTION
SED SPECIAL REQUIREMENTS

PART 1 - GENERAL

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

1.02 SUMMARY
A. This Section specifies special requirements of State Education Department, including Commissioner's Regulation Part 155.5, 155.7
   1. Copies of Commissioner's Regulation Part 155.5, 155.7 are available on the State Education Department's web site.

1.03 CERTIFICATE OF OCCUPANCY
A. The occupied portion of any school building shall always comply with the minimum requirements necessary to maintain a Certificate of Occupancy.

1.04 GENERAL SAFETY AND SECURITY DURING CONSTRUCTION
A. All construction materials shall be stored in a safe and secure manner.
   1. Fences around construction supplies or debris shall be maintained.
   2. Gates shall always be locked unless a worker is in attendance, to prevent unauthorized entry.
   3. During exterior renovation work, overhead protection shall be provided for any sidewalks or areas immediately beneath the work site or such areas shall be fenced off and provided with warning signs to prevent entry.
   4. Workers shall be required to wear photo-identification badges at all times for identification and security purposes while working at occupied sites.

1.05 SEPARATION OF CONSTRUCTION
A. Separation of construction areas from occupied spaces. Construction areas that are under the control of a contractor and therefore not occupied by district staff or students shall be separated from occupied areas. Provisions shall be made to prevent the passage of dust and contaminants into occupied parts of the building. Periodic inspection and repairs of the containment barriers must be made to prevent exposure to dust or contaminants. Metal stud and gypsum board (Type X) must be used in exit ways or other areas that require fire rated separation. Heavy duty plastic sheeting may be used only for a vapor, fine dust or air infiltration barrier, and shall not be used to separate occupied spaces from construction areas.
   1. A specific stairwell and/or elevator may be assigned for construction worker use during work hours, when approved by the Owner. Workers may not use corridors, stairs or elevators designated for students or school staff.
      a. Large amounts of debris must be removed by using enclosed chutes or a similar sealed system. There shall be no movement of debris through halls of occupied spaces of the building. No material shall be dropped or thrown outside the walls of the building.
      b. All occupied parts of the building affected by renovation activity shall be cleaned at the close of each work day. School buildings occupied during a construction project shall maintain required health, safety and educational capabilities at all times that classes are in session.

1.06 FIRE PREVENTION
A. There is no smoking on school property for fire prevention and New York State Law.
B. Any holes in floors or walls shall be sealed with a fire resistant material.
C. Contractor shall maintain existing fire extinguishers.
D. Fire alarm and smoke detection systems shall remain in operation at all times.

1.07 CONSTRUCTION DIRECTIVES
A. Construction Noise. Construction and maintenance operations shall not produce noise in excess of 60 dba in occupied spaces or shall be scheduled for times when the building or affected building spaces are not occupied or acoustical abatement measures shall be taken.
1. Construction Fume Control: Each Contractor shall be responsible for the control of chemical fumes, gases, and other contaminates produced by welding, gasoline or diesel engines, roofing, paving, painting, etc. to ensure they do not enter occupied portions of the building or air intakes.

2. Off-Gassing Control. Each Contractor shall be responsible to ensure that activities and materials which result in "off-gassing" of volatile organic compounds such as glues, paints, furniture, carpeting, wall covering, drapery, etc., are scheduled, cured or ventilated in accordance with manufacturer's recommendations before a space can be occupied.

1.08 ASBESTOS
A. Asbestos/Lead Test Asbestos Letter. Indication that all school areas to be disturbed during renovation or demolition have been or will be tested for lead and asbestos.

B. Asbestos Code Rule 56. Large and small asbestos abatement projects as defined by 8 NYCRR 155.5(k) shall not be performed while the building is occupied. Note: It is SED's interpretation that the term "building" as referenced in this section, means a wing or major section of a building that can be completely isolated from the rest of the building with sealed non combustible construction. The isolated portions (the occupied portion and the portion under construction) of the building must contain separate code compliant exits. The ventilation systems must be physically separated and sealed at the isolation barrier(s).
   1. Asbestos TEM. The asbestos abatement area shall be completely sealed off from the rest of the building and completely cleaned and tested by TEM prior to re-entry by the public.
   2. Lead Abatement Projects. A project that contains materials identified to be disturbed which tests positive for lead shall include that information in the Construction Documents. The Construction Documents must address the availability of lead testing data for the building and include a statement that the OSHA regulations be followed and that cleanup and testing be done by HUD protocol.

1.09 VENTILATION
A. The work, as scheduled in the existing building, is to be performed when the facility is unoccupied. In the event that work is required to be performed during times when the building is occupied, all existing ventilation system between areas of work and areas of occupancy shall be disconnected, separated and code complying ventilation requirements be provided the occupied area. Prior to such work commencing the contractor shall submit a plan, for review indicating procedure to be taken. Also see paragraph 1.5 above for additional requirements.”

1.10 ELECTRICAL CERTIFICATION:
A. The Contractor shall obtain UL Certification or Inspection from a Certified Electrical Organization for electrical installation if applicable.

1.11 EXITING
A. Exiting: Work will be performed when school is not in session or after school hours. All exiting will be clear and usable at all times.

B. All exits shall be clear and usable at all times.

C. All modifications or changes to the exiting plan shall be approved by the Architect.

1.12 CONSTRUCTION WORKER IN OCCUPIED AREAS
A. No worker shall be permitted in areas occupied by students. If access is required by the contractor’s personnel they will be supervised by District personnel. Contractor shall provided 24 hour notice to the Owner when such access will be required.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION
QUALITY REQUIREMENTS

PART 1 GENERAL

1.01 RELATED DOCUMENTS
   A. Drawings and general provisions of the Contract apply to this Section.

1.02 SECTION INCLUDES
   A. Quality assurance submittals.
   B. Mock-ups.
   C. Control of installation.
   D. Tolerances.
   E. Testing and inspection services.
   F. Manufacturers' field services.

1.03 RELATED REQUIREMENTS
   A. Section 01 21 00 - Allowances.
   B. Section 01 30 00 - Administrative Requirements: Submittal procedures.
   C. Section 01 42 16 - Definitions.
   D. Section 01 60 00 - Product Requirements: Requirements for material and product quality.

1.04 REFERENCE STANDARDS

1.05 SUBMITTALS
   A. Testing Agency Qualifications:
      1. Prior to start of Work, submit agency name, address, and telephone number, and names of full time registered Engineer and responsible officer.
      2. Submit copy of report of laboratory facilities inspection made by NIST Construction Materials Reference Laboratory during most recent inspection, with memorandum of remedies of any deficiencies reported by the inspection.
   B. Design Data: Submit for Engineer's knowledge as contract administrator for the limited purpose of assessing conformance with information given and the design concept expressed in the contract documents, or for Yonkers Public School District's information.
   C. Test Reports: After each test/inspection, promptly submit two copies of report to Engineer and to Contractor.
      1. Include:
         a. Date issued.
         b. Project title and number.
         c. Name of inspector.
         d. Date and time of sampling or inspection.
         e. Identification of product and specifications section.
         f. Location in the Project.
g. Type of test/inspection.
h. Date of test/inspection.
i. Results of test/inspection.
j. Conformance with Contract Documents.
k. When requested by Engineer, provide interpretation of results.

D. Certificates: When specified in individual specification sections, submit certification by the manufacturer and Contractor or installation/application subcontractor to Engineer, in quantities specified for Product Data.
1. Indicate material or product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.
2. Certificates may be recent or previous test results on material or product, but must be acceptable to Engineer.

E. Manufacturer's Instructions: When specified in individual specification sections, submit printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, for the Yonkers Public School District's information. Indicate special procedures, perimeter conditions requiring special attention, and special environmental criteria required for application or installation.

F. Manufacturer's Field Reports: Submit reports for Engineer's benefit as contract administrator or for Yonkers Public School District.
1. Submit report in duplicate within 30 days of observation to Engineer for information.
2. Submit for information for the limited purpose of assessing conformance with information given and the design concept expressed in the contract documents.

G. Erection Drawings: Submit drawings for Engineer's benefit as contract administrator or for Yonkers Public School District.
1. Submit for information for the limited purpose of assessing conformance with information given and the design concept expressed in the contract documents.
2. Data indicating inappropriate or unacceptable Work may be subject to action by Engineer or Yonkers Public School District.

1.06 TESTING AND INSPECTION AGENCIES

A. Yonkers Public School District will employ and pay for services of an independent testing agency to perform specified Project Monitoring/Air Sampling during Hazardous Abatement Work.

B. Employment of agency in no way relieves Contractor of obligation to perform Work in accordance with requirements of Contract Documents.

C. Contractor Employed Agency:
1. Inspection agency: Comply with requirements of ASTM D3740 and ASTM E329.
2. Laboratory: Authorized to operate in the State in which the Project is located.
3. Laboratory Staff: Maintain a full time registered Engineer on staff to review services.
4. Testing Equipment: Calibrated at reasonable intervals either by NIST or using an NIST established Measurement Assurance Program, under a laboratory measurement quality assurance program.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 CONTROL OF INSTALLATION

A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce Work of specified quality.

B. Comply with manufacturers' instructions, including each step in sequence.

C. Should manufacturers' instructions conflict with Contract Documents, request clarification from Engineer before proceeding.

D. Comply with specified standards as minimum quality for the Work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.

E. Have Work performed by persons qualified to produce required and specified quality.
F. Verify that field measurements are as indicated on shop drawings or as instructed by the manufacturer.

G. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, and disfigurement.

3.02 MOCK-UPS

A. Tests will be performed under provisions identified in this section and identified in the respective product specification sections.

B. Assemble and erect specified items with specified attachment and anchorage devices, flashings, seals, and finishes.

C. Accepted mock-ups shall be a comparison standard for the remaining Work.

D. Where mock-up has been accepted by Engineer and is specified in product specification sections to be removed, remove mock-up and clear area when directed to do so.

3.03 TOLERANCES

A. Monitor fabrication and installation tolerance control of products to produce acceptable Work. Do not permit tolerances to accumulate.

B. Comply with manufacturers' tolerances. Should manufacturers' tolerances conflict with Contract Documents, request clarification from Engineer before proceeding.

C. Adjust products to appropriate dimensions; position before securing products in place.

3.04 TESTING AND INSPECTION

A. See individual specification sections for testing required.

B. Testing Agency Duties:
   1. Provide qualified personnel at site. Cooperate with Engineer and Contractor in performance of services.
   2. Perform specified sampling and testing of products in accordance with specified standards.
   3. Ascertain compliance of materials and mixes with requirements of Contract Documents.
   4. Promptly notify Engineer and Contractor of observed irregularities or non-conformance of Work or products.
   5. Perform additional tests and inspections required by Engineer.
   6. Submit reports of all tests/inspections specified.

C. Limits on Testing/Inspection Agency Authority:
   1. Agency may not assume any duties of Contractor.

D. Contractor Responsibilities:
   1. Deliver to agency at designated location, adequate samples of materials proposed to be used that require testing, along with proposed mix designs.
   2. Cooperate with laboratory personnel, and provide access to the Work and to manufacturers' facilities.
   3. Provide incidental labor and facilities:
      a. To provide access to Work to be tested/inspected.
      b. To obtain and handle samples at the site or at source of Products to be tested/inspected.
      c. To facilitate tests/inspections.
      d. To provide storage and curing of test samples.
   4. Notify Engineer and laboratory 24 hours prior to expected time for operations requiring testing/inspection services.
   5. Employ services of an independent qualified testing laboratory and pay for additional samples, tests, and inspections required by Contractor beyond specified requirements.
   6. Arrange with Yonkers Public School District's agency and pay for additional samples, tests, and inspections required by Contractor beyond specified requirements.

E. Re-testing required because of non-conformance to specified requirements shall be performed by the same agency on instructions by Engineer.
F. Re-testing required because of non-conformance to specified requirements shall be paid for by Contractor.

G. Re-testing required because of non-conformance to specified requirements shall be performed by the same agency on instructions by Damiano Barile Engineers, P.C..

3.05 CONTRACTOR'S TESTING AND INSPECTION

A. Testing and Inspections shall be conducted by a qualified testing agency or special inspector as required by authorities having jurisdiction and as indicated in individual Specification Sections as the contractor's responsibility including:
   1. Verifying that manufacturer maintains detailed fabrication and quality-control procedures and reviewing the completeness and adequacy of those procedures to perform the Work.
   2. Notifying Owner's Representative, Contractor, Engineer, or Construction Manager promptly of irregularities and deficiencies observed in the work during performance of its services.
   3. Submitting a certified written report of each test, inspection, and similar quality-control service to Engineer, through Owner's Representative, with copy to Contractor and to authorities having jurisdiction.
   4. Submitting a final report of special tests and inspections at Substantial Completion, this includes a list of unresolved deficiencies.
   5. Interpreting tests and inspections and stating in each report whether tested and inspected work complies with or deviates from the Contract Documents.
   6. Retesting and re-inspecting corrected work.
   7. Testing as required by individual specification sections.

3.06 MANUFACTURERS' FIELD SERVICES

A. When specified in individual specification sections, require material or product suppliers or manufacturers to provide qualified staff personnel to observe site conditions, conditions of surfaces and installation, quality of workmanship, start-up of equipment, test, adjust and balance of equipment as applicable, and to initiate instructions when necessary.

B. Submit qualifications of observer to Engineer 30 days in advance of required observations.
   1. Observer subject to approval of Yonkers Public School District.

C. Report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturers' written instructions.

3.07 DEFECT ASSESSMENT

A. Replace Work or portions of the Work not conforming to specified requirements.

B. If, in the opinion of Engineer, it is not practical to remove and replace the Work, Engineer will direct an appropriate remedy or adjust payment.

END OF SECTION
REGULATORY REQUIREMENTS

PART 1 GENERAL

1.01 SUMMARY

A. Regulatory requirements applicable to this project are the following:
B. 29 CFR 1910 - Occupational Safety and Health Standards; current edition; as a work place.
D. CODES, PERMITS, FEES, ETC.
   1. The Contractor shall furnish and pay for all permits, fees and other installation costs required for
   the various installations by governing authorities and utility companies: prepare and file drawings
   and diagrams required; arrange for inspections of any and all parts of the work required by the
   authorities and furnish all certificates necessary to the Engineer, Owner and Construction Manager
   as evidence that the work installed under this Section of the Specifications conforms with all
   applicable requirements of the Municipal and State Codes, National Board of Fire Underwriters,
   National Electric Code.
   2. Any items of work specified herein and shown on the drawings which conflict with aforementioned
   rules, regulations and requirements, shall be referred to the Engineer, Owner, and Construction
   Manager for decision, which decision shall be final and binding.
   3. The building is to be constructed under the following Rules and Regulations of the New York State
   Uniform Fire and Building Codes known as the "Building Codes of the State of New York" and
   consist of the following:
      a. Building Code of New York State
      b. State Education Department Planning Standards, including Commissioner's Regulation Part
         155.5, 155.7
      c. Energy Conservation Construction Code of New York State
      d. Fire Code of New York State
      e. Fuel Gas Code of New York State
      f. Mechanical Code of New York State
      g. Plumbing Code of New York State
   4. Classification of Construction: Type IIIA
   5. Occupancy Classification: Education E
   6. Electrical Certification: The Contractor shall obtain UL Certification or Inspection from a Certified
      Electrical Organization for electrical installation.
   7. State Education Department: Planning Standards is applicable to the work. Any conflicts between
      the Building Codes of New York And the State Education Department Planning Standards, the
      most restrictive shall apply. Copies of the Planning standards are available at the SED web site.
E. OSHA Part 1926 Safety and Health Regulations for Construction.

1.02 MANDATORY OSHA CONSTRUCTION SAFETY AND HEALTH TRAINING

A. Effective July 18, 2008 - Pursuant to NYS Labor Law §220-h - On all public work projects of at least
   $250,000 all laborers, workers and mechanics working on the site are required to be certified as having
   successfully completed an OSHA construction safety and health course of at least 10 hours prior to
   performing any work on the project.

1.03 QUALITY ASSURANCE

A. Designer Qualifications: Where delegated engineering design is to be performed under the construction
   contract, provide the direct supervision of a Professional Engineer experienced in design of this type of
   work and licensed in New York State.

PART 2 PRODUCTS - NOT USED
PART 3 EXECUTION - NOT USED

END OF SECTION
DEFINITIONS

PART 1 GENERAL

1.01 SUMMARY
A. Other definitions are included in individual specification sections.

1.02 DEFINITIONS
A. Furnish: To supply, deliver, unload, and inspect for damage.
B. Install: To unpack, assemble, erect, apply, place, finish, cure, protect, clean, start up, and make ready for use.
C. Product: Material, machinery, components, equipment, fixtures, and systems forming the work result. Not materials or equipment used for preparation, fabrication, conveying, or erection and not incorporated into the work result. Products may be new, never before used, or re-used materials or equipment.
D. Provide: To furnish and install.
E. Supply: Same as Furnish.

PART 2 PRODUCTS - NOT USED
PART 3 EXECUTION - NOT USED

END OF SECTION
TEMPORARY FACILITIES AND CONTROLS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Temporary utilities.
B. Temporary sanitary facilities.
C. Temporary Controls: Barriers, enclosures, and fencing.
D. Security requirements.
E. Temporary Enclosures.
F. Vehicular access and parking.
G. Waste removal facilities and services.
H. Temporary fire protection.

1.02 REFERENCES

A. Refer to guidelines for Bid Conditions for “Temporary Job Utilities and Services” as prepared jointly by AGC and ASC for recommendations.
B. REPORTS AND PERMITS: DURING THE PROGRESS OF THE WORK, EACH PRIME CONTRACTOR SHALL SUBMIT COPIES OF REPORTS AND PERMITS REQUIRED BY GOVERNING AUTHORITIES, OR NECESSARY FOR THE INSTALLATION AND EFFICIENT OPERATION OF TEMPORARY SERVICES AND FACILITIES.

1.03 TEMPORARY UTILITIES

A. Yonkers Public School District will provide the following:
   1. Electrical power and metering, consisting of connection to existing facilities.
   2. Water supply, consisting of connection to existing facilities.
B. Provide and pay for all electrical power, lighting, water, heating and cooling, and ventilation required for construction purposes.
C. Use trigger-operated nozzles for water hoses, to avoid waste of water.

1.04 TEMPORARY SANITARY FACILITIES

A. Provide and maintain required facilities and enclosures. Provide at time of project mobilization.
B. Maintain daily in clean and sanitary condition.
C. At end of construction, return facilities to same or better condition as originally found.

1.05 BARRIERS

A. Provide barriers to prevent unauthorized entry to construction areas, to prevent access to areas that could be hazardous to workers or the public, to allow for owner's use of site and to protect existing facilities and adjacent properties from damage from construction operations and demolition.
B. Protect non-owned vehicular traffic, stored materials, site, and structures from damage.

1.06 FENCING

A. Provide 6 foot high fence around construction site; equip with vehicular and pedestrian gates with locks.

1.07 SECURITY

A. Security and Protection Facilities and Services shall be the responsibility of the each contractor Contractor and all costs shall be included in their bid.
B. Provide security and facilities to protect Work, existing facilities, and Yonkers Public School District's operations from unauthorized entry, vandalism, or theft.
C. Coordinate with Yonkers Public School District's security program.
D. Temporary Fire Protection: Each Contractor shall provide Fire Extinguishers as follows: Provide type "A" fire extinguishers for temporary offices and similar spaces where there is minimal danger of
electrical fires or grease-oil-flammable liquid fires. In other locations provide either type "ABC" dry chemical extinguishers, or a combination of several extinguishers of NFPA recommended types for the exposures in each case

1.08 VEHICULAR ACCESS AND PARKING
   A. Comply with regulations relating to use of streets and sidewalks, access to emergency facilities, and access for emergency vehicles.
   B. Coordinate access and haul routes with governing authorities and Yonkers Public School District.
   C. Provide and maintain access to fire hydrants, free of obstructions.
   D. Provide means of removing mud from vehicle wheels before entering streets.
   E. Provide temporary parking areas to accommodate construction personnel. When site space is not adequate, provide additional off-site parking.

1.09 WASTE REMOVAL
   A. Provide waste removal facilities and services as required to maintain the site in clean and orderly condition.
   B. Provide containers with lids. Remove trash from site as required.
   C. If materials to be recycled or re-used on the project must be stored on-site, provide suitable non-combustible containers; locate containers holding flammable material outside the structure unless otherwise approved by the authorities having jurisdiction.
   D. Open free-fall chutes are not permitted. Terminate closed chutes into appropriate containers with lids.

1.10 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS
   A. Remove temporary utilities, equipment, facilities, materials, prior to Substantial Completion inspection.
   B. Clean and repair damage caused by installation or use of temporary work.

PART 2 PRODUCTS - NOT USED
PART 3 EXECUTION - NOT USED

END OF SECTION
PART 1 - GENERAL

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

1.02 SUMMARY:
   A. The purpose of this section is to specify the safety requirements, which must be followed by each Contractor during the execution of this contract.
   B. Each Contractor agrees that the work will be completed with the greatest degree of safety and:
      1. To conform to the requirements of the Occupational Safety and Health Act of 1970 (OSHA) and the Construction Safety Act of 1969, including all standards and regulations that have been or shall be promulgated by the governmental authorities which administer such acts, and shall hold the Owner, Owner’s Representative, the Architect, and all their employees, consultants and representatives harmless from and against and shall indemnify each and every one of them for any and all claims, actions, liabilities, costs and expenses, including attorneys fees, which any of them may incur as a result of non-compliance.

1.03 DEFINITIONS
   A. Public shall mean anyone not involved with or employed by the contractor to perform the duties of this contract.
   1. Site shall mean the limits of the work area.
   2. Contractor shall mean the contractor, his/her subcontractors and any other person related to the contract execution.

1.04 REFERENCES:

PART 2 - PRODUCTS

2.01 MATERIALS:
   A. Barriers shall be constructed of sturdy lumber having a minimum size of 2’x 4’.
   B. Signs shall be made of sturdy plywood of 1/2” minimum thickness and shall be made to legible at a distance of 50 feet.

PART 3 - EXECUTION

3.01 GENERAL
   A. In the performance of its contract, each Contractor shall exercise every precaution to prevent injury to workers and the public or damage to property.
      1. Each Contractor shall, at their own expense, provide temporary structures, place watchmen, design and erect barricades, fences and railings, give warnings, display such lights, signals and signs, exercise such precautions against fire, adopt and enforce such rules and regulations, and take such other precautions as may be necessary, desirable or proper or as may be directed.
      2. Each Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the work to be done under this contract. Each Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss including but not limited to:
         a. All employees working in connection with this contract, and other persons who may be affected thereby.
         b. All the work materials and equipment to be incorporated therein whether in storage on or off site; and including trees, shrubs, lawns, walks, pavements, facilities not designated for removal, relocation or replacement in the course of construction.
B. Each Contractor's duties and responsibilities for the safety and protection of the work: shall continue until such time as all the work is completed and contractor has removed all workers, material and equipment from the site, or the issuance of the certificate of final completion, whichever shall occur last.

C. Each Contractor shall use only machinery and equipment adapted to operate with the least possible noise, and shall so conduct his operations that annoyance to occupants of the site and nearby homes and facilities shall be reduced to a minimum.

D. It shall be the responsibility of each Contractor to insure that all employees of the contractor and all subcontractors, and any other persons associated with the performance of their contract shall comply with the provisions of this specification.

E. Each Contractor shall clean up the site daily and keep the site free of debris, refuse, rubbish, and scrap materials. The site shall be kept in a neat and orderly fashion. Before the termination of the contract, each Contractor shall remove all surplus materials, falsework, temporary fences, temporary structures, including foundations thereof.

F. Each Contractor shall follow all rules and regulations put forth in the Code of Federal Regulations (OSHA Safety and Health Standards).

END OF SECTION
PRODUCT REQUIREMENTS

PART 1 GENERAL

1.01 RELATED DOCUMENTS
   A. Drawings and general provisions of the Contract apply to this Section.

1.02 SECTION INCLUDES
   A. General product requirements.
   B. Re-use of existing products.
   C. Transportation, handling, storage and protection.
   D. Product option requirements.
   E. Substitution limitations and procedures.

1.03 RELATED REQUIREMENTS
   A. Section 01 10 00 - Summary of Contracts: Lists of products to be removed from existing building.
   B. Section 01 40 00 - Quality Requirements: Product quality monitoring.
   C. Section 01 74 19 - Construction Waste Management and Disposal: Waste disposal requirements potentially affecting packaging and substitutions.

1.04 REFERENCE STANDARDS
   B. NFPA 70 - National Electrical Code; National Fire Protection Association; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

1.05 SUBMITTALS
   A. Proposed Products List: Submit list of major products proposed for use, with name of manufacturer, trade name, and model number of each product.
      1. Submit within 15 days after date of Agreement.
      2. For products specified only by reference standards, list applicable reference standards.
   B. Product Data Submittals: Submit manufacturer's standard published data. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information specific to this Project.
   C. Shop Drawing Submittals: Prepared specifically for this Project; indicate utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.
   D. Sample Submittals: Illustrate functional and aesthetic characteristics of the product, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.
      1. For selection from standard finishes, submit samples of the full range of the manufacturer's standard colors, textures, and patterns.

1.06 ASBESTOS
   A. Asbestos: All products, materials, etc., used in conjunction with this Project shall be Asbestos-Free.
      1. Contractor shall provide a letter to the Owner stating that no asbestos containing material has been used in this project.

PART 2 PRODUCTS

2.01 EXISTING PRODUCTS
   A. Do not use materials and equipment removed from existing premises unless specifically required or permitted by the Contract Documents.
B. Existing materials and equipment indicated to be removed, but not to be re-used, relocated, reinstalled, delivered to the Yonkers Public School District, or otherwise indicated as to remain the property of the Yonkers Public School District, become the property of the Contractor; remove from site.

2.02 NEW PRODUCTS
A. Provide new products unless specifically required or permitted by the Contract Documents.
B. Where all other criteria are met, Contractor shall give preference to products that:
   1. Are extracted, harvested, and/or manufactured closer to the location of the project.
   2. Have longer documented life span under normal use.
   3. Result in less construction waste.
   4. Are made of vegetable materials that are rapidly renewable.
C. Wiring Terminations: Provide terminal lugs to match branch circuit conductor quantities, sizes, and materials indicated. Size terminal lugs to NFPA 70, include lugs for terminal box.

2.03 PRODUCT OPTIONS
A. Products Specified by Reference Standards or by Description Only: Use any product meeting those standards or description.
B. Products Specified by Naming One or More Manufacturers: Use a product of one of the manufacturers named and meeting specifications, no options or substitutions allowed.
C. Products Specified by Naming One or More Manufacturers with a Provision for Substitutions: Submit a request for substitution for any manufacturer not named.

PART 3 EXECUTION
3.01 SUBSTITUTION PROCEDURES
A. Engineer will consider requests for substitutions only within 15 days after date of Agreement.
B. Substitutions will not be considered when a product becomes unavailable through no fault of the Contractor.
C. Document each request with complete data substantiating compliance of proposed substitution with Contract Documents.
D. A request for substitution constitutes a representation that the submitter:
   1. Has investigated proposed product and determined that it meets or exceeds the quality level of the specified product.
   2. Will provide the same warranty for the substitution as for the specified product.
   3. Will coordinate installation and make changes to other Work that may be required for the Work to be complete with no additional cost to Yonkers Public School District.
   4. Waives claims for additional costs or time extension that may subsequently become apparent.
E. Substitutions will not be considered when they are indicated or implied on shop drawing or product data submittals, without separate written request, or when acceptance will require revision to the Contract Documents.
F. Substitution Submittal Procedure:
   1. Submit three copies of request for substitution for consideration. Limit each request to one proposed substitution.
   2. Submit shop drawings, product data, and certified test results attesting to the proposed product equivalence. Burden of proof is on proposer.
   3. The Engineer will notify Contractor in writing of decision to accept or reject request.

3.02 TRANSPORTATION AND HANDLING
A. Coordinate schedule of product delivery to designated prepared areas in order to minimize site storage time and potential damage to stored materials.
B. Transport and handle products in accordance with manufacturer's instructions.
C. Transport materials in covered trucks to prevent contamination of product and littering of surrounding areas.
D. Promptly inspect shipments to ensure that products comply with requirements, quantities are correct, and products are undamaged.

E. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage.

F. Arrange for the return of packing materials, such as wood pallets, where economically feasible.

3.03 STORAGE AND PROTECTION

A. Designate receiving/storage areas for incoming products so that they are delivered according to installation schedule and placed convenient to work area in order to minimize waste due to excessive materials handling and misapplication.

B. Store and protect products in accordance with manufacturers' instructions.

C. Store with seals and labels intact and legible.

D. Store sensitive products in weather tight, climate controlled, enclosures in an environment favorable to product.

E. For exterior storage of fabricated products, place on sloped supports above ground.

F. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of products.

G. Prevent contact with material that may cause corrosion, discoloration, or staining.

H. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.

I. Arrange storage of products to permit access for inspection. Periodically inspect to verify products are undamaged and are maintained in acceptable condition.

END OF SECTION
EXECUTION AND CLOSEOUT REQUIREMENTS

PART 1 GENERAL

1.01 RELATED DOCUMENTS
   A. Drawings and and general provisions of the Contract apply to this Section.

1.02 SECTION INCLUDES
   A. Inspections prior to start of work.
   B. Examination, preparation, and general installation procedures.
   C. General installation of products.
   D. Progress cleaning.
   E. Protection of installed construction.
   F. Correction of Work.
   G. Requirements for alterations work, including selective demolition including asbestos abatement.
   H. Pre-installation meetings.
   I. Cutting and patching.
   J. Surveying for laying out the work.
   K. Cleaning and protection.
   L. Closeout procedures, except payment procedures.
   M. Final Cleaning.

1.03 RELATED REQUIREMENTS
   A. Section 01 10 00 - Summary of Contract: Limitations on working in existing building; continued occupancy; work sequence; identification of salvaged and relocated materials.
   B. Section 01 30 00 - Administrative Requirements: Submittals procedures.
   C. Section 01 40 00 - Quality Requirements: Testing and inspection procedures.
   D. Section 01 50 00 - Temporary Facilities and Controls
   E. Section 01 74 19 - Construction Waste Management and Disposal: Additional procedures for trash/waste removal, recycling, salvage, and reuse.
   F. Section 01 78 00 - Closeout Submittals: Project record documents, operation and maintenance data, warranties and bonds.
   G. Section 07 84 00 - Firestopping.

1.04 SUBMITTALS
   A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
   B. Survey work: Submit name, address, and telephone number of Surveyor before starting survey work.
      1. On request, submit documentation verifying accuracy of survey work.
      2. Submit a copy of site drawing signed by the Land Surveyor, that the elevations and locations of the work are in conformance with Contract Documents.
      3. Submit surveys and survey logs for the project record.
   C. Cutting and Patching: Submit written request in advance of cutting or alteration that affects:
      1. Structural integrity of any element of Project.
      2. Integrity of weather exposed or moisture resistant element.
      3. Efficiency, maintenance, or safety of any operational element.
      5. Work of Yonkers Public School District or separate Contractor.
   D. Landfill Receipts: Submit copy of receipts issued by a landfill facility, licensed to accept hazardous materials, or hazardous waste disposal.
1.05  QUALIFICATIONS
   A. For demolition work, employ a firm specializing in the type of work required.
   B. For survey work, employ a land surveyor registered in the State in which the Project is located and acceptable to Engineer. Submit evidence of Surveyor's Errors and Omissions insurance coverage in the form of an Insurance Certificate.

1.06  COORDINATION
   A. See Section 01 10 00 for occupancy-related requirements.
   B. Coordinate scheduling, submittals, and work of the various sections of the Project Manual to ensure efficient and orderly sequence of installation of interdependent construction elements, with provisions for accommodating items installed later.
   C. Notify affected utility companies and comply with their requirements.
   D. Verify that utility requirements and characteristics of new operating equipment are compatible with building utilities. Coordinate work of various sections having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.
   E. Coordinate space requirements, supports, and installation of mechanical and electrical work that are indicated diagrammatically on Drawings. Follow routing shown for pipes, ducts, and conduit, as closely as practicable; place runs parallel with lines of building. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.
   F. In finished areas except as otherwise indicated, conceal pipes, ducts, and wiring within the construction. Coordinate locations of fixtures and outlets with finish elements.
   G. Coordinate completion and clean-up of work of separate sections.
   H. After Yonkers Public School District occupancy of premises, coordinate access to site for correction of defective work and work not in accordance with Contract Documents, to minimize disruption of Yonkers Public School District's activities.

1.07  CODES, PERMITS, FEES, ETC. REFER TO SECTION 01 41 00 REGULATORY REQUIREMENTS
   A. Refer to Owner Contractor Agreement for additional requirements.
   B. Any items of work specified herein and shown on the drawings which conflict with aforementioned rules, regulations and requirements, shall be referred to the Engineer, Owner, and Architect for decision, which decision shall be final and binding.
   C. The building is to be constructed under the following Rules and Regulations of the New York State Uniform Fire and Building Codes known as the “Building Codes of the State of New York” and consist of the following:
      1. Building Code of New York State
      2. State Education Department Planning Standards, including Commissioner's Regulation Part 155.5, 155.7
      3. Energy Conservation Construction Code of New York State
      4. Fire Code of New York State

1.08  MANDATORY OSHA CONSTRUCTION SAFETY AND HEALTH TRAINING
   A. Effective July 18, 2008 - Pursuant to NYS Labor Law §220-h - On all public work projects of at least $250,000 all laborers, workers and mechanics working on the site are required to be certified as having successfully completed an OSHA construction safety and health course of at least 10 hours prior to performing any work on the project.

PART 2 PRODUCTS - NOT USED

2.01  PATCHING MATERIALS
   A. New Materials: As specified in product sections; match existing products and work for patching and extending work.
   B. Type and Quality of Existing Products: Determine by inspecting and testing products where necessary, referring to existing work as a standard.
C. Product Substitution: For any proposed change in materials, submit request for substitution described in Section 01 60 00.

PART 3 EXECUTION

3.01 EXAMINATION
A. Verify that existing site conditions and substrate surfaces are acceptable for subsequent work. Start of work means acceptance of existing conditions.
B. Examine and verify specific conditions described in individual specification sections.
C. Take field measurements before confirming product orders or beginning fabrication, to minimize waste due to over-ordering or misfabrication.
D. Verify that utility services are available, of the correct characteristics, and in the correct locations.
E. Prior to Cutting: Examine existing conditions prior to commencing work, including elements subject to damage or movement during cutting and patching. After uncovering existing work, assess conditions affecting performance of work. Beginning of cutting or patching means acceptance of existing conditions.

3.02 PREPARATION
A. Clean substrate surfaces prior to applying next material or substance.
B. Seal cracks or openings of substrate prior to applying next material or substance.
C. Apply manufacturer required or recommended substrate primer, sealer, or conditioner prior to applying any new material or substance in contact or bond.

3.03 PREINSTALLATION MEETINGS
A. When required in individual specification sections, convene a preinstallation meeting at the site prior to commencing work of the section.
B. Require attendance of parties directly affecting, or affected by, work of the specific section.
C. Notify Engineer four days in advance of meeting date.
D. Prepare agenda and preside at meeting:
   1. Review conditions of examination, preparation and installation procedures.
   2. Review coordination with related work.
E. Record minutes and distribute copies within two days after meeting to participants, with two copies to Engineer, Yonkers Public School District, participants, and those affected by decisions made.

3.04 LAYING OUT THE WORK
A. Verify locations of survey control points prior to starting work.
B. Promptly notify Engineer of any discrepancies discovered.
C. Protect survey control points prior to starting site work; preserve permanent reference points during construction.
D. Promptly report to Engineer the loss or destruction of any reference point or relocation required because of changes in grades or other reasons.
E. Replace dislocated survey control points based on original survey control. Make no changes without prior written notice to Engineer.
F. Utilize recognized engineering survey practices.
G. Periodically verify layouts by same means.
H. Maintain a complete and accurate log of control and survey work as it progresses.

3.05 GENERAL INSTALLATION REQUIREMENTS
A. Install products as specified in individual sections, in accordance with manufacturer's instructions and recommendations, and so as to avoid waste due to necessity for replacement.
B. Make vertical elements plumb and horizontal elements level, unless otherwise indicated.
C. Install equipment and fittings plumb and level, neatly aligned with adjacent vertical and horizontal lines, unless otherwise indicated.

D. Make consistent texture on surfaces, with seamless transitions, unless otherwise indicated.

E. Make neat transitions between different surfaces, maintaining texture and appearance.

3.06 ALTERATIONS

A. Drawings showing existing construction and utilities are based on casual field observation and existing record documents only.
   1. Verify that construction and utility arrangements are as shown.
   2. Report discrepancies to Engineer before disturbing existing installation.
   3. Beginning of alterations work constitutes acceptance of existing conditions.

B. Keep areas in which alterations are being conducted separated from other areas that are still occupied.
   1. Provide, erect, and maintain temporary dustproof partitions of construction specified in Section 01 50 00 in locations indicated on drawings.

C. Maintain weatherproof exterior building enclosure except for interruptions required for replacement or modifications; take care to prevent water and humidity damage.
   1. Where openings in exterior enclosure exist, provide construction to make exterior enclosure weatherproof.
   2. Insulate existing ducts or pipes that are exposed to outdoor ambient temperatures by alterations work.

D. Remove existing work as indicated and as required to accomplish new work.
   1. Remove rotted wood, corroded metals, and deteriorated masonry and concrete; replace with new construction specified.
   2. Remove items indicated on drawings.
   3. Relocate items indicated on drawings.
   4. Where new surface finishes are to be applied to existing work, perform removals, patch, and prepare existing surfaces as required to receive new finish; remove existing finish if necessary for successful application of new finish.
   5. Where new surface finishes are not specified or indicated, patch holes and damaged surfaces to match adjacent finished surfaces as closely as possible.

E. Services (Including but not limited to HVAC, Plumbing, Fire Protection, Electrical, and Telecommunications): Remove, relocate, and extend existing systems to accommodate new construction.
   1. Maintain existing active systems that are to remain in operation; maintain access to equipment and operational components; if necessary, modify installation to allow access or provide access panel.
   2. Where existing systems or equipment are not active and Contract Documents require reactivation, put back into operational condition; repair supply, distribution, and equipment as required.
   3. Where existing active systems serve occupied facilities but are to be replaced with new services, maintain existing systems in service until new systems are complete and ready for service.
      a. Disable existing systems only to make switchovers and connections; minimize duration of outages.
      b. Provide temporary connections as required to maintain existing systems in service.
   4. Verify that abandoned services serve only abandoned facilities.
   5. Remove abandoned pipe, ducts, conduits, and equipment, including those above accessible ceilings; remove back to source of supply where possible, otherwise cap stub and tag with identification; patch holes left by removal using materials specified for new construction.

F. Protect existing work to remain.
   1. Prevent movement of structure; provide shoring and bracing if necessary.
   2. Perform cutting to accomplish removals neatly and as specified for cutting new work.
   3. Repair adjacent construction and finishes damaged during removal work.

G. Adapt existing work to fit new work: Make as neat and smooth transition as possible.
1. When existing finished surfaces are cut so that a smooth transition with new work is not possible, terminate existing surface along a straight line at a natural line of division and make recommendation to Engineer.

H. Patching: Where the existing surface is not indicated to be refinished, patch to match the surface finish that existed prior to cutting. Where the surface is indicated to be refinished, patch so that the substrate is ready for the new finish.

I. Clean existing systems and equipment.

J. Remove demolition debris and abandoned items from alterations areas and dispose of off-site; do not burn or bury.

K. Do not begin new construction in alterations areas before demolition is complete.

L. Comply with all other applicable requirements of this section.

3.07 FIRE PREVENTION AND CONTROL

A. Each Contractor shall abide by such rules and instructions as to fire prevention and control as required by the Owner, Owner’s Representative, Engineer and Fire Department. The Contractor(s) shall take all necessary steps to prevent its employees from setting fires not required in the construction of the facility and shall be responsible for preventing the escape of fires set in connection with the construction and shall at all times provide the proper housekeeping to minimize potential fire hazards.

B. Free access to fire hydrants and standpipe connections shall be maintained at all times during construction operations. Portable fire extinguishers shall be provided by the Construction Contractor and made conveniently available throughout the construction site. Contractor(s) shall notify their employees of the location of the nearest fire alarm box at all locations where work is in progress.

3.08 SECURITY SYSTEM

A. The existing building contains a security alarm system maintained and operated by the Owner. Access into the existing building shall not be permitted unless the owner is notified and arrangements made to deactivate the system.

3.09 CUTTING AND PATCHING

A. Whenever possible, execute the work by methods that avoid cutting or patching.

B. Perform whatever cutting and patching is necessary to:

1. Complete the work.
2. Fit products together to integrate with other work.
3. Provide openings for penetration of mechanical, electrical, and other services.
4. Match work that has been cut to adjacent work.
5. Repair areas adjacent to cuts to required condition.
6. Repair new work damaged by subsequent work.
7. Remove and replace defective and non-conforming work.

C. Execute work by methods that avoid damage to other work and that will provide appropriate surfaces to receive patching and finishing. In existing work, minimize damage and restore to original condition.

D. Employ original installer to perform cutting for weather exposed and moisture resistant elements, and sight exposed surfaces.

E. Restore work with new products in accordance with requirements of Contract Documents.

F. Fit work air tight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.

G. Patching:

1. Finish patched surfaces to match finish that existed prior to patching. On continuous surfaces, refinish to nearest intersection or natural break. For an assembly, refinish entire unit.
2. Match color, texture, and appearance.
3. Repair patched surfaces that are damaged, lifted, discolored, or showing other imperfections due to patching work. If defects are due to condition of substrate, repair substrate prior to repairing finish.
3.10 PROGRESS CLEANING
   A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition.
   B. Remove debris and rubbish from pipe chases, plenums, attics, crawl spaces, and other closed or remote spaces, prior to enclosing the space.
   C. Broom and vacuum clean interior areas prior to start of surface finishing, and continue cleaning to eliminate dust.
   D. Collect and remove waste materials, debris, and trash/rubbish from site periodically and dispose off-site; do not burn or bury.

3.11 PROTECTION OF INSTALLED WORK
   A. Protect installed work from damage by construction operations.
   B. Provide special protection where specified in individual specification sections.
   C. Provide temporary and removable protection for installed products. Control activity in immediate work area to prevent damage.
   D. Provide protective coverings at walls, projections, jambs, sills, and soffits of openings.
   E. Protect finished floors, stairs, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects, by protecting with durable sheet materials.
   F. Prohibit traffic or storage upon waterproofed or roofed surfaces. If traffic or activity is necessary, obtain recommendations for protection from waterproofing or roofing material manufacturer.
   G. Remove protective coverings when no longer needed; reuse or recycle plastic coverings if possible.

3.12 ADJUSTING
   A. Adjust operating products and equipment to ensure smooth and unhindered operation.

3.13 FINAL CLEANING
   A. Final cleaning shall be the responsibility of the General Construction and all costs for final cleaning shall be included in the Base Bid. Final cleaning responsibility shall be limited to all new additions and areas where renovations occur.
   B. Execute final cleaning prior to final project assessment.
   C. Use cleaning materials that are nonhazardous.
   D. Clean interior and exterior glass, surfaces exposed to view; remove temporary labels, stains and foreign substances, polish transparent and glossy surfaces, vacuum carpeted and soft surfaces.
   E. Remove all labels that are not permanent. Do not paint or otherwise cover fire test labels or nameplates on mechanical and electrical equipment.
   F. Clean equipment and fixtures to a sanitary condition with cleaning materials appropriate to the surface and material being cleaned.
   G. Clean filters of operating equipment.
   H. Clean debris from roofs, gutters, downspouts, and drainage systems.
   I. Clean site; sweep paved areas, rake clean landscaped surfaces.
   J. Remove waste, surplus materials, trash/rubbish, and construction facilities from the site; dispose of in legal manner; do not burn or bury.
   K. General: Provide final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.
   L. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.
M. Cleaning Agents: Use cleaning materials and agents recommended by the manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

N. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.

O. Wax all resilient flooring.

P. Touch up and otherwise repair and restore marred, exposed finishes and surfaces evidence of repair or restoration. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show

Q. Leave Project clean and ready for occupancy.

R. Comply with safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on Owner's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from Project site and dispose of lawfully.

3.14 CLOSEOUT PROCEDURES

A. Make submittals that are required by governing or other authorities.

B. Notify Engineer when work is considered ready for Substantial Completion.

C. Submit written certification that Contract Documents have been reviewed, work has been inspected, and that work is complete in accordance with Contract Documents and ready for Engineer's review.

D. Correct items of work listed in executed Certificates of Substantial Completion and comply with requirements for access to Yonkers Public School District-occupied areas.

E. Notify Engineer when work is considered finally complete.

F. Complete items of work determined by Engineer's final inspection.

END OF SECTION
CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

PART 1 GENERAL

1.01 WASTE MANAGEMENT REQUIREMENTS

A. Yonkers Public School District requires that this project generate the least amount of trash and waste possible.

B. Employ processes that ensure the generation of as little waste as possible due to error, poor planning, breakage, mishandling, contamination, or other factors.

C. Minimize trash/waste disposal in landfills; reuse, salvage, or recycle as much waste as economically feasible.

D. Contractor shall submit periodic Waste Disposal Reports; all landfill disposal, incineration, recycling, salvage, and reuse must be reported regardless of to whom the cost or savings accrues; use the same units of measure on all reports.

E. Methods of trash/waste disposal that are not acceptable are:
   1. Burning on the project site.
   2. Burying on the project site.
   3.Dumping or burying on other property, public or private.
   4. Other illegal dumping or burying.

F. Regulatory Requirements: Contractor is responsible for knowing and complying with regulatory requirements, including but not limited to Federal, state and local requirements, pertaining to legal disposal of all construction and demolition waste materials.

1.02 DEFINITIONS

A. Clean: Untreated and unpainted; not contaminated with oils, solvents, caulk, or the like.

B. Construction and Demolition Waste: Solid wastes typically including building materials, packaging, trash, debris, and rubble resulting from construction, remodeling, repair and demolition operations.

C. Hazardous: Exhibiting the characteristics of hazardous substances, i.e., ignitibility, corrosivity, toxicity or reactivity.

D. Nonhazardous: Exhibiting none of the characteristics of hazardous substances, i.e., ignitibility, corrosivity, toxicity, or reactivity.

E. Nontoxic: Neither immediately poisonous to humans nor poisonous after a long period of exposure.

F. 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.

G. Recycle: To remove a waste material from the project site to another site for remanufacture into a new product for reuse by others.

H. 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.

I. Return: To give back reusable items or unused products to vendors for credit.

J. Reuse: To reuse a construction waste material in some manner on the project site.

K. Salvage: To remove a waste material from the project site to another site for resale or reuse by others.

L. Sediment: Soil and other debris that has been eroded and transported by storm or well production run-off water.

M. Source Separation: The act of keeping different types of waste materials separate beginning from the first time they become waste.

N. Toxic: Poisonous to humans either immediately or after a long period of exposure.

O. Trash: Any product or material unable to be reused, returned, recycled, or salvaged.
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.

1.03 SUBMITTALS
A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
B. Waste Disposal Reports: Submit at specified intervals, with details of quantities of trash and waste, means of disposal or reuse, and costs; show both totals to date and since last report.
   1. Submit updated Report with each Application for Progress Payment; failure to submit Report will delay payment.
   3. Landfill Disposal: Include the following information:
      a. Identification of material.
      b. Amount, in tons or cubic yards, of trash/waste material from the project disposed of in landfills.
      c. State the identity of landfills, total amount of tipping fees paid to landfill, and total disposal cost.
      d. Include manifests, weight tickets, receipts, and invoices as evidence of quantity and cost.
   4. Incinerator Disposal: Include the following information:
      a. Identification of material.
      b. Amount, in tons or cubic yards, of trash/waste material from the project delivered to incinerators.
      c. State the identity of incinerators, total amount of fees paid to incinerator, and total disposal cost.
      d. Include manifests, weight tickets, receipts, and invoices as evidence of quantity and cost.
   5. Recycled and Salvaged Materials: Include the following information for each:
      a. Identification of material, including those retrieved by installer for use on other projects.
      b. Amount, in tons or cubic yards, date removed from the project site, and receiving party.
      c. Transportation cost, amount paid or received for the material, and the net total cost or savings of salvage or recycling each material.
      d. Include manifests, weight tickets, receipts, and invoices as evidence of quantity and cost.
      e. Certification by receiving party that materials will not be disposed of in landfills or by incineration.
   6. Material Reused on Project: Include the following information for each:
      a. Identification of material and how it was used in the project.
      b. Amount, in tons or cubic yards.
      c. Include weight tickets as evidence of quantity.
   7. Other Disposal Methods: Include information similar to that described above, as appropriate to disposal method.

PART 3 EXECUTION
2.01 WASTE MANAGEMENT PROCEDURES
A. See Section 01 30 00 for additional requirements for project meetings, reports, submittal procedures, and project documentation.
B. See Section 01 50 00 for additional requirements related to trash/waste collection and removal facilities and services.
C. See Section 01 70 00 for trash/waste prevention procedures related to demolition, cutting and patching, installation, protection, and cleaning.

2.02 WASTE MANAGEMENT PLAN IMPLEMENTATION
A. Manager: Designate an on-site person or persons responsible for instructing workers and overseeing and documenting results of the Waste Management Plan.
B. Communication: Distribute copies of the Waste Management Plan to job site foreman, each subcontractor, Yonkers Public School District, and Engineer.
C. Instruction: Provide on-site instruction of appropriate separation, handling, and recycling, salvage, reuse, and return methods to be used by all parties at the appropriate stages of the project.

D. Meetings: Discuss trash/waste management goals and issues at project meetings.
   1. Pre-bid meeting.
   2. Pre-construction meeting.
   3. Regular job-site meetings.

E. Facilities: Provide specific facilities for separation and storage of materials for recycling, salvage, reuse, return, and trash disposal, for use by all contractors and installers.
   1. Provide containers as required.
   2. Provide adequate space for pick-up and delivery and convenience to subcontractors.
   3. Keep recycling and trash/waste bin areas neat and clean and clearly marked in order to avoid contamination of materials.

F. Hazardous Wastes: Separate, store, and dispose of hazardous wastes according to applicable regulations.

G. Recycling: Separate, store, protect, and handle at the site identified recyclable waste products in order to prevent contamination of materials and to maximize recyclability of identified materials. Arrange for timely pickups from the site or deliveries to recycling facility in order to prevent contamination of recyclable materials.

H. Reuse of Materials On-Site: Set aside, sort, and protect separated products in preparation for reuse.

I. Salvage: Set aside, sort, and protect products to be salvaged for reuse off-site.

END OF SECTION
CLOSEOUT SUBMITTALS

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract apply to work of this section.

1.02 SECTION INCLUDES

A. Project Record Documents.
B. Operation and Maintenance Data.
C. Warranties and bonds.

1.03 RELATED REQUIREMENTS

A. Section 01 30 00 - Administrative Requirements: Submittals procedures, shop drawings, product data, and samples.
B. Section 01 70 00 - Execution and Closeout Requirements: Contract closeout procedures.
C. Individual Product Sections: Warranties required for specific products or Work.
D. For additional information refer to Section C Part 67.

1.04 SUBSTANTIAL COMPLETION

A. Preliminary Procedures: Before requesting inspection for determining date of Substantial Completion:
   1. Prepare a list of items to be completed and corrected, the value of items on the list, and reasons why the Work is not complete.
   2. Advise Owner's Representative, Engineer, and Architect of pending insurance changeover requirements.
   3. Obtain and submit releases permitting Owner's Representative, Engineer, and Architect unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.

B. Prior to issuance of the Certificate of Substantial Completion, submit, in writing, a request to the Owner's Representative, Engineer, and Architect a request to perform site inspection for the purpose of preparing a "punch list".

C. On receipt of request Owner's Representative, Engineer, and Architect will prepare a punch list. Certificate of Substantial Completion after completion of all punch list items or will notify Contractor of items, either punch list or additional items identified by Architect that must be completed or corrected before certificate will be issued.

D. Certificate of Substantial Completion will be issued after completion of all punch list items or Owner's Representative, Engineer, and Architect will notify Contractor of items, either punch list or additional items identified by Architect that must be completed or corrected before certificate will be issued. After completion of "punch list" items submit the following:
   1. Application for Payment showing 100 percent completion for portion of the Work claimed as substantially completed the following:
   2. Warranties (guarantees).
   3. Maintenance Manuals and instructions.
   4. Final cleaning.
   5. List of incomplete Work, recognized as exceptions to Architect's "punch list".
   6. Engineer/Architect's punch list certifying all punch list items have been completed and signed off by the Owner's Representative and Contractor.
   7. Removal of temporary facilities and services.
   8. Removal of surplus materials, rubbish and similar elements.

E. Request re inspection when the Work identified in previous inspections as incomplete is completed or corrected.
1.05 FINAL COMPLETION
A. Preliminary Procedures: Before requesting final inspection for determining date of Final Completion, complete the following:
   1. Inspection: Submit a written request for final inspection for acceptance. On receipt of request, Owner's Representative, Engineer, and Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will not process a final Certificate for Payment until after the inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.
B. Following Final Inspection acceptance of work submit the following:
   1. Submit a final Application for Payment.
   2. Submit certified copy of Architect's Substantial Completion punch list items endorsed and dated Contractor and Owner's Representative certifying each item has been completed or otherwise resolved for acceptance.
   3. Release of liens from contractor and all entitles of contractor.
   4. AIA Document G707 Consent of Surety to Final Payment.
   5. Final Liquidated Damages settlement statement.
   7. Contractors Affidavit of Payment of Debts and Claims (AIA G706)
   8. Certification of Payment of Prevailing Wage Rates.
   9. Contractor's certified statement that no asbestos containing material was incorporated into the project.

1.06 SUBMITTALS
A. Contractor shall submit all documentation identified in this section within sixty (60) days from the time the Contractor submits the list of items to be corrected, as referred to in Article 14.4.1 of the General Conditions, "in addition to other rights of the Owner set forth elsewhere in the Contract Documents, to include but not limited to withholding of final payment." If the documentation has not been submitted within sixty 60 day period, 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.
B. Project Record Documents: Submit documents to Engineer with claim for final Application for Payment.
C. Warranties and Bonds:
   1. Make other submittals within 10 days after Date of Substantial Completion, prior to final Application for Payment.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION
3.01 PROJECT RECORD DOCUMENTS
A. Maintain on site one set of the following record documents; record actual revisions to the Work:
   1. Drawings.
   2. Specifications.
   3. Addenda.
   4. Change Orders and other modifications to the Contract.
   5. Reviewed shop drawings, product data, and samples.
   6. Manufacturer's instruction for assembly, installation, and adjusting.
B. Ensure entries are complete and accurate, enabling future reference by Yonkers Public School District.
C. Store record documents separate from documents used for construction.
D. Record information concurrent with construction progress.
E. Specifications: Legibly mark and record at each product section description of actual products installed, including the following:
1. Changes made by Addenda and modifications.

F. Record Drawings and Shop Drawings: Legibly mark each item to record actual construction including:
1. Field changes of dimension and detail.
2. Details not on original Contract drawings.

3.02 RECORD DRAWINGS
A. Record Prints: Maintain one set of blue- or black-line white prints of the Contract Drawings and approved Shop Drawings at the project site.
B. The Contractor is responsible for marking up Sections that contain its own Work and for submitting the complete set of record Specifications as specified.
C. Preparation: Mark Record Prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to prepare the marked-up Record Prints.
1. Accurately record information in an understandable drawing technique.
D. Content: Types of items requiring marking include, but are not limited to, the following:
1. Revisions to details shown on Drawings.
2. Changes made by Change Order or Construction Change Directive.
3. Changes made following Engineer/Architect's written orders.
4. Details not on the original Contract Drawings.
E. Mark the Contract Drawings or Shop Drawings, whichever is most capable of showing actual physical conditions, completely and accurately. If Shop Drawings are marked, show cross-reference on the Contract Drawings.
F. Mark important additional information that was either shown schematically or omitted from original Drawings.
G. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.

3.03 RECORD CAD DRAWINGS: IMMEDIATELY BEFORE INSPECTION FOR CERTIFICATE OF SUBSTANTIAL COMPLETION, REVIEW MARKED-UP RECORD PRINTS WITH ARCHITECT AND OWNER'S REPRESENTATIVE. WHEN AUTHORIZED, PREPARE A FULL SET OF CORRECTED CAD DRAWINGS OF THE CONTRACT DRAWINGS, AS FOLLOWS:
A. Format: Same CAD program, version, and operating system as the original Contract Drawings.
B. Incorporate changes and additional information previously marked on Record Prints. Delete, re draw, and add details and notations where applicable.
1. Refer instances of uncertainty to Architect through Owner's Representative for resolution.
C. Owner will furnish Contractor one set of CAD Drawings of the Contract Drawings for use in recording information.
1. Architect makes no representations as to the accuracy or completeness of CAD Drawings as they relate to the Contract Drawings.

3.04 FORMAT
A. Identify and date each Record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location. Contractor shall certify and sign.
B. Record Prints: Organize Record Prints and newly prepared Record Drawings into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets.
C. Record CAD Drawings: Organize CAD information into separate electronic files that correspond to each sheet of the Contract Drawings. Name each file with the sheet identification. Include identification in each CAD file.
D. Identify Record Drawing as follows:
1. Project name.
3.05 MAINTENANCE OF RECORDS
   A. The Contractor shall maintain the records required in Title 29 CFR 1926.1101 (n) and Part 56 of Title 12 of the Official Compilation of Codes, Rules and Regulations of the State of New York.
   B. The Contractor shall provide the Owner and Engineer with THREE (3) copies of all records.

3.06 OPERATION AND MAINTENANCE DATA FOR MATERIALS AND FINISHES
   A. For Each Product, Applied Material, and Finish:
   B. Instructions for Care and Maintenance: Manufacturer's recommendations for cleaning agents and methods, precautions against detrimental cleaning agents and methods, and recommended schedule for cleaning and maintenance.
   C. Where additional instructions are required, beyond the manufacturer's standard printed instructions, have instructions prepared by personnel experienced in the operation and maintenance of the specific products.

3.07 WARRANTIES AND BONDS
   A. Obtain warranties and bonds, executed in duplicate by responsible Subcontractors, suppliers, and manufacturers, within 10 days after completion of the applicable item of work. Except for items put into use with Yonkers Public School District's permission, leave date of beginning of time of warranty until the Date of Substantial completion is determined.
   B. Verify that documents are in proper form, contain full information, and are notarized.
   C. Co-execute submittals when required.
   D. Retain warranties and bonds until time specified for submittal.

END OF SECTION
ASBESTOS ABATEMENT SUMMARY OF WORK

PART 1 - GENERAL

1.01 WORK COVERED BY CONTRACT DOCUMENTS
   A. The Work of this Contract comprises of Asbestos Abatement, replacement of materials abated, repairs to damaged materials, reinsulation, and providing door signs as indicated on the door sign drawings.
   B. Refer to 01 22 00 for Unit Price work.

1.02 DESCRIPTION OF WORK
   A. Included in the project specified herein shall be the removal of asbestos containing materials by competent persons trained, knowledgeable, and qualified in the techniques of abatement, handling, and disposal of asbestos containing and asbestos contaminated materials and the subsequent cleaning of contaminated areas, who comply with all applicable federal, state, and local regulations and are capable of and willing to perform the Work of this Contract.
   B. The Contractor shall supply labor, materials, services, insurance, permits, and equipment necessary to carry out the Work in accordance with all applicable federal, state, and local regulations and these specifications.

1.03 WORK SEQUENCE
   A. Construct Work in stages to accommodate the Owner's use of the premises during the construction period. Coordinate construction schedule with the Engineer.
   B. Construct Work in stages to provide for public convenience.

1.04 PARTIAL OWNER OCCUPANCY- AFTER AUGUST 2014
   A. The Owner will occupy the existing building during the construction period and will maintain normal operations. The Owner will cooperate with the Contractor to facilitate the continuity and the progress of the Work. Cooperate with the Owner by minimizing the disturbance of the Owner's activities in spaces adjacent to the construction Work.
   B. Protect the occupants against hazards of the asbestos abatement and other construction operations and also provide access to Owner-occupied spaces. If elimination of access to any occupied space becomes necessary, it shall occur only after advance notice and special arrangements with the Owner.
   C. Provide necessary barricades, temporary partitions, other separations, and closures to protect the occupants of the building from harm or injury due to the construction operations, to restrict occupancy of construction areas to construction workers, and to prevent dust and debris caused by construction activities from entering Owner-occupied spaces.

1.05 COORDINATION
   A. The Contractor shall work with the others at the job site to maintain continuity of Work in accordance with the project schedule. The Contractor must cooperate to the maximum extent with the other Contractors to facilitate the execution of their Work. Timely notice of change in the Contractor's schedule shall be given to the others and to the Engineer so that all operations may be rescheduled or modified as required.
   B. In case of conflicts occurring because of failure to abide by the requirements of the above paragraph, the Engineer's decision will be final, and no extra compensation will be awarded for extra work caused by failure to follow the above requirements.
   C. The Owner or his representative shall have the right to stop the work immediately if the Contractor does not adhere to the specifications contained herein. Such notice can be verbal or in writing. If a verbal order is given, a written order must follow.

1.06 INTERPRETATION OF DRAWINGS AND SPECIFICATIONS
   A. The lists of equipment, tabulations of data measurements, and schedules appearing in the specifications or drawings are included only for the assistance and guidance of the Contractor in arriving at a more complete understanding of the intended installation. They are not intended, or to be construed, as relieving the responsibility of the Contractor in making his own takeoff.
1.07 ABBREVIATIONS AND SYMBOLS
   A. Contractor is expected to be familiar with the standard abbreviation symbols used in the Contract Documents. Inform the Engineer, in writing, of any unclear or unknown abbreviation or symbol prior to the Bid Date. Unless notified, the Engineer will assume that the Contractor is fully familiar with all such items and can execute his Work accordingly.

1.08 PROTECTION OF EXISTING BUILDING AND GROUNDS
   A. Provide protection to prevent damage to building, both interior and exterior, during construction operations.
   B. Repair damage to building and grounds to satisfaction of the Owner.

1.09 PROTECTION OF EQUIPMENT AND MATERIALS
   A. Assume full and complete responsibility for protection and safe-keeping of his products and equipment stored at project location.

1.10 PROTECTION OF UTILITIES
   A. Provide and maintain adequate protection for existing utilities. Repair such Work damaged during construction to the satisfaction of the Engineer.

1.11 ASBESTOS PROJECT MONITOR
   A. Perform work only when the Asbestos Project Monitor is on site unless otherwise instructed in writing by the Engineer.
   B. Perform work only during the hours of work established at the Pre-Construction Meeting or as approved in writing by the Engineer at least 24 hours in advance of the change. This will allow the Asbestos Project Monitor to monitor the Work in progress.

NOTE: THE CONTRACTORS ARE HEREBY NOTIFIED THAT IN THE EVENT THE CONTRACTORS, THEIR EMPLOYEES OR SUBCONTRACTORS ENCOUNTER A MATERIAL OR CONDITION WHICH IS UNKNOWN OR WHICH MAY BE SUSPECTED TO CONTAIN ASBESTOS OR OTHER HAZARDOUS MATERIAL, THE CONTRACTOR WILL NOT DISTURB THE MATERIAL, BUT SHALL STOP WORK IN THAT AREA AND NOTIFY THE OWNER IN WRITING IMMEDIATELY OF THE CONDITION OR MATERIAL.

END OF SECTION
PART L - GENERAL

1.01 DESCRIPTION

A. Related Requirements Specified Elsewhere
   1. Testing Laboratory Services: Section 02 80 74

B. Schedule submittals to be presented at the pre-construction meeting. Indicate items where additional time is needed and on what dates they will be submitted. The dates indicated for each submittal shall take into account the lead time required for ordering and fabricating of the various items.

1.02 SUBMISSION REQUIREMENTS

A. Pre-contract Submittals. Within three days after bids are opened, the three apparent low bidders shall be required to submit the following documentation:
   1. Resume: Shall include the following:
      a. Contractor license issued by New York State Department of Labor.
      b. The number of years engaged in asbestos removal.
      c. Provide a list of projects performed within the past two years and include the dollar value of all projects. Provide project references to include owner, consultant, and air monitoring firms' name, contact person, address, and phone number.
      d. A list of owned equipment available to be used in the performance of the project.
      e. An outline of the worker training course and medical surveillance program conducted by the contractor.
      f. A standard operating procedures manual describing work practices and procedures, equipment, type of decontamination facilities, respirator program, special removal techniques, etc.
      g. Documentation to the satisfaction of the Owner attesting to the contractor's financial resources available to perform the project. Such data shall minimally include the firm's balance sheet for the last fiscal year.

   2. Citations/Violations/Legal Proceedings
      a. Submit a notarized statement describing any citations, violations, criminal charges, or legal proceedings undertaken or issued by any law enforcement, regulatory agency, or consultant concerning performance on previous abatement contracts. Briefly describe the circumstances citing the project and involved persons and agencies as well as the outcome of any actions.
      b. Answer the question: "Has your firm or its agents been issued a Stop Work Order on any project within the last two years?" If "Yes", provide details as discussed above.
      c. Answer the question: "Are you now, or have you been in the past, a party to any litigation or arbitration arising out of your performance on asbestos abatement contracts?" If "Yes", provide details as discussed above.
      d. Describe any liquidated damages assessed within the last two years.

   3. Preliminary Schedule
      a. Provide an estimate of manpower to be utilized and the time required for completion of each major work area. Include the size and number of crews and work shifts.

B. Prior to Commencement of Work, Owner will:
   1. Submit to the Contractor results of pre-abatement air sampling (if conducted) including location of samples, names of the Air Sampling Professional, equipment utilized, and method of analysis.
   2. Document that Owner's employees who will be required to enter the work area during abatement have received training equal to that detailed in Section 028080.

C. Prior to Commencement of Work, Contractor shall:
   1. US EPA: Provide Owner with a copy of the notice to the Asbestos NESHAPS Contact of the EPA as per Section 028071.
   2. NYS Department of Labor: Provide Owner with a copy of the notice to the Asbestos Control Program of the NYS Labor Department's Division of Safety and Health as per Part 56 of Title 12.
3. NYSDEC: Submit to the Owner a copy of the annual "Industrial Waste Hauler Permit" specifically for asbestos-containing materials required pursuant to 6 NYCRR364. Submit certification that the proposed waste disposal site meets the requirements of 40 CFR 61.156 and any pertinent local and state regulations. Provide Owner with a copy of the notice to the Asbestos Enforcement Division of the NYSDEC.

4. Submit documentation satisfactory to the Owner that the Contractor's employees, including Superintendent, Foremen, Supervisors, and other company personnel or agents, who may be exposed to airborne asbestos fibers or who may be responsible for any aspects of abatement activities, have received adequate training. A copy of their Asbestos Handling Certificates will be provided. Foremen and Supervisors shall, at a minimum, meet the training requirements of a competent person as defined in 29 CFR 1926.1101.

5. Submit to the Owner shop drawings for layout and construction of decontamination enclosure systems and barriers for isolation of the work area as detailed in Section 028081 of this specification and required by applicable regulations.

6. With the Owner, inspect the premises wherein all abatement and abatement related activities will occur and prepare a statement signed by both agreeing on building and fixture conditions prior to the commencement of work.

7. Submit manufacturer's certification that HEPA vacuums, negative pressure ventilation units, and other local exhaust ventilation equipment conform to ANSI Z9.2-79.

8. When rental equipment is to be used in abatement areas or to transport asbestos-contaminated waste, a written notification concerning intended use of the rental equipment must be provided to the rental agency with a copy submitted to the Owner.

9. Provide a copy of the respiratory program required in 29 CFR 1910.134 (b), (d), (e), and (f). Include manufacturer certification of HEPA filtration capabilities for all cartridges and filters.

10. Submit a copy of the firm's asbestos handling license.

11. Submit the name, address, contact person and the ELAP approval number for the laboratory utilized for the analysis of the Contractor's OSHA monitoring.

12. Progress Schedule:
   a. Show the complete sequence of construction by activity and the sequencing of work within each building or section of the work.
   b. Show the dates for the beginning and completion of each major element of work including substantial completion dates for each work area, building, or phase.
   c. Show projected percentage of completion for each item, as of the first day of each month.
   d. Show final inspection dates.

13. Abatement Work Plan: Provide plans which clearly indicate all work areas (numbered sequentially) including the locations and types of all decontamination chambers, entrances and exits to the work area, type of abatement activity/technique, number and location of negative air units and exhaust including calculations, and the proposed location and construction of storage facilities and field office.

14. Samples: Submit samples of warning notices to be posted, catalog descriptions of protective clothing, replacement materials, etc.

15. Worker Training and Medical Surveillance: The Contractor shall submit a list of the persons who will be employed by him and his subcontractors in the removal work. Present evidence that workers have received proper training required by the regulations and the medical examinations required by OSHA 29 CFR 1926.1101.

16. Logs: Specimen copies of daily progress log, visitor's log, and disposal log.

17. Material List: A complete materials list of all items proposed to be furnished and used under this contract.

18. Subcontractors List: The prime contractor shall submit a list of all subcontractors to be used on the project.

19. Material Safety Data Sheets (MSDS): Submit copies of MSDS for each chemical or material used for the project (encapsulant, surfactant, mastic remover, etc.)

20. Project Supervisor: Submit the resume of the proposed Project Supervisor.
21. Worker's Acknowledgments: Submit statements signed by each employee that the employee has received training in the proper handling of asbestos containing materials; understands the health implications and risks involved; and understands the use and limitations of the respiratory equipment to be used.

D. During abatement activities, Contractor shall:

1. Submit copies of all transport manifests, trip tickets, and disposal receipts for all asbestos waste materials removed from the work area during the abatement process. The documentation must show the entire chain of custody from the time the asbestos is removed.

2. The Contractor will maintain worksite entry log books with information on worker and visitor access. The Asbestos Handling Certificates for all workers will be kept at the entrance to the worksite or the certificates will be checked upon each entry by the Contractor. Copies will be provided to the Owner, Engineer, and Contractor.

3. Submit logs documenting filter changes on respirators, HEPA vacuums, negative pressure ventilation units, and other engineering controls.

4. Submit results of bulk material analysis and air sampling data collected during the course of the abatement including OSHA compliance air monitoring results.

5. Submit results of materials testing conducted during the abatement for purposes of utilization during abatement activities (e.g., testing of encapsulant for depth of penetration and testing of substitute materials for adherence to encapsulated surfaces).

6. Post in the clean room area of the worker decontamination enclosure a list containing the names, addresses, and telephone numbers of the Contractor, the Owner, the Engineer, the Asbestos Project Monitor, the General Superintendent, the Air Sampling Professional, the testing laboratory, the police department, the fire department, and any other personnel who may be required to assist during abatement activities (e.g., Safety Officer, Building Maintenance Supervisor, and Energy Conservation Officer).

E. Project Closeout Submissions:

1. Submit copies of all waste disposal manifests, seals, and disposal logs.

2. Submit OSHA compliance air monitoring records conducted during the work.

3. Submit copies of the daily progress log.

4. Submit copies of the Visitor's log.


6. Submit copies of any required Employee Statements such as Medical Examination Statement, Certificate of Worker's Release, or Employee Training Statement.

END OF SECTION
### Name of Project:
Restoration of Emergency and Electrical Utilities and Site Improvements

### E&R Project Number:
13001N

### Client's Project Number:
___________

### Date of Submittal:

### Submittal Description:

- **Shop Drawing Title:**
- **Number:**
- **Revision Number:**
- **Date:**
- **Product Data, Tests, Schedules:**
- **Samples:**
- **Manufacturer:**
- **Manufacturer's Address:**

### References:

- **Specification Section(s):**
- **Paragraph(s):**
- **Contract Drawing(s):**
- **Room Number(s):**

### Engineer's Stamp:

- ☐ No Exception Taken
- ☐ Rejected
- ☐ Make Corrections Noted
- ☐ Revise and Resubmit
- ☐ 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. Notations are subject to the requirements of the plans and specifications. The contractor is responsible for dimensions which shall be confirmed and correlated at the job site; fabrication processes and techniques of construction: Coordination of his work with that of all other trades and the satisfactory performance of his work.

### Contractor's Approval Stamp:

Date: _______________ By: ______________
ASBESTOS TESTING QUALITY CONTROL

PART 1 - GENERAL

1.01 DESCRIPTION

A. Related Requirements Specified Elsewhere
   1. Asbestos Abatement Submittals: Section 028073
   2. The Owner will obtain the services of a Project Monitor and analysis laboratory to constantly monitor airborne concentrations of asbestos throughout the course of the abatement project.
   3. Laboratory services, obtained by the Owner for bulk sampling, area air sampling, and clearance sampling, are to ensure that Contract provisions are met.
      a. Results of Owner-procured tests will be made available to the Contractor. This act shall not be construed as relieving the Contractor of his obligations to provide materials and workmanship in accordance with pertinent regulations.
   4. Laboratory services obtained by the Contractor for personnel sampling shall comply with all pertinent regulations.
      a. Forward copies of test results to the Owner as indicated in Section 028073.
   5. The air sampling to be done will be in accordance with an air sampling plan to be prepared by the Project Monitor and this specification. The plan will be approved by the Owner.

1.02 QUALITY ASSURANCE

A. Pre-Work Airborne Fiber Counts
   1. The Owner will monitor the baseline fiber counts or those prevalent in the area before work begins using the NIOSH 7400 analytical procedure.

B. Work Area Airborne Fiber Counts
   1. The Owner will monitor airborne fiber counts in the work area during the progress of the work through reviewing the personnel monitoring done by the contractor. The purpose of this air sampling will be to detect airborne fiber counts which may significantly challenge the ability of the work area isolation procedures to protect the balance of the building or outside of the building from contamination by airborne fibers.

C. Work Area Clearance
   1. To determine if the elevated airborne fiber counts encountered during abatement operations have been reduced to an acceptable level, the Owner will sample and analyze air as per this Section using either Phase Contrast Microscopy (PCM) and/or Transmission Electron Microscopy (TEM).

D. The Owner will be conducting air sampling throughout the course of the project.

E. Fibers Counted
   1. PCM: "Airborne Fibers" referred to above include all fibers regardless of composition as counted in the NIOSH 7400 procedure.
   2. TEM: "Airborne Fibers" referred to above and to be analyzed using the method defined in 40 CFR Part 763.

F. The laboratory utilized for analyzing air samples shall be satisfactory participants in the AIHA Proficiency Analytical Testing (PAT) program for asbestos analysis and shall be NYSDOH (New York State Department of Health) ELAP accredited.

G. Laboratories used for bulk material identification shall be satisfactory participants in the EPA quality assurance program for bulk asbestos analysis and shall be NYSDOH ELAP accredited.

H. The Project Monitor shall have a current Project Monitor certificate.

PART 2 - PRODUCTS - NOT APPLICABLE

PART 3 - EXECUTION

3.01 TESTING LABORATORY SERVICES

A. The Owner will obtain air and bulk sampling laboratory services by separate Contract. The laboratory will be independent of the abatement contractor.

B. Personal Air Monitoring
1. In addition to the requirements of OSHA 1926.1101, the contractor shall be required to perform personal air monitoring every work shift, in each work area, during which abatement activities occur, in order to determine that appropriate respiratory protection is being utilized.

2. Results of the air monitoring shall be returned to the site, at least verbally, and posted no later than 24 hours following the time the sample was collected. Written results shall be returned to the site and posted no more than five days after the monitoring was performed.

3. Personal air samples shall be analyzed by a laboratory which holds certification by the New York State Department of Health's Environmental Laboratory Approval Program. The asbestos consultant must approve the laboratory the contractor intends to use.

3.02 RESPONSIBILITIES AND DUTIES OF CONTRACTOR

A. To facilitate testing services, the Contractor shall:

1. Furnish to the laboratory such samples of materials as may be necessary for testing purposes.

2. Advise the testing agency sufficiently in advance of operations to allow for completion of tests and for the assignment of personnel.

3. Ensure the cooperation of the employees and superintendent with the Project Monitor.

3.03 ANALYTICAL METHODS

A. The following methods may be used by the testing laboratory in analyzing filters used to collect air samples:

1. Cellulose ester filters will be analyzed using the NIOSH 7400 Method accounting rules.

2. OR

3. Polycarbonate filters with a pore size less than or equal to 0.4 microns or mixed cellulose ester having a pore size less than or equal to 0.45 microns will be analyzed using the method defined in 40 CFR Part 763, Appendix A to Subpart E.

3.04 SAMPLE VOLUMES

A. General: The number and volume of air samples taken by the Owner will be in accordance with the following schedule. Sample volumes given may vary depending upon the analytical method used.

B. Before the Start of Work

1. The Owner will secure the following air samples to establish a base line before the start of work.

<table>
<thead>
<tr>
<th>LOCATION SAMPLED</th>
<th>MINIMUM NUMBER OF SAMPLES</th>
<th>FILTER MEDIA</th>
<th>DETECTION LIMIT (FIBERS/C.C.)</th>
<th>MINIMUM VOLUME (LITERS)</th>
<th>RATE LPM</th>
</tr>
</thead>
<tbody>
<tr>
<td>EACH WORK AREA</td>
<td>5</td>
<td>CELLULOSE ESTER</td>
<td>0.01</td>
<td>1500</td>
<td>2-10</td>
</tr>
<tr>
<td>OUTSIDE EACH WORK AREA</td>
<td>5</td>
<td>CELLULOSE ESTER</td>
<td>0.01</td>
<td>1500</td>
<td>2-10</td>
</tr>
<tr>
<td>OUTSIDE BUILDING</td>
<td>2</td>
<td>CELLULOSE ESTER</td>
<td>0.01</td>
<td>1500</td>
<td>2-10</td>
</tr>
<tr>
<td>AT JOB SITE</td>
<td>2</td>
<td>CELLULOSE ESTER</td>
<td>0.01</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

A. Base line is an action level by sample location and expressed in fibers per cubic centimeter which is the largest of the following:

1. Actual fiber concentration of the samples collected on cellulose ester filters for each work area.

2. 0.01 fibers per cubic centimeter.
B. Daily During Preparation

<table>
<thead>
<tr>
<th>LOCATION SAMPLED</th>
<th>MINIMUM NUMBER OF SAMPLES</th>
<th>FILTER MEDIA</th>
<th>DETECTION LIMIT (FIBERS/C.C.)</th>
<th>MINIMUM VOLUME (LITERS)</th>
<th>RATE LPM</th>
</tr>
</thead>
<tbody>
<tr>
<td>EACH WORK AREA</td>
<td>5</td>
<td>CELLULOSE ESTER</td>
<td>0.01</td>
<td>1500</td>
<td>2-10</td>
</tr>
<tr>
<td>OUTSIDE EACH WORK AREA</td>
<td>5</td>
<td>CELLULOSE ESTER</td>
<td>0.01</td>
<td>1500</td>
<td>2-10</td>
</tr>
<tr>
<td>OUTSIDE BUILDING</td>
<td>2</td>
<td>CELLULOSE ESTER</td>
<td>0.01</td>
<td>1500</td>
<td>2-10</td>
</tr>
<tr>
<td>AT JOB SITE</td>
<td>2</td>
<td>CELLULOSE ESTER</td>
<td>0.01</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

A. Daily During Abatement

1. From the start of work building temporary enclosures until ready for clearance air monitoring, the laboratory will take the following samples on a daily basis.

<table>
<thead>
<tr>
<th>LOCATION SAMPLED</th>
<th>MINIMUM NUMBER OF SAMPLES</th>
<th>FILTER MEDIA</th>
<th>DETECTION LIMIT (FIBERS/C.C.)</th>
<th>MINIMUM VOLUME (LITERS)</th>
<th>RATE LPM</th>
</tr>
</thead>
<tbody>
<tr>
<td>OUTSIDE EACH WORK AREA *</td>
<td>4</td>
<td>CELLULOSE ESTER</td>
<td>0.01</td>
<td>1500</td>
<td>2-10</td>
</tr>
<tr>
<td>OUTSIDE BUILDING</td>
<td>1</td>
<td>CELLULOSE ESTER</td>
<td>0.01</td>
<td>1500</td>
<td>2-10</td>
</tr>
<tr>
<td>OUTPUT NEGATIVE PRESSURE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AT JOB SITE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* TWO (2) SAMPLES OUTSIDE THE WORK AREA BUT WITHIN TEN (10) FEET OF ISOLATION BARRIERS. TWO (2) SAMPLES AT LOCATION WITHIN TEN (10) FEET OF AND WITHIN THE ACTUAL ENVIRONMENT OF THE ENTRANCE EXIT OF THE PERSONNEL AND WASTE DECONTAMINATION ENCLOSURES.

A. If airborne fiber counts exceed allowed limits additional samples will be taken as necessary to monitor fiber levels.

B. Clearance Air Monitoring

1. Air sample locations shall be the same as the locations of the samples collected before the start of work.
2. All air samples will be taken using aggressive sampling techniques as follows:
   a. There are no standards available for flow rate of leaf blowers or large fans. However, this information is not critical to the success of the procedure.
   b. Before sampling pumps are started, the exhaust from forced air equipment (leaf blower with at least 1 horsepower electric motor) will be swept against all walls, ceilings, floors, ledges and other surfaces in the room. This procedure will be continued for five minutes per 1,000 cubic feet of floor.
c. One 20 inch diameter fan per 10,000 cubic feet of room volume will be mounted in a central location at approximately 2 meters above floor, directed toward ceiling, and operated at low speed for the entire period of sample collection.

d. Air samples will be collected in areas subject to normal air circulation away from room corners, obstructed locations, and sites near windows, door, or vents.

e. After air sampling pumps have been shut off, fans will be shut off.

3. Schedule of Air Samples

a. General: The number and volume of air samples taken and analytical methods used by the Owner will be in accordance with the following schedule. Sample volumes given may vary depending upon the analytical instruments used.

4. Phase/Contrast Microscopy

a. In each homogeneous work area after completion of all cleaning work, a minimum of 13 samples will be taken and analyzed as follows:

<table>
<thead>
<tr>
<th>LOCATION SAMPLED</th>
<th>MINIMUM NUMBER OF SAMPLES</th>
<th>FILTER MEDIA</th>
<th>DETECTION LIMIT (FIBERS/C.C.)</th>
<th>MINIMUM VOLUME (LITERS)</th>
<th>RATE LPM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Each Work Area</td>
<td>5</td>
<td>CELLULOSE ESTER</td>
<td>0.01</td>
<td>1500</td>
<td>2-10</td>
</tr>
<tr>
<td>Outside Work Area</td>
<td>5</td>
<td>CELLULOSE ESTER</td>
<td>0.01</td>
<td>1500</td>
<td>2-10</td>
</tr>
<tr>
<td>At Job Site</td>
<td>2</td>
<td>CELLULOSE ESTER</td>
<td>0.01</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>At Laboratory</td>
<td>1</td>
<td>CELLULOSE ESTER</td>
<td>0.01</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

a. Analysis: Fibers on each filter will be measured using the NIOSH 7400 procedure accounting rules.

b. Split Sample: One work area sample will be split and both halves analyzed separately for duplicate analysis.

c. Satisfactory Clearance Air Monitoring Results: PCM clearance air monitoring is considered to be satisfactory only when every sample is <.01 f/cc unless otherwise directed by the Engineer.

5. Transmission Electron Microscopy

a. In each homogeneous work area after completion of all cleaning work, a minimum of 13 samples will be taken and analyzed as follows:
<table>
<thead>
<tr>
<th>LOCATION SAMPLED</th>
<th>MINIMUM NUMBER OF SAMPLES</th>
<th>FILTER MEDIA</th>
<th>DETECTION LIMIT (FIBERS/CC)</th>
<th>MINIMUM VOLUME (LITERS)</th>
<th>RATE LPM</th>
</tr>
</thead>
<tbody>
<tr>
<td>EACH WORK AREA</td>
<td>5</td>
<td>POLYCARBONATE (0.4 MICRONS) (37 MM) MIXED CELLULOSE ESTER (0.45 MICRONS) (25 MM)</td>
<td>0.05</td>
<td>2799</td>
<td>2-10</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OUTSIDE WORK AREA</td>
<td>5</td>
<td>POLYCARBONATE (0.4 MICRONS) (37 MM) MIXED CELLULOSE ESTER (0.45 MICRONS) (25 MM)</td>
<td>0.005</td>
<td>2799</td>
<td>2-10</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AT JOB SITE</td>
<td>3*</td>
<td>POLYCARBONATE (0.4 MICRONS) (37 MM) MIXED CELLULOSE ESTER (0.45 MICRONS) (25 MM)</td>
<td>0.005</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

3.05 LABORATORY TESTING

A. Phase Contrast Microscopy
   1. The services of a testing laboratory will be employed by the Owner to perform laboratory analysis of the air samples. Samples will be sent daily by overnight mail so that verbal reports on air samples can be obtained within 24 hours. A complete record, certified by the testing laboratory, of all air monitoring tests and results, will be furnished to the Owner's Representative, the Owner, and the Contractor.
      a. Written reports of all monitoring tests will be posted at the job site on a daily basis.
   2. The personnel monitoring done by the Contractor will be conducted in accordance with the standards outline in sub-paragraph 1 above.

B. Transmission Electron Microscopy
   1. Samples will be sent by overnight courier for analysis by transmission electron microscopy. Verbal results will be available within one working day after receipt of sample by the laboratory. The laboratory must be capable of analyzing 13 such samples from this project at any one time. A complete record, certified by the testing laboratory, of all transmission electron microscopy results will be furnished to the Owner's Representative, the Owner, and the Contractor.

3.06 ADDITIONAL TESTING

A. The Contractor may conduct his own air monitoring and laboratory testing. If he elects to do this, the cost shall be included in the Contract sum.

B. If it is necessary to resample work areas for clearance testing because the area does not meet the release criteria, the Abatement Contractor will bear all costs for this additional sampling.

C. If the Contractor does not adhere to the schedule and the Owner incurs additional air monitoring costs as a result, the additional costs will be paid by the Contractor. This will not apply if the project is delayed because of an Owner caused delay.

3.07 DATA SUBMITTAL

A. The Project Monitor will submit all clearance air monitoring data to the NYSDOL in accordance with Industrial Code Rule 56.

END OF SECTION
ASBESTOS ABATEMENT SITE SECURITY

PART 1 - GENERAL

1.01 DESCRIPTION

A. Related Requirements Specified Elsewhere
   1. Submittals: Section 02 80 73

B. The Contractor shall provide all controls required to comply with all pertinent regulations and the Contract Documents including, but not limited to, those described in this section.

PART 2 - CONTROLS

2.01 SITE SECURITY

A. The Work area is to be restricted to authorized, trained, and protected personnel. These may include the Contractor's employees, employees of subcontractors, Owner employees and representatives, state and local inspectors, and any other designated individuals. A list of authorized personnel shall be established prior to job start and posted in the clean room of the worker decontamination facility.

B. Entry into the Work area by unauthorized individuals shall be reported immediately to the Owner by the Contractor.

C. A log book shall be maintained by the Contractor in the clean room area of the worker decontamination system. Anyone who enters the Work area must record name, affiliation, time in, and time out for each entry. The asbestos handlers shall show their certification card or have a copy on file at the entrance upon their first entry of the day.

D. Access to the Work area shall be through a single worker decontamination system. All other means of access (doors, windows, hallways, etc.) shall be blocked or locked so as to prevent entry to or exit from the Work area. The only exceptions for this rule are the waste pass-out air-lock which shall be sealed except during the removal of containerized asbestos waste from the Work area, and emergency exits in case of fire or accident. Emergency exits shall not be locked from the inside; however, they shall be sealed with polyethylene sheeting and tape until needed.

E. The Project Monitor should have control of site security during abatement operations whenever possible, in order to protect Work efforts and equipment.

F. Contractor will have Owner's assistance in notifying building occupants of impending activity and enforcement of restricted access by Owner's employees.

G. If the decontamination chamber or the waste pass-out chamber is located outside the building, provide a security guard 24 hours a day and a fence around the site.

END OF SECTION
ASBESTOS EMERGENCY PLANNING

PART 1 - GENERAL

1.01 DESCRIPTION

A. Related Requirements Specified Elsewhere
   1. Submittals: Section 02 8073

B. The Contractor shall prepare an emergency preparedness plan detailing at least the information required in this section and in any pertinent federal, state, or local regulations.

PART 2 - DETAILS OF PLAN

2.01 EMERGENCY PLANNING

A. Emergency planning shall be developed prior to abatement initiation and agreed to by Contractor and Owner.

B. Emergency procedures shall be in written form and prominently posted in the clean change area and equipment room of the worker decontamination area. Everyone, prior to entering the work area, must read and sign these procedures to acknowledge receipt and understanding of work site layout, location of emergency exits, and emergency procedures.

C. Emergency planning shall include written notification of police, fire and emergency medical personnel of planned abatement activities, work schedule and layout of work area, particularly barriers that may affect response capabilities.

D. Emergency planning shall include considerations of fire, power failure, explosion, toxic atmospheres, electrical hazards, slips, trips and falls, confined spaces, and heat related injury. Written procedures shall be developed and employee training in procedures shall be provided.

E. Employees shall be trained in evacuation procedures in the event of workplace emergencies.
   1. For Non-Life-Threatening Situations: Employees injured or otherwise incapacitated shall decontaminate following normal procedures with assistance from fellow workers, if necessary, before exiting the workplace to obtain proper medical treatment.
   2. For Life-Threatening Injury or Illness: Worker decontamination shall take least priority. After measures to stabilize the injured worker, remove him from the workplace and secure proper medical treatment.

F. Telephone numbers of all emergency response personnel shall be prominently posted in the clean change area and equipment room, along with the location of the nearest telephone.

END OF SECTION
SECTION 02 80 81

INSULATION

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 work is part of the Asbestos Abatement Contract.

B. Furnish insulation for all piping and fittings as noted.

C. All piping shall be dry when covered. Where existing insulation has been damaged, altered or removed during the course of the work, it shall be replaced with new insulation in a neat manner to match the adjacent insulation.

D. All insulation must be done by an approved Sub-Contractor or by mechanics skilled in this line of work.

E. 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.

PART 2 - PRODUCTS

2.1 PIPING

A. All abated heating or domestic water system supply and return piping shall be covered with Manville Micro-Lok or equal approved fiberglass insulation with all service (factory applied) vapor retardant jacket. Seal with type H mastic.

B. Fittings shall be insulated with same material and thickness as adjoining pipe insulation and shall be pre-molded fittings or mitre cut segmental insulation wired on. Over the insulation, apply a wrapper of OCF glass cloth sealed with type H mastic. Apply aluminum bands on pipe covering in addition to self-sealing feature.

C. Insulation Material: Molded fibrous glass insulation, density not less than 4 lbs. per cubic foot.

D. Insulation Thickness: Shall be in accordance with the latest edition of the New York State Energy Conservation Construction Code.

E. Jacket and Finish: White flame retardant type, meeting all requirements of "Fire Hazard Classification" of NFPA, similar to "Fiberglass" Type FRJ, Insul-Coustic, Johns-Manville or approved equal.

F. Insulation and finishes for fittings, valves and flanges

1. Valves, fittings and flanges other than vapor seal insulation: Insulated in same manner and same thickness as piping in which installed.

2. Use pre-molded sectional covering where available; otherwise use mitered segments of pipe covering.

3. Obtain written approval prior to using other than molded sectional covering.
G.  Vapor seal Insulation for Valves, Fittings and Flanges: Same as above, except joints sealed with vapor barrier adhesive and wrapped with glass mesh tape. Each fitting shall be finished with two coats of vapor seal mastic adhesive.

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
ASBESTOS MAINTENANCE OF RECORDS

PART 1 - GENERAL

1.01 DESCRIPTION

A. The Contractor shall maintain the records required in Title 29 CFR 1926.1101 (n) and Part 56 of Title 12 of the Official Compilation of Codes, Rules and Regulations of the State of New York.

B. The Contractor shall provide the Owner and Engineer with one electronic and one bound copy of all records.

C. Related Requirements Specified Elsewhere
   1. Submittals: Section 02 8073

END OF SECTION
ASBESTOS ABATEMENT PROCEDURES

PART 1 - GENERAL

1.01 DESCRIPTION

A. Related Work Specified Elsewhere
   1. Waste Disposal Procedures: Section 02 80 86
B. Procedures described in this specification are to be utilized at all times.
C. If specified procedures cannot be utilized, a request must be made in writing to the Owner and Engineer, providing details of the problem encountered and recommended alternatives.
D. Alternative procedures shall provide equivalent or greater protection than procedures that they replace.
E. Any alternative procedure must be approved in writing by the Engineer prior to implementation.
F. Workers must wear Photo ID Badges while on the school site, but not in the containment. Any person without the ID badge will be removed from the site.
G. Workers will only be allowed to use designated stairwells to access the building.
H. The noise generated by abatement activities will not exceed 60 dba in occupied areas.
I. No work will occur while the building is occupied.
J. All dirt and debris outside the contained work area will be completely cleaned up at the end of each shift.

1.02 QUALITY CONTROL

A. Air Quality Control
   1. If any air sample taken outside of the work area exceeds the base line established, immediately and automatically stop all work. If this air sample was taken inside the building and outside of critical barriers as set forth in Section 02 80 82, Waste Pass Out Procedures, to isolate the affected area from the balance of the building, erect critical barriers at the next existing structural isolation of the involved space (e.g., wall, ceiling, floor).

PART 2 - PRODUCTS

2.01 ENCAPSULATION MATERIALS

A. Type: Lockdown
   1. Encapsulants should not be solvent-based or utilize a vehicle (the liquid in which the solid parts of the encapsulant are suspended) consisting of hydrocarbons.
   2. Encapsulants shall not be flammable.
   3. Removal Encapsulant: Provide a penetrating type encapsulant designed specifically for removal of asbestos-containing material. Use a material which results in wetting of the asbestos-containing material and retardation of fiber release during disturbance equal to or greater than that provided by amended water.

PART 3 - EXECUTION

3.01 PRE-COMMENCEMENT CHECK LIST

A. Work shall not start until:
   1. Enclosure systems have been constructed and tested.
   2. Negative pressure ventilation systems are functioning adequately.
   3. All pre-abatement submissions, notifications, postings, and permits have been provided and are satisfactory to the Owner.
   4. All equipment for abatement, clean-up, and disposal is on hand.
   5. All worker certifications are completed.
   6. Contractor receives written permission from Engineer to commence abatement.

3.02 REMOVAL OF BUILDING STRUCTURAL COMPONENTS

A. After isolation of work area, as described in previous sections, and initiation of negative pressure ventilation, remove ceiling (tiles) (panels) within the work area carefully.
1. Objects such as light fixtures, electrical track, alarm systems, ventilation equipment, and other items not previously sealed and scheduled to be saved, shall be removed and HEPA vacuumed.
2. Wrap (tiles) (panels) to be discarded in two (2) layers of 6 mil polyethylene sheeting and stage for disposal in the waste decontamination chamber.

B. The suspended ceiling T-grid components must then be removed and disposed of in 6 mil polyethylene or in barrels lined with 6 mil polyethylene.

C. When removal of ceiling grid suspension system is not necessary for accessibility to the asbestos containing materials, leave the system in place and clean properly following completion of abatement.

D. Remove plaster/drywall ceilings including lathe, furring channel system, wire mesh, ties, clips, screws, nails, and other accessory items as necessary and dispose of as asbestos contaminated waste material. Plaster ceiling may actually contain asbestos and should be tested. As work progresses, spray ceiling materials and debris with amended water to keep wet until containerized for disposal.

3.03 REMOVAL PROCEDURES

A. Wet all asbestos containing material with an amended water solution or a removal encapsulant in order to reduce airborne fiber concentrations when the material is disturbed.
   1. Saturate the material to the substrate; however, do not allow excessive water to accumulate in the work area.
   2. Keep all removed material wet enough to prevent fiber release until it can be containerized for disposal.
   3. Maintain a high humidity in the work area by misting or spraying to assist in fiber settling and reduce airborne concentrations.
   4. Wetting procedures are not equally effective on all types of asbestos-containing materials but shall, nonetheless, be used in all cases.

B. Workers shall begin working on the areas nearest to the decontamination unit and work towards the negative air filtration units.

C. Saturated asbestos-containing material shall be removed in manageable sections.
   1. Removed material should be packed and sealed into 6 mil, labeled, plastic bags before moving to a new location for continuance of work. The bags should then be placed in nonmetallic drums.
   2. Surrounding areas shall be periodically sprayed and maintained in a wet condition until visible material is cleaned up.
   3. Water soaked fallen material shall be picked up while wet to prevent water loss to evaporation.

D. Material removed from building structures or components shall not be dropped or thrown to the floor.
   1. Material should be removed as intact sections or components, whenever possible, and carefully lowered to the floor.
   2. If this cannot be done for materials greater than 10 feet above the floor, a dust-tight, enclosed chute shall be constructed to transport the material directly to containers on the floor, or the material may be containerized at elevated levels (e.g., on scaffolds) and carefully lowered to the ground by mechanical means.

E. Containers (6 mil polyethylene bags or drums) shall be sealed when full.
   1. Bags shall not be overfilled.
   2. They should be securely sealed to prevent accidental opening and leakage by tying tops of bags in an overhand knot or by taping in gooseneck fashion.
   3. Do not seal bags with wire or cord.
   4. The outside of all containers shall be wet-cleaned or HEPA vacuumed before leaving the work area.

F. Large components removed intact may be wrapped in 2 layers of 6 mil polyethylene sheeting secured with tape for transport to the landfill.

G. Asbestos containing waste with sharp-edged components (e.g., nails, screws, metal lath, tin sheeting) shall be cut to size while adequately wet, placed in cardboard boxes, double bagged or single bagged, and placed in temporary fiber drums.
H. After completion of all stripping work, surfaces from which asbestos containing materials have been removed shall be wet brushed and sponged or cleaned by some equivalent method to remove all visible residue.

I. The Contractor shall remove all junction box covers in the work area and check the interiors for contamination.

J. Cleanup shall proceed in accordance with Paragraph 3.08 of this Section.

3.04 GLOVE BAG REMOVAL

A. The removal of asbestos by use of the glove bag shall be limited to the removal of asbestos containing insulation from pipe fittings, elbows, and pipe.

B. The preparation of the work area for glove bag removal shall include the following:
   1. A minimum of two persons are required to perform a glove bag removal project. A third person may be required to conduct air monitoring and assist with supplies.
   2. The work area where the technique is to be utilized shall be roped off and warning signs posted on the perimeter to prevent unauthorized personnel from entering the work area.
   3. A personnel decontamination enclosure system and waste pass-out enclosure system, which may be remote, must be constructed prior to any preparation work.
   4. A local isolation enclosure system, as specified in Section 028077, is to be constructed which encloses all pipe and fitting insulation to be removed.
   5. Workers shall double suit before entering the area, remove one suit upon exiting, and proceed to the remote decontamination system for decontamination.
   6. All necessary materials and supplies shall be brought into the work area before any removal begins.

C. Never perform glove bag removal on pipes over 150 degrees F.

D. Removal procedures shall be conducted as follows:
   1. A visual inspection of the pipe where the work will be performed shall be made to determine if any damaged pipe covering (broken lagging, hanging, etc.) exists. If there is, the pipe shall be wrapped in polyethylene plastic and fully secured with duct tape. This procedure should prevent high airborne fiber concentrations from occurring during the glove bag work caused by pipe lagging, hanging several feet or even several yards away which may be jarred loose by the activity. Debris on the floor and other surfaces which has accumulated and contains asbestos must be cleaned up as necessary. If the pipe is undamaged, one layer of duct tape shall be placed around the pipe at each end of where the glove bag will be attached. This permits a good surface to which to seal the ends of the glove bag, and it minimizes the chance of releasing fibers when the tape at the ends of the glove bag is peeled off at the completion of this piece of work.
   2. Slit the top of the glove bag open (if necessary) and cut down the sides to accommodate the size of the pipe (about two inches longer than the pipe diameter).
   3. Place the appropriate tools into the pouch located inside the glove bag. This will usually include the bone saw, utility knife, rags, scrub brush, wire cutters, tin snips, and pre-cut wettable cloth. Cut out a donut shape in the cloth with the inner diameter 1/2 inch smaller than the diameter of the pipe beneath the insulation. The outer diameter of the donut should be 3 inches longer than the diameter of the pipe insulation being removed. Finally, cut a slit in each of the two donuts so they can be slipped around the pipe.
   4. One strip of duct tape shall be placed along the edge of the open top slit of the glove bag for reinforcement.
   5. Place the glove bag around the section of pipe to be worked on and staple the top together through the reinforcing duct tape. Staple at intervals of approximately one inch. Next, fold the stapled top flap back and tape it down with a strip of duct tape. This should provide an adequate seal along the top. (This procedure not needed if glove bags with zippers are used.) Next, duct tape the ends of the glove bag to the pipe itself, previously covered with plastic or duct tape (see step 1 above).
   6. Using the smoke tube and aspirator bulb, place the tube into the water sleeve (2 inch opening to glove bag). By squeezing the bulb, fill the bag with visible smoke. Remove the smoke tube and twist the water sleeve closed. While holding the water sleeve tightly, gently squeeze the glove bag
and look for smoke leaking out, especially at the top and ends of the glove bag. If leaks are found, they shall be taped closed using duct tape and the bag shall be re-tested.

7. Insert the wand from the water sprayer through the water sleeve. Using duct tape, tape the water sleeve tightly around the wand to prevent leakage.

8. One person places their hands into the long-sleeved gloves while the second person directs the water spray at the work.

9. If the section of pipe is covered with an aluminum jacket, this is removed first, using the wire cutters to cut any bands and the tin snips to remove the aluminum. It is important to fold the sharp edges in to prevent cutting the bag when it is placed in the bottom. A box may be put in the bottom of the bag when the tools are placed in, and the metal placed in the box to further protect the bag from being cut.

10. With the insulation exposed, using the bone saw, cut the insulation at each end of the section to be removed. A bone saw is a serrated heavy-gauge wire with ring-type handles at each end. Throughout this process, water is sprayed on the cutting area to keep dust to a minimum.

11. Once the ends are cut, the section of insulation should be slit from end to end using the utility knife. The cut should be made along the bottom of the pipe and water continuously supplied. Again, care should be taken when using the knife not to puncture the bag. Some insulation may have wire to be clipped as well. Again, a box may be used here as in step 9 above to protect the bag from puncture.

12. Rinse all tools with water inside the bag and place back into pouch.

13. The insulation can now be lifted off the pipe and gently placed in the bottom of the bag, while the side of the insulation adjacent to the pipe is being thoroughly wetted.

14. Using the scrub brush, rags, and water, scrub and wipe down the exposed pipe.

15. Wet the donut-shaped pieces of wettable cloth over the exposed ends of the insulation remaining on the pipe.

16. Remove the water wand from the water sleeve, insert the encapsulant wand and encapsulate the entire area from which the insulation was removed.

17. Remove the encapsulant wand from the water sleeve and attach the small nozzle from the HEPA-filtered vacuum. Turn on the vacuum only briefly to collapse the bag.

18. Remove the vacuum nozzle, twist the water sleeve closed, and seal with duct tape.

19. From outside the bag, pull the tool pouch away from the bag. Place duct tape over the twisted portion and cut the tool bag from the glove bag, cutting through the twisted/taped section. In this manner, the contaminated tools may be placed directly into the next glove bag without cleaning. Alternatively, the tool pouch with the tools can be placed in a bucket of water, opened underwater, and the tools cleaned and dried without releasing asbestos into the air. Rags and the scrub brush cannot be cleaned in this manner and should be discarded with the asbestos waste. If more than one adjacent section of pipe is to be removed, the glove bag may be loosened at each end and slid along the pipe to the next section. In this case, the tools would remain in the bag for continued use.

20. With removed insulation in the bottom of the bag, twist the bag several times and tape it to keep the material in the bottom during removal of the glove bag from the pipe.

21. Slip a 6 mil disposal bag over the glove bag (still attached to the pipe). Remove the tape and open the top of the glove bag and fold it down into the disposal bag.

22. All surfaces in the work area will be cleaned using disposable cloths wetted with amended water. These cloths shall be disposed of or rinsed thoroughly to eliminate visible accumulation of debris.

23. Place any contaminated articles, debris, etc., into the bag with the waste.

24. Twist the top of the bag closed, fold this over, and seal with duct tape. Place this bag into a second 6 mil disposable bag, and seal as in the above manner. Label the bag with a warning label.

25. Asbestos-containing material shall be disposed of as specified by NYSDEC.

26. Air sampling shall be conducted after completion of glove bag projects to determine if undetected leakage occurred. Once the area has been found to be safe for re-entry by unprotected personnel, the barriers may be removed.

### 3.05 TRANSPORTING WASTE TO WASTE TRAILERS

A. No non-asbestos waste may be thrown out of windows or off the roof of the building. Enclosed dust tight chutes must be utilized for waste transport.
B. No waste may be moved through hallways of occupied spaces of the building when the building is occupied.

3.06 CLEAN-UP PROCEDURE

A. Remove and containerize all visible accumulations of asbestos-containing material and asbestos-contaminated debris utilizing rubber dust pans and rubber squeegees to move material around. Do not use metal shovels to pick up or move accumulated waste. Special care shall be taken to minimize damage to floor sheeting.
   1. Some HEPA vacuums might not be wet-dry vacuums. To pick up excess water and gross wet debris, a wet-dry shop vacuum may be used. This will be contaminated and require cleaning prior to removal from the work area.

B. Wet clean all surfaces in the work area using rags, mops, and sponges as appropriate on a daily basis.

C. Decontamination enclosures shall be HEPA vacuumed and/or wet cleaned at the end of each shift.

D. Remove all containerized waste from the work area and waste pass-out airlock.

E. Decontaminate all tools and equipment and remove at the appropriate time in the cleaning sequence.

F. A first cleaning: All surfaces in the work area shall be first wet cleaned using rags, mops, and sponges. To pick up excess liquid and wet debris, a wet-purpose shop vacuum may be needed.

G. After each cleaning, inspect the work area for visible residue in accordance with the ASTM Standard Guide for Visual Inspection of Asbestos Abatement Projects dated February 12, 1987. If any accumulation of residue is observed, it will be assumed to be asbestos.

H. After the work area has been rendered free of visible residues, one (1) coat of a satisfactory lockdown encapsulating agent shall be applied, as approved by EPA, to all surfaces in the work area not subject to removal or other remediation activities. The encapsulating agent shall also be applied to the plastic sheeting. In no event shall encapsulant be applied to any surface which was the subject of removal other remediation activities prior to satisfactory clearance air monitoring results.
   1. High temperature components such as boilers and pipes may not permit the application of some encapsulants.

I. The plastic sheeting used to protect floors, walls, fixtures, and equipment shall be carefully removed and rolled up with the contaminated portion on the inside, and packaged for disposal. Tape and any other debris shall also be disposed of in sealed plastic bags. Critical barriers shall be left in place.

J. Second and third cleanings: Wet-clean with amended water all walls, floors, woodwork, ceilings, electric light fixtures, and other surfaces. Allow all surfaces to dry 12 hours and repeat procedure.

K. The work area shall be cleaned until it is in compliance with federal, state, and local requirements and as specified and indicated herein. Additional cleaning cycles and air monitoring shall be provided, as necessary, at no cost to the Owner until these criteria have been met.

L. Following the satisfactory completion of clearance air monitoring as specified in Section 028074, and after obtaining written permission of the Owner, remaining barriers may be removed and properly disposed of. A final visual inspection by the Owner shall ensure that no contamination remains in the work area. Unsatisfactory conditions may require additional cleaning and air monitoring.

END OF SECTION
ASBESTOS WASTE DISPOSAL PROCEDURES

PART 1 - GENERAL

1.01 DESCRIPTION

A. As the work progresses, to prevent exceeding available storage capacity on site, sealed and labeled containers of asbestos-containing waste shall be removed and transported to the pre-arranged disposal location.

B. All containers of asbestos-containing waste shall be labeled with the name of the waste generator and the location at which the waste was generated.

C. Disposal of all regulated asbestos-containing material must occur at an authorized site in accordance with regulatory requirements of NESHAP 40 CFR 61.156, NYSDEC 6NYCRR364, and local guidelines and regulations.

D. All dump receipts; trip tickets, transportation manifests, or other documentation of disposal shall be delivered to the Owner for his records.
   1. A record keeping format utilizing a chain of custody form which includes the names and addresses of the Generator (Owner), Contractor, pickup site, disposal site, the estimated quantity of the asbestos waste, and the type of containers used.
   2. The form should be signed by the Generator, the Contractor, the truck drivers, and the disposal site operator, as the responsibility for the material changes hands.
   3. If a separate hauler is employed, his name, address, telephone number, and signature should also appear on the form.

PART 2 - PRODUCTS - NOT APPLICABLE

PART 3 - EXECUTION

3.01 TRANSPORTATION TO THE LANDFILL - (REGULATED ASBESTOS CONTAINING MATERIAL)

A. Once drums, bags, and wrapped components have been removed from the work area, they shall be loaded into an enclosed, hardbody, lockable truck for transportation.

B. When moving containers, utilize hand trucks, carts, and proper lifting techniques to avoid back injuries. Trucks with lift gates are helpful for raising drums during truck loading.

C. The enclosed cargo area of the truck shall be free of debris and lined with 2 layers of 6 mil polyethylene sheeting to prevent contamination from leaking or spilled containers. Floor sheeting shall be installed first and extend up the sidewalls. Ceiling and wall sheeting shall be overlapped and taped into place.

D. Drums shall be placed on level surfaces in the cargo area and packed tightly together to prevent shifting and tipping. Large structural components shall be secured to prevent shifting and have bags placed on top. Do not throw containers into truck cargo area.

E. Personnel loading asbestos-containing waste shall be protected by disposable clothing including head, body, and foot protection, and at a minimum, half-face piece, air-purifying, dual cartridge respirators equipped with high efficiency filters.

F. Any debris or residue observed on containers or surfaces outside of the work area resulting from clean-up or disposal activities shall be immediately cleaned up using HEPA filtered vacuum equipment and/or wet methods as appropriate.

G. Large metal dumpsters are sometimes used for asbestos waste disposal. These should have doors or tops that can be closed and locked to prevent vandalism or other disturbance of the bagged asbestos debris and wind dispersion of asbestos fibers. Unbagged material shall not be placed in these containers, nor shall they be used for non-asbestos waste. Bags shall be placed, not thrown, into these containers to avoid splitting.

H. The waste hauler shall provide a copy of his "Industrial Waste Hauler Permit" specifically for asbestos-containing material required pursuant to NYSDEC regulation 6 NYCRR364.
3.02 DISPOSAL AT THE LANDFILL - (REGULATED ASBESTOS CONTAINING MATERIA)

A. Upon reaching the landfill, trucks are to approach the dump location as closely as possible for unloading of the asbestos-containing waste.

B. Bags, drums, and components shall be inspected as they are off-loaded at the disposal site. Material in damaged containers shall be repacked in empty drums or bags as necessary. (Local requirements may not allow the disposal of asbestos waste in drums. Check with appropriate agency and institute appropriate alternative procedures.)

C. Waste containers shall be placed on the ground at the disposal site, not pushed or thrown out of trucks (weight of wet material could rupture containers).

D. Personnel off-loading containers at the disposal site shall wear protective equipment consisting of disposable head, body, and foot protection and, at a minimum, half-face piece, air-purifying, dual cartridge respirators equipped with high efficiency filters.

E. Following the removal of all containerized waste, the truck cargo area shall be decontaminated using HEPA vacuums and/or wet methods to meet the no-visible residue criteria. Polyethylene sheeting shall be removed and discarded along with contaminated cleaning materials and protective clothing, in bags or drums at the disposal site.

F. If landfill personnel have not been provided with personal protective equipment for the compaction operation by the land-fill operator, Contractor shall supply protective clothing and respiratory protection for the duration of this operation.

END OF SECTION
ASBESTOS RESTORING THE WORK AREA

PART 1 - GENERAL

1.01 DESCRIPTION

A. Related Requirements Specified Elsewhere
   1. Cleaning Up: Section 02 80 90

B. Restoring of the work area to pre-abatement condition shall only occur following the completion of clean-up procedures and after clearance air monitoring has been performed and documented to the satisfaction of the Owner.

PART 2 - PRODUCTS - NOT APPLICABLE

PART 3 - EXECUTION

3.01 REESTABLISHMENT PROCEDURES

A. The Contractor and Owner shall visually inspect the work area for any remaining visible residue. Evidence of contamination will necessitate additional cleaning.

B. Additional air monitoring shall be performed if additional clean-up is necessary.

C. Following satisfactory clearance of the work area, remaining polyethylene barriers may be removed and disposed of as asbestos-contaminated waste.

D. At the discretion of the Owner, mandatory requirements for personal protective equipment may be waived following the removal of all barriers.

E. Re-secure mounted objects removed from their former positions during area preparation activities.

F. Relocate objects that were removed to temporary locations back to their original positions.

G. Repair areas of damage that occurred as a result of abatement activities and as indicated.

END OF SECTION
ASBESTOS ABATEMENT CLEANING UP

PART L - GENERAL

1.01 DESCRIPTION

A. Related Requirements Specified Elsewhere
   1. Restoring the Work Area and Systems: Section 02 80 87
   2. Cleaning for Specific Products or Work: The respective sections of the specifications.

B. Maintain premises and public properties free from accumulations of waste, debris, and rubbish caused by operations.

C. At completion of Work, remove waste materials, rubbish, tools, equipment, machinery, and surplus materials, and clean all sight-exposed surfaces; leave project clean and ready for occupancy.

1.02 SAFETY REQUIREMENTS

A. Standards: Maintain project in accordance with safety and insurance standards and the specifications contained herein.

B. Hazards Control
   1. Remove asbestos waste from premises daily.
   2. Prevent accumulation of wastes which create hazardous conditions.
   3. Provide adequate ventilation.

C. Conduct cleaning and disposal operations to comply with federal, state, and local ordinances.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Use only cleaning materials recommended by manufacturer of surface to be cleaned.

B. Use cleaning materials only on surfaces recommended by cleaning material manufacturer.

PART 3 - EXECUTION

3.01 DURING CONSTRUCTION

A. Clean the Worker Decontamination Unit at least once each shift.

B. Clean the area near the Waste Decontamination Unit and the Worker Decontamination Unit at least once each shift.

3.02 FINAL CLEANING

A. Employ experienced workmen or professional cleaners for final cleaning.

B. In preparation for substantial completion or occupancy, conduct final inspection of sight-exposed interior and exterior surfaces, and of concealed spaces.

C. Remove grease, dust, dirt, stains, labels, fingerprints, and other foreign materials from sight-exposed interior and exterior finished surfaces; polish surfaces so designated to shine finish.

D. Repair, patch, and touch up marred surfaces to specified finish, to match adjacent surfaces.

E. Broom clean paved surfaces; rake clean other surfaces of grounds.

F. Maintain cleaning until project, or portion thereof, is occupied by Owner.

END OF SECTION
LEAD HAZARD CONTROL

PART 1 - GENERAL

1.01 DESCRIPTION

A. This section describes the procedures and requirements to be followed by all Contractors for controlling the potential release of hazardous lead containing dust, fumes and particulates from construction activities. Lead is a toxic metal and causes adverse health effects with exposures. Lead dust released during construction is a potential hazard to workers and building occupants. The proposed renovation work may involve the disturbance of lead-based paint building components. Some interior and exterior painted building components have been identified to contain lead or lead-based paint. During the renovations, it is the responsibility of all Contractors to review the Lead-Based Paint Survey Report and determine if their work will disturb lead-based paint containing building components. Perform all work in accordance with the Lead Hazard Control Plan.

B. All contractors are to comply with these Lead Hazard Control requirements and all U.S. Department of Housing and Urban Development (HUD) Guidelines for the Evaluation and Control of Lead-Based Paint in Housing, and Occupational Safety and Health Administration requirements (OSHA) 29 CFR 1926.62.

C. Any required abatement must be done by workers trained under the OSHA and HUD regulations, as appropriate. (This section does not include lead abatement, as defined by USEPA).

D. All contractors are to comply with U.S. EPA 40CFR 745.80; Lead-Renovation, Repair, and Painting Program (Lead Renovator Rule). These regulations require contractors performing renovations, repair and painting projects that disturb lead-based paint in child-occupied facilities, built before 1978, shall be certified and follow specific work practices to prevent lead contamination. The contractor must to be certified by EPA (Firm Certification) as a certified renovator and the work must be directed by a trained and certified contractor (individual certification). In school buildings, these rules apply to buildings or portions of buildings built before 1978 that house Pre-K, Kindergarten or 1st Grade, including those common areas routinely used by children under 6 such as corridors, toilet rooms, gyms and cafeterias. Minor repair and maintenance work that will disturb less than 6 sq ft per room interior, or 20 sq ft exterior, excluding window replacement is exempt.

1.02 CATEGORIES OF LEAD HAZARD CONTROL WORK

A. In accordance with the HUD Guidelines, each project task that will disturb lead painted surfaces or lead containing building components during construction work can be classified as either a Low Risk or High Risk activity (refer to Table -1 in Section 2.0). Based on the category, protective measures, procedures for work area prep, removal, cleanup clearance and training are specified (see Table-2 in Section 2.0). Details of methods for low risk and high risk jobs, including worksite containment, Personal Protective Equipment (P.P.E.), Hygiene, Cleaning Clearance and Waste disposal are provided in Part 2 of this specification.

1.03 WORKER TRAINING AND O.S.H.A. EXPOSURE MONITORING

A. The Contractor must provide training and protect and monitor employees for lead exposure, as required by the Occupational Safety and Health Administration (OSHA) 29 CFR 1926.62, and U.S. EPA 40CFR 745.80

1.04 REGULATORY REQUIREMENTS

A. All work shall be done in strict accordance with all applicable federal, state, and local regulations, standards, and codes governing the work. The most recent edition of any relevant regulation, standard, document, or code shall be applicable to the Work. Where conflict among the requirements or with these specifications exists, the most stringent requirements are applicable.
PART 2 - EXECUTION

2.01 SUMMARY OF PROTECTIVE MEASURES FOR LOW- AND HIGH-RISK PROJECT TASKS

A. To determine the extent of protective measures needed, the task should be classified as low- or high-risk according to the HUD regulations. Table 2.1 provides general guidance on classifying jobs based on how much dust each is likely to generate. The classification should be made on a case-by-case basis, since the surface area treated and the existing condition of the paint will be different for each job.

B. The classification of the work in each area is indicated. Table 2.2 summarizes protective measures for each classification of tasks.

2.02 WORK AREA PREPARATION, WORK METHODS, CLEANUP, CLEARANCE AND WASTE DISPOSAL

A. Low-Risk Jobs

1. For low-risk jobs, limited preparations, worksite containment consists of limited preparation. Occupants are not permitted in the work area until the supervisor has visually inspected the cleanup. However, occupants may be present in adjoining rooms. The work area will be prepared as described below:

   a. Low Risk Preparation, Work Methods and Cleanup
      1) Preparation
         (a) Place 1-layer 6 mil., fire retardant plastic sheeting on floor extending a minimum of (5) five feet from work area and secure plastic.
         (b) If the ceiling is being disturbed, the entire floor and all furnishings will be covered with plastic.
      2) Work Methods
         (a) Use wet work methods or HEPA equipped tools to keep dust minimized and controlled.
      3) Work Area Cleanup & Clearance
         (a) Clean Work Area by vacuuming with a HEPA filtered vacuum.
         (b) Wet wipe plastic sheeting with an approved lead cleaning solution (Simple Green).
         (c) Remove plastic sheeting and dispose of with lead waste.
         (d) HEPA vacuum floor below plastic.
         (e) Wet wipe floor with approved lead cleaning solution (Simple Green).
         (f) Visual Clearance by supervisor and Owner representative – no visual dust present.
      4) Hygiene Facilities
         (a) The contractor must provide and ensure that workers use washing facilities.
         (b) Washing facilities shall be provided for workers. Such facilities shall be in near proximity to the work site and provided with water, soap, and clean towels to enable employees to remove lead contamination from their skin.
         (c) Changing facilities shall be provided that provide workers a place to change from street clothing into work clothing and provide a place for storage of work clothes separate from street clothes.

B. High-Risk Jobs (Demolition and Reconstruction Work)

1. For those jobs that are high risk more involved worksite containment procedure is required. Typically, the whole floor will be covered with plastic sheeting. Furniture, items, and other belongings will be either moved out of the room or covered with plastic sheeting.

2. High Risk Preparation and Cleanup (Demolition and Reconstruction Work)
   a. Preparation
      1) Work area is to be a dust tight enclosure to facilitate work.
      2) Clean Work Area by vacuuming with a HEPA filtered vacuum.
      3) Wet Wipe with an approved lead cleaning solution.
      4) Place 6 mil., fire retardant plastic sheeting on floor and secure plastic.
      5) Place plastic sheeting on all openings and wall penetrations to isolate area.
      6) Place plastic sheeting on all furnishings to remain in work area.
7) Install flaps on all work area entrances.
8) Post Warning Signs
9) Install a HEPA filtered negative air machine to control dust in work area and place work area under negative pressure.

b. Work Methods
1) Use wet work methods or HEPA equipped tools to keep dust minimized and controlled.

c. Work Area Cleanup and Clearance
1) Clean Work Area by vacuuming plastic sheeting with a High Efficiency Particulate Air (HEPA) filtered vacuum.
2) Wet wipe plastic sheeting with an approved lead cleaning solution.
3) Remove plastic sheeting and dispose of with lead waste.
4) HEPA vacuum floor below plastic.
5) Wet wipe floor with approved lead cleaning solution.
6) Visual Inspection by Supervisor and dust sampling by Owner.

d. Hygiene Facilities
1) The Contractor will ensure that workers use washing facilities.
2) Washing facilities shall be provided for employees. Such facilities shall be in near proximity to the work site and provided with water, soap, and clean towels to enable employees to remove lead contamination from their skin.
3) Washing facilities must include a Changing Area equipped with storage for street clothes and a separate area with facilities for removal and storage of lead-contaminated protective work clothing and equipment. No lead contaminated items should enter the clean area.
4) Work clothing must not be worn away from the job site.
5) Showers shall be provided when there is potential for extensive contamination of employee’s skin, hair and protective clothing. Shower facilities must be provided so that exposed employees can wash lead from their skin and hair prior to leaving the work site.

C. High Risk Jobs (Steel Welding, Torching and Cutting Work)
1. Applies to projects where lead paint or primer will not be removed prior to welding, cutting or torching. This work method is prohibited in Target Housing and child occupied facilities per U.S. EPA 40CFR 745.80.
   a. Preparation
      1) Install flaps on all work area entrances to isolate area. Do not use plastic below area of welding, torching or cutting that may be exposed to sparks or hot metal and possibly create a fire hazard.
      2) Install a HEPA filtered negative air machine exhausted to exterior to control dust and fumes in work area and place work area under negative pressure.
   b. Work Methods
      1) Use wet work methods or specialized high efficiency equipped tools to keep dust minimized and controlled.
   c. Work Area Cleanup
      1) Clean Work Area by vacuuming plastic surfaces with a HEPA filtered vacuum.
      2) Wet wipe surfaces with an approved lead cleaning solution (Simple Green)
      3) Remove plastic sheeting and dispose of with lead waste.
      4) Visual Inspection by Supervisor and dust sampling by Owner.
   d. Hygiene Facilities
      1) The Contractor will ensure that workers use washing facilities.
2) Washing facilities shall be provided for employees. Such facilities shall be in near proximity to the work site and provided with water, soap, and clean towels to enable employees to remove lead contamination from their skin.

3) Washing facilities must include a Changing Area equipped with storage for street clothes and a separate area with facilities for removal and storage of lead-contaminated protective work clothing and equipment. No lead contaminated items should enter the clean area.

4) Work clothing must not be worn away from the job site.

5) Showers shall be provided when there is potential for extensive contamination of employee’s skin, hair and protective clothing. Shower facilities must be provided so that exposed employees can wash lead from their skin and hair prior to leaving the work site.

2.03 PERSONAL PROTECTIVE EQUIPMENT (P.P.E.)

A. 1. All requirements for P.P.E. are minimum recommended requirements. Determination of actual requirements is the Contractor's responsibility under the O.S.H.Ac regulation.

1. Respirators
   a. Respiratory protection shall comply with the OSHA regulation.

2. Protective Clothing
   a. Low-Risk Jobs - Protective clothing is required for low-risk jobs.
   b. High-Risk Jobs - Protective clothing and protective footwear are required for all high-risk jobs. Materials to be used shall be suitable for skin protection from lead dust hazard and other hazards present on site.

<table>
<thead>
<tr>
<th>JOB DESCRIPTION</th>
<th>LOW RISK</th>
<th>HIGH RISK</th>
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<tbody>
<tr>
<td>Repainting (Includes Surface Preparation)</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Plastering or Wall Repair</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Window Repair</td>
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<td>Window Pane or Glass Replacement</td>
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<tr>
<td>Water or Moisture Repair (Repainting and Plumbing)</td>
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<tr>
<td>Door Repair</td>
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<tr>
<td>Building Component Replacement</td>
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<td>Welding on Painted Surfaces</td>
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<td>Door Lock Repair or Replacement</td>
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<td>Electrical Fixture Repair</td>
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<tr>
<td>Floor Refinishing</td>
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</tr>
<tr>
<td>Carpet Replacement</td>
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</table>
NOTE: HIGH-RISK JOBS TYPICALLY DISTURB MORE THAN 2- SQUARE FEET PER ROOM. IF THESE JOBS DISTURB LESS THAN 2 SQUARE FEET PER ROOM, THEN THEY CAN BE CONSIDERED LOW-RISK JOBS.

1. THIS WORK, BURNING, TORCHING OR WELDING, IS PROHIBITED IN TARGET HOUSING OR CHILD OCCUPIED FACILITIES BUILT PRE-1978 PER U.S. EPA 40CFR 745.80

### TABLE-2.2 SUMMARY OF PROTECTIVE MEASURES FOR LOW- AND HIGH RISK JOBS

<table>
<thead>
<tr>
<th>PROTECTIVE MEASURE</th>
<th>LOW RISK</th>
<th>HIGH RISK</th>
</tr>
</thead>
<tbody>
<tr>
<td>WORKSITE PREPARATION WITH PLASTIC SHEETING (6 MIL THICK)</td>
<td>PLASTIC SHEET NO LESS THAN 5 FEET BY 5 FEET IMMEDIATELY UNDERNEATH WORK AREA</td>
<td>WHOLE FLOOR, PLUS SIMPLE AIRLOCK AT DOOR OR TAPE DOOR SHUT</td>
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<td>OCCUPANT RELOCATION DURING WORK</td>
<td>REQUIRED</td>
<td>REQUIRED</td>
</tr>
<tr>
<td>PERSONAL HYGIENE (ENFORCED HAND WASHING AFTER JOB)</td>
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<td>REQUIRED</td>
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<td>REQUIRED</td>
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<td>WORK PRACTICES</td>
<td>USE WET METHODS, EXCEPT NEAR ELECTRICAL CIRCUITS</td>
<td>USE WET METHODS, EXCEPT NEAR ELECTRICAL CIRCUITS</td>
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<tr>
<td>CLEANING</td>
<td>WET CLEANING WITH LEAD-SPECIFIC DETERGENT, TRI-SODIUM PHOSPHATE, OR OTHER SUITABLE DETERGENT AROUND THE WORK AREA ONLY (2 LINEAR FEET BEYOND PLASTIC)</td>
<td>HEPA VACUUM/WET WASH/HEPA VACUUM THE ENTIRE WORK AREA</td>
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<tr>
<td>CLEARANCE</td>
<td>VISUAL EXAMINATION ONLY</td>
<td>DUST SAMPLING DURING THE PRELIMINARY PHASE OF THE MAINTENANCE PROGRAM AND PERIODICALLY THEREAFTER (NOT REQUIRED FOR EVERY JOB)</td>
</tr>
</tbody>
</table>

* EMPLOYERS MUST HAVE OBJECTIVE DATA SHOWING THAT WORKER EXPOSURES ARE LESS THAN THE OSHA PERMISSIBLE EXPOSURE LIMIT OF 50µG/M3 IF RESPIRATORS AND PROTECTIVE CLOTHING WILL NOT BE PROVIDED.

PART 3 – WASTE DISPOSAL

3.01 WASTE HANDLING AND DISPOSAL

A. All lead debris shall be removed from high risk work areas by using a covered cart to prevent dust migration. The lead debris shall be placed in a waste container and labeled with a warning sign on each side “Caution - Lead (Pb) Containing Debris - Health Hazard- Avoid Contact or Inhalation”.

B. All waste containers shall be tested by the contractor to determine if waste is hazardous for lead disposal. This shall be done by collecting a composite sample from the waste and having it analyzed for lead.
toxicity using the EPA Toxicity Characterization Leachate Procedure (TCLP) Test. Results are to be reported in mg/l. All results of waste with levels equal to or greater than 5.0 mg/l of leachable lead is considered a regulated hazardous waste. All sample results should be forwarded to Engineer for approval prior to removal from the Site.

C. All waste displaying a hazardous waste characteristic for lead Toxicity (5.0mg/l of greater, based on TCLP testing) or any other hazardous waste characteristic, Ignitibility, Corrosivity, Reactivity, shall be managed as a regulated hazardous waste.

D. All lead waste that is determined to be a regulated hazardous waste shall be removed, containerized and disposed of as a RCRA Regulated Hazardous Waste. All waste shall be placed in Department of Transportation (DOT) approved waste containers and labeled “Hazardous Waste -TOXIC Lead Containing”. In addition the following information shall be placed on the container: Date container was filled; Generator/Owner name and address; DOT Shipping Name (i.e. Hazardous Waste Solid N.O.S.”); EPA ID number of generator if applicable and manifest number container is listed on. Storage of this waste must be in a secured area and labeled “Hazardous Waste Storage”

PART 4 – SUBMITTALS

4.01 SUBMITTALS

A. Prior to Commencement of Work:
1. Project Supervisor: Submit the resume of the proposed Project Supervisor.
2. Submit copy of Health and Safety program.
3. Submit Material Safety Data Sheets (MSDS) for all chemicals/products to be used.
4. Provide evidence of appropriate training for all workers.
5. Provide evidence of EPA Firm and Worker Certification

6. Provide written Lead Safe Work Plan showing work areas including:
   a. List of work activities and lead components that will be disturbed in work area
   b. Job classifications (high risk low risk)
   c. Location of barriers and signs (if used)
   d. Clearance criteria

B. During Work Activities, Contractor shall:
1. The Contractor will maintain worksite log books with information on the work being completed, number of workers, dates, amounts, quantities, sub-contractors, inspections results and waste shipments.
2. Submit results of bulk material analysis, waste sample classification and OSHA compliance air monitoring results.
3. List of work areas inspected with results of visual clearance and name of supervisor or owners representative providing inspection

C. Project Closeout Submissions:
1. Submit copies of all waste disposal manifests.
2. Submit OSHA compliance air monitoring records conducted during the work.
3. Submit copies waste classification testing.
4. Submit copies of contactors daily logs.
5. DOCUMENTATION OF COMPLIANCE WITH THE REQUIREMENTS OF 745.85 INCLUDING:
   a. documentation that a certified renovator was assigned to the project
   b. that the certified renovator provided on the job training for workers used on the project;
   c. that the certified renovator performed or directed all of the tasks described in 745.85(a);
   d. that the certified renovator performed the post-renovation cleaning verification described in 745.85 (b), or provide copies of clearance testing completed by contractor or owner.

END OF SECTION
LEAD-BASED PAINT SURVEY

SCHOOL 9
53 Fairview Street
Yonkers, NY 10703
(914)376-8325

Project #13001N
YPS #10460

Prepared November 21, 2013

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EPA Certified Lead Inspector NY-I-16214-1

Reviewed By:

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Vice President
EPA Certified Lead Inspector NY-R-7884-3
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1.0 INSPECTION SUMMARY

The following report is a summary of the Lead-Based Paint Survey performed by Eisenbach & Ruhmek Engineering, P.C. (E&R) at the School 9 in Yonkers, New York. The survey was completed from October 10, 2013 to October 11, 2013 using an X-Ray Fluorescence (XRF) lead-based paint analyzer. The inspection was performed by Larry Kinne, EPA Certified Lead Inspector #NY-I-16214-1.

Lead-based painted building components were identified in the building and are summarized in Section 5.0 and in Appendix A.

Testing procedures, Testing Protocol, Inspection Methods, Quality Control, Results, Assumptions, Exclusions and Limitations are provided herein.

2.0 LEAD-BASED PAINT TESTING PROTOCOL

E&R performed a surface-by-surface investigation using the U.S. Department of Housing and Urban Development’s (HUD) Guidelines for the Evaluation and Control Lead-Based Paint Hazards, Revised 1998, Chapter 7, Lead Based Paint Inspection. HUD does not have testing guidelines for schools. E&R’s testing protocol developed for schools consists of using the multifamily housing guidelines with modifications. This modified protocol procedure consists of performing representative testing of each building component in each space, instead of only representative spaces, as defined in HUD Guidelines.

Testing was completed using an X-Ray Fluorescence (XRF) lead paint analyzer, model LPA-1, manufactured by RMD (Serial #3484) and sourced with a 12-millicurie Cobalt 57 on June 27, 2013. The instrument was operated in accordance with manufactures instructions and the US Department of HUD issued Performance Characteristics Sheets (see Appendix-F).

The XRF device reports the amount of lead-based paint in mg/cm² (milligrams per square centimeter) and does not depend on the number of layers of paint on a component. The HUD/EPA standards define lead-based paint at 1.0 mg/cm² or greater. Results less than 1.00 mg/cm² are considered negative and results 1.00 mg/cm² or greater are considered positive.

3.0 INSPECTION METHODS

Areas to be inspected for lead were first visually inspected and rooms or room equivalents (i.e. hallways, foyers, etc.) where grouped together for inspection purposes, based on similarity of construction materials and common painting histories.

A list was then developed for the components that were to be tested for lead-based paint. Components tested included but are not limited to: walls, ceilings, floors, doors, door frames, stairwell components, windows, window frames, heaters, cove base, crown molding and chair rails.

A painted component includes any component coated with paint, shellac, varnish, stain, paint covered by wallpaper, or any other coating. Wallpaper and paneling is assumed to cover paint unless records indicate otherwise. A different visible color does not constitute a separate component.

E&R Project #YPS School 9
Components adjacent to each other and not likely to have different painting histories can be grouped as a single testing combination, with the exception of walls that are tested separately, per room.

Grouped Components include

- Door Jambs, Stops, Casings, and Framing
- Baseboards and associated Trim
- Painted Electrical Sockets, Switches and Plates are grouped with Walls
- Window frames, window sashes and trim

XRF readings were then taken of components in each room and room equivalent. See Appendix D for a listing of all components, rooms and the testing results. A representative picture of any component testing positive for lead (1.00 mg/cm² or greater) was photographed and is included in Appendix C.

For purposes of identification, each room was given a specific Space ID number. These numbers are listed under “Room Number” in the XRF report. The actual name/function of the space is listed under “Room Name” (IE: Space ID 001 is Classroom 214). Please note that Wall A in each space is the address side also noted on the drawings. Succeeding walls are identified in a clockwise manner around the room (Walls A, B, C and D). See drawings in Appendix-B Drawings for designations. An “NA” indicates that the room was not accessible during testing, and “NP” indicates that there were no painted surfaces within that space.

4.0 QUALITY CONTROL

Quality control consisted of checking calibration of the XRF device, as recommended by manufacture and HUD Chapter 7 Guidelines. The calibration was checked at the beginning of the survey, every four hours, and at the end of the survey. The calibration consists of taking three measurements, in time corrected mode, on a Standard Reference Material (SRM). This SRM is a paint film of 1.02 mg/cm2 issued by the National Institute of Standards and Technology (NIST). The readings are then compared to the XRF calibration check limit of 0.7 to 1.1 mg/cm2. If the device is not measuring in this range then it is returned to the manufacture.

5.0 RESULTS

A detailed summary report of all testing that identified lead-based paint is included in Appendix A. Drawings showing locations of the spaces tested are included as Appendix B. A Photo Log showing representative pictures of lead-based painted items is located in Appendix C. The complete testing report which details all XRF shots taken is located in Appendix D.

Following is a summary of positively identified as lead-based painted components, listed by component group or by individual building component: See Appendix A for the detailed summary of lead-based paint, per space ID.
Doors –
- White Wood Door,
- Red Wood Door,
- Gray Metal Door,
- Blue Wood Door,
- Blue Wood Door,
- Tan Wood Door,
- Tan Metal Door,
- Blue Wood Door,
- Blue Metal Door,
- Brown Metal Door,

Windows –
- White Wood Window,
- Blue Plaster Mullion,

Walls –
- Blue & White Brick Wall(Typical),
- White Concrete Block Wall(Typical),
- Yellow Brick Wall,
- Blue Ceramic Wall,
- White Plaster Wall,
- Tan Plaster Wall,
- Blue Plaster Wall,
- White Ceramic Wall,
- Brown Plaster Wall,
- Blue Dry Wall,

Chalkboards –
- Blue Wood Chalkboard(Typical),

Stairs –
- Brown Newel Post,

Locker –
- Brown Metal Locker,

Coat rack –
- Blue Wood,

The following building components were assumed positive for lead due to no access or other reasons and described:

1.) Structural Steel – assumed positive – not accessible
2.) Ceilings – only tested when able to be accessed and are indicated - Physical limitations
3.) Mechanical rooms with no paint were excluded
4.) Exterior mechanical equipment or roofing components – No access

(Note:) Not all building components containing lead are listed in the Summary Report. All building components in the building that are similar should be grouped into the component list and considered lead containing. (i.e., all interior window trim in Space ID 01 was identified as lead containing. Similar windows in this room were not tested but should be grouped with this building component as considered lead containing.)
SCHOOL 9
LEAD-BASED PAINT SURVEY

Prior to any renovations project that may disturb more than 6 square feet of ceilings or structural steel that has been assumed positive, E&R recommends these building components be tested to determine if they are negative.

6.0 ASSUMPTIONS, EXCLUSIONS & LIMITATIONS

Building materials excluded from testing may include built in furniture, metal window frames and casings, unpainted piping, conduit and mechanical equipment. Testing of building materials behind walls or above fixed ceiling not included.

For Renovation purposes as well as OSHA implications, it should be noted the lead present in levels less than 1.00 mg/cm² could generate dust that exceeds acceptable levels depending on the renovation or demolition being performed. For OSHA purposes there are no accepted standards other than “zero” for lead content in surfaces that are affected so as to release lead in the form of dust. XRF readings at the lower end of the range (close to zero) are less likely to create toxic situations. XRF readings with negative prefixes correlate to very low lead levels in that particular surface. For conclusive, task oriented results, contractors should follow all applicable OSHA requirements found in regulation 1926.62.

7.0 DISCLOSURE

A copy of this summary must be provided to new lessees (tenants) and purchasers of this property under Federal law (24 CFR part 35 and 40 CFR part 745) before they become obligated under a lease or sales contract. The complete report must also be provided to new purchasers and it must be made available to new tenants. Landlords (lessors) and sellers are also required to distribute an educational pamphlet approved by the U.S. Environmental Protection Agency and include standard warning language in their leases or sales contracts to ensure that parents have the information they need to protect their children from lead-based paint hazards.
SUMMARY OF POSITIVE TESTS

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- ID-1 – Basement Plan
- ID-2 – First Floor Plan
- ID-3 – Second Floor Plan
- ID-4 – Third Floor Plan
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<table>
<thead>
<tr>
<th>Reading No.</th>
<th>Wall</th>
<th>Structure</th>
<th>Location</th>
<th>Member</th>
<th>Paint Cond</th>
<th>Substrate</th>
<th>Color</th>
<th>Lead (mg/cm²)</th>
<th>Mode</th>
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<td>B</td>
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Calibration Readings

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New York
INSPECTOR

Certified Lead-Based Paint Professional

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If found, drop in any mailbox
Postmaster: Please return to:
US EPA
1200 Pennsylvania Ave, NW
(MC-74040T)
Washington, DC 20460
or call 1-800-424-LEAD
DRAWINGS (Space ID Location Plan)................................................................. APPENDIX B

- ID-1 – Basement Plan
- ID-2 – First Floor Plan
- ID-3 – Second Floor Plan
- ID-4 – Third Floor Plan
Blue Brick Wall (Typical) – Room 0012 – Space ID 8

White Brick – Room 0014 – Space ID 10
Blue Wood Chalkboard Frame – Room 0100 – Space ID 21

Tan Plaster Wall – Room 0107(Main Office) – Space ID 25
Stair Brown Newel Post (Typical) – Hallway 0113 – Space ID 28

White Ceramic Wall – Room 0116 – Space ID 34
Blue, Tan & Brown Plaster – Hallway 0131 – Space ID 37

Blue Coat Rack(Typical) – Room 0136 – Space ID 49
Tan Plaster Wall (Typical) – Auditorium 0301 – Space ID 76

Tan Wood Doors (Typical) & Blue Framing – Auditorium 0301 – Space ID 76
Brown Metal Door & Framing – Stairwell 0304 – Space ID 78
COMPLETE XRF LOG................................................................. APPENDIX D
LEAD PAINT INSPECTION REPORT

REPORT NUMBER: S#03484 - 10/10/13 15:32

INSPECTION FOR: Yonkers Public School
One Larkin Way
Yonkers, NY 10710

PERFORMED AT: Yonkers-PS 9
53 Fairview Street
Yonkers, NY 10703

INSPECTION DATE: 10/10/13

INSTRUMENT TYPE: R M D
MODEL LPA-1
XRF TYPE ANALYZER
Serial Number: 03484

ACTION LEVEL: 1.1 mg/cm²

OPERATOR LICENSE: NY-I-16214-2

SIGNED: ____________________________  Date: ________________
Inspector: Larry Kinne
Eisenbach & Ruhnke Engineering
291 Genesee Street
Utica, NY 13501
### SEQUENTIAL REPORT OF LEAD PAINT INSPECTION FOR: Yonkers Public School

**Inspection Date:** 10/10/13  
**Report Date:** 11/20/2013  
**Abatement Level:** 1.1  
**Report No.:** S#03484 - 10/10/13 15:32  
**Total Readings:** 432  
**Job Started:** 10/10/13 15:32  
**Job Finished:** 10/11/13 16:36

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---- End of Readings ----
New York
INSPECTOR

Certified Lead-Based
Paint Professional

Certification No NY-I-16214-2
Date of Birth 06/02/1968
Expiration Date 11/08/2014

Address
68 Utica Street
Hamilton, NY 13346

Badge Holder's Name
Larry W. Kinne

Badge Holder's Signature

If found, drop in any mailbox
Postmaster: Please return to:
US EPA
1200 Pennsylvania Ave, NW
(MC-74040T)
Washington, DC 20460
or call 1-800-424-LEAD
Performance Characteristic Sheet

EFFECTIVE DATE: December 1, 2006

MANUFACTURER AND MODEL:

Make: Radiation Monitoring Devices
Model: LPA-1
Source: $^{57}\text{Co}$

Note: This sheet supersedes all previous sheets for the XRF instrument of the make, model, and source shown above for instruments sold or serviced after June 26, 1995. For other instruments, see prior editions.

FIELD OPERATION GUIDANCE

OPERATING PARAMETERS:
Quick mode or 30-second equivalent standard (Time Corrected) mode readings.

XRF CALIBRATION CHECK LIMITS:

| 0.7 to 1.3 mg/cm$^2$ (inclusive) |

SUBSTRATE CORRECTION:

For XRF results below 4.0 mg/cm$^2$, substrate correction is recommended for:

- Metal using 30-second equivalent standard (Time Corrected) mode readings.
- None using quick mode readings.

Substrate correction is not needed for:

- Brick, Concrete, Drywall, Plaster, and Wood using 30-second equivalent standard (Time Corrected) mode readings
- Brick, Concrete, Drywall, Metal, Plaster, and Wood using quick mode readings

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<td></td>
<td>Concrete</td>
<td>1.0</td>
</tr>
<tr>
<td></td>
<td>Drywall</td>
<td>1.0</td>
</tr>
<tr>
<td></td>
<td>Metal</td>
<td>0.9</td>
</tr>
<tr>
<td></td>
<td>Plaster</td>
<td>1.0</td>
</tr>
<tr>
<td></td>
<td>Wood</td>
<td>1.0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>QUICK MODE READING DESCRIPTION</th>
<th>SUBSTRATE</th>
<th>THRESHOLD (mg/cm$^2$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Readings not corrected for substrate bias on any substrate</td>
<td>Brick</td>
<td>1.0</td>
</tr>
<tr>
<td></td>
<td>Concrete</td>
<td>1.0</td>
</tr>
<tr>
<td></td>
<td>Drywall</td>
<td>1.0</td>
</tr>
<tr>
<td></td>
<td>Metal</td>
<td>1.0</td>
</tr>
<tr>
<td></td>
<td>Plaster</td>
<td>1.0</td>
</tr>
<tr>
<td></td>
<td>Wood</td>
<td>1.0</td>
</tr>
</tbody>
</table>
Conduct XRF re-testing at the ten testing combinations selected for retesting. Determine if the XRF testing in the units or house passed or failed the test by applying the steps below.

Compute the Retest Tolerance Limit by the following steps:

Determine XRF results for the original and retest XRF readings. Do not correct the original or retest results for substrate bias. In single-family and multi-family housing, a result is defined as a single reading. Therefore, there will be ten original and ten retest XRF results for each house or for the two selected units.

Calculate the average of the original XRF result and retest XRF result for each testing combination.

Square the average for each testing combination.

Add the ten squared averages together. Call this quantity C.

Multiply the number C by 0.0072. Call this quantity D.

Add the number 0.032 to D. Call this quantity E.

Take the square root of E. Call this quantity F.

Multiply F by 1.645. The result is the Retest Tolerance Limit.

Compute the average of all ten original XRF results.

Compute the average of all ten re-test XRF results.

Find the absolute difference of the two averages.

If the difference is less than the Retest Tolerance Limit, the inspection has passed the retest. If the difference of the overall averages equals or exceeds the Retest Tolerance Limit, this procedure should be repeated with ten new testing combinations. If the difference of the overall averages is equal to or greater than the Retest Tolerance Limit a second time, then the inspection should be considered deficient.

Use of this procedure is estimated to produce a spurious result approximately 1% of the time. That is, results of this procedure will call for further examination when no examination is warranted in approximately 1 out of 100 dwelling units tested.

BIAS AND PRECISION:

Do not use these bias and precision data to correct for substrate bias. These bias and precision data were computed without substrate correction from samples with reported laboratory results less than 4.0 mg/cm² lead. The data which were used to determine the bias and precision estimates given in the table below have the following properties. During the July 1995 testing, there were 15 test locations with a laboratory-reported result equal to or greater than 4.0 mg/cm² lead. Of these, one 30-second standard mode reading was less than 1.0 mg/cm² and none of the quick mode readings were less than 1.0 mg/cm². The instrument that tested in July is representative of instruments sold or serviced after June 26, 1995. These data are for illustrative purposes only. Actual bias must be determined on the site. Results provided above already account for bias and precision. Bias and precision ranges are provided to show the variability found between machines of the same model.
BACKGROUND INFORMATION

EVALUATION DATA SOURCE AND DATE:

This sheet is supplemental information to be used in conjunction with Chapter 7 of the HUD Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing ("HUD Guidelines"). Performance parameters shown on this sheet are calculated from the EPA/HUD evaluation using archived building components. Testing was conducted on approximately 150 test locations in July 1995. The instrument that performed testing in September had a new source installed in June 1995 with 12 mCi initial strength.

OPERATING PARAMETERS:

Performance parameters shown in this sheet are applicable only when properly operating the instrument using the manufacturer's instructions and procedures described in Chapter 7 of the HUD Guidelines.

XRF CALIBRATION CHECK:

The calibration of the XRF instrument should be checked using the paint film nearest 1.0 mg/cm² in the NIST Standard Reference Material (SRM) used (e.g., for NIST SRM 2579, use the 1.02 mg/cm² film).

If readings are outside the acceptable calibration check range, follow the manufacturer's instructions to bring the instruments into control before XRF testing proceeds.

SUBSTRATE CORRECTION VALUE COMPUTATION:

Chapter 7 of the HUD Guidelines provides guidance on correcting XRF results for substrate bias. Supplemental guidance for using the paint film nearest 1.0 mg/cm² for substrate correction is provided:

XRF results are corrected for substrate bias by subtracting from each XRF result a correction value determined separately in each house for single-family housing or in each development for multifamily housing, for each substrate. The correction value is an average of XRF readings taken over the NIST SRM paint film nearest to 1.0 mg/cm² at test locations that have been scraped bare of their paint covering. Compute the correction values as follows:

Using the same XRF instrument, take three readings on a bare substrate area covered with the NIST SRM paint film nearest 1 mg/cm². Repeat this procedure by taking three more readings on a second bare substrate area of the same substrate covered with the NIST SRM.

Compute the correction value for each substrate type where XRF readings indicate substrate correction is needed by computing the average of all six readings as shown below.

For each substrate type (the 1.02 mg/cm² NIST SRM is shown in this example; use the actual lead loading of the NIST SRM used for substrate correction):

\[
\text{Correction value} = \frac{(1^{\text{st}} + 2^{\text{nd}} + 3^{\text{rd}} + 4^{\text{th}} + 5^{\text{th}} + 6^{\text{th}} \text{ Reading})}{6} - 1.02 \text{ mg/cm}^2
\]

Repeat this procedure for each substrate requiring substrate correction in the house or housing development.

EVALUATING THE QUALITY OF XRF TESTING:

Randomly select ten testing combinations for retesting from each house or from two randomly selected units in multifamily housing. Use either the Quick Mode or 30-second equivalent standard (Time Corrected) Mode readings.
<table>
<thead>
<tr>
<th>30-SECOND STANDARD MODE READING MEASURED AT</th>
<th>SUBSTRATE</th>
<th>BIAS (mg/cm²)</th>
<th>PRECISION* (mg/cm²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.0 mg/cm²</td>
<td>Brick</td>
<td>0.0</td>
<td>0.1</td>
</tr>
<tr>
<td></td>
<td>Concrete</td>
<td>0.0</td>
<td>0.1</td>
</tr>
<tr>
<td></td>
<td>Drywall</td>
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<td>0.1</td>
</tr>
<tr>
<td></td>
<td>Metal</td>
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<td>0.1</td>
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<tr>
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<td>Plaster</td>
<td>0.1</td>
<td>0.1</td>
</tr>
<tr>
<td></td>
<td>Wood</td>
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<td>0.1</td>
</tr>
<tr>
<td>0.5 mg/cm²</td>
<td>Brick</td>
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<td>0.2</td>
</tr>
<tr>
<td></td>
<td>Concrete</td>
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<td>0.2</td>
</tr>
<tr>
<td></td>
<td>Drywall</td>
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</tr>
<tr>
<td></td>
<td>Metal</td>
<td>0.2</td>
<td>0.2</td>
</tr>
<tr>
<td></td>
<td>Plaster</td>
<td>0.0</td>
<td>0.2</td>
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<tr>
<td></td>
<td>Wood</td>
<td>0.0</td>
<td>0.2</td>
</tr>
<tr>
<td>1.0 mg/cm²</td>
<td>Brick</td>
<td>0.0</td>
<td>0.3</td>
</tr>
<tr>
<td></td>
<td>Concrete</td>
<td>0.0</td>
<td>0.3</td>
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<td></td>
<td>Drywall</td>
<td>0.0</td>
<td>0.3</td>
</tr>
<tr>
<td></td>
<td>Metal</td>
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<td>0.3</td>
</tr>
<tr>
<td></td>
<td>Plaster</td>
<td>0.0</td>
<td>0.3</td>
</tr>
<tr>
<td></td>
<td>Wood</td>
<td>0.0</td>
<td>0.3</td>
</tr>
<tr>
<td>2.0 mg/cm²</td>
<td>Brick</td>
<td>-0.1</td>
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<tr>
<td></td>
<td>Concrete</td>
<td>-0.1</td>
<td>0.4</td>
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<td></td>
<td>Drywall</td>
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<td>Metal</td>
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<tr>
<td></td>
<td>Plaster</td>
<td>-0.1</td>
<td>0.4</td>
</tr>
<tr>
<td></td>
<td>Wood</td>
<td>-0.1</td>
<td>0.4</td>
</tr>
</tbody>
</table>

*Precision at 1 standard deviation.

CLASSIFICATION RESULTS:

XRF results are classified as positive if they are greater than the upper boundary of the inconclusive range, and negative if they are less than the lower boundary of the inconclusive range, or inconclusive if in between. The inconclusive range includes both its upper and lower bounds. Earlier editions of this XRF Performance Characteristic Sheet did not include both bounds of the inconclusive range as "inconclusive." While this edition of the Performance Characteristics Sheet uses a different system, the specific XRF readings that are considered positive, negative, or inconclusive for a given XRF model and substrate remain unchanged, so previous inspection results are not affected.

DOCUMENTATION:

An EPA document titled Methodology for XRF Performance Characteristic Sheets provides an explanation of the statistical methodology used to construct the data in the sheets, and provides empirical results from using the recommended inconclusive ranges or thresholds for specific XRF instruments. For a copy of this document call the National Lead Information Center Clearinghouse at 1-800-424-LEAD. A HUD document titled A Nonparametric Method for Estimating the 5th and 95th Percentile Curves of Variable-Time XRF Readings Based on Monotone Regression provides supplemental information on the methodology for variable-time XRF instruments. A copy of this document can be obtained from the HUD lead web site, www.hud.gov/offices/lead.

This XRF Performance Characteristic Sheet was developed by QuanTech, Inc., under a contract from the U.S. Department of Housing and Urban Development (HUD). HUD has determined that the information provided here is acceptable when used as guidance in conjunction with Chapter 7, Lead-Based Paint Inspection, of HUD's Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing.
SECTION 03 30 00
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 other Division 1 Specification Sections, apply to this Section.

1.2 SECTION INCLUDES
A. Concrete formwork.
B. Concrete foundation walls and footings.
C. Concrete reinforcement.
D. Joint devices associated with concrete work.
E. Miscellaneous concrete elements, including concrete bases for light poles, bollards and fences.
F. Concrete curing.
G. Retaining wall.
H. Sidewalks, ramps, and curbing.
I. Patching.
J. Finishes.
K. Mix design.
L. Concrete materials.
M. Placement procedure.

1.3 RELATED REQUIREMENTS
A. Section 03 10 00 - Concrete Forming and Accessories: Forms and accessories for formwork.
B. Section 03 20 00 - Concrete Reinforcing.
C. REFERENCE STANDARDS
1. ACI 301 - Specifications for Structural Concrete; American Concrete Institute International; 2010.
2. ACI 304R - Guide for Measuring, Mixing, Transporting, and Placing Concrete; American Concrete Institute International; 2000.
3. ACI 305R - Hot Weather Concreting; American Concrete Institute International; 2010.
4. ACI 308R - Guide to Curing Concrete; American Concrete Institute International; 2001 (Reapproved 2008).
5. ACI 318 - Building Code Requirements for Structural Concrete and Commentary; American Concrete Institute International; 2011.
8. ASTM A767/A767M - Standard Specification for Zinc-Coated (Galvanized) Steel Bars for Concrete Reinforcement; 2009.

D. SUBMITTALS
1. Product Data: For each type of product indicated.

2. 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.

G. Welding certificates.

H. Qualification Data: For installer, testing agency, and concrete supplier

I. Material Test Reports: For the following, from a qualified testing agency, indicating compliance with requirements:

1.4 QUALITY ASSURANCE

A. Perform work of this section in accordance with ACI 301 and ACI 318.

B. Follow recommendations of ACI 305R when concreting during hot weather.

C. Source Limitations: Obtain each type or class of cementitious material of the same brand from the same manufacturer's plant, obtain aggregate from one source, and obtain admixtures through one source from a single manufacturer.

D. Welding: Qualify procedures and personnel according to AWS D1.4, "Structural Welding Code--Reinforcing Steel."

1.5 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.

C. All packed materials shall be delivered to the site in original unopened containers, clearly indicating manufacturer's name, brand name, and other identifying information.

1.6 PROJECT CONDITIONS

A. Coordinate with the work of all other sections and separate contracts.

PART 2 PRODUCTS

2.1 FORMWORK

A. Comply with requirements of Section 03 10 00.


2.2 REINFORCEMENT

A. Comply with requirements of Section 03 20 00.

B. Reinforcing Steel: ASTM A615/A615M Grade 60 (420).
   1. Type: Deformed billet-steel bars.
   2. Finish: Galvanized in accordance with ASTM A767/A767M, Class I, unless otherwise indicated.

C. Reinforcement Accessories:
   1. Tie Wire: Annealed, minimum 16 gage.
   2. Provide galvanized components for placement within 1-1/2 inches of weathering surfaces.

2.3 CONCRETE MATERIALS

A. Cement: ASTM C150, Type I - Normal Portland type.
   1. Acquire all cement for entire project from same source.

B. Water: Clean and not detrimental to concrete.
2.4 ADMIXTURES
   A. Air Entrainment Admixture: ASTM C260.

2.5 ACCESSORY MATERIALS
   A. Vapor Retarder: ASTM E 1745, Class A, three-ply, nylon- or polyester-cord-reinforced, high-density polyethylene sheet; laminated to a nonwoven geotextile fabric, 30 mils (0.76 mm) thick.
      1. Available Product: Subject to compliance with requirements, a product that may be incorporated into the Work includes, but is not limited to:
         2. "Griffolyn T-65G" by Reef Industries Inc
   B. Liquid Curing Compound: ASTM C 309, Type 1, clear or translucent.
      1. Acceptable Products:
         a. Klear-Kote Cure-Sealer-Hardener, 30 percent solids; Burke Group, LLC (The).
         b. Vocomp-30; W. R. Meadows, Inc

2.6 BONDING AND JOINTING PRODUCTS
   A. Epoxy Bonding System: Complying with ASTM C881/C881M and of Type required for specific application.
      1. Products:
         a. Types I and II, non-load bearing, for bonding hardened or freshly mixed concrete to hardened concrete.
   B. Slab Isolation Joint Filler: 1/2 inch thick, height equal to slab thickness, with removable top section that will form 1/2 inch deep sealant pocket after removal.
   C. Slab Construction Joint Devices: Combination keyed joint form and screed, galvanized steel, with minimum 1 inch diameter holes for conduit or rebars to pass through at 6 inches on center; ribbed steel stakes for setting.
      1. Provide removable plastic cap strip that forms wedge-shaped joint for sealant installation.
      2. Height: To suit slab thickness.
      3. Manufacturers:
         a. Acceptable Products
         b. Vinylex, Knoxville, TN  37921 (615) 690-2211..

2.7 CONCRETE MIX DESIGN
   A. Concrete Strength: Establish required average strength for concrete on the basis of field experience, as specified in ACI 301.
      1. Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch (3 to 6 mm) or coarse sand as recommended by underlayment manufacturer.
   B. Admixtures: Add acceptable admixtures as recommended in ACI 211.1 and at rates recommended or required by manufacturer.
   C. Normal Weight Concrete:
      1. Compressive Strength, when tested in accordance with ASTM C39/C39M at 28 days: 3,000 pounds per square inch.
      2. Water-Cement Ratio: Maximum 0.45.
      3. Total Air Content: 6 percent, determined in accordance with ASTM C173/C173M.

2.8 MIXING
   A. Transit Mixers: Comply with ASTM C94/C94M.
PART 3 EXECUTION

3.1 EXAMINATION
A. Verify lines, levels, and dimensions before proceeding with work of this section.

3.2 PREPARATION
A. Formwork: Comply with requirements of ACI 301. Design and fabricate forms to support all applied loads until concrete is cured, and for easy removal without damage to concrete.
B. Verify that forms are clean and free of rust before applying release agent.
C. Coordinate placement of embedded items with erection of concrete formwork and placement of form accessories i.e. railing posts etc.
D. Where new concrete is to be bonded to previously placed concrete or stone walls, prepare existing surface by cleaning with steel brush and applying bonding agent in accordance with manufacturer's instructions.
   1. Use epoxy bonding system for bonding to damp surfaces, for structural load-bearing applications, and where curing under humid conditions is required.
E. In locations where new concrete is dowelled to existing work (stone walls), drill holes in existing walls, insert steel dowels and pack solid with non-shrink grout.

3.3 PLACING CONCRETE
A. Place concrete in accordance with ACI 304R.
B. Place concrete for floor slabs in accordance with ACI 302.1R.
C. Ensure reinforcement and formed construction joint devices will not be disturbed during concrete placement.
D. Place concrete continuously without construction (cold) joints wherever possible; where construction joints are necessary, before next placement prepare joint surface by removing laitance and exposing the sand and sound surface mortar, by sandblasting or high-pressure water jetting.
E. Finish ramp to proper pitch to meet ADA specifications, unless otherwise indicated, within the tolerances specified below.

3.4 SLAB JOINTING
A. Locate joints as indicated on the drawings.
B. Anchor joint fillers and devices to prevent movement during concrete placement.
C. Isolation Joints: Use preformed joint filler with removable top section for joint sealant, total height equal to thickness of slab, set flush with top of slab.

3.5 CONCRETE FINISHING
A. Repair surface defects, immediately after removing formwork.
B. Exposed Form Finish: Rub down or chip off and smooth fins or other raised areas 1/4 inch or more in height. Provide finish as follows:
   1. Smooth Rubbed Finish: Wet concrete and rub with carborundum brick or other abrasive, not more than 24 hours after form removal.
C. Concrete Ramp and Slabs: Finish to requirements of ACI 302.1R, and as follows:
   1. Decorative Exposed Surfaces: "Steel trowel" as described in ACI 302.1R; use steel-reinforced plastic trowel blades instead of steel blades to avoid black-burnish marks; decorative exposed surfaces include light broom finished.
   2. Other Surfaces to Be Left Exposed: "Steel trowel" as described in ACI 302.1R, minimizing burnish marks and other appearance defects.

3.6 CURING AND PROTECTION
A. Comply with requirements of ACI 308R. Immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures, and mechanical injury.
B. Maintain concrete with minimal moisture loss at relatively constant temperature for period necessary for hydration of cement and hardening of concrete.
   1. Normal concrete: Not less than 7 days.
C. Formed Surfaces: Cure by moist curing with forms in place for full curing period.
D. Surfaces Not in Contact with Forms:
   1. Initial Curing: Start as soon as free water has disappeared and before surface is dry. Keep continuously moist for not less than three days by water ponding, water-saturated sand, water-fog spray, or saturated burlap.
   2. Final Curing: Begin after initial curing but before surface is dry.
      a. Curing Compound: Apply in two coats at right angles, using application rate recommended by manufacturer.

3.7 FIELD QUALITY CONTROL
A. Submit proposed mix design of each class of concrete to inspection and testing firm for review prior to commencement of concrete operations.
B. Compressive Strength Tests: ASTM C39/C39M. For each test, mold and cure three concrete test cylinders. Obtain test samples for every 100 cu yd or less of each class of concrete placed.

3.8 DEFECTIVE CONCRETE
A. Repair or replacement of defective concrete will be determined by the Fuller and D'Angelo, P.C. The cost of additional testing shall be borne by Contractor when defective concrete is identified.
B. Do not patch, fill, touch-up, repair, or replace exposed concrete except upon express direction of Fuller and D'Angelo, P.C. for each individual area.

END OF SECTION
SECTION 05 52 13
PIPE AND TUBE RAILINGS

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 SECTION INCLUDES
A. Free-standing railings at ramp and landings.

1.3 RELATED REQUIREMENTS
A. Section 03 30 00 - Cast-in-Place Concrete: Placement of anchors in concrete.

1.4 REFERENCE STANDARDS
C. ASTM B211M - Standard Specification for Aluminum and Aluminum-Alloy Rolled or Cold-Finished Bar, Rod, and Wire (Metric); 2012e1.

1.5 QUALITY ASSURANCE
A. Installer Qualifications: Arrange for all railings and handrails specified in this Section to be fabricated and installed by the same firm.
B. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of metal stairs (including handrails and railing systems) that are similar to those indicated for this Project in material, design, and extent.
C. Fabricator Qualifications: A firm, with a minimum of five (5) years experience in producing metal stairs & railings similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
D. Source Limitations: Obtain each type of railing through one source from a single manufacturer.
E. Welding: Qualify procedures and personnel according to the following:
   1. AWS D1.2 Structural Welding Code – Aluminum.

1.6 PERFORMANCE REQUIREMENTS
A. Structural Performance of Handrails and Railings: Provide handrails and railings capable of withstanding the following structural loads without exceeding the allowable design working stress of materials for handrails, railings, anchors, and connections:
   1. Top Rail of Guards: Capable of withstanding the following loads applied as indicated:
      a. Concentrated load of 200 lbf applied at any point and in any direction.
b. Uniform load of 50 lbf/ft. applied horizontally and concurrently with uniform load of 100 lbf/ft. applied vertically downward.

c. Concentrated and uniform loads above need not be assumed to act concurrently.

2. Handrails Not Serving as Top Rails: Capable of withstanding the following loads applied as indicated:
   a. Concentrated load of 200 lbf applied at any point and in any direction.
   b. Uniform load of 50 lbf/ft. applied in any direction.
   c. Concentrated and uniform loads above need not be assumed to act concurrently.

3. Infill Area of Guards: Capable of withstanding a horizontal concentrated load of 200 lbf applied to 1 sq. ft. at any point in system, including panels, intermediate rails, balusters, or other elements composing infill area.
   a. Load above need not be assumed to act concurrently with loads on top rails in determining stress on guards.

1.7 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Shop Drawings: Indicate profiles, sizes, connection attachments, anchorage, size and type of fasteners, and accessories.

C. Samples: Submit two, 12 inch long samples of handrail. Submit two samples of elbow, Tee, and end stop.

PART 2 PRODUCTS

2.1 RAILINGS - GENERAL REQUIREMENTS

A. Design, fabricate, and test railing assemblies in accordance with the most stringent requirements of ASTM E985 and applicable local code.

B. Allow for expansion and contraction of members and retaining wall movement without damage to connections or members.

C. Thermal Movements: Provide exterior railings that allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures by preventing buckling, opening of joints, overstressing of components, failure of connections, and other detrimental effects. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
   1. Temperature Change (Range): 120 deg F, ambient; 180 deg F, material surfaces.

D. Control of Corrosion: Prevent galvanic action and other forms of corrosion by insulating metals and other materials from direct contact with incompatible materials.

E. Dimensions: See drawings for configurations and heights.
   1. Top Rails and Wall Rails: 1-1/2 inches diameter, round.
   4. Note a 4" ball shall not be allowed to pass through any openings in hand and guard rail system.

F. Provide anchors and other components as required to attach to structure, made of same materials as railing components unless otherwise indicated; where exposed fasteners are unavoidable provide flush countersunk fasteners.
   1. For anchorage to concrete, provide inserts to be cast into concrete, for welding anchors.

G. Provide welding fittings to join lengths, seal open ends, and conceal exposed mounting bolts and nuts, including but not limited to elbows, T-shapes, splice connectors, flanges, escutcheons, and wall brackets.

H. Retainer Channel: ½" x ½" steel channel to accept welded wire mesh

2.2 ALUMINUM MATERIALS

A. Aluminum Pipe: Schedule 40; ASTM B429/B 429M, ASTM B241/B 241M, or ASTM B483/B 483M.
B. Solid Bars and Flats: ASTM B211 (ASTM B211M).
C. Welding Fittings: No exposed fasteners; cast aluminum.
D. Exposed Fasteners: No exposed bolts or screws.

2.3 MISCELLANEOUS MATERIALS
A. Anchoring Cement: Factory-packaged, nonshrink, nonstaining, hydraulic-controlled expansion cement formulation for mixing with water at Project site to create pourable anchoring, patching, and grouting compound.
B. Anchoring Cement: Factory-packaged, nonshrink, nonstaining, hydraulic-controlled expansion cement formulation for mixing with water at Project site to create pourable anchoring, patching, and grouting compound.

2.4 FABRICATION
A. Shop Assembly: Pre-assemble railings in the shop to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations.
B. Accurately form components to suit specific project conditions and for proper connection to building structure.
C. Fit and shop assemble components in largest practical sizes for delivery to site.
D. Fabricate components with joints tightly fitted and secured. Provide spigots and sleeves to accommodate site assembly and installation.
E. Ease exposed edges to a radius of approximately 1/32 inch, unless otherwise indicated. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing work
F. Welded Joints:
   1. Exterior Components: Continuously seal joined pieces by intermittent welds and plastic filler. Drill condensate drainage holes at bottom of members at locations that will not encourage water intrusion.
   2. Interior Components: Continuously seal joined pieces by continuous welds.
   3. Grind exposed joints flush and smooth with adjacent finish surface. Make exposed joints butt tight, flush, and hairline. Ease exposed edges to small uniform radius.
G. Close exposed ends of railing members with prefabricated end fittings.

2.5 ALUMINUM FINISHES
A. Class I Natural Anodized Finish: AAMA 611 AA-M12C22A41 Clear anodic coating not less than 0.7 mils thick.

PART 3 EXECUTION
3.1 EXAMINATION
A. Verify that field conditions are acceptable and are ready to receive work.

3.2 PREPARATION
A. Clean and strip aluminum where site welding is required.
B. Apply one coat of bituminous paint to concealed aluminum surfaces that will be in contact with cementitious or dissimilar materials.

3.3 INSTALLATION
A. Install in accordance with manufacturer's instructions.
B. Install components plumb and level, accurately fitted, free from distortion or defects, with tight joints.
C. Anchor railings securely to structure.
D. Field weld anchors as indicated on shop drawings. Touch-up welds with primer. Grind welds smooth.

3.4 TOLERANCES
   A. Maximum Variation From Plumb: 1/4 inch per floor level, non-cumulative.
   B. Maximum Offset From True Alignment: 1/4 inch.

END OF SECTION
SIGNAGE

PART 1 GENERAL

1.01 SECTION INCLUDES
   A. Cash allowance for signs.
   B. Room and door signs.

1.02 REFERENCE STANDARDS

1.03 SUBMITTALS
   A. Product Data: Manufacturer's printed product literature for each type of sign, indicating sign styles, font, foreground and background colors, locations, overall dimensions of each sign.
   B. Signage Schedule: Provide information sufficient to completely define each sign for fabrication, including room number, room name, other text to be applied, sign and letter sizes, fonts, and colors.
      1. When room numbers to appear on signs differ from those on the drawings, include the drawing room number on schedule.
      2. When content of signs is indicated to be determined later, request such information from Yonkers Public School District through Engineer at least 2 months prior to start of fabrication; upon request, submit preliminary schedule.
      3. Submit for approval by Yonkers Public School District through Engineer prior to fabrication.
   C. Samples: Submit two samples of each type of sign, of size similar to that required for project, illustrating sign style, font, and method of attachment.
   D. Selection Samples: Where colors are not specified, submit two sets of color selection charts or chips.
   E. Verification Samples: Submit samples showing colors specified.
   F. Manufacturer's Installation Instructions: Include installation templates and attachment devices.
   G. Maintenance Materials: Furnish the following for Yonkers Public School District's use in maintenance of project.
      1. Curved Sign Media Suction Cups: One for each 100 signs; for removing media.

1.04 QUALITY ASSURANCE
   A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years of documented experience.

1.05 DELIVERY, STORAGE, AND HANDLING
   A. Package signs as required to prevent damage before installation.
   B. Package room and door signs in sequential order of installation, labeled by floor or building.
   C. Store tape adhesive at normal room temperature.

1.06 FIELD CONDITIONS
   A. Do not install tape adhesive when ambient temperature is lower than recommended by manufacturer.
   B. Maintain this minimum temperature during and after installation of signs.

PART 2 PRODUCTS

2.01 MANUFACTURERS
   A. Flat Signs:
   B. Curved Signs:
2.02 SIGNAGE APPLICATIONS

A. Accessibility Compliance: All signs are required to comply with ADA Standards for Accessible Design and ANSI/ICC A 117.1 and applicable building codes, unless otherwise indicated; in the event of conflicting requirements, comply with the most comprehensive and specific requirements.

B. All Signage Types: Unless otherwise indicated:
1. Character Font: Gil Sans.
2. Character Case: Upper case only.
4. Character Color: As selected by architect color.

C. Room and Door Signs: Provide a sign for every doorway, whether it has a door or not, not including corridors, lobbies, and similar open areas.
1. Sign Type: Flat signs with engraved panel media as specified.
2. Provide "tactile" signage, with letters raised minimum 1/32 inch and Grade II braille.
3. Use Format "A", white background with letters and braille in color as specified. Provide model similar or equal to Design "M310-A" by Mohawk Industries.
4. Character Height: 1 inch.
5. Sign Height: 6 inches, unless otherwise indicated.
6. Office Doors: Identify with room numbers to be determined later, not the numbers shown on the drawings; in addition, provide "window" section for replaceable occupant name.
7. Conference and Meeting Rooms: Identify with room numbers to be determined later, not the numbers shown on the drawings; in addition, provide "window" section with sliding "In Use/Vacant" indicator.
8. Service Rooms: Identify with room names and numbers to be determined later, not those shown on the drawings.
9. Rest Rooms: Identify with pictograms, the names "MEN" and "WOMEN", and braille. 8"x8", similar or equal to "Model ADA-4" by Mohawk Industries.

2.03 SIGN TYPES

A. Flat Signs: Signage media without frame.
1. Edges: Square.
2. Corners: Square.

B. Radius / Curved Signs: One-piece, curved extruded aluminum media holder securing flat, flexible sign media by curved lip on two sides; other two sides closed by end caps; concealed mounting attachment.
1. Sizes: As indicated on the drawings.
2. Finish: Natural (clear) anodized.
3. Sign Orientation: Curved in horizontal section.
4. Wall Mounting of One-Sided Signs: Mechanical anchorage, with predrilled holes, and set in clear silicone sealant.

C. Color and Font: Unless otherwise indicated:
1. Character Font: Helvetica, Arial, or other sans serif font.
2. Character Case: Upper case only.

2.04 TACTILE SIGNAGE MEDIA

A. Engraved Panels: Laminated colored plastic; engraved through face to expose core as background color:
1. Product: Similar or equal to Graphic process Series 200a by Mohawk sign Systems.
2. Total Thickness: 1/8 inch.
   a. Tactile characters shall be raised the required 1/32" from sign face. Glue on letters or etched backgrounds are not acceptable.
b. All text shall be accompanied by Grade 2 braille. Braille shall be separated 1/2" from the corresponding raised characters. Grade 2 braille transition to be provided by signage manufacturer.

c. All letters, numbers and/or symbols shall contrast with their background, either light characters on a dark background or dark characters on a light background. Characters and background shall have a non-glare finish.

3. Sign body shall be melamine plastic laminate and should be non-static, fire-retardant and self-extinguishing. The plastic laminate shall be impervious to most acids, alkalis, alcohol, solvents, abrasives and boiling water.


5. Panel Corners: Square.

   a. Mount signs 60" from the floor to the top of the sign on the latch side.
   b. As per ICC/ANSI A117.1-2003, paragraph 703.3.11 "Where a tactile sign is provided at a door, the sign shall be alongside the door at the latch side. Where a tactile sign is provided at double doors with one active leaf, the sign shall be located on the inactive leaf. Where a tactile sign is provided at double doors with two active leaves, the sign shall be to the right of the right-hand door. Where there is no wall space on the latch side of a single door, or to the right side of double doors, signs shall be on the nearest adjacent wall. Signs containing tactile characters shall be located so that a clear floor area 18 inches minimum by 18 inches minimum centered on the tactile characters, is provided beyond the arc of any door swing between the closed position and 45 degree open position.

2.05 ACCESSORIES
   A. Concealed Screws: Stainless steel, galvanized steel, chrome plated, or other non-corroding metal.
   B. Exposed Screws: Chrome plated.

PART 3 EXECUTION

3.01 EXAMINATION
   A. Verify that substrate surfaces are ready to receive work.

3.02 INSTALLATION
   A. Install in accordance with manufacturer's instructions.
   B. Install neatly, with horizontal edges level.
   C. Locate signs where indicated:
      1. Room and Door Signs: Locate on wall at latch side of door with centerline of sign at 60 inches above finished floor.
      2. If no location is indicated obtain Yonkers Public School District's instructions.
   D. Protect from damage until Substantial Completion; repair or replace damage items.

END OF SECTION
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

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 - Rotating Electrical Machinery
4. ANSI C51.1 - Construction and guide for selection, installation and use of electric motors.
5. ANSI C52.1 - 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
9. OSHA - Occupational Safety and Health Administration
10. UL - Underwriters 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

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

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. 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 or 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

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, and pullboxes.

1.14 CUTTING AND PATCHING

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 the installation of wiremold, around all obstructions (i.e. Black boards, Bulletin boards, openings, etc) and carefully cutting any moldings, frames, etc. For a complete installation.

C. Work under this Division shall include furnishing, locating and setting inserts and/or sleeves. Do all drilling and cutting necessary for the installation.

D. 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.

E. Refer to Division 1 for additional requirements.

1.15 SCAFFOLDING, RIGGING, HOISTING

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
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
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
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
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. Furnish four complete bound sets for delivery to the Architect of typewritten or blueprinted instructions for operating and maintaining all systems and equipment included in this Division. All instruction shall be submitted in draft for review prior to final issue. Manufacturer's advertising literature or catalogs may not be used for operating and maintenance instruction.
C. In the above-mentioned instructions, include the maintenance schedule for the principal items of equipment furnished under this Division.
D. 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 Contractor's Base Bid.

1.26 REMOVALS

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
SECTION 26 01 25

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 installation of system new fire alarm system (i.e., automatic fan shutdown, for new HVAC equipment) to include new telephone lines as indicated on Drawings.

2. The removal of existing fire alarm system, devices exposed conduit/wiremold, wire etc in its entirety once new Fire Alarm system is 100% operational

3. Removal of existing utility conduit and feeder from utility pole to manhole, cut and cap conduit/feeder in manhole leading in to building, cut and cap conduit/feeder in crawl space from existing utility meter. Remove existing meter equipment, main service switch and distribution as referenced in construction documents.

4. Installation of new service cables in underground ductbank.

5. 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.

6. Removal of existing public address system and surface mounted conduit/wiremold in its entirety. Any existing conduit in walls shall be cut and patched. If any associated junction boxes are recessed in wall provide blank white steel cover plate in the existing to be renovated building.

7. New electrical service as indicated on Drawings.

8. Modifications to existing electrical distribution system as indicated on the Drawings.

9. Service switchboards, distribution panelboard, circuit breaker panelboards, feeder, conduit, cables and branch circuit wiring with all connections complete.

10. Conduit, conduit fittings, junction and pullboxes and all appurtenances necessary for the raceway systems including necessary supports and fasteners.

11. Electrical conductors, connectors, fittings and connection lugs.

12. Branch circuit devices, outlet boxes, pullboxes, etc.

13. Provide new security system to include and not limited to camera’s, card motion detectors card readers, etc.

14. Lighting fixtures and lamps including site lighting and occupancy sensor.
15. Provide new Public Address system to include new headend, speakers, call-in, etc.

16. Temporary electric power while existing electrical service is being removed until the new electrical service is being installed. This contractor shall include the cost for 30 KW generator to main active circuits selected at owners discretion to include Fire Alarm system lighting etc.

17. Core drilled holes for conduit passing through walls, ceilings and floors.

18. All necessary cutting, patching and core drilling incidental to the electrical work.

19. Temporary light and power.

20. Licenses, permits, inspection and approvals.

21. Grounding as required as per NEC.

22. Sleeves for conduit and watertight caulking between conduit and sleeve.

23. Testing.

24. Cutting, patching and drilling.

25. Excavation, backfill and sand bedding by Electrical Contractor.

26. Concrete work.

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.

END OF SECTION
SECTION 26 01 50

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) Walker, Youngstown, Steelduct, Triangle
5. Wire and Cable General, South Wire, Triangle, Rome, Hatfield, Crescent, Cerro
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 Siemens or approved equal.
14. Public Address System Rauland-Borg, Bogen or approved equal
15. Security System Refer to Security System Section for list of approved manufacturers.

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.

END OF SECTION
SECTION 26 02 00

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.

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.

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. 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.
E. 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.
F. 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.
G. Do not fasten conduit with wire or perforated pipe straps. Remove all wire used for temporary conduit support during construction, before conductors are pulled.

H. 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.

3.3 CONDUIT INSTALLATION OF SCHEDULE
A. Underground installations: PVC minimum Schedule 40 conduit, unless otherwise noted on Drawings.

B. Installations in or under concrete slab: PVC minimum Schedule 40 conduit, 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: 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
SECTION 26 03 00
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. 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.

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:

<table>
<thead>
<tr>
<th>120/208 volt system</th>
<th>Fire Alarm</th>
</tr>
</thead>
<tbody>
<tr>
<td>A Phase</td>
<td>Black</td>
</tr>
<tr>
<td>B Phase</td>
<td>Red</td>
</tr>
<tr>
<td>C Phase</td>
<td>Blue</td>
</tr>
</tbody>
</table>

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 pullboxes, 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. 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.

D. Splice only in junction or outlet boxes.

E. Neatly tag, identify, train and lace wiring inside boxes, equipment and panelboards.

F. 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 pullboxes 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 manufacturers 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 26 02 00 for conduit types at various locations.

END OF SECTION
SECTION 26 03 20

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 on the Drawings and specified herein, including, but not limited to, the following:

B. Fuses
   2. Time delay cartridge fuses.

C. Circuit Breakers
   1. Standard molded case circuit breakers "bolted in" type.
   2. Solid state 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:

<table>
<thead>
<tr>
<th>Rating In Amperes</th>
<th>Peak Let Through Current In Amps</th>
</tr>
</thead>
<tbody>
<tr>
<td>15-30</td>
<td>6,000</td>
</tr>
<tr>
<td>35-50</td>
<td>8,000</td>
</tr>
<tr>
<td>70-100</td>
<td>12,000</td>
</tr>
<tr>
<td>125-200</td>
<td>20,000</td>
</tr>
<tr>
<td>225-601</td>
<td>38,000</td>
</tr>
</tbody>
</table>

E. Fuses shall be rejection type. Fuse clip shall be rejection type.

F. Fuse Type and Application Table:

<table>
<thead>
<tr>
<th>Category of Application</th>
<th>Acceptable Fuse Types (Bussman Designations @ 600V)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motor feeder</td>
<td>LPS below 600A</td>
</tr>
<tr>
<td>Power panel feeders</td>
<td>LPS below 600A</td>
</tr>
<tr>
<td>Safety switches</td>
<td>LPS</td>
</tr>
</tbody>
</table>

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.

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
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 pullboxes 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
SECTION 26 04 00
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


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
SECTION 26 04 50
CABINETS AND ENCLOSURES

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 hinged cover enclosures to complete all work shown on the Drawings or specified herein.

1.2 REFERENCES

A. NEMA 250 - Enclosures for electrical equipment (1000 volts maximum).
B. Submittals - Submit product data under Provisions of Contract and Division 1.

PART 2 - PRODUCTS

2.1 HINGED COVER ENCLOSURES

A. Construction: NEMA 250; Type 1 and 3R steel.
B. Finished: Manufacturer's standard enamel finish.
C. Covers: Continuous hinge, held closed by operable by key.
D. Provide barriers between normal and emergency wiring. Barriers shall be of non-current carrying material of adequate thickness for mechanical strength but in no case less than 1/4”. Each barrier shall have an angle iron framing support all around.

2.2 FABRICATION

A. Shop assemble enclosures in accordance with ANSI/NEMA ISC 6.
B. Provide knockouts on enclosures.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install enclosures plumb; Anchor securely to wall and structural supports at each corner, minimum.
B. Provide necessary feet for free-standing equipment enclosures.
C. Install trim plumb.

END OF SECTION
SECTION 26 05 00

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. Fasten hanger rods, conduit clamps, outlet, junction boxes to building structure using preset inserts, beam clamps and spring steel clips.

B. 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.

C. Do not fasten supports to piping, ductwork, mechanical equipment, or conduit.

D. Do not use powder-actuated anchors.

E. 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.
F. In wet locations install free-standing electrical equipment on concrete pads.

G. Install surface mounted cabinets and panelboards with minimum of four anchors. Provide steel channel supports to stand cabinet one inch off wall.

H. Bridge studs top and bottom with channels to support flush mounted cabinets and panelboards in stud walls.

END OF SECTION
SECTION 26 05 50
GENERAL LABELING 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 WORK INCLUDED

A. The work under this section shall include the furnishing of all material, labor, tools and services necessary to install nameplates, tape labels, wire markers, conduit color coding to complete all work shown on the Drawings or specified herein.

1.2 RELATED WORK

A. Painting.

1.3 SUBMITTALS

A. Submit shop drawings under provisions of Division 1.
B. Include schedule for nameplates and tape labels.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Nameplates: Engraved three-layer laminated plastic, white letters on a black background.
B. Tape labels: Embossed adhesive tape with 3/16 inch black letters on a white background.
C. Wire and cable markers: Cloth markers, split sleeve or tubing type.

PART 3 - EXECUTION

3.1 INSTALLATION

A. De-grease and clean surfaces to receive nameplates and tape labels.
B. Install nameplates and tape labels parallel to equipment lines.
C. Secure nameplates to equipment fronts using screws, rivets, or adhesive. Secure nameplate to inside face of recessed panelboard doors in finished locations.
D. Embossed tape will not be permitted for any application. Use embossed tape only for identification of individual wall switches and receptacles and control device stations.

3.2 WIRE IDENTIFICATION

A. Provide wire markers on each conductor in panelboard gutters, pullboxes, outlet and junction boxes and at load connection. Identify each branch circuit or feeder number for power and lighting circuits and each control wire number as indicated on equipment manufacturer's shop drawings for control wiring.
3.3 NAMEPLATE ENGRAVING SCHEDULE

A. Provide nameplates to identify all electrical distribution and control equipment and loads served. Letter height: 1/2 inch for individual switches, loads served, distributions and control equipment identification.

B. Panelboards: 3/4 inch, identify equipment designation. 1/2 inch, identify voltage rating and source of power.

C. Individual circuit breakers, switches and motor starters in panelboards, switchboards and motor control centers: 1/4 inch, identify circuit and load served, including location.

D. Individual circuit breakers, enclosed switches and motor starters: 1/2 inch, identify load served.

E. Provide nameplate, 1/2 inch letter height to identify the year of installation (ex: “Installed 2006”). Nameplate shall be installed on the inside cover of panelboards and the front cover of all over current protection (disconnect switches and/or enclosed circuit breakers), and switch boards.

3.4 FIRE ALARM

A. All fire alarm raceway components shall be painted red and identified.

END OF SECTION
SECTON 26 05 75
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. Ballasts.
E. Fluorescent dimming ballasts and controls.
F. Fluorescent lamp emergency power supply.
G. Lamps.
H. Luminaire accessories.

1.2 REFERENCES

A. ANSI C78.379 - Electric Lamps – Incandescent and High-Intensity Discharge Reflector Lamps – Classification of Beam Patterns.
B. ANSI C82.1 - Ballasts for Fluorescent Lamps – Specifications.
C. ANSI C82.4 - Ballasts for High-Intensity Discharge.
D. NEMA WD 6 - Wiring Devices – Dimensional Requirements.
E. NFPA 70 - National Electrical Code.

1.3 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing the Products specified in this section with minimum three (3) years documented experience.

1.4 REGULATORY REQUIREMENTS

A. Conform to requirements of NFPA 70 and NFPA 101.
B. Products: Listed and classified by Underwriters Laboratories, Inc.
1.5 **EXTRA PRODUCTS**

A. Furnish two of each plastic lens type.

B. Furnish ten replacement lamps for each lamp type.

C. Furnish two of each ballast type.

**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. To be connected to emergency generator.

C. Housing: Steel.

D. Face: Steel stencil face with red letters.

E. Directional Arrows: Universal type for field adjustment.

F. Mounting: Universal, for field selection.

G. Lamps: L.E.D.

H. Input Voltage: As scheduled.

2.3 **FLUORESCENT BALLASTS**

A. Manufacturers: As scheduled.

B. Description: ANSI C82.1, high power factor type electronic ballast suitable for lamps specified.

C. Voltage: As scheduled.

D. Source Quality Control: Certify fluorescent ballast design and construction by Certified Ballast Manufacturers, Inc.

2.4 **LAMPS**

A. Fluorescent Lamp Manufacturers: As scheduled.

B. Lamp Types: As specified for luminaire. T-8, 3500°K lamps.
PART 3 - EXECUTION

3.1 INSTALLATION

A. Install suspended luminaires and exit signs using pendants supported from swivel hangers. Provide pendant 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.

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
SECTION 26 06 00

DISCONNECT SWITCHES

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 disconnect switches, fuses and enclosures to complete all work shown on the Drawings or specified herein.

1.2 SUBMITTALS

A. Submit product data under Provisions of Contract and Division 1.

B. Include outline Drawings with dimensions, equipment ratings for voltage, capacity, horsepower and short circuit.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS - DISCONNECT SWITCHES

A. Siemens.

B. Square 'D'.

C. General Electric.

D. Or approved equal.

2.2 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 with switch in ON position. Handle lockable in OFF position. Fuse clips: 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 with switch in ON position. Handle lockable in OFF position.

C. Enclosures: NEMA Type 1; 3R; 4 as indicated on Drawings.

2.3 ACCEPTABLE MANUFACTURERS - FUSES

A. Bussman.

B. Ferraz-Shawmut.

C. Or approved equal.
2.4 FUSES

A. Fuses 600 amperes and less: ANSI/UL 198E, class RK1; RK5; Dual element, current limiting, time delay, 250 volt.

B. Interrupting rating: 200,000 rms amperes.

C. An additional fuse of each size required to be supplied.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install disconnect switches where indicated on Drawings.

B. Install fuses in fusible disconnect switches.

C. Disconnects installed outdoors shall have NEMA 3R enclosures.

D. Disconnects installed indoors in dry locations shall have NEMA 1 enclosure.

END OF SECTION
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).

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 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.
3.3 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.

3.4 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.

3.5 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.

3.6 TESTING

A. Upon completion of the installation, confirm the grounding continuity of all raceways, conductors and equipment. Maximum allowable resistance is 25 ohms.

3.7 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
SECTION 26 07 00

PANELBOARDS

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 the power system grounding to complete all work shown on the Drawings or specified herein.

1.2 RELATED WORK

A. Grounding
B. Overcurrent Protection

1.3 SUBMITTALS

A. Submit shop drawings for equipment and component devices under provisions of Division 1.
B. Include outline and support point dimensions, voltage, main bus ampacity, integrated short circuit ampere rating, circuit breaker and fusible switch arrangement and sizes.
C. Furnish two (2) sets of keys to Owner.

1.4 REFERENCES

A. FS W-C-375 - Circuit breakers, molded case, branch circuit and service.
B. FS W-P-115 - Power distribution panel.
C. NEMA AB 1 - Molded case circuit breakers.
D. NEMA KS 1 - Enclosed switches.
E. NEMA PB 1 - Panelboards.
F. NEMA PB 1.1 - Instruction for safe installation, operation and maintenance of panelboard rated 600 volts or less.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS - PANELBOARD AND LOAD CENTERS

A. Siemens.
B. Square "D".
C. General Electric.
D. Or approved equal.
2.2   **BRANCH CIRCUIT PANELBOARDS**

A. Lighting and appliance branch circuit panelboards: NEMA PB 1; circuit breaker type.

B. Enclosure: NEMA PB 1; Type 1.

C. Cabinet size: Approximately 6 inches deep; 20 inches wide for 240 volt and less panelboards. Verify field conditions and alter dimensions to suit at no additional cost.

D. Provide surface cabinet front door-in-door with concealed trim clamps, concealed hinge and flush lock all keyed alike. Finish in manufacturer’s standard gray enamel.

E. Provide panelboards with copper bus, rating as scheduled on Drawings. Provide copper ground bus in all panelboards and isolated ground bus in those as indicated on Drawings.

F. Minimum integrated short circuit rating: 10,000 amperes rms symmetrical for 240 volt rated for 125 amps or less, 22,000 amperes rms symmetrical for 240 volt rated greater than 125 amps to 225 amps and 30,000 amperes for emergency power panelboards (verify in field). If panelboard is noted as a main distribution panelboard, then panel shall be rated as a distribution panelboard. Contractor shall provide short circuit study to ensure adequacy.

G. Molded case circuit breakers: Bolt-on type thermal magnetic trip handle for all poles. Provide circuit breakers UL listed as type SWD for lighting circuits. Breaker handle to indicate ampere rating.

2.3   **DISTRIBUTION PANELBOARDS**

A. Description: NEMA PB 1, circuit breaker type. The bus of all panels rated a minimum 400 amps shall be distribution type.

B. Panelboard Bus: Copper, ratings as indicated. Provide copper ground bus in each panelboard.

C. Minimum integrated short circuit rating: 65,000 amperes rms symmetrical for 240 volt panelboards; 65,000 amperes rms symmetrical for 480 volt panelboards, unless otherwise noted on Drawings.

D. Model Case Circuit Breakers: NEMA AB 1, circuit breakers with integral thermal and instantaneous magnetic trip in each pole. Provide circuit breakers UL listed as Type HACR as specified on Drawings.

E. Enclosure: NEMA PB 1, Type 1.

F. Cabinet Front: Surface type, fastened with screws. Double hinged doors with flush lock, metal directory frame, finished in manufacturer’s standard gray enamel. One hinged door to access breakers, the other to access wiring compartment.

**PART 3 - EXECUTION**

3.1   **INSTALLATION**

A. Install panelboards flush or surface mounted as indicated on Drawings.

B. Mounting height maximum 6 ft. (2 m) to top circuit breaker.

C. Provide filler plates for unused spaces in panelboards.
D. Provide type written circuit directory for each branch circuit panelboard. Indicate loads served and panel name by matching that shown on panel schedules on Drawings. Revise directory to reflect circuiting changes required to balance phase loads. Provide a second copy and turn over to Owner.

E. Provide 3/4” thick plywood backboard for mounting of panels. Paint backboard with fire retardant paint.

F. Provide nameplates as indicated in Section 26 05 50.

3.2 FIELD QUALITY CONTROL

A. Measure steady state load currents at each panelboard feeder. Should the difference at any panelboard between phases exceed 20 percent, rearrange circuits in the panelboard to balance the phase loads within 20 percent. Take care to maintain proper phasing for multi-wire branch circuits.

B. Visual and mechanical inspection: Inspect for physical damage, proper alignment, anchorage and grounding. Check proper installation and tightness of connections for circuit breakers, fusible switches and fuses.

C. Provide thermographic inspections in accordance with Section 26 01 00.

3.3 TESTS

A. Submit certification that each panelboard has withstood, without breakdown, a factory dielectric (Hi-Pot) test consisting of a one minute application of a 60 cycle AC test voltage applied between phase legs and from each phase leg to enclosure.

B. The applied test voltage shall have an RMS value of at least twice the line to line system voltage to which the panelboard is to be applied, plus one thousand volts (minimum 1500V).

3.4 RECORD DRAWINGS

A. Submit as-built Drawings indicating the location of all panelboards.

END OF SECTION
SECTION 26 07 50

ELECTRIC SERVICE

PART 1 - GENERAL

Applicable provisions of the conditions of the Contract and Division I 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 Fire Alarm system and to complete all work shown on the Drawings or specified herein.

1.2 WORK BY THIS CONTRACT

A. Furnish and install primary and secondary equipment as follows:
   1. Furnish and install concrete equipment pads.
   2. Furnish and install secondary cables and conduit from utility transformer at pole to building switchgear.
   3. Provide final connection at manhole.
   4. Ground electric service as required.

B. Coordinate all work with the utility company to insure timely completion of all work consistent with the schedule established by the Contractor.

1.3 WORK BY UTILITY COMPANY

A. Furnish and install the following:
   1. Furnish service transformers.

B. Furnish and/or install the following:
   1. Furnish primary switchgear.
   2. Furnish service transformers and network protectors.
   3. Furnish current transformers.
   4. Final connection from secondary feeders to pole mounted pole.

1.4 REFERENCE TO OTHER SPECIFICATION SECTIONS

A. Raceways.
B. Wire and Cable.
C. Switchboards.
D. Grounding.
1.5 **SUBMITTALS**

A. Submit complete details of work as approved by the utility including components, routing and location.

1.6 **QUALITY ASSURANCE**

A. Utility Company Standards.

B. National Electrical Code (NEC).

C. Underwriters Laboratories, Inc. (UL).

1.7 **WORK BY ELECTRICAL CONTRACTOR**

A. Furnish and/or install secondary equipment as follows:

1. Furnish and install secondary cables from utility transformer at pole to building switchgear.
2. Furnish and install secondary conduit from utility pole to building to switchgear room.
3. Furnish and install final connections on secondary utility transformer and building switchgear.
4. Furnish and install meter pan, current transformers and cabinets.
5. Furnish and install meter wiring.
6. Furnish and install switchgear grounding and bonding.

B. Coordinate all work with the utility company and site work contractor to insure timely completion of all work consistent with the schedule established by the General Contractor.

**PART 2 - PRODUCTS**

2.1 **SERVICE ENTRANCE CONDUIT**

A. Furnish and install conduit and cable as indicated in 1.2 A above.

B. Conduit, fittings and accessories shall be in accordance with the “Raceways” section of this specification and concrete encased.

2.2 **SERVICE ENTRANCE CONDUCTORS**

A. Furnish and install service entrance conductors between the utility transformer and building service equipment.

B. Conductors shall be 600V, cable suitable for service entrance use. Cable type and installation shall be per the “Wire and Cable” section of this specification.

**PART 3 - EXECUTION**

3.1 **COORDINATION**

A. Before proceeding contact the utility company, to coordinate schedule of work by all trades effected by the work.

B. Obtain copies of all utility design and installation standards applicable to the work to be performed.

C. Obtain utility company approval for work to be performed.
3.2 INSTALLATION

A. Before installation, submit applicable shop drawings including necessary details for the use of other trades.

B. Should field conditions prevent installation as approved by the utility, obtain approval of deviations prior to installation.

3.3 RECORD DRAWINGS

A. At completion submit complete as-built drawings to the Owner and the utility company including all dimensions necessary to identify exact location of work installed.

3.4 ACTIVATION OF SERVICE

A. Upon completion of the installation, coordinate activation of the service with the utility company.

B. Supply necessary manpower and miscellaneous work to facilitate activation.

C. Advise all trades of time of activation and confirm that all equipment to be energized has been properly protected and is suitable to be placed into service.

END OF SECTION
SECTION 26 08 25

PUBLIC ADDRESS 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 SUBMITTALS

A. Shop drawings shall include the following:
   1. Complete schedule of all equipment.
   2. Name, address, phone number and contact person of nearest fully equipped service organization.
   3. Complete riser diagram indicating all devices, all connections, cable types and wire identification numbers.
   4. Product data sheets for all components.
   5. Rack arrangement diagrams.
   6. Function written description of the entire system operating characteristics.
   7. Typical schematic wiring diagram for speakers, microphones and handsets.
   8. Manufacturer's data and a sample for each type of cable and cable identification to be used.

B. After installation is complete, submit the following:
   1. As-built drawings of the completed integrated system including as-built riser diagrams with all components labeled.
   2. Installation manual with "as built" point to point interconnected diagrams for the main control consoles, including all external connections.
   3. Certificate of completion indicating all devices field tested, programming installed complete and operational, and a signed statement of completed Owner training.

1.2 QUALITY ASSURANCE

A. All main system equipment supplied shall be the standard products of a single manufacturer and their integration partner utilizing SIP Enablement Services and other protocols.

B. The manufacturer’s authorized representative
   Open Systems Metro (Rob Marazzo 914-241-0057)

C. All items of equipment including wire and cable shall be designed by the manufacturer to function as a complete system and shall be accompanied by the manufacturer’s complete service notes and drawings detailing all interconnections.

D. The contractor shall be an established communications and electronics Contractor that has had, and currently maintains, a locally run and operated business for at least five years. The Contractor shall be a duly authorized distributor of the equipment supplied with full manufacturer’s warranty privileges.

E. The Contractor shall show satisfactory evidence, upon request, that he maintains a fully equipped service organization capable of furnishing adequate inspection and service to the system. The Contractor shall maintain at his facility the necessary spare parts in the proper proportion as recommended by the manufacturer to maintain and service the equipment being supplied.

F. Warranty is to be provided at no cost to the purchaser for a period of 12 months from date of acceptance by the Owner of the system unless damage is caused by misuse, abuse, or accident.
### 1.3 DESCRIPTION OF PUBLIC ADDRESS SECTION OF SYSTEM

A. The installation shall include a comprehensive Inter-telecommunications System of the modern, dual-tone electronic switching type, consisting of the following: a central switch incorporating voice-amplified intercom channel(s), pushbutton dialing administrative telephones, classroom speakers and/or staff telephones; a multi-zoned paging system with all-call and emergency override, a multi-source music distribution system, and both microprocessor-based and manual selection and distribution of source material. The manual-selection via a control panel and switch banks shall also act as a fully operational back-up system should the microprocessor or the customer-owned telephone system fail.

B. The central switch shall be of the modular plug-in printed-circuit board type, utilizing NMOS microprocessor and memory, solid-state sensing and logic, and shall also provide two-wire balanced transmission with dial tone, ringing, and busy signal capabilities.

C. The system shall be a global switching system, providing global unrestricted simultaneous telephone communication paths (see schedule for link quantity). Blocking probability on available links shall be 0% regardless of how many links are in use. Station board or other limited or restricted linking shall not be considered as a part of the total required links.

D. The Public Address section shall be integrated to the IP-Based Telephone section via category cable, hardware, and software. The customer shall determine, through programming, which telephones shall have access to the Public Address section. This programming shall be the responsibility of the owner. The systems contractor shall provide for a minimum of sixteen simultaneous events to take place within the public address section whether the source be direct from the PA system section or through the integrated IP-Based telephone system.

E. Unrestricted links shall connect all types of phone stations or parts to each other; systems which have restricted or limited linkage paths will not be in compliance with this specification.

F. The system shall be approved for direct interconnection to off-site utility services under Part 68 of FCC rules and regulations. Systems which are not FCC approved or utilize an intermediary device for connection shall provide an FCC registration number with equipment proposal submitted. Non-compliance shall result in the proposed system as being non-compliant.

G. The Public Address System section shall provide at least the following:

1. Direct-dialing, full duplex private telephone communications between all locations equipped with administrative telephones and staff telephones.

2. Links for direct dialing telephone communications between any combination of administrative telephones, staff telephones, and between administrative telephones and a quantity of classrooms on remote speakers and off-site utility services. (See schedule for quantity.)

3. Capability for expanding the system to accommodate staff telephones and/or speaker locations. (See schedule for quantity.)

4. The addition of multiple "amplified voice" intercom channels without any modification of the basic system, to provide simultaneous communication on all channels to speakers.

5. Automatic "Queueing" for the two-way "amplified voice" communication intercom channels, with call "waiting" to be automatically connected when channel becomes available.

6. Equipped for calling classroom stations having both telephones and speakers by dialing the station number. Ringing the telephone or calling the speaker shall be user selectable when dialing.

7. Equipped for any telephone to transfer a call to any other telephone.
8. Private conference calls between administrative telephones and classroom station telephones or speakers.

9. Private full two-way communications between administrative telephone, classroom station telephones, and any classroom station speaker.

10. User-programmable "executive override", permitting assigned administrative telephones (to be programmed by a designated administrative telephone), to "break in" on ongoing conversations in the system.

11. Instantaneous distribution of emergency announcements simultaneously to all locations equipped with speakers, by dialing a pre-determined code number. Emergency announcements originating from any administrative telephone shall have priority over regular system functions.

12. Restrict emergency announcements and alarm signal origination to certain assigned administrative telephones, this assignment to be user-programmed by a designated administrative telephone. Provisions for zone-page and all-page restriction. This assignment shall be user-programmed by a designated administrative telephone.

13. Assign speaker locations within any one or more of the (8) zones for zone paging or time signal reception, this assignment to be user-programmed by a designated administrative telephone.

14. Connect Digital Readout Displays (on Administrative Telephone), upon which incoming calls are identified by their designated numbers in the order in which they are received. The display system shall show visually in the order received, three (3) calls at one time, and shall also "store" additional calls. Priority (emergency) calls shall not only have precedence over normal calls but shall be displayed immediately by the letters "EMER" and the calling station number.

15. Provision for calls originating from any classroom station location to be user-programmed by a designated administrative telephone for assignment to any individual or group of display units.

16. Answer calls registered in the readout display merely by pressing a single "response" button. This capability shall not prevent other calls from being placed or answered by dialing their numbers. Facilities for activating Graphic Display Panels (lighting annunciators) shall be provided.

17. Cancel all classroom station-originated calls from any authorized administrative telephone shall be provided.

18. Use staff station telephone for communications without interruption of normal programming.

19. Origination of both "normal" and "priority" calls. This shall require only pushing the call button. This action shall sound a repeating tone signal to alert personnel to the call and register the call on the readout display system until it is answered. "Priority" calls shall have precedence over all "normal" calls. Priority calls shall be initiated by user-programming the calling source to identify it as a "Priority" station.

20. Assign or change station numbers by any desired numbering system; this shall be user programmable by an designated administrative telephone. Either 3 digit or 4 digit number may be assigned.

21. "Flexible Class Service" to allow changes in features and functions. Program changes shall include: outside line access, toll restriction, paging access, speaker first/phone first selection. Class of service changes shall be initiated manually or automatically via internal clock. Provide (4) independent programmable memory sets.
22. Software restrictions for external calls shall include totally unrestricted, restricted access long distance/area code/local exchange, no external trunk access.

23. All speakers in classrooms, corridors, exterior areas, libraries etc., shall be equipped for talk back and paging.

24. Speaker in general areas such as corridors, exterior bus loading areas, exterior playground areas, etc., shall all be equipped for individual local area paging. Corridor speakers shall be grouped in individual local areas for operation. Libraries, gyms and other group areas shall all be equipped for individual paging and annunciation. Systems which do not allow annunciation in individual local areas are not acceptable.

25. Built in diagnostics shall be provided in the system to simplify maintenance.

26. System shall have redundancy by incorporating a functional Multigraphic section within the rack. System shall contain, but not limited to, a control panel with a built-in intercom amplifier, 3-channel switch banks, and associated amplifiers and power supplies.

PART 2 - PRODUCTS

2.1 SELECTIVE DISTRIBUTION OF PROGRAMMING

A. Provide distribution of audio program sources capable of up to (3) simultaneous channels. Provide (3) channels for this project.

B. Audio program distribution shall be controlled from authorized telephones to select channels, selected rooms, or zones to receive audio signals, or from the control panel located in the equipment rack.

C. Classrooms, when equipped with telephones, shall be able to select audio programs from available source including "Off" channel and route to individual room speaker.

D. Provide switch banks to allow manual control of programming channels and intercom station manual selection. These shall also be used should there be a failure within the telephone system. Systems which do not allow for switch banks shall not be considered.

2.2 SCHEDULE OF PA SYSTEM REQUIREMENTS

<table>
<thead>
<tr>
<th>Feature</th>
<th>Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>Global Telephonic Links</td>
<td>16 minimum</td>
</tr>
<tr>
<td>Total Point Capacity</td>
<td>256</td>
</tr>
<tr>
<td>Installed Point Quantity</td>
<td>25% more than building requirements</td>
</tr>
<tr>
<td>Administrative Phones</td>
<td>4</td>
</tr>
<tr>
<td>Installed Digital Display</td>
<td>2</td>
</tr>
<tr>
<td>Digital Display Capacity</td>
<td>16</td>
</tr>
<tr>
<td>Intercom Channels</td>
<td>3</td>
</tr>
<tr>
<td>Switch Banks</td>
<td>Yes, including 1 spare</td>
</tr>
<tr>
<td>Master Clock</td>
<td>Included</td>
</tr>
<tr>
<td>Off-Site Port Capacity</td>
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<td>Installed Off-Site Ports</td>
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<tr>
<td>Auxiliary UPS</td>
<td>Yes-Calculate 20 minutes usage/full load</td>
</tr>
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</table>
2.3 RACK MOUNTED P.A. EQUIPMENT TO CONSIST OF, BUT NOT LIMITED TO:

<table>
<thead>
<tr>
<th>Quantity</th>
<th>Model #</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AR</td>
<td>TC2100</td>
<td>Central Switching Exchange</td>
</tr>
<tr>
<td>AR</td>
<td>TC2105</td>
<td>Expander Chassis</td>
</tr>
<tr>
<td>AR</td>
<td>TC4160</td>
<td>REVA Additional Intercom Amplifiers</td>
</tr>
<tr>
<td>AR</td>
<td>TC2106</td>
<td>Expander Power Supply</td>
</tr>
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<td>AR</td>
<td>TC2150</td>
<td>Master Station Module</td>
</tr>
<tr>
<td>AR</td>
<td>TC2114</td>
<td>Station Line Cards-16 Station/4-Wire</td>
</tr>
<tr>
<td>AR</td>
<td>TC2120</td>
<td>Relay Line Card (16 station)</td>
</tr>
<tr>
<td>AR</td>
<td>TC4180</td>
<td>Interconnect Chassis (5 slot)</td>
</tr>
<tr>
<td>AR</td>
<td>TC4182</td>
<td>Central Office Adapter (trunk card)</td>
</tr>
<tr>
<td>AR</td>
<td>TC4181</td>
<td>Line Amplifier Card</td>
</tr>
<tr>
<td>AR</td>
<td>MPA250</td>
<td>Power Amplifier 250 Watts</td>
</tr>
</tbody>
</table>

2.4 P.A. CENTRAL SWITCHING EXCHANGE

A. Central Switching Exchange specifically designed for use with modern dual tone telephones and switching networks. It shall provide two wire balanced transmission complete with dial tone, automatic ringing and busy signal.

B. The system shall incorporate dual crystal-controlled tone-dial receiver to provide maximum accessibility to the system with maximum reliability.

C. A 12 watt bi-directional amplifier for telephone to speaker communications shall be included for each intercom channel in the system.

2.5 MASTER STATION MODULE

A. Master station module with telephone ports for use with administrative telephones, or for direct connection to off-site utility services. System shall be capable of connection to off-site telephone ports (see schedule for quantity).

B. Unit shall interface with the owner’s existing telephone system so that any telephone instrument in the building based upon the owner’s programming may have access to the public address system for all-call, zone paging, and open-voice intercom function. The system shall have eight links (connections) to the telephone system as previously described.

2.6 PAGING AND INDEPENDENT CHANNEL POWER AMPLIFIERS

A. Provide (1) paging amplifier and (3) independent music distribution and time tone channel amplifiers (total 4).

B. The amplifiers shall be Rauland model MPA250 and shall include the following features:

1. The solid state amplifier shall be capable of producing an audio output of 250 watts RMS at less than a 2% distortion over the frequency range of 50 to 15,000 cycles. The frequency response shall be within ±2dB from 30 to 20,000 cycles and the noise level shall be at least 80db below rated output. The amplifier shall require no more than a 0.3 volt input signal for rated output. Output regulation shall be less than 2db from no load to full load.

2. It shall be designed to operate continuously on line voltage of 120 volts, 60 cycles AC. The amplifier shall consume no more than 580 watts at rated output with a standby power consumption of no more than 60 watts.
3. The amplifier shall include an automatic and self-restoring protective circuit that protects against damage from prolonged overloads and from extreme overloads, such as a shorted output line, and is not subject to activation by program peaks or other instantaneous overloads. The protective circuit shall be a 10 amp fuse.

4. The amplifier shall have a 50,000 ohm bridging input, an output level control, and pilot light. All connections shall be plug-in for ease of installation and service.

2.7 **AM-FM TUNER**

A. The tuner shall be a Tascam model # TU-690, solid state design for continuous duty service, with an AM tuning range of 525 to 1620 kHz sensitivity of at least 15 micro-volts for 20 dB quieting.

B. The FM section shall have a tuning range of 88 to 108 MHz, sensitivity of 2.5 micro-volts for 30 dB quieting.

C. Front Panel Controls: On/off volume switch, tuning control, AM-FM selector switch, tuning balance, local distance setting, and monitor speaker. The unit shall allow for a minimum of 60 presets.

D. Furnish and install FM antenna (Model #FMT-65) assembly and AM antenna wire, and all associated supports, mounting, wiring, etc. Locate antenna on building roof. Exact location shall be determined by the Sound Contractor for best radio reception. Electrical Contractor shall provide 1" conduit with weatherhead, and run RG59U from the PA rack to the roof antenna location. Contractor shall submit proposed antenna location to Engineer for approval.

2.8 **CD - IPOD DOCK**

A. Tascam model CDA-200I CD with Ipod dock, front loading rack: mounting

2.9 **EQUIPMENT RACK**

A. Model #1100 Series, upright rack providing at least 61-1/4" total of panel mounting space. The rack shall be of sufficient height to meet specified equipment space requirements and approximately 12" of space for future requirements, 22-3/8" wide and 18-1/2" deep.

B. Rack shall include rear door flush mounted with key lock; provide (3) keys to Owner.

C. All unused cabinet space shall be filled with blank panels which match exactly the equipment, panels, selected and arranged to allow for future expansion of facilities.

D. Furnish front shelf for desktop microphone support.

2.10 **BACK UP POWER SUPPLY**

A. Provide UPS capable of supporting full intercom operation of the communication system for a period of 4 hours, including 20 minutes of continuous all-page (full load).

B. **Schedule of UPS Equipment**

<table>
<thead>
<tr>
<th>Tag</th>
<th>UPS-1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location</td>
<td>PA Rack</td>
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<tr>
<td>Model #</td>
<td>GXT-2000-RT120</td>
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<td>Input Voltage/Phase</td>
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<td>Recommended Input Service</td>
<td>20A</td>
</tr>
<tr>
<td>KVA Rating</td>
<td>1.4 KVA</td>
</tr>
<tr>
<td>Backup Full load</td>
<td>4 hours</td>
</tr>
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<td>Extended Battery Option</td>
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<td>(6) 5-15R</td>
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<tr>
<td>Plug Type</td>
<td>5-20P</td>
</tr>
</tbody>
</table>
2.11 SPEAKER, BAFFLES, HORN ASSEMBLY AND ACCESSORIES

A. Speaker: Speaker assembly Model #USO-188: 8" dual cone talkback speaker; #T240, 25/70 volt line matching transformer; frequency range 60 to 12,000 Hz; 7 watt normal, 10 watts peak power rating; 3/4" dia. voice coil with 8 ohm impedance; 19,000 gauss min. flex density. Matching transformer shall provide 5/16, 5/8, 1-1/4, 2-1/2, 5 watt power taps for 25 volt operation. Mount in baffle.

B. Speaker Baffle Ceiling: Flush mount ceiling baffle, 22 gauge cold-rolled steel with perforations for 8" speaker and deep edge radius. Baffle shall include (4) concealed welded studs for speaker mounting. Finish shall be zinc treated with white baked epoxy finish. Provide baffle model #ACC1001.

C. Class room Boiler Room, Receiving Room, Café, and Gym Speaker Baffle Wall: Speaker Assembly: Same as classroom. Baffle surface mounted vandal proof sloped metal speaker baffle, heavy gauge steel construction: #Model ACC 1206

D. Exterior Horns: Model #3603, wide angle, paging projector, 14" x 6" x 12-3/4" deep, frequency range 250-14,000 Hz, full range power range of 30 watts, dispersion of 120 degrees horizontal, 60 degrees vertical, multi tap transformer (1.8, 3.7, 7.5, 15 watts), and shall be of non-resonant fiberglass construction. Speaker shall be equipped for talk back function.

E. Call Switch: Rauland #2305CS call switch momentary button, self cleaning precious metal contacts, fully enclosed. It shall be constructed of a stainless steel cover-plate with press-to-call legend. For existing walls, mount switch in surface wiremold box. For new walls, mount in recessed single gang box.

2.12 DEDICATED PA SYSTEM ADMINISTRATIVE TELEPHONE AND PAGING MICROPHONE

A. Administrative Telephone (Note: Provide one unit in Main Office.) Telephone shall be Rauland Telecenter #TC6402 with #TC4221 digital display for desk use. It shall be standard dual-tone touchpad dialing instrument.

1. The telephone shall be complete with 5' retractable handset cord and 7' connecting line cord. The dial mechanism shall be a standard 12 button with 3 speed dial, redial and transfer buttons, dual-tone type with pre-tuned, all solid state oscillators. Handset shall be equipped with a standard, easily replaceable carbon granule transmitter. The receiver shall be a standard dynamic type. The instrument housing and handset shall be of high impact plastic, finished in an impregnated beige color.

2. The telephone shall include call-in signaling and an LCD alpha-numerical readout display. The readout shall display simultaneously up to three calling stations, plus last call dialed, calls shall be displayed in the order received.

3. Emergency calls shall take precedence on the display and the accompanying tone signal shall sound simultaneously. All calls stored in the system memory shall be capable of review on the telephone display, four at a time.

4. The Administrative Telephone shall also provide the prompting information and the means for user-programming of a number of functions.

B. Priority Paging Microphone Model #1295 desk top microphone, push to talk bar, locking lever. Microphone shall be omni-directional dynamic type, 50 - 12,000 Hz; -55 dB output level; furnish with line cord and 5 pin plug and bulkhead connector. Connect to equipment rack, to initiate an all page automatically when push to talk button is depressed.

1. Set microphone on external shelf or locate where convenient to the end user.
2.13 **SPEAKER TAP SCHEDULE**

A. Classroom 1/2 watt
B. Boiler, Receiving Room 1 watt
C. Gym 1 watt
D. Exterior 3.8 watt unless noted otherwise
E. Corridors 1 watt
F. Cafeteria 2 watt

Note: Contractor shall readjust speaker taps after initial installation to meet job conditions.

2.14 **CABLE SCHEDULE:** (West Penn Wire or equal)

A. All devices shall be wired from endpoint directly back to equipment rack.
B. Wiring runs shall be continuous, splicing of sound system wire is not permitted.
C. Tape back all unused speaker wires, shields, and unused transformer tap pigtails.
D. Provide proper wiring to meet equipment requirements.
E. All conductors shall be min. 22 AWG stranded copper, shielded, PVC jacket.

2.15 **PLENUM CABLE**

A. Provide plenum rated cable in all spaces where HVAC system is not ducted (usually above concealed accessible ceiling); see Drawings for area designations.

2.16 **ADMINISTRATIVE TELEPHONE SETS**

A. (1) Twisted shielded pair (display) (22 AWG)
B. (1) Unshielded twisted pair (handset) (22 AWG)

2.17 **SPEAKER ONLY CIRCUITS:** (i.e. - corridor speakers)

A. (1) Twisted shielded pair (20 AWG)

2.18 **CLASSROOM**

A. (1) 3 conductor shielded to speaker (22 AWG)
   Three conductor, non-twisted, tinned copper, polyethylene insulated, 100% overall shield, gray PVC jacket, color coded black, and white. Cat. #8771, 22 gauge, stranded, 24 gauge drain wire size.

B. (1) Twisted shielded pair (22 AWG) (sub-feed call button if applicable).
PART 3 - NETWORKED COMMUNICATIONS AND EVENT MANAGEMENT SYSTEM

3.1 SYSTEM DESCRIPTION AND SUMMARY

A. Furnish and install all equipment, accessories, and materials in accordance with these specifications herein to provide a complete and operating Networked Communications and Event Management System for the school district.

B. The Networked Communications and Event Management System will be used for three distinct purposes as described in the following sections.

1. Networked District-Wide Communications System
2. Networked Event Management System
3. Networked Crisis Management System

C. The system comprises, but is not limited to, the following:

1. Enterprise Communications and Event Management Software
2. Communications Server(s)
3. Networked Page Module(s) at each school location
4. Client ‘Live Page” software application
5. Telephone System Integration Module
6. Emergency Macro Panic Button(s)
7. Interface to District Network Equipment and Communications Systems

3.2 SYSTEM DESIGN

A. Manufacturer

1. Subject to compliance with requirements, provide the following system:

   a. Telecenter® U as manufactured by Rauland-Borg Corporation
   b. Must be by the same manufacturer as public address system equipment.
   c. Contact Open Systems Metro : Robert Marazzo 914-241-0057

3.3 SYSTEM PERFORMANCE REQUIREMENTS

A. The system shall be a network-based platform providing multiple types of communications and control to individual schools, groups of schools, campuses, or the entire school district. There shall be no limit to the number of groups created. Individual schools may be part of multiple groups. The system will allow for a unified solution utilizing intercom/paging systems, local sound systems and other control systems at each school location to provide:

1. Networked District-Wide Communications System.
2. Live Paging via computer USB Microphone or telephone to any individual school, group of schools or district wide. This feature shall be permission based allowing the school district to control access to this feature.
3. Pre-recorded announcements and tones activated via GUI Web-Browser to any individual school, group of schools or district wide. This feature shall be permission based allowing the school district to control access to this feature.
4. Activate/De-activate relays via GUI Web-Browser at an individual school, group of schools or district wide. The relays may allow control of other systems such as mechanical bells, access control, and lighting control. This feature shall be permission based allowing the school district to control access to this feature.

5. Allow the creation of user MACROS that can be a sequence of prerecorded announcements, tones, and relay activation/deactivation. The sequence will allow one-touch activation for routine procedures from the GUI browser. Send emails to specific work groups as part of a MACRO sequence.

6. Allow inputs from other systems that will automatically play a MACRO sequence. An example would be playing a prerecorded message and/or tone at an individual school when the security alarm is activated. An email to security can be part of this MACRO.

B. Networked Event Management System

1. The system shall have a network-based event management system for the entire school district. The system can allow the creation of an unlimited number of event schedules to be accessed by individual schools. It shall be managed over the WAN and will allow users at the district level or school level access to creating, updating and activating specific schedules. Different levels of permissions will allow the ultimate flexibility for the district or school staff to manage events.

2. Each school may utilize any district created schedules and have up to 20 event schedules with up to 5 being active simultaneously per day. Scheduled events may consist of:
   a. Bell Tones
   b. User-created voice files or tones
   c. Activation of Relays on the network interfaced Page Module. Relays can be used to initiate system tones on the schools intercom system.
   d. Sending emails
   e. The system must have the ability to create schedule templates for the school district. These templates can be edited and saved by individual schools to allow the simple creation of event schedules. There shall not be a limit to the amount of templates that can be created.

C. Networked Crisis Management System

1. The system must have the ability to create Emergency Macros (EM). These Macros are user-created to enhance the school or district’s unique crisis plan for a particular emergency. Up to 4 Emergency Macros plus an All-Clear Macro can be created. Typical Emergency Macros will include Lockdown, Lockout, Evacuation and a Weather-related emergency. Emergency Macros may consist of a unlimited sequence of:
   a. Pre-Recorded Voice Messages
   b. The messages shall be individualized for each school to ensure a calm, trusted voice is giving the emergency instructions
   c. Emergency Tones
   d. Relay Contacts: Relays can be integrated to systems such as Access Control to lock doors as part of an emergency macro.
D. E-Mail

1. E-mails shall be sent via the system to notify district office personnel of a crisis situation.
2. Emergency Macros can be initiated from a Web Browser GUI or the telephone system.
   a. When an Emergency Macro (such as a Lockdown, Lockout or Evacuation) is initiated, all active event schedules will automatically be disabled from operation. This is to ensure that the emergency communications is the only message being broadcast. When the “All-Clear” Macro is initiated to clear the emergency, the normal state of the event schedule will automatically be re-enabled.
   b. Emergency Macros shall be permission based so only authorized users will have the ability to initiate these Macros.
   c. The permission/user groups are Matrix based. This will allow different groups and users to access specific schools, groups or the entire district:
   d. District personnel, based on user/group status may be allowed to initiate Emergency Macros to individual, groups or all schools
   e. School personnel, based on user/group status may be allowed to initiate Emergency Macros to their individual school. It may also be possible to initiate Emergency Macros at adjacent campuses if it is desired by the school district crisis plan.
   f. The Web Browser GUI must be intuitive to promote simple access to system features. Both everyday features and emergency features shall be integrated in the browser to facilitate familiarity with the system.
   g. To promote ease of use, all users will have a home page where they see only the system functions that they have the authority to access.
   h. The user home page may be customizable in five different designs depending on the preference of the user.
   i. The user may be able to create quick-access favorites of specific functions that are used frequently. An unlimited number of favorites can be created.
   j. Browser sub-pages are used to access specific features and functions from the user home page. Depending on user permissions, sub-pages will include:
      - Emergency Access
      - Pre-recorded Page/Tones
      - Live Page
      - Pre-Recorded Macros
      - Macro Creation
      - Bell Schedules
      - Calendar Management
      - System Management/User Permissions
   k. The system must have the ability to create unlimited permission groups. These groups will be granted access to perform specific functions of the Networked Communications and Event Management System. At the discretion of the District Administrator, specific users will be allowed/disallowed the following functions depending on their permission Group:
      - Execute Emergency Macros
      - Execute District, Group or Single site paging
      - Execute Standard Macros
      - Execute Bell Schedules for District, Group or Single Site
      - Create/Modify Bell Schedules for District, Group or Single Site
      - Create/Modify Groups of Schools
      - Create/Modify Standard Macros
      - Create/Modify Emergency Macros
      - Create/Modify Users and Permission Groups
      - Set/Modify Audio Priorities
      - Create User Audio File Attachments
      - Create Activity Reports
3.4 EQUIPMENT AND MATERIALS

A. Communications Server:
The Communications Server shall be provided by the contractor. The server may be a dedicated server or a virtual server depending on the preference of the school district. The minimum performance requirements of the server shall be Pentium D 2.4 / 4 GB RAM / 20 GB HD, Windows 7, Server 2008.

B. Server Software

1. Telecenter U software allows networking of up to 1000 Telecenter U TCU1000PM Page Modules together for school-wide/district wide emergency macro initiation, live and pre-recorded paging, manual music and tone distribution, and bell/event schedules.

2. The Telecenter U software is a web-based system that allows users to logon from virtually any location and access the system. It allows unlimited users to access system. Feature access is permission based and Integrates with Windows Active Directory for system login. The software is intuitive. All features can be accessed via a web-browser GUI, with the exception of live paging which requires a windows-based client application.

3. Telecenter U provides for 4 system-defined emergency macros as well as an “All Clear” macro. Pre-recorded messages, music and tones can be uploaded to the system and incorporated in emergency macros and bell schedules as well played manually.

4. The software allows the creation of up to 20 bell schedules per school and maintain up to 5 of them actively on each calendar day. Each bell schedule can accommodate unlimited events. An unlimited number of schedule templates can be stored and accessed from the Telecenter U server.

5. Telecenter U software also allows for DTMF access to emergency macro initiation and live paging via telephone when integrated with the district telephone equipment.

6. Live Page Client Software

C. Network Interface Page Modules – TCU1000PM

1. Page Module is designed to interface to external paging/intercom systems and other local sound systems. The unit can be wall, rack, or desk-mounted. Capabilities include:
   a. 8 Output Relays (single pole double throw)
   b. 6 Input Contacts
   c. Audio Output: Mic Level (0.2mV) and Line Level (1.228V)
   d. POE or 48VDC Wall Transformer
   e. 6.2 GB Storage

2. The system software allows for up to 1000 Page modules to be networked by the Telecenter U. The Page Module allows for live audio, prerecorded voice, music and tones to be distributed via network.

3. The Page Module provides the ability for a campus or school to store and execute preconfigured emergency alerts such as lockdown, lockout, evacuation or weather emergencies.

4. The Page Module also stores and executes up to 5 active bell schedules simultaneously.

5. The Page Module must store locally all active tones, voice files, macros, event schedules and emergency macros used by a particular module. This allows all local functions such as event schedules and emergency macros to continue in the event of a network interruption.
D. Phone System Integration

1. The system allows access to live paging and emergency event initiation through telephone access, as well as through the web-browser User Interface. Dial up (through a PBX or directly from the PSTN) allows users who do not have immediate access to a web browser, to access critical communication functionality during an emergency. This feature will allow user specific, pin code protected access to the system live paging, and emergency event initiation for each user’s unique programmed locations. This requires a separate server to interface to the Networked Communications and Event System server and the district phone system.

2. Server Requirements
   a. Intel 2.0 GHz/ 2GB RAM/20 GB Hard Drive/free PCI slot
   b. Windows XP SP 3, Windows 7 (32 bit only)

3. Interface Card requirements
   a. Model # 306-384 Dialogic 4 Port PCI, 2 channels fax (V .34), Loop Start, full-size form factor.
   b. Model # M01-040 Software

E. Emergency Macro Panic Button: The system allows the connection of a momentary closure device to each Page Module for immediate access to initiate an emergency macro such as a “Lockdown” sequence at an individual school. The device may be a mushroom-style button, key-switch button or any momentary closure device acceptable to the district, similar to Rauland HSS13 or HSS8 high security emergency switches. Install as indicated on the drawings at each school location.

F. The system allows the connection of a momentary closure device to each Page Module for immediate access to initiate an emergency macro such as a “Lockdown” sequence at an individual school. The device may be a mushroom-style button, key-switch button or any momentary closure device acceptable to the district, similar to Rauland HSS13 or HSS8 high security emergency switches. Install as indicated on the drawings at each school location.

G. Implementation Requirements
   1. Network Requirements
      a. 1 Gigabyte Minimum
      b. WAN connectivity to tie systems together
      c. Provide an RJ45 connection to an open data port

H. Integration to Local Public Address Systems(s):

1. The system is required to use the existing communications system (intercom/paging) at each school location as the primary sound system to perform the above requirements. In some cases, other sound systems, such as gymnasium or athletic field will also required to be interfaced.

2. The Networked Communications and Event Management system interfaces to most types of communications systems. It is the responsibility of the supplier to identify the types of systems that are in place at all school locations. It is understood by the school district that some older communications systems may not have the ability to utilize every feature set that the Networked Communications and Event Management System can offer. It is the responsibility of the supplier to:
   a. Provide the maximum amount of system features that each intercom/paging system is capable of producing. The limitations shall be documented to the school district.
   b. Provide at a minimum to all interfaced communications and sound systems:
      - All Zone Live Paging
      - All Zone Tones/Pre-recorded Messaging
      - All Zone Emergency Messages
      - All Zone Events
      - Tones
      - Audio Files
PART 4 - EXECUTION

A. Wiring

1. Open wiring is permitted above corridors where ceiling are accessible using removable ceiling tiles. Provide conduit runouts from all outlets or wiring in non-accessible locations. Provide bushings on all conduit ends.

2. Support wiring from existing walls or ceilings using onidal rings spaced not more than 4'-0" apart. Cable laid on ceiling panels is not acceptable.

3. Wiring shall be in accordance with the recommendation of the sound system manufacturer.

4. Each cable shall be clearly labeled with factory printed panduit type wire markers for circuit wire number at both ends. Wire tag shall bear the room number when available. Hand written tags will not be acceptable.

5. Each cable shall be continuous from the main control console to termination point, except where otherwise noted. Splices in wire or cable are allowed only where specifically noted.

6. Where it is impracticable to conceal conduit in finished spaces, cable shall be run in wiremold.

B. Testing

1. The entire PA and Networked Management system sections shall be tested for functionality and audible clarity. Each speaker shall be adjusted to provide a clear audible level of sound in all areas of the space they are intended to cover. Any defective speaker shall be replaced. No audible static shall be present on any line. Contractor is required to readjust speaker taps as dictated by job conditions and at request of Engineer.

2. The entire telephone system section shall be tested for functionality. System programming shall be by the contractor per the owner’s representative with respect to features, restrictions, etc. All telephone sets shall be tested for specifically-programmed features and voice mail access.

3. Submit results on an approved test report form signed by the manufacturer's representative.

4. Certificate: The manufacturer's representative shall examine this installation and certify that the system is properly installed and operating.

C. Manufacturer's representative and training

1. Secure the services of Open Systems Metro Contact: Robert Marazzo 914-241-0057 The manufacturer's representative for a minimum of three (3) working days (not necessarily consecutive) for the following:
   a. Provide supervision of system installation.
   b. Supervise and witness the final system test.
   c. Train designated facility personnel on the operation and maintenance of the system. Provide in-house training to the entire staff with regards to basic telephone features and voice mail access and personal mailbox greeting. Training shall be as 1 large venue in the auditorium or in groups as desired by the school. Provide all staff members with personal instruction booklets.

D. Owner's Master Manual: Provide the Owner with (3) bound master manuals including operating instructions, equipment cuts, installation instructions, maintenance instruction and "As-Built" Drawings of work installed under this contract.

END OF SECTION
SECTION 26 08 50
ADDRESSABLE FIRE ALARM 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 RELATED DOCUMENTS
A. Related Sections
   1. Division 01 General Requirements

1.2 SUMMARY
A. Section Includes
   1. This specification describes an addressable Fire Detection and alarm signaling system. The control panel shall be intelligent device addressable, analog detecting, low voltage and modular, with digital communication techniques, in full compliance with all applicable codes and standards. The features and capacities described in this specification are required as a minimum for this project and shall be furnished by the successful contractor.
   2. The system shall be in full compliance with National and Local Codes.
   3. The system shall include all required hardware, raceways, interconnecting wiring and software to accomplish the requirements of this specification and the contract drawings, whether or not specifically itemized herein.
   4. All equipment furnished shall be new and the latest state of the art products of a single manufacturer, engaged in the manufacturing and sale of analog fire detection devices for over ten years.
   5. The system as specified shall be supplied, installed, tested and approved by the local Authority Having Jurisdiction, and turned over to the owner in an operational condition.
   6. In the interest of job coordination and responsibilities the installing contractor shall contract with a single supplier for fire alarm equipment, engineering, programming, inspection and tests, and shall be capable of providing a “UL Listing Certificate” for the complete system.
   7. The system specified shall be that of ™ PRO which meets the project requirements. Other systems shall be submitted 10 days prior to bid date for approval by the Engineer. All system approved shall meet all the requirements spelled out in this specification. System approval shall be in writing by the Engineer and a copy shall be submitted with the system submittals.

1.3 ALLOWANCES
A. Specify products and work included in this Section that are covered by cash or quantity allowance. Do not include amounts. Insert descriptions of items in Part 2 or 3 to provide information affecting the cost of the Work that is not included under the allowance.
1.4 UNIT PRICES

A. Specify products and work included in this Section that are covered by unit prices. Do not include amounts. Insert descriptions of items in Part 2 or 3 to provide information affecting the cost of the Work that is not included under the unit price.

1.5 DEFINITIONS

A. ASME: American Society of Mechanical Engineers
B. FACP: Fire alarm control panel.
C. FM: FM Global (Factory Mutual)
D. Furnish: To supply the stated equipment or materials.
F. Install: To set in position and connect or adjust for use.
G. LED: Light-emitting diode.
H. NCC: Network Command Center
I. NFPA: National Fire Protection Association. Definitions in NFPA 72 apply to fire alarm terms used in this Section.
K. Provide: To furnish and install the stated equipment or materials.
L. UL: Underwriters Laboratories

1.6 SYSTEM DESCRIPTION

A. The system shall be a complete, electrically supervised fire detection and notification system, with a microprocessor based operating system having the following capabilities, features, and capacities:

1. System shall provide an output port for monitoring purposes by external systems. Communications to an external system shall be RS-232 or RS-485 communications.

2. The local system shall provide status indicators and control switches for all of the following functions:
   a. Audible and visual notification alarm circuit zone control.
   b. Status indicators for sprinkler system water-flow and valve supervisory devices.
   c. Any additional status or control functions as indicated on the drawings, including but not limited to; emergency generator functions, fire pump functions, door unlocking and security with bypass capabilities.
1.7 PERFORMANCE REQUIREMENTS

A. General Performance: Comply with NFPA 72 and all contract documents and specification requirements.

B. All interconnections between this system and the monitoring system shall be arranged so that the entire system can be UL-Certificated.

C. System shall be a complete, supervised, non-coded, addressable multiplex Fire Alarm system conforming to NFPA 72.

D. The system shall have Style 6 circuits for each floor. The system shall operate in the alarm mode upon actuation of any alarm initiating device. The system shall remain in the alarm mode until all initiating device(s) are reset and the fire alarm control panel is manually reset and restored to normal.

E. The system shall be capable of the following configurations. Both configurations are permitted on the same network.

   1. The system shall support 504 addressable devices, distributed between eight loops each of which may be divided in any ratio on one, two, three, or eight separate, isolated Class B circuits.

F. The system shall support H or O-series devices and Siemens Cerberus™ PRO series devices.

G. The system shall have a built-in digital alarm communication transmitter.

H. The system shall provide an off-normal warning prior to reset for all active devices.

I. The system shall be capable of remote monitoring via Siemens Cerberus™ PROView®, a proprietary software system that provides a graphical representation of the fire alarm control panel at a remote PC when connected via Ethernet to the system. The display will show the exact state of the panel, including blinking LEDs, and with menu buttons for control.

J. The system shall be capable of being configured either at the control panel or via a PC Tool.

K. The system shall provide the following functions and operating features:

   1. The FACP and auxiliary power panels shall provide power, annunciation, supervision and control for the system.

   2. Provide Class B initiating device circuits.

   3. Provide two Class B notification appliance circuits (NAC) each arrange circuits to allow individual, selective, and visual notification by zone. Notification appliance circuits shall be zoned to correspond with the building fire barriers, floors and other building features.

   4. Strobes shall be synchronized throughout the entire building.

   5. Provide electrical supervision of the primary power (AC) supply, presence of the battery, battery voltage, and placement of system modules within the control panel.

L. The system shall provide a field test function where one person can test the complete system or a specific area while maintaining full operational function of other areas not being tested. Alarms, supervisory signals, trouble signals shall be logged on the system printer and in system history during the walk-test.
M. Alarm functions shall override trouble or supervisory functions. Supervisory functions shall override trouble functions.

N. Fire alarm signal initiation shall be by one or more of the following devices:
   1. Manual pull station
   2. Heat detector
   3. Addressable Multi-criteria, dual optical smoke detectors
   4. Standard Addressable Duct smoke detector
   5. Specialized Duct Smoke detector
   6. Automatic sprinkler system water flow switch.

O. Activation of any system fire, security, supervisory, trouble, or status initiating device shall cause the following actions and indications at all network Person Machine Interfaces using basic graphics and multiple detail screens.
   1. Fire Alarm Condition
      a. Sound an audible alarm and display a custom screen/message defining the building in alarm and the specific alarm point initiating the alarm in a graphic display.
      b. Log into the system history archives all activity pertaining to the alarm condition.
      c. Print alarm condition on system printer (A Printer is not part of this contract).
      d. Sound the ANSI 117-1 signal with synchronized audible notification appliances and synchronized strobes throughout the facility.
      e. Audible signals shall be silenced from the fire alarm control panel by an alarm silence switch. Visual signals shall be programmable to flash until system reset or alarm silencing, as required.
      f. A signal dedicated to sprinkler system water flow alarm shall not be silenced while the sprinkler system is flowing at a rate of flow equal to a single head.
      g. Activation of any smoke detector in a single elevator lobby or an elevator equipment room shall, in addition to the actions described, cause the recall of that bank of elevators to the 1st floor and the lockout of controls. In the event of recall initiation by a detector in the first floor lobby, the recall shall be to the alternate floor as determined by the AHJ.
      h. Where indicated on drawings heat detectors in elevator shaft and machine rooms shall activate an elevator power shunt trip breaker. The heat detectors shall be rated at a temperature below the ratings of the sprinkler heads in respective locations to insure that the power shall be shut off before activation of sprinkler system.
      i. As required by Paragraph 6.16.3.12.3 of NFPA 72, activation of an initiating device located in the elevator machine room or elevator hoist-way shall activate the associated elevator(s) visual warning signal.
System operated duct detectors as per local requirements shall accomplish HVAC shut down. All duct detector shall be provided with a Remote Indicator Lamp shown or not shown on the contract drawings. This Remote Lamp shall be provided with a custom label by the Electrical Contractor identifying its purpose. (i.e.: AHU-1 RETURN)

Door closure devices shall operate by floor or by local requirements.

2. Supervisory Condition
   a. Display the origin of the supervisory condition report at the local fire alarm control panel graphic LCD display.
   b. Activate supervisory audible and dedicated visual signal.
   c. Audible signals shall be silenced from the control panel by the supervisory acknowledge switch.
   d. Record within system history the initiating device and time of occurrence of the event.
   e. Print supervisory condition to system printer (A Printer is not part of this contract).

3. Trouble Condition
   a. Display at the local fire alarm control panel graphic LCD display, the origin of the trouble condition report.
   b. Activate trouble audible and visual signals at the control panel and as indicated on the drawings.
   c. Audible signals shall be silenced from the fire alarm control panel by a trouble acknowledge switch.
   d. Trouble conditions that have been restored to normal shall be automatically removed from the trouble display queue and not require operator intervention. This feature shall be software selectable and shall not preclude the logging of trouble events to the historical file.
   e. Trouble reports for primary system power failure to the master control shall be automatically delayed for a period of time equal to 25% of the system standby battery capacity to eliminate spurious reports as a result of power fluctuations.
   f. Record within system history, the occurrence of the event, the time of occurrence and the device initiating the event.
   g. Print trouble condition to system printer (A Printer is not part of this contract).

P. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes.
1.8 SUBMITTALS

A. Product Data: For each type of product indicated. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes. Include rated capacities, operating characteristics, electrical characteristics, and furnished specialties and accessories. Complete manufacturer’s catalog data including supervisory power usage, alarm power usage, physical dimensions, and finish and mounting requirements.

B. Power calculations. Battery capacity calculations. Battery size shall be a minimum of 125% of the calculated requirement. Provide the following supporting information:
   1. Supervisory power requirements for all equipment.
   2. Alarm power requirements for all equipment.
   3. Power supply rating justification showing power requirements for each of the system power supplies. Power supplies shall be sized to furnish the total connected load in a worst-case condition plus 25% spare capacity.
   4. Voltage drop calculations for wiring runs demonstrating worst-case condition.
   5. NAC circuit design shall incorporate a 25% spare capacity.
   6. Addressable SLC circuit design shall incorporate 25% spare capacity.
   7. IDC circuit design shall allow only a single initiating device installed on each IDC so that it is uniquely identified on the system.

C. Submit manufacturer’s requirements for testing Signaling Line Circuits and device addresses prior to connecting to control panel. At a minimum the following tests shall be required; device address, the usage (Alarm, Supervisory etc), environmental compensation, temperature ratings for thermal detectors and smoke detector sensitivities. This requirement shall need approval before any wiring is connected to the control panel.

D. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work.
   1. Detail equipment assemblies and indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
   2. Wiring Diagrams: For power, signal, and control wiring.
   3. Complete drawings covering the following shall be submitted by the contractor for the proposed system:
      a. Floor plans in a CAD compatible format at a scale of 1/8”=1’-0” showing all equipment and raceways, marked for size, conductor count with type and size, showing the percentage of allowable National Electric Code fill used.
      b. Provide a Fire Alarm system function matrix as referenced by NFPA 72, Figure A-7-5.2.2 (9). Matrix shall illustrate alarm input/output events in association with initiation devices. Matrix summary shall include system supervisory and trouble output functions. Include any and all departures, exceptions, variances or substitutions from these specifications and/or drawings at time of bid.
4. Installation drawings shop drawings, and as-built drawings shall be prepared by an individual experienced with the work specified herein.

5. Incomplete submittals shall be returned without review, unless with prior approval of the Engineer.

E. Fire Alarm Shop Drawings: This electrical contractor shall also submit all documents, drawings, calculations, etc. identified in Paragraph 907.1.2 of the IBC to the Local Authority Having Jurisdiction (AHJ) for “Approval” prior to commencing work. All costs for Permits and Inspections by the AHJ shall be by the Electrical Contractor.

F. Coordination Drawings: Reflected ceiling plan(s) and other details, drawn to scale, on which the following items are shown and coordinated with each other, using input from Installers of the items involved:
   1. Light fixtures.
   2. HVAC registers
   3. Fire protection equipment interfaces
   4. Special suppression system interfaces

G. Qualification Data: For qualified Installer, Applicator, manufacturer, fabricator, professional engineer, testing agency, and factory-authorized service representative.

H. Source quality-control reports.

I. Field quality-control reports.

J. Operation and Maintenance Data: For all fire alarm equipment, to include in operation and maintenance manuals.

K. Software and Firmware Operational Documentation
   1. Software operating and upgrade manuals.
   2. Program Software Backup: On magnetic media or compact disk, complete with data files.
   3. Device address list.
   4. Printout of software application and graphic screens.

L. Warranty: Sample of special warranty.

1.9 QUALITY ASSURANCE

A. Manufacturer Qualifications: The publications listed below form a part of this publication to the extent referenced. The publications are referenced in the text by the basic designation only. The latest version of each listed publication shall be used as a guide unless the authority having jurisdiction has adopted an earlier version.

1. FM Global (Factory Mutual (FM)): FM Approval Guide
2. National Fire Protection Association (NFPA)
   a. NFPA 70 National Electrical Code
   b. NFPA 72 National Fire Alarm Code
   c. NFPA 90A Standard For The Installation of Air Conditioning and Ventilating Systems
   a. UL Fire Protection Equipment Directory
   b. UL Electrical Construction Materials Directory
   c. UL 38 – Manually Actuated Signaling Boxes for Use With Fire Protection Signaling Systems
   d. UL 228 – Door Holding Devices
   e. UL 268 - Smoke Detectors for Fire Protective Signaling Systems
   f. UL 268A - Smoke Detectors for Duct Application
   g. UL 464 - Audible Signal Appliances
   h. UL 497A – Secondary Protectors for Communications Circuits
   i. UL 521 - Heat Detectors for Fire Protective Signaling Systems
   j. UL 864 - Control Units for Fire Protective Signaling Systems
   k. UL 1283 – Electromagnetic Interference Filters
   l. UL 1449 - Transient Voltage Surge Suppressors
   m. UL 1971 - Signaling Devices for the Hearing Impaired

4. International Code Council

5. State and Local Building Codes as adopted and/or amended by The Authority Having Jurisdiction, ADA, and/or State and local equivalency standards as adopted by The Authority Having Jurisdiction.

6. NY-MEA

7. ISO 9002

B. Supplier Qualifications

1. The manufacturer of the supplied products must utilize multi-channel product distribution on a national basis to be considered for this bid. The manufacturer must have factory branches as well as independent distributors to allow the end user with the ability to utilize factory trained and authorized competitive service providers after system installation and commissioning.

2. Provide the services of a factory trained and certified representative or technician, experienced in the installation and operation of the type of system provided. The representative shall be licensed in the State if required by law.
3. The technician shall supervise installation, software documentation, adjustment, preliminary testing, final testing and certification of the system. The technician shall provide the required instruction to the owner's personnel in the system operation and maintenance.

4. The suppliers shall furnish evidence they have an experienced service organization, which carries a stock of spare and repair parts for the system being furnished.

5. The equipment supplier shall be authorized and trained by the manufacturer to calculate, design, install, test, and maintain the air sampling system and shall be able to produce a certificate stating such upon request.

C. Installer Qualifications

1. Before commencing work, submit data showing that the manufacturer has successfully installed fire alarm systems of the same scope, type and design as specified.
2. The contractor shall submit copies of all required Licenses and Bonds as required in the State having jurisdiction.
3. The contractor shall employ on staff a minimum of one NICET level II technician or a professional engineer, registered in the State of the installation.
4. Contractors unable to comply with the provisions of Qualification of Installers shall present proof of engaging the services of a subcontractor qualified to furnish the required services.

D. Testing Agency Qualifications: Qualified for testing indicated.

E. Source Limitations for fire alarm equipment: Obtain fire alarm equipment from single source.

F. Surface-Burning Characteristics: As determined by testing identical products according to ASTM E 84 by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

1. Flame-Spread Index: 25 or less.
2. Smoke-Developed Index: 50 or less.

G. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

H. Pre-installation Conference: Conduct conference at Project site.

1.10 DELIVERY, STORAGE AND HANDLING

A. Deliver products to project site in original, unopened packages with intact and legible manufacturers’ labels identifying product and manufacturer, date of manufacture, and shelf life if applicable.

B. Store materials inside, under cover, above ground, and kept dry and protected from physical damage until ready for use. Remove from site and discard wet or damaged materials.

1.11 PROJECT CONDITIONS

A. Installed products or materials shall be free from any damage including, but not limited to, physical insult, dirt and debris, moisture, and mold damage.

B. Environmental Limitations: Do not deliver or install products or materials until spaces are enclosed and weather-tight, wet work in spaces is complete and dry, and temporary HVAC system is operating and maintaining ambient temperature and humidity conditions at occupancy levels during the remainder of the construction period.
1.12 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace fire alarm equipment that fail(s) in materials or workmanship within specified warranty period.

1. Warranty Period: 1 year from date of Substantial Completion.

1.13 SERVICE AGREEMENT

A. Technical Support: Beginning with Substantial Completion, provide software support for 1 year.

B. Upgrade Service: Update software to latest version at Project completion. Install and program software upgrades that become available within two years from date of Substantial Completion. Upgrading software shall include operating system. Upgrade shall include new or revised licenses for use of software.

1. Provide 30 days' notice to Owner to allow scheduling and access to system and to allow Owner to upgrade computer equipment if necessary.

1.14 EXTRA MATERIALS

A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents including:

1. Manual Stations: Furnish quantity equal to 2 percent of the number of units installed, but not less than two (2).

2. Visual Notification Appliances (Strobes): Furnish quantity equal to 2 percent of the number of units installed OF EACH TYPE, but not less than two (2).

3. Combination Audible/Visual Notification Appliances (Horn/Strobes): Furnish quantity equal to 2 percent of the number of units installed OF EACH TYPE, but not less than two (2).

4. Audible Notification Appliances (Horns): Furnish quantity equal to 2 percent of the number of units installed OF EACH TYPE, but not less than two (2).

5. Smoke Detectors, Fire Detectors (Heat Detectors), and Flame Detectors: Furnish quantity equal to 2 percent of the number of units of each type installed but not less than two (2) of each type.

6. Detector Bases: Furnish quantity equal to 2 percent of the number of units of each type installed but not less than two (2) of each type.

7. Air Duct Smoke Detector Housing: Furnish one (1) of each type installed.

8. Remote Detector Indicator: Furnish quantity equal to 2 percent of the number of units of each type installed but not less than two (2) of each type.

9. Control Module: Furnish quantity equal to 2 percent of the number of units of each type installed but not less than two (2) of each type.

10. Monitoring Module: Furnish quantity equal to 2 percent of the number of units of each type installed but not less than two (2) of each type.

11. System Keys: Provide Six (6) of each type.
PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements all equipment shall be Siemens Cerberus™ PRO FC-924 By Open Systems Metro

1. In order to assure the Owner of all factory warranties, all equipment shall be obtained from an approved factory authorized distributor. The manufacturer and/or his authorized distributor shall show satisfactory evidence that he maintains a fully equipped factory authorized service organization, stocked with factory approved replacement parts and is capable of furnishing adequate inspection and service of equipment.

2. Provided and subject to compliance with requirements herein, the following alternate manufacturers are approved:

   a. Notifier a GE-Honeywell Company
   b. EST, UTC Fire & Security, A United Technologies Company
   c. Or approved equal

2.2 CONTROL PANEL

A. The fire alarm control panel shall be microprocessor based using multiple microprocessors throughout the system providing rapid processing of smoke detector and other initiation device information to control system output functions.

B. There shall be a watchdog circuit, which shall verify the system processors and the software program. Problems with either the processors or the system program the panel shall activate a trouble signal, and reset the panel.

C. The system modules shall communicate with an RS 485 network communications protocol. All module wiring shall be to terminal blocks, which will plug into the system card cage

D. The system shall be capable of the following configurations. Both configurations are permitted on the same network.

   1. The system shall support 504 addressable devices, distributed between eight loops each of which may be divided in any ratio on one, two, three, or eight separate, isolated Class B circuits.

E. The system shall be capable of supporting unshielded wiring applications.

F. System Components

   1. The System Periphery board shall be capable of 504 intelligent devices distributed between one, two, three, or four Class B SLC circuits. Any trouble on one circuit shall not affect the other circuit. This module controls the signaling from the initiation devices reporting alarms and troubles to the control panel. This module shall also provide the signaling to the field devices for the controlling the output of specific initiation devices. The on board microprocessor provides the periphery board with the ability to function even if the main microprocessor fails. LED’s on the board shall provide annunciation for the following: Power, Gnd. Fault, Alarm, Trouble. This board is integral to the system. The board shall be model number FCI2017-U1.
2. The system periphery board shall be capable of supporting two system drivers of 504 intelligent devices distributed between one, two, three, or four Class B SLC circuits, for a total panel capacity of 504 addressable devices. Any trouble on one circuit shall not affect the other circuit. This module controls the signaling from the initiation devices reporting alarms and troubles to the control panel. This module shall also provide the signaling to the field devices for the controlling the output of specific initiation devices. The on board microprocessor provides the periphery board with the ability to function even if the main microprocessor fails. LED’s on the board shall provide annunciation for the following: Power, Gnd. Fault, Alarm, Trouble. This board is integral to the system. The board shall be model number FCI2017-U1.

3. The Signal Line Circuits (SLC) shall be tested for opens, shorts and communications with all addressable devices installed before connection to the control panel. Systems without this capability shall have a test panel installed for initial testing to eliminate any possible damage short term or long term to the control panel. After initial testing replace the test panel and proceed with complete testing.

4. The standard Operator Interface shall have the ability to view events, acknowledge, silence, and reset the system and any networked Siemens Cerberus™ PRO control panels, when configured as a global PMI.

5. The LED Operator Interface shall have the ability to view events, acknowledge, silence, and reset the system and any networked Siemens Cerberus™ PRO control panels, when configured as a global PMI. Additionally, the operator interface provides twelve multicolored configurable LEDs for annunciating system status.

6. The System Periphery Board shall contain 2 Class B NAC circuits rated at 3 amps each with power-limited outputs. The zones shall be isolated and independently supervised. There shall be at least 6 unique codes/signals for each circuit based on system logic. These signals shall be Temporal Code 3 (Evacuation), Steady (Such as “Recall”), Temporal Code 3 (for CO alarms), March Time 120ppm, March Time 60ppm, and March Time 30ppm. The card shall have the following LED’s to provide trouble shooting and annunciation; Power, Gnd. Fault, Zone Activation or Trouble. This functionality shall be integral to the system. The card shall be model number FCI2017-U1.

7. The control panel shall be equipped with four Form C relays for alarm, trouble, supervisory, and programmable output. The system shall provide the mounting of all system cards, field wiring, and panel’s inter-card wiring. All power limited field wiring shall be separated from all non-power limited internal wiring. The card shall be model number FCI2017-U1.

G. System response time from alarm to output shall be an average of three (3) seconds.

H. All system cards and modules shall have Flash memory for downloading the latest module firmware.

I. Passwords

1. Technician Level Password - There shall be a 5 character password that a user must enter into the control panel in order to perform such maintenance- and control-related functions at the panel as:
   a. Arming and disarming devices.
   b. Activating, deactivating or modifying detector ASD and sensitivity settings.
   c. Activating and deactivating the History Log function, and deleting obsolete entries.
   d. Changing the system time and date.

2. Maintenance Level Password - There shall be a 5 character password that a user must enter into the control panel in order to access the panel's reporting functions and walktest functions.
3. Acknowledge Silenceable Reset Access - There shall be a key required to open a locked cabinet that a system user must use in order to acknowledge events, turn silenceable audibles and visuals on and off, and perform panel resets.

J. Degrade Mode Alarm Activation

1. Each Siemens Cerberus™ PRO panel shall operate as a stand-alone fire alarm control panel with complete functionality in the event of loss of communications with other Siemens Cerberus™ PRO panels on a network.

K. Software Modifications: The system structure and software shall place no limit on the type or extent of software modifications on-site. Modification of software shall not require power-down of the system or loss of system fire protection while modifications are being made. Systems that require the use of external programmers or change of EPROMs are not acceptable.

L. Logic: The fire alarm system shall support generic functions that deal with binary states (True/False, high/low), and produce desired outputs from one or more binary inputs (for example, alarm outputs from detector or manual station inputs). AND, OR, NOT, Any N, Latches, Start Timer, Delay Timer, Restart Timer are generic functions. Generic functions can be used as inputs to other function. The system shall support 500 logic functions.

M. History: The system shall store 20000 events in history. Trouble warnings will occur when the History buffer is full.

N. Reports

1. The system shall have the ability to provide configuration, status, queue and history reports.

2. Configuration reports shall provide the following information:
   a. Custom Messages
   b. Database Information
   c. Entity Type
   d. Device Usage
   e. Zone usage
   f. Device Category
   g. Firmware revision

3. Status reports shall provide the following information:
   a. Disarmed cards and devices
   b. ASD settings
   c. Sensitivity in %/foot
   d. Alarm threshold in %/foot
   e. Temperature in degrees C
   f. Walk-test

4. Queue reports shall provide the following information:
   a. Alarm events with custom message and event time
   b. Supervisory events with custom message and event time
   c. Trouble events with custom message and event time
   d. Status events with custom message and event time
   e. Information events
5. History reports shall provide Address, History Type, Description, Time & Date and Custom Message. The following event types shall be reported:
   a. Alarm events
   b. Supervisory events
   c. Status changes
   d. Alarm verification
   e. Output activation from logic
   f. System Reset
   g. Event Acknowledgements
   h. Block Acknowledgements
   i. Audible Silence System Flag Changes
   j. Sensitivity Changes
   k. Arm / Disarm Commands
   l. Arm / Disarm By Logic
   m. Manual Output Overrides
   n. Output Overrides By Logic
   o. Time Changes
   p. Menu Logins
   q. ASD Changes
   r. Walk-test
   s. Device Input to Logic Activations/Deactivations

2.3 POWER SUPPLY

A. The system Power Supply/FP2012-U1 shall be a 300 Watt, 10amp supply that provides 24VDC power for system operation. The power supply shall be filtered and regulated. The power supply provides power for all system operation, including signaling line circuits, notification appliance circuits, auxiliary power, battery charger, and all optional modules. The power supply shall be rated for 120/240 VAC 50/60 Hz. The module shall be model number FP2012-U1.

B. The battery charger shall be able to charge the system batteries up to 100 AH batteries. Battery charging shall be microprocessor controlled and programmed with a special software package to select charging rates and battery sizes. An optional Thermistor for monitoring battery temperature to control charging rate shall be available.

C. Transfer from AC to battery power shall be instantaneous when AC voltage drops to a point where it is not sufficient for normal operation.

2.4 SYSTEM ENCLOSURE

A. Provide the enclosure needed to hold all the cards and modules as specified with at least spare capacity for two cards. Provide the color as to the local AHJ requirements. The outer doors shall be capable of being a left hand open. The inner door shall have a left hand opening.

B. Provide black cabinet enclosure.

2.5 AUXILIARY POWER SUPPLY – NOTIFICATION APPLIANCE EXTENDER

A. Auxiliary Power Supply, Notification Appliance Extender shall be the Siemens Cerberus Pro PAD-3 shall provide 6 amps of 24 VDC power for multiple uses. All 6 amps can be directed to 4 Notification Appliance Circuits (NAC’s) with each rated at 3amps/power limited.
B. Either 1 or 2 inputs can control the four outputs. These outputs are compatible with all Siemens Cerberus Pro notification appliances and can be configured so that the inputs can be programmed as steady outputs, ANSI temporal outputs, or synchronized strobe outputs. It shall provide silencable horn/strobe horns while the strobes remain on using one set of wires.

C. The PAD-3 shall provide a 3 amp auxiliary output for driving other portions of the fire alarm system such as door holders. This 24 VDC filtered output shall be power limited.

D. A Form C dry contact for trouble monitoring.

E. The PAD-3 offers battery supervision and management as is required of fire alarm system components.

F. Ground faults are transmitted as are any other trouble conditions. Trouble conditions not only change the state of the trouble contact in the unit, but they also break the notification circuit input to create a trouble signal in the fire alarm control unit.

2.6 REMOTE ANNUNCIATOR – FIRE TERMINAL

A. Each Fire Terminal shall contain one (1) ¼” Video Graphics Array (VGA) monochrome LCD display; one (1) touch screen and light-emitting diodes (LEDs) for displaying system status. An audible shall sound when there are unacknowledged events on the system.

B. The display shall be surrounded by keys that are used to control the displayed information, and to navigate through these screens. Keys shall be provided to obtain ‘Help’ and to enter into the menu features of each operating unit. The display of each operating unit shall categorize events by type, providing a separate event tab for Alarm, Gas Alarm, Supervisory, and Trouble events. The quantity of active events of each type is listed in each event tab.

C. The display shall provide two (2) full lines of text message for each event. Each event shall have a 40-character custom message describing the events location. In addition to the text message, the system displays the category of the active event: (e.g. – Smoke, Heat, Water Flow, Manual, etc) – the category means more to responding officials than model numbers.

D. Up to two (2) events can be displayed at a time. When more than two (2) events are present, the up-and-down arrow keys shall allow the user to scroll up and down the list of events. A progress meter on the side of the list indicates the size of the list of events and the location in the list. New, unacknowledged events are indicated by a flashing exclamation point (‘!’).

E. Once acknowledged, the exclamation point changes to a check mark (‘✓’). To the right of the display is a button that is labeled 'More Info.' When an event occurs, (provided additional information has been configured for the event), the ‘More Info’ button will light green, which will then prompt the user to press the ‘More Info’ button. Once ‘More Info’ is pressed, the user is presented with a full screen of detailed information about that event, including over 200 characters of additional text to describe the event, standard NFPA 170 Fire Safety symbols, Hazmat and other critical information concerning the event.

F. The detail screen shall provide the user with a summary of the events – by type active in this area, a building contact name and phone number. In addition to the detail screen, the user shall have the ability to view a graphics map showing a simple building floor plan. On the map, the user will see an icon indicating the location of the event in the building, in addition to a 'You-Are-Here' symbol to tell the responding person exactly where they are in the building in relation to the event.
G. Each interface also provides a completed menu for running system status reports (with a ‘print preview’ feature directly on the screen before sending the report to the printer.) The menu system is designed to allow the user to scroll through the entire system in alphanumeric form to locate the area of the system desired – all without having to know module or device addresses. All navigation is possible using custom messages.

H. The Maintenance menu is accessed by password. When a user enters this mode, the touch screen of each interface will be enabled, prompting the user to enter a password. System control within the maintenance menu uses large, easy-to-read touch buttons. Each operating unit also provides the user with 40 programmable macro or function buttons, which can be programmed for a variety of usages. Each operating unit mounts to the inner door of available module spaces in one-height-unit and two-height-unit enclosures.

I. Each operating unit shall communicate with the rest of the Cerberus PRO FACP via the internal, 60-pin data bus, which contains all power and data communications. The back of each interface contains a contrast adjustment for the LCD display as well as several ports for system configuration and diagnostics.

J. Temperature and Humidity Range Products are approved for operation within the temperature range of 32° to 120°F (0°C to 49°C), and a relative humidity of 93+/-2% at a temperature of 90+/-3°F (32+/-2°C).

2.7 INTELLIGENT INITIATING DEVICES

A. General
1. All initiation devices shall be insensitive to initiating loop polarity. Specifically, the devices shall be insensitive to plus/minus voltage connections.

B. Smoke Detectors – Advanced Addressable FDO-Series
1. The detector shall be guaranteed in writing not to false alarm when configured by the factory trained certified technician. The detector must provide up to 19 different environmental algorithms that allow the detector to provide superior false alarm immunity without the need for additional alarm verification delays.

2. The detector shall have a tri-color LED to streamline system maintenance/inspection by plainly indicating detector status as follows: green for normal operation, amber for maintenance required, red for alarm.

3. Detector shall utilize state of the art forward backward light scattering technology, with improved detection for smoldering and flaming fire signatures. The detector shall replace the need for ionization detectors due to improved response characteristics to flaming fires.

4. Detector shall provide pre-alarm signal at 0.2% obscuration/ft to meet the performance requirements of National Fire Protection Association Standard 76, Fire Protection of Telecommunications Facilities as a Very Early Warning Fire Detector (VEWFD).

5. The forward backward light scattering technology shall provide improved immunity to spurious activation (deceptive phenomena). The detector shall have a “No False Alarm Guarantee”.

6. The detector shall be RoHS-compliant: it shall meet standards for Reduction of Hazardous Substances (RoHS) by reduction in lead content.

7. The multi-criteria fire detector shall be an intelligent digital photoelectric detector with a programmable heat detector.
8. Detectors shall be listed for use as open area protective coverage, in duct installation and sampling assembly installation and shall be insensitive to air velocity changes. The detector communications shall allow the detector to provide alarm input to the system and alarm output from the system within four (4) seconds. So as to minimize the effort required by the installing and maintenance technician to appropriately configure the detector to ensure optimal system design, the detectors shall be programmable as application specific. Application settings shall be selected in software for a minimum of 19 environmental fire profiles unique to the devices installed location.

9. The detector shall be designed to eliminate the possibility of false indications caused by dust, moisture, RFI/EMI, chemical fumes and air movement while factoring in conditions of ambient temperature rise, obscuration rate changes and hot/cold smoke phenomenon into the alarm decision to give the earliest possible real alarm condition report.

10. The detector shall be UL listed for operation in a 95% relative humidity (RH) environment.

11. The detector shall be designed to eliminate calibration errors associated with field cleaning of the chamber.

12. The detector shall support the use of a relay, or LED remote indicator without requiring an additional software address. Low profile, white case shall not exceed 2.5 inches of extension below the finish ceiling.

13. The detector shall support the use of an ambient temperature warning signal at the panel. This temperature shall be user-configurable for the set temperature of the warning and the event type generated by the warning. This event can be used to trigger system logic.

14. For the detector where required, there shall be available a locking kit and detector guard to prevent unauthorized detector removal.

15. Models Number
   a. OH921. Multi-Criteria incorporating 1 Optical sensor and 1 Thermal sensor with an operating temperature range of 32°C to 100°F. Available in three parameter sets. Polar insensitivity with isolators. Three color LED.

C. Heat Detectors – Addressable

1. Thermal Detectors shall be rated at 135 degrees fixed temperature and 15 degrees per minute rate of rise. Detectors shall be constructed to compensate for the thermal lag inherent in conventional type detectors due to the thermal mass, and alarm at the set point of 135 degrees Fahrenheit. The choice of alarm reporting as a fixed temperature detector or a combination of fixed and rate of rise shall be made in system software and be changeable at any time without the necessity of hardware replacement.

2. The detectors furnished shall have a listed spacing for coverage up to 2,500 square feet and shall be installed according to the requirements of NFPA 72 for open area coverage. The thermal detector shall be model number HFPT-11.

3. Model HI921 heat detector shall have the following temperature settings:
   a. Fixed temperature at 135°F, 145°F, 155°F, 165°F, 174°F
   b. Rate of Rise at 15°F/ min (8.3°C) at 135°F (57°C)
   c. Rate of Rise at 15°F/ min (8.3°C) at 174°F (79°C)
   d. Low temperature warning at 40°F (4.4°C)
D. Duct Smoke Detectors – Addressable

1. For duct detector applications, the smoke detector shall be an intelligent digital photoelectric detector. Detectors shall be listed for use as open area protective coverage, in duct installation and sampling assembly installation and shall be insensitive to air velocity changes.

2. The detector communications shall allow the detector to provide alarm input to the system and alarm output from the system within four (4) seconds. The detector shall be mounted in a duct detector housing listed for that purpose. The duct detector shall support the use of an LED remote indicator. The duct detector shall be supplied with the appropriate sampling tubes to fit the installation.

3. The intelligent duct detector shall be model number AD2-P Series. Where required there shall be available a duct housing with an on-board relay.

4. Duct smoke detector housing shall allow use in duct systems with air velocity ranging from 100 to 4,000 feet per minute, within temperature ranges of 32°F to 120°F per minute, and with relative humidity ranging from 0 to 95%.

5. Duct Housings: FDBZ492 Global Air Duct Housing for Conventional and Addressable Detectors

E. Manual Pull Stations – Addressable

1. Provide addressable manual stations where shown on the drawings, to be flush or surface mounted as required. Manual stations shall contain the intelligence for reporting address, identity, alarm and trouble to the fire alarm control panel. The manual station communications shall allow the station to provide alarm input to the system and alarm output from the system within less than four (4) seconds.

2. The manual station shall be equipped with terminal strip and pressure style screw terminals for the connection of field wiring. Surface mounted stations where indicated on the drawings shall be mounted using a manufacturer's prescribed matching red enamel outlet box.

3. The single action pull station shall be model number HMS-S.

F. Addressable Interface Devices

1. Addressable Interface Devices shall be provided to monitor contacts for such items as water-flow, tamper, and PIV switches connected to the Fire Alarm system. These interface devices shall be able to monitor a single or dual contacts. An address will be provided for each contact. Where remote supervised relay is required the interface shall be equipped with a SPDT relay rated for 4 amps resistive and 3.5 amps inductive. The addressable interface modules shall be model number HTRI Series.

2. Where needed a Conventional Zone Module shall connect to the Signal Line Circuit, which will allow the use of conventional initiation devices. This module shall have the ability to support up to 15 convention smoke detectors and an unlimited number of contact devices. This module shall also be capable of monitoring Linear Beam detectors and conventional Flame detectors. Where required, there shall be an intrinsically safe detection solution for NEMA defined intrinsically safe installations (model DI-3IS with ISI-1) compatible with the conventional zone module. The module shall be model HZM.
3. Single Device Damper Monitoring and Control: A single HTRI switch input shall be able to monitor all 3 states of a damper – open, closed, and in transit. A single HTRI-R shall be able to fully control a damper (through the relay connected to the motor control) while also using its switch input for monitoring all 3 states of the damper.

4. Model FCIO422 addressable input/output module shall be insensitive to polarity and shall have capability for up to 4 separate inputs (Class B) or 2 separate Class A inputs and 4 separate outputs (Class B).

2.8 DEVICE PROGRAMMING UNIT

A. Device Programming Unit: A programming tool shall be provided as part of this contract. It shall program the intelligent devices with addresses. The unit shall test the device to respond to its address. Dipswitches and rotary switches shall not be acceptable. The programmer shall be model DPU with carrying case.

2.9 NOTIFICATION APPLIANCES

A. Series ZH & ZR – Strobes, Horns, Horn/Strobes

1. Audible/Visual notification appliances shall be listed for indoor use, and shall meet the requirements of FCC Part 15 - Class B

2. Appliances shall be listed under UL Standard 1971 (Standard for Safety Signaling Devices for Hearing Impaired) and UL Standard 464 (Fire Protective Signaling)

3. Appliances shall use a universal back plate, which shall allow mounting to a single-gang, double-gang, 4-inch-square, 4"-octal, or a 3-1/2"-octal back-box

4. Two-wire appliance wiring shall be capable of directly connecting to the mounting back plate

5. Continuity check shall occur for entire NAC circuit prior to attaching any audible / visual-notification appliances

6. Dust cover shall fit and protect the mounting plate

7. Dust cover shall be easily removed when the appliance is installed over the back plate

8. Removal of an appliance shall result in a trouble condition by the Fire Alarm Control Panel (FACP)

9. Strobe appliances shall produce a minimum flash rate of 60 flashes per minute (1 flash per second) over the Regulated Input Voltage Range, and shall incorporate a Xenon flashtube enclosed in a rugged Lexan® lens

10. Strobes shall be available with two or four field-selectable settings in one unit, and shall be rated – per UL 1971 – for up to:
   a. 185cd for wall mounting
   b. 177cd for ceiling mounting

11. Strobes shall operate over an extended temperature range of 32°F to 120°F (0°C to 49°C), and be listed for maximum humidity of 95% RH

12. Strobe inputs shall be polarized for compatibility with standard reverse-polarity supervision of circuit wiring by a Fire Alarm Control Panel (FACP)
13. Audibles and Audible/Strobe Combinations
   a. Horns and horn / strobes shall be listed for Indoor use under UL Standard 464
   b. Horns shall be able to produce continuous synchronized output or a temporal code-3
      synchronized output
   c. Horns shall have at least 2 sound-level settings of 90 and 95 dBA
   d. Synchronization Modules
   e. The strobe portion, when synchronization is required, shall be compatible with DSC sync
      modules or PAD-3 power supply with built-in sync protocol

14. The strobes shall not drift out of synchronization at any time during operation

15. Audibles and strobes shall be able to synchronize on a 2-wire circuit with the capability to silence
    the audible, if required

16. Strobes shall revert to a non-synchronized flash-rate, if the sync module or Power Supply should
    fail to operate (i.e. – contacts remain closed)

17. All notification appliances shall be listed for Special Applications: Strobes are designed to flash at
    1-flash-per-second minimum over their “Regulated Input Voltage Range”

2.10 DIGITAL COMMUNICATOR

   A. The Multi-Point Digital Alarm Communicator FCA2015-U1 shall be UL864 listed to provide point
      identification of alarm, supervisory, security and trouble events to a Central or Remove Receiving Station.
      The DACT shall support the following:

      1. Ademco Contact ID or SIA protocol
      2. Ademco Contact ID selection shall provide the ability to transmit events for up to 999 individual
         zones
      3. SIA selection shall provide the ability to transmit events for up to 10000 individual points
      4. Programming of accounts and phone numbers
      5. Dual phone line interface
      7. Automatic 24-hour test
      8. The DACT supports configurable alarm, alarm restoral, trouble, trouble restoral, supervisory,
         supervisory restoral, and reset events.
      9. The DACT supports Ademco Contact ID alarm event codes for general alarm, smoke detector
         alarm, waterflow alarm, duct alarm, and manual alarm events.
      10. Optionally, the DACT can be programmed to report events by event queue only.
PART 3 - EXECUTION

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

3.2 INSTALLATION
A. Perform work in accordance with the requirements of NFPA 70, NFPA 72 and NECA 1-2006, Standard of Good Workmanship in Electrical Contracting.
B. Fasten equipment to structural members of building or metal supports attached to structure, or to concrete surfaces.
C. In the event that limited energy cable installation is allowed, all cable runs shall be run at right angles to building walls, supported from structure at intervals not exceeding 3 feet and where installed in environmental air plenums, be rated for such use and tied/supported by components listed for environmental air plenums installation.
D. Wiring Method: Install cables in raceways and cable trays except within consoles, cabinets, desks, and counters and except in accessible ceiling spaces and in gypsum board partitions where unenclosed wiring method may be used. Conceal raceway and cables except in unfinished spaces.
E. Wiring Method: Conceal conductors and cables in accessible ceilings, walls, and floors where possible.
F. Wiring within Enclosures: Bundle, lace, and train conductors to terminal points with no excess and without exceeding manufacturer's limitations on bending radii. Provide and use lacing bars and distribution spools.
G. Provide primary power for each panel from normal/ emergency panels as indicated on the Electrical Power Plans. Power shall be 120 VAC service, transformed through a two-winding, isolation type transformer and rectified to low voltage DC for operation of all circuits and devices.

3.3 BOXES, ENCLOSURES AND WIRING DEVICES
A. Boxes shall be installed plumb and firmly in position.
B. Extension rings with blank covers shall be installed on junction boxes where required.
C. Junction boxes served by concealed conduit shall be flush mounted.
D. Upon initial installation, all wiring outlets, junction, pull and outlet boxes shall have dust covers installed. Dust covers shall not be removed until wiring installation when permanent dust covers or devices are installed.
E. "Fire alarm system" decal or silk-screened label shall be applied to all junction box covers.

3.4 CONDUCTORS
A. Each conductor shall be identified as shown on the drawings at each with wire markers at terminal points. Attach permanent wire markers within 2 inches of the wire termination. Marker legends shall be visible.
B. All wiring shall be supplied and installed in compliance with the requirements of the National Electric Code, NFPA 70, Article 760, and that of the manufacturer.

C. Wiring for strobe and audible circuits shall be a minimum 14 AWG, signal line circuits minimum 18 AWG twisted.

D. All splices shall be made using solderless connectors. All connectors shall be installed in conformance with the manufacturer recommendations.

E. Crimp-on type spade lugs shall be used for terminations of stranded conductors to binder screw or stud type terminals. Spade lugs shall have upset legs and insulation sleeves sized for the conductors.

F. The installation contractor shall submit for approval prior to installation of wire, a proposed color code for system conductors to allow rapid identification of circuit types.

G. Wiring within sub panels shall be arranged and routed to allow accessibility to equipment for adjustment and maintenance.

3.5 DEVICES

A. Relays and other devices to be mounted in auxiliary panels are to be securely fastened to avoid false indications and failures due to shock or vibration.

B. Wiring within panels shall be arranged and routed to allow accessibility to equipment for adjustment and maintenance.

C. All devices and appliances shall be mounted to or in an approved electrical box.

3.6 IDENTIFICATION

A. Identify system components, wiring, cabling, and terminals. Comply with requirements for identification specified in Division 26 Section "Identification for Electrical Systems."

B. Permanently label or mark each conductor at both ends with permanent alphanumeric wire markers.

C. A consistent color code for Fire Alarm system conductors throughout the installation.

3.7 FIELD QUALITY CONTROL

A. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect components, assemblies, and equipment installations, including connections, and to assist in testing.

B. Testing General

1. All Alarm Initiating Devices shall be observed and logged for correct zone and sensitivity. These devices and their bases shall be tagged with adhesive tags located in an area not visible when installed, showing the initials of the installing technician and date.

2. Wiring runs shall be tested for continuity, short circuits and grounds before system is energized. Resistance, current and voltage readings shall be made as work progresses.

3. The acceptance inspector shall be notified before the start of the required tests. All items found at variance with the drawings or this specification during testing or inspection by the acceptance inspector shall be corrected.
4. Test reports shall be delivered to the acceptance inspector as completed.

5. All test equipment, instruments, tools and labor required to conduct the system tests shall be made available by the installing contractor. The following equipment shall be a minimum for conducting the tests:
   a. Ladders and scaffolds as required to access all installed equipment.
   b. Multi-meter for reading voltage, current and resistance.
   c. Two way radios and flashlights.
   d. A manufacturer recommended device for measuring air flow through air duct smoke detector sampling assemblies.
   e. Decibel meter.
   f. In addition to the testing specified to be performed by the installing contractor, the installation shall be subject to test by the acceptance inspector.

3.8 ACCEPTANCE TESTING

A. A written acceptance test procedure (ATP) for testing the Fire Alarm system components and installation will be prepared by the engineer in accordance with NFPA 72 and this specification. The contractor shall be responsible for the performance of the ATP, demonstrating the function of the system and verifying the correct operation of all system components, circuits, and programming.

B. A program matrix shall be prepared by the installing contractor referencing each alarm input to every output function affected as a result of an alarm condition on that input.

C. The installing contractor prior to the ATP shall prepare a complete listing of all device labels for alphanumeric annunciator displays.

D. Loop Resistance Tests: Measure and record the resistance of each circuit with each pair of conductors in the circuit short-circuited at the farthest point from the circuit origin. The tests shall be witnessed by the owner and test results recorded for use at the final acceptance test.

E. Preliminary Testing: Conduct preliminary tests to ensure that all devices and circuits are functioning properly. After preliminary testing is complete, provide a letter certifying that the installation is complete and fully operable. The letter shall state that each initiating and indicating device was tested in place and functioned properly. The letter shall also state that all panel functions were tested and operated properly. The Contractor and an authorized representative from each supplier of equipment shall be in attendance at the preliminary testing to make necessary adjustments.

F. Final Acceptance Test: Notify the owner in writing when the system is ready for final acceptance testing. Submit request for test at least 14 calendar days prior to the test date. A final acceptance test will not be scheduled until megger test results, the loop resistance test results, and the submittals required in Part 1 are provided to the owner. Test the system in accordance with the procedures outlined in NFPA 72.

1. Verify that the control unit is in the normal condition as detailed in the manufacturer's operating and maintenance manual.

2. Test each initiating and indicating device and circuit for proper operation and response. Disconnect the confirmation feature for smoke detectors during tests to minimize the amount of smoke or test gas needed to activate the detector.

3. Test the system for all specified functions in accordance with the contract drawings and specifications and the manufacturer's operating and maintenance manual.

4. Visually inspect all wiring.
5. Verify that all software control and data files have been entered or programmed into the FACP.

6. Verify that Shop Drawings reflecting as-built conditions are accurate.

7. Measure the current in circuits to assure that there is the calculated spare capacity for the circuits.

8. Measure voltage readings for circuits to assure that voltage drop is not excessive.

9. Measure the voltage drop at the most remote appliance on each notification appliance circuit.

G. The acceptance inspector shall use the system record drawings in combination with the documents specified in this specification during the testing procedure to verify operation as programmed. In conducting the ATP, the acceptance inspector shall request demonstration of any or all input and output functions. The items tested shall include but not be limited to the following:

1. System wiring shall be tested to demonstrate correct system response and correct subsequent system operation in the event of:
   a. Open, shorted and grounded signal line circuits.
   b. Open, shorted and grounded notification, releasing circuits.
   c. Primary power or battery disconnected.

2. System notification appliances shall be demonstrated as follows:
   a. All alarm notification appliances actuate as programmed
   b. Audibility and visibility at required levels.

3. System indications shall be demonstrated as follows:
   a. Correct message display for each alarm input at the control display.
   b. Correct annunciator light for each alarm input at each annunciator and graphic display as shown on the drawings.
   c. Correct history logging for all system activity.

4. System off-site reporting functions shall be demonstrated as follows:
   a. Correct zone transmitted for each alarm input
   b. Trouble signals received for disconnect

5. Secondary power capabilities shall be demonstrated as follows:
   a. System primary power shall be disconnected for a period of time as specified herein. At the end of that period, an alarm condition shall be created and the system shall perform as specified for a period as specified.
   b. System primary power shall be restored for forty-eight hours and system-charging current shall be normal trickle charge for a fully charged battery bank.
   c. System battery voltages and charging currents shall be checked at the fire alarm control panel.
3.9 DOCUMENTATION

A. System documentation shall be furnished to the owner and shall include but not be limited to the following:
   1. System record drawings and wiring details including one set of reproducible drawings, and a CD ROM with copies of the record drawings in DXF format for use in a CAD drafting program.
   2. System operation, installation and maintenance manuals.
   3. System matrix showing interaction of all input signals with output commands.
   4. Documentation of system voltage, current and resistance readings taken during the installation, testing and ATP phases of the system installation.
   5. System program showing system functions, controls and labeling of equipment and devices.
   6. Provide (3) copies of the Fire Alarm system programmer disc/thumb drive to owner.

3.10 PROTECTION

A. Remove and replace devices and panel components that are wet, moisture damaged, or mold damaged.

3.11 DEMONSTRATION

A. Instructor: Include in the project the services of an instructor, who shall have received specific training from the manufacturer for the training of other persons regarding the inspection, testing and maintenance of the system provided. The instructor shall train the employees designated by the owner, in the care, adjustment, maintenance, and operation of the Fire Alarm system.

B. Training sessions shall cover all aspects of system performance, including system architecture, signaling line circuit configurations, sensor and other initiating device types, locations, and addresses, fire alarm control panel function key operation, and other functions as designated by the owner.

C. Required Instruction Time: Provide 16 hours of instruction after final acceptance of the system. The instruction shall be given during regular working hours on such dates and times as are selected by the owner. The instruction may be divided into two or more periods at the discretion of the owner. One training session shall be videotaped by the contractor. Videotapes shall be delivered to the owner.

D. Provide a typeset printed or typewritten instruction card mounted behind a Lexan plastic or glass cover in a stainless steel or aluminum frame. Install the frame in a conspicuous location observable from the FACP. The card shall show those steps to be taken by an operator when a signal is received as well as the functional operation of the system under all conditions, normal, alarm, supervisory and trouble. The instructions shall be approved by the owner.

E. Comprehensive system troubleshooting training shall be provided for a single individual designated by the owner. This session shall be separate and distinct from the above described sessions.

F. All training sessions shall be conducted following final system certification and acceptance. Three additional training sessions shall be provided for all security personnel on all shifts six months after final system certification.

G. All training sessions shall be conducted by an authorized Fire Alarm system distributor representative, who has received specific training from the manufacturer for the training of other persons regarding the inspection, testing, and maintenance of the system provided.

END OF SECTION
SECTION 26 08 75
SECURITY 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 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 the electronic access control, intrusion detection, CCTV POE camera system and video intercom.

B. The Security integrator shall provide Access Control Servers, Work Station, Video Storage Equipment for the overall security system. The Security System Integrator shall furnish and install Access Control hardware and Video Management System (VMS) storage devices including software and all necessary camera licenses to furnished equipment.

C. All Security network related equipment, Patch panels, network switches, CCTV POE network managed switches and video storage shall be provided by others.

D. Contractor Shall coordinate / calculate the video storage requirements with the School district as required base on the future camera quantities and recording rate as well as archive requirements.

E. Contractor shall provide the Video Management software and system programming for all security systems including Access Control and Intrusion alarm.

F. VMS servers and video storage shall be provided by others and configured by the Security vendor to comply the following recording and storage criteria:

1. Video Storage shall be minimum of 45 days
2. Minimum Recording Rate and video resolution shall be 15 fps at HD 720-1080-P
3. Storage Hard Drive capacity Shall be calculated based on 50% motion 15 fps at 1080p

G. The intrusion detection system shall be a multi-zone fully integrated with the Access Control system for all alarm function including arm/disarm via proximity reader, zone identification, Zone partitioning Arm/Disarm, Zone Arm/Disarm based on designated owners operational schedule.

H. The overall Security System including CCTV, Access Control, Intrusion Alarms, and Video Intercom system shall utilize school districts converged IT Network for all security system communications

I. The overall Security system shall have remote control and viewing capabilities from Local Police Department, Central Station Facility, Wireless smart phone and tablet devices.

J. Related sections include the following:

1. Division 26 Section 26 02 00 - Conduits
2. Division 26 Section 26 03 50 - Boxes
K. The work covered by this specification includes the construction described, including all labor necessary to perform and complete such construction; all materials and equipment incorporated or to be incorporated in such construction; and all services, facilities, tools and equipment necessary or used to perform and complete such construction.

L. Provide the following:

1. Furnish, install, terminate, test and document new electronic access control system, including proximity card readers, door contacts, control panels, cabling and interface with Yonkers school district networks/central station and integrated with local Fire Alarm system. All mechanical door hardware is furnished & installed by others. Coordinate with Engineer.

2. Furnish, install, terminate, test and document new electronic alarm system, including door contacts, PIR motion detectors, aural and visual alarm enunciators, control panels, cabling, software and interface with owner’s networks/central station and local fire alarm system.

3. It is the intent of these specifications to procure a complete, workable and programmed security system, compatible with the owner’s planned and existing systems and ready for the owner’s use. Any item not specifically shown on the drawings or called for in the specifications, but normally required to conform to the intent, is to be considered as part of the contract.

4. Any given item of equipment, material or software shall be the product of manufacturers indicated within this specification or approved equal, throughout the facility. Multiple manufacturers of any one item shall not be permitted, unless specifically noted otherwise or approved by the owner.

5. These specifications are equipment and performance specifications. Any discrepancies found between the specifications and drawings shall be brought to the attention of the consultant. Installation and details indicated on the drawings shall govern if they differ from the specifications.

6. Bidders are encouraged to proposed alternative solutions that are fully compliant with the client’s requirements.

7. Certain terms such as "shall, provide, install, complete, etc." are not used in some parts of these specifications. This does not indicate that the items shall be less than completely installed or that systems shall be less than complete.

8. Wiring layout is not indicated on the drawings. It is the responsibility of the contractor to provide all wiring in accordance with applicable codes and these specifications.

1.3 SUBMITTALS

A. Submit manufacturers’ product data sheets for all material and equipment products proposed. Only specified or accepted manufacturers or suppliers shall appear in the product data submittal.

B. Provide physical samples of products if requested by Engineer.

C. Where substitutions or alternates are requested for any specified manufacturer or product, submit complete documentation for the product proposed, including complete product data and catalog cut sheets, engineering test and performance reports and any other information pertinent to the product.

D. Submit shop drawings for review ten (10) days prior to start of work and prior to ordering of material to consist of one (1) set of reproducible and five (5) sets of prints of drawings, diagrams, and/or manufacturers’ data in accordance with the contract documents. One electronic copy will also be submitted.
E. At completion of installation, furnish a complete set of as-built documents, including plan view and elevation drawings, device schedules, test and acceptance documentation, equipment manuals and operating instructions.

F. As-built drawings shall consist of one (1) set of reproducible and five (5) sets of prints, and one (1) computer format cd.

1.4 QUALITY ASSURANCE

A. Electrical components, devices, and accessories: listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

B. Comply with NFPA 70, "national electrical code."

C. Comply with applicable SIA industry standards.

D. Codes, regulations and standards

   1. Comply with the most recently issued requirements, standards, recommendations, rules, and regulations of authorities having jurisdiction over the project.

   2. Follow the most restrictive code or recommendations. Where there are ambiguities, refer to the Engineer for interpretation.

PART 2 - PRODUCTS

2.1 GENERAL

A. Provide the products called out below and on drawings or approved equal. Where a specific manufacturer has not been called out, provide industry standard products of first quality and fully compatible with the system.

B. All equipment shall be equal to or exceed the applicable minimum requirements of NEC, IEEE, ASME, ANSI and UL.

C. All products and materials shall be new, clean, free of defects or damage and of first quality.

D. Coordinate device quantities, locations, types and finishes with architect.

E. The work covered by this specification includes the construction described, including all labor necessary to perform and complete such construction; all materials, software and equipment incorporated or to be incorporated in such construction; and all services, facilities, tools and equipment necessary or used to perform and complete such construction.

2.2 ACCESS CONTROL SYSTEM

A. Furnish & install access control devices including proximity card readers, door contacts and all associated components. All new security devices shall integrate with the district wide existing access control management system (ACMS), complete with all hardware necessary for a complete and functional system. The system shall have ample capacity to accommodate future growth, integrate with the Fire Alarm, PA and IT systems and shall have an open architecture which allows importing and exporting of data from other applications. Provide the following components:
1. The devices shall all connect through the existing IT system to the YPS security management system at 1 Larkin Plaza. All programming, monitoring and control of equipment will be managed from this central location.

2. The equipment shall be flexible and scalable in architecture, permitting expansion of both capacity and functionality, to be implemented progressively as needed, through software licensing and/or software upgrades.

3. Access granted or denied decisions shall be made in under 0.5 seconds

4. There shall be an option for hardware made with a lead-free manufacturing process to meet ROHS requirements.

5. Communication schemes
   a. Hardwired communications
      i. The field panels shall be located convenient to the access and monitor points that they control, and shall be interconnected in a chain configuration to a serial port of a convenient client PC on the system.
      ii. The system shall support a minimum of 31 intelligent field panels (nodes) daisy-chained together such that they communicate back to a single serial communications port at the host.
   b. Bi-directional communications
      i. A chain of field panels shall be wired in a loop configuration, by the addition of a cable from the last controller and connecting it into a second port on the PC. When this configuration is installed, should a break in the cable occur, the PC shall be able to communicate with the nodes after the break, via the secondary port.

6. Network communications
   a. The first field panel in a chain of panels shall have the ability to communicate with its monitoring client pc over the local or wide area network. This shall be achieved by the addition of a network interface option module and provide a cost effective alternative configuration to a direct connection via a client pc’s serial port. The network interface shall support both "10 base t" and "100 base tx" (10/100) communications speeds. The network interface shall support encryption utilizing either two fish or AES algorithms.

7. Door lock release relays shall be minimally rated for 3 a @ 30 vdc.

8. Readers supporting various technologies shall provide data from card presentations through a door control unit (DGP) that includes the electrical interface to the reader as well as inputs for door sensors and form c relays for outputs.

9. The DGP shall support wiegand communications to the reader. In order to provide higher levels of security, the DGP shall support bi-directional, supervised, and encrypted communications to the reader. Door controllers that do not support encryption and supervision of reader communications are not considered equal.

10. The controller shall support a direct serial connection to the edge network video server (ENVS™) for alarm transmission.
11. **Bandwidth utilization**
   The proposal shall include documented manufacturer’s evidence of network bandwidth utilization including plots and supporting data, covering all aspects of normal system operation. Proposal submissions without supporting documentation will not be considered or evaluated.

12. **Encryption**
   a. Encryption falls into two distinct areas, firstly between clients and their server, secondly between client and local area network panels (LAN nodes).
   b. LAN node links shall support two fish and AES encryption between the supervising client pc and its LAN chains.
   c. For client to server connections, the SMS shall support a solution using industry standard network cards, such as the Intel pro 100s, which support IPSEC and 3des encryption.

13. **Provide manufacturer access control:**
   Approved manufacturer: S2, AMAG (Symetry)
   Intrusion alarm: Honeywell - DMP

B. Furnish and install all ancillary devices which shall be compatible with the specified access control system and intrusion alarm/central station monitoring or the approved equal. All devices and finishes shall be coordinated and approved by the Engineer prior to installation. Provide the following components:

1. **Card readers**
   Manufacturer: HID
   Part #: I-class
   Coordinate existing proximity cards with new
   Or approved equivalent

2. **Panic/duress button**
   Manufacturer: GE-sentrol
   Part # 3040 series panic switch
   Or approved equivalent

3. **Door contacts (recessed)**
   Manufacturer: GE-Sentrol
   Part # 1076w (wide 1 inch gap)
   Or approved equivalent

4. **Reader cabling (composite-plenum)**
   Manufacturer: CSC cable, West Penn, Windy city wire
   Part #: 112110 CSC (plenum)
   Part #: AC251822 West Penn (plenum)
   Part #: 4461030 Smart wire-4 (plenum)
   Or approved equivalent

5. **Intrusion Detection System (IDS) Digital Central Station Communicator**
   Manufacturer: DMP, Honeywell
   Part #: XR-500 (Panel) - DMP
   Part #: 700 series (keypad) - DMP
   Part #: Vista-128 (Panel) - Honeywell
   Part #: 6160 series (Keypad) - Honeywell
   Or approved equivalent
6. **Power supply (locks)**  
   Manufacturer: Altronix  
   Part #: AL600ULXD- 6 amp 12-24vdc  
   Or approved equivalent  

7. **Transfer Hinge (Power & Request to Exit)**  
   Manufacturer: Stanley  
   Part #: CFBB168 (4-wire)  
   Or approved equivalent  

8. **Electric Lockset**  
   Manufacturer: Ingersoll Rand/Schlage  
   Part #: L9080EU-RX (12-24vdc Fail Secure)  
   Part #: L9080EL-RX (12-24vdc Fail Safe)  
   Or approved equivalent  

9. **Electromagnetic Lock (Mag Lock)**  
   Manufacturer: Ingersoll Rand/Schlage  
   Part#: M420P/M422 12/24 VDC  
   Special Functions: (MBS) Magnetic Bond Sensor  
   Special Functions: (DPS) Door Position Switch  
   Or approved equivalent  

10. **Electric Door Strike**  
    Manufacturer: Ingersoll Rand/Von Duprin  
    Part #: 5100 series 12/24 VDC (Fail Safe/Fail Secure)  
    Or approved equivalent  

11. **Door Release (Remote Release)**  
    Manufacturer: Ingersoll Rand/Schlage  
    Part #: 660  
    Or approved equivalent  

12. **Motion Detector - Intrusion Alarm (Ceiling Mount)**  
    Manufacturer: UTC/Interlogix  
    Part #: 6530UCM  
    Or approved equivalent  

13. **Motion Detector - Intrusion Alarm (Wall Mount)**  
    Manufacturer: UTC/Interlogix  
    Part #: 6550U  
    Or approved equivalent  

14. **Request to Exit (Motion Detector)**  
    Manufacturer: Bosch  
    Part #: DS160  
    Or approved equivalent  

15. **Request to Exit (Push Button)**  
    Manufacturer: IR/Schlage  
    Part #: 620 (Red)  
    Or approved equivalent
C. Miscellaneous materials. Provide all cabling, connectors, mounting hardware, interface modules, software, manuals, instructions and miscellaneous items necessary for a complete, fully installed and functional system, ready for the owner’s use. All mechanical door hardware shall be furnished by others (electric locks, magnetic door strike, strikes, etc).

D. Labeling and documentation of all cables, boxes, devices, and hardware installed under this contract.

E. Testing and test documentation as described below.

F. Ancillary devices. Key pads, PIR detectors, panic buttons, door contacts, glass break detectors (audio type) etc. shall be compatible with the district equipment and servers or the approved equal. All devices and finishes shall be coordinated and approved by the Engineer prior to installation.

G. Miscellaneous materials. Provide all cabling, connectors, mounting hardware, interface modules, software, manuals, instructions and miscellaneous items necessary for a complete, fully installed and functional system, ready for the owner’s use.

H. Labeling and documentation of all cables, boxes, devices, and hardware installed under this contract.

I. Testing and test documentation as described below.

2.2 VIDEO MANAGEMENT SYSTEM (VMS)

A. Furnish & Install all CCTV hardware as depicted on drawings, or approved equal, complete with all hardware necessary for complete and functional system. The system shall have ample capacity and functional system shall have ample capacity to accommodate future growth. Provide the following components:

Performance Requirements

1. Complete CCTV video recording management solution in a compact design.
2. Capable of high resolution H.264 video compression.
3. Provide system wide recording, monitoring, and management of fixed and PTZ cameras.
4. Stable embedded operating system.
5. Rack mountable

B. Field replaceable hard drives, accessible via the front without uninstalling the unit from the application.

C. The VMS shall have flexible, open architecture built on accepted industry standards that facilitate integration with IT infrastructures.

1. Flexible and scalable CCTV management system in an easy to use versatile design.
2. View, record, control cameras, handle alarms and check device status through one interface.
3. Real-time digital recording and playback at 25/30 in CIF, 2CIF and 4CIF resolution on all channels simultaneously.
4. Real-time live display at 25/30 IPS in 4CIF for greater detail as needed (independent of recording settings).
5. Multiple control options via USB mouse, front panel and joystick keyboard.
6. Remote configuration and management of devices on surveillance system.
7. Power search and playback functions.
8. Hybrid recording of 8 or 16 analog cameras and up to 16 H.264 IP channels with a variety of hard drive capacities.
9. Internal storage up to 8 TB on four front-accessible hard drives.
10. Lip-Synchronous audio/video.
11. Video player with image authentication (watermarking).
12. NTSC and PAL selectable video format (auto detected).
D. Field replaceable hard drives, accessible via the front without uninstalling the unit from the application.

E. The VMS shall have a distributed fault-tolerant, failover database architecture. The distributed server architecture allows for each subsystem to operate in an independent mode, without affecting video recording or live viewing.

F. The database video storage shall provide minimum of 30 days of high quality at 15 fps 4 CIFF resolution quality. The overall storage shall be based on real time recording and motion detection no less than 50 percent of motion activity and H-264 compression scheme.

G. The VMS shall possess a watchdog to detect and recover from the unlikely occurrence of system lockup.

H. The VMS shall provide support for IP (network) cameras from multiple third party manufacturers.

I. The VMS shall not use multiplexing or timed division technology for analog video recording. All analog camera sources shall be digitally recorded.

J. The VMS shall be able to support video motion detection natively. The operation can be executed by the edge device or the IP Camera. Enabling motion detection shall be performed either:

1. On a continuous basis
2. Scheduled for particular times, dates, days, months, etc.
3. Defined areas of interest through an easy-to-use user interface using simple editing tools
4. At a defined level of sensitivity

K. The VMS shall support software designed for the Microsoft® Windows® 2003 or Windows XP operating systems.

L. The VMS shall support local language translation, including languages that do not support the European character set, such as Chinese.

M. All text displayed in the user interface shall be stored in a database to allow for easy translation to another language.

N. The VMS shall support both single and multi-site deployments.

O. The VMS shall be designed to work with cameras that generate a standard NTSC or PAL composite video signal.

P. The VMS shall support a variety of video matrix switcher devices, code generators, and PTZ cameras from different manufacturers.

Q. The recorders will use a standard Ethernet connection for video input via TCP/UDP/IP.

R. The VMS shall be capable of supporting large organizations with systems at multiple site locations linked via LAN / WAN connections.

S. Provide the following components:

1. Fixed Color Indoor/Outdoor IP Camera
   Manufacturer: Bosch
   Part #: Flexidome HD 720P60 with Lens (Vandal Resistant)
   Part #: NIN-733 V03PS HD Day/Night IP Camera
   Part #: VDA PMT - Pendant Pipe Mount for areas with High Ceiling
   Part #: VDA CMT - Dome - for Corner Mount
   Part #: VDA WMT - Dome - Pendant Wall Mount for outside
   Part #: LTC 9213/01 - Pole Mount Adapter - for flag pole
2. **Power Supplies and battery backup**  
   **Manufacturer:** Altronix  
   **Part #:** R.243UL (Rack Mount)  
   Or approved equivalent

3. **Video Management System/Storage**  
   **Manufacturer:** Bosch, Salient, OnSSI, Milestone  
   **Part #:** As per manufacturer requirements

4. **POE Switch:** Provided by others  
   **Manufacturer:** As per Yonkers Public Schools standards  
   **Part #:** 24 Port 10/100/1G POE plus (390 Watts)  
   With 4x1/10G SFP, uplink stacking (Core)  
   Or approved equivalent

5. **CCTV Monitors**  
   **Manufacturer:** Bosch  
   **Part #:** LCD 21” High Resolution Monitor Model # UML-223-90  
   Or approved equivalent

6. **Approved Video Management System**  
   **Manufacturer:** Salient Systems  
   OnSSI  
   Milestone

### 2.4 VIDEO INTERCOM SYSTEM

A. The intercom door station system shall provide full “duplex” (hands-free operation at door- / entry station, privacy receiver operation at the reception desk using high fidelity electret microphones and stereo quality amplified 45 ohm mylar speaker, thus providing instant inter-communications for employees and visitors.

B. The system shall include the following optional features:

1. Card access control by adding the card reader module that contains recessed proximity or magnetic stripe card reader providing interface with Yonkers school access control system via an HID proximity and smart card protocol.

2. The outdoor door station shall consist of modules flush mount configuration comprising of the following components:
   a. PTZ Color Camera  
   b. Speaker/Microphone  
   c. Call Button  
   d. Vandal & Weather Resistant Satin-less Steel station panel

3. The intercom system shall integrate with a third party access control system including HID proximity card reader in one of the door entry modules.

4. **Manufacturer:** Aiphone  
   **Part #:** IS-MV (Master Station)  
   **Part #:** IS-DVF (Door Station ) Weather & Vandal resistant  
   **Part #:** IS-CCU (Central Control Unit)  
   Or approved equal
2.5 RELATED WORK NOT INCLUDED IN THIS SECTION AND SPECIFIED ELSEWHERE, UNLESS OTHERWISE NOTED.

A. Electrical outlets.
B. Standard electrical boxes with ¾-in conduit stub ups to ceiling.
C. Cutting, patching, and painting.

2.6 WARRANTY

A. Warranty all portions of the work against faulty and improper material and workmanship for a minimum period of one (1) year from date of final acceptance by the owner. Where warranty for a longer term is offered through a manufacturer/installer certification program, such longer term shall apply.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine pathway elements intended for cables. Check raceways, cable trays, and other elements for compliance with space allocations, installation tolerances, hazards to cable installation, and other conditions affecting installation.
B. Examine roughing-in for cable conduit systems to pcs, controllers, card readers, and other cable-connected devices to verify actual locations of conduit and back boxes before device installation.
C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 GROUNDING

A. Comply with Division 26 Section "grounding and bonding."
B. Comply with IEEE 100, "power and grounding sensitive electronic equipment."
C. Ground cable shields, drain conductors, cabinets and equipment to eliminate shock hazard and to minimize ground loops, common-mode returns, noise pickup, cross talk, and other impairments.
D. Bond shields and drains conductors to ground at only one point in each circuit.

3.3 LABELING/IDENTIFICATION

A. In addition to requirements in this article, comply with applicable requirements in Division 26 Section "electrical identification" and with TIA/EIA-606.
B. Label each terminal strip and screw terminal in each cabinet, rack, or panel.
   1. All wiring conductors connected to terminal strips shall be individually numbered, and each cable or wiring group being extended from a panel or cabinet to a building-mounted device shall be identified with the name and number of the particular device as shown.
   2. Each wire connected to building-mounted devices is not required to be numbered at the device if the color of the wire is consistent with the associated wire connected and numbered within the panel or cabinet.
C. At completion, cable and asset management software shall reflect as-built conditions.
3.4 FIRE STOPPING

A. Seal all penetrations through fire rated walls, floors and walls created by or made on the behalf of the contractor so that the original fire rating of the floor or wall is maintained as required by article 300-21 of the national electric code.

B. Use sealant material that has passed fire exposure testing in accordance with standard time-temperature curve in the standard, UL, ASTM E 119, and NFPA 251 and the hose stream test in accordance with UL1 OB.

3.5 TESTING

A. Test all components installed under the contract.

B. Pre-installation inspection
   1. Visually inspect items and shipping cartons for damage. Return visibly damaged items to the manufacturer.
   2. Prior to testing, submit for review and approval copies of test report forms proposed for use. Forms shall, at minimum, contain: project name; contractor’s name; date of test; type and description of test, and test criteria for acceptance.

C. Post installation testing
   1. Submit test and acceptance plan to owner for approval prior to testing.
   2. Test only completed systems. Partial testing is not acceptable.
   3. The consultant reserves the right to observe the conduct of any or all portions of the testing process and to conduct, and to require the contractor, using the contractor’s equipment and labor, a random re-test.
   4. Document all test results and corrective procedures and submit to the consultant within ten (10) working days of test completion.

3.6 TRAINING

A. User Training.
   1. Provide up to 12 hours of system and software training in at least three separate sessions for 2 to 5 members of the owner’s staff. Provide an additional follow-up training session of up to two hours within 6 months of final acceptance.
   2. All training shall be on the owner’s premises using the installed system.
   3. Provide telephone technical support to the owner for a minimum of one year after acceptance of the system.

B. Engage a factory-authorized service representative to train owner's maintenance personnel to adjust, operate, and maintain security access system.
   1. Develop separate training modules for the following:
      a. Computer system administration personnel to manage and repair the system and databases and to update and maintain software.
      b. Operators who prepare and input credentials to man the control station and workstations and to enroll personnel.
      c. Security personnel.
      d. Hardware maintenance personnel.
      e. Corporate management.
3.7 SYSTEM SOFTWARE

A. Develop, install, configure and test software and databases for the complete and proper operation of systems involved. Assign software license to owner.

3.8 ACCEPTANCE

A. Once the testing has been completed, as-built and testing documentation delivered to the owner and the owner is satisfied that all work is in accordance with the contract documents, the owner will notify the contractor in writing of the acceptance of the work performed. The date of this acceptance shall constitute the commencement of the warranty period.

3.9 STARTUP SERVICE

A. Engage a factory-authorized service representative to supervise and assist with startup service. Complete installation and startup checks according to approved procedures that were developed in "preparation" article and with manufacturer's written instructions.

1. Prepare and issue access cards and finalized database for owner's operators, management, and security personnel.
2. Train security personnel.

END OF SECTION
SECTION 26 09 00

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
SECTION 31 23 16
EXCAVATION

PART 1 GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SECTION INCLUDES

A. Excavating and backfilling for footings, paving, site structures, and foundations and demolition work.
B. Dewatering.
C. Pavement Stripping
D. Soil stripping and stockpiling
E. Preparing subgrades for footings, slabs on grade, walks, and pavements.
F. Drainage course for sidewalks, stairs, ramps, and curbs.
G. Subbase course for concrete ramps and walks.
H. Subbase and base course for asphalt paving.
I. Subsurface drainage and backfill for trenches
J. Final grading and compaction to 95% prior to pavement and concrete toppings

1.3 DEFINITIONS

A. Excavation: Removal of material encountered above subgrade elevations.
   1. Unauthorized Excavation: Excavation below subgrade elevations or beyond indicated dimensions without direction by Architect. Unauthorized excavation, as well as remedial work directed by Architect, shall be without additional compensation.
B. Excavation is "earth excavation" or "unclassified" and includes excavation to subgrade elevations indicated, regardless of character of materials and obstructions encountered, pavements and other obstructions visible on ground surface, underground structures, utilities and other items indicated to be demolished and removed, together with earth and other materials, including rock.
C. Backfill: Soil material or controlled low-strength material used to fill an excavation.
   1. Initial Backfill: Backfill placed beside and over pipe in a trench, including haunches to support sides of pipe.
   2. Final Backfill: Backfill placed over initial backfill to fill a trench.
D. Bedding Course: Course placed over the excavated subgrade in a trench before laying pipe.
E. Borrow: Satisfactory soil imported from off-site for use as fill or backfill.
F. Drainage Fill: Layer supporting concrete pavement, stairs, and ramps used to minimize capillary flow of pore water.
G. Fill: Soil materials used to raise existing grades.
H. Select Fill: Soil material to raise existing grades supporting footings, walls and slabs.
I. Structures: footings, foundations, retaining walls, slabs, or curbs, or other man-made stationary features constructed above or below the ground surface.
J. Subbase Course: Course placed between the subgrade and base course for hot-mix asphalt pavement, or course placed between the subgrade and a cement concrete pavement or a cement concrete or hot-mix asphalt walk.
K. Subgrade: Surface or elevation remaining after completing excavation, or top surface of a fill or backfill immediately below subbase, drainage fill, or topsoil materials.
L. Utilities include on-site underground pipes, conduits, ducts, and cables, as well as underground services within buildings.

1.4 SUBMITTALS
   A. Product Data: For the following:
      1. Geotextile.
   B. Samples: For the following:
      1. 12-by-12-inch Sample of [subdrainage] [separation] geotextile.
      2. 30-lb samples sealed in airtight containers, of each proposed soil material from on-site or borrow sources.
   C. Material Test Reports: From a qualified testing agency indicating and interpreting test results for compliance of the following with requirements indicated:
      1. Classification according to ASTM D 2487 of each on-site or borrow soil material proposed for fill and backfill.
      2. Laboratory compaction curves according to ASTM D 698 for each on-site or borrow soil material proposed for fill and backfill.
      3. Optimum moisture-maximum density curve for each soil material.
   D. Pre excavation Photographs or Videotape: Show existing conditions of adjoining construction and site improvements, including finish surfaces, that might be misconstrued as damage caused by earthwork operations. Submit before earthwork begins.

1.5 QUALITY ASSURANCE
   A. Section 01 30 00 - Administrative Requirements for Project Meetings.
      1. Before commencing earthwork, meet with Owner's Representative, Construction Manager, Architect, and independent testing agency, and other concerned entities. Review earthwork procedures and responsibilities including testing and inspection procedures and requirements. Notify participants at least 3 working days prior to convening conference. Record discussions and agreements and furnish a copy to each participant.
   B. Codes and Standards: Perform earthwork complying with requirements of State Project State Uniform Fire and Building Code and authorities having jurisdiction.
   C. Testing and Inspection Service: Contractor will employ and pay for a qualified independent geotechnical testing and inspection laboratory to perform soil testing and inspection service during earthwork operations to include but not be limited to the following:
      1. Verification of suitability of each footing subgrade material, in accordance with specified requirements.
         a. Field reports; in-place soil density tests,
         b. One optimum moisture-maximum density curve for each type of soil encountered.
         c. Inspections and certifications shall be performed by a licensed engineer registered in the State of Project State. This cost is to be borne by Contractor.

1.6 PROJECT CONDITIONS
   A. Verify that survey bench mark and intended elevations for the Work are as indicated.
   B. Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted in writing by Architect and then only after arranging to provide temporary utility services have been provided.
      1. Notify Owner's Representative and Architect not less than two days in advance of proposed utility interruptions.
      2. Do not proceed with utility interruptions without Owner's Representative Architect's written permission.
C. Demolish and completely remove from site existing underground utilities indicated to be removed. Coordinate with utility companies to shut off services if lines are active.

PART 2 PRODUCTS -

2.1 SOIL MATERIALS

A. Excavations General: Provide borrow soil materials when sufficient satisfactory soil materials are not available from excavations.

B. Satisfactory Soils: ASTM D 2487 soil classification groups GW, GP, GM, SW, SP, and SM, or a combination of these group symbols; free of rock or gravel larger than 2 inches in any dimension, debris, waste, frozen materials, vegetation, and other deleterious matter.

C. Unsatisfactory Soils: ASTM D 2487 soil classification groups GC, SC, ML, MH, CL, CH, OL, OH, and PT, or a combination of these group symbols.
   1. Unsatisfactory soils also include satisfactory soils not maintained within 2 percent of optimum moisture content at time of compaction.

D. Backfill and Fill: Satisfactory soil materials.

E. Subbase: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; NYSDOT Gradation: Type 2, 100 passing 2", 25 - 60 passing 1/4", 5 - 40 passing No. 40, 0 - 10 passing no. 200

F. Select Fill: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand free of debris and organic matter; with maximum particle size of two (2") inches and between ten (10%) and seventy (70%) percent, by weight, passing the standard No. 40 sieve size and less than ten (10%) percent passing a No. 200 sieve.

G. Drainage Fill: Washed crushed stone; with 100 percent passing a 1-1/2-inch sieve and 0 to 5 percent passing a No. 8 sieve.

H. Bedding Course:
   1. Select mixture of graded crushed stone free from organic, frozen or other deleterious materials, conforming to the requirements of NYS DOT Section 703-02 and meeting the following gradation requirements (except material from trenching operations may be used if meeting the following:
      a. SievePercent Passing
         a) 1" 100%
         b) 1/2" 90-100%
         c) 1/4" 0-15 %

I. Filter Material: Narrowly graded mixture of natural or crushed gravel, or crushed stone and natural sand; ASTM D 448; coarse-aggregate grading Size 67; with 100 percent passing a 1-inch (25-mm) sieve and 0 to 5 percent passing a No. 4 sieve.

J. Sand: ASTM C 33; fine aggregate, natural, or manufactured sand.

K. Impervious Fill: Clayey gravel and sand mixture capable of compacting to a very stiff state.

2.2 ACCESSORIES

PART 3 EXECUTION

3.1 SOIL STRIPPING AND STOCKPILING

A. PAVEMENT STRIPPING
   1. Stripping of pavement is to be separate from stripping of soils, pavement materials are to be removed from the site. they are not to be used in the reclaiming process for this project. No mixing shall be allowed.
3.2 EXAMINATION
   A. Verify that survey bench mark and intended elevations for the work are as indicated.

3.3 PREPARATION
   A. Identify required lines, levels, contours, and datum locations.
   B. Locate, identify, and protect utilities that remain and protect from damage.
   C. Protect bench marks, survey control points, existing structures, fences, sidewalks, paving, and curbs from excavating equipment and vehicular traffic.
   D. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.
   E. Provide protective insulating materials to protect subgrades and foundation soils against freezing temperatures or frost.
   F. Provide erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.
   G. Protect and maintain erosion and sedimentation controls, which are specified in Section Site Clearing during earthwork operations.

3.4 DEWATERING
   A. Prevent surface water and ground water from entering excavations, from ponding on prepared subgrade, and from flooding Project site, and surrounding area.
   B. Protect subgrade from softening, undermining, washout, and damage by rain or water accumulation.
      1. Reroute surface water runoff away from excavated areas. Do not allow water to accumulate in excavations. Do not use excavated trenches as temporary drainage ditches.
      2. Install continuous dewatering system, as required to keep subgrade dry and convey ground water away from excavations. Maintain until dewatering is no longer required.
   C. The Contractor shall provide, maintain and operate pumps of adequate capacity required to maintain excavations, pits, trenches and depressions within the Contract Limit Lines as well as the Buildings free of water accumulated at any time and as necessary to permit the proper installation of the work required under all contracts. Disposal of pumped water shall be done with due respect to the rights of adjoining buildings. All costs in connection with the removal of water as above provided for shall be borne by the Contractor.

3.5 EXCAVATING GENERAL
   A. Notify Fuller and D'Angelo, P.C. of unexpected subsurface conditions and discontinue affected Work in area until notified to resume work.
   B. Slope banks of excavations deeper than 4 feet to angle of repose or less until shored.
   C. Do not interfere with 45 degree bearing splay of foundations.
   D. Cut utility trenches wide enough to allow inspection of installed utilities.
   E. Hand trim excavations. Remove loose matter.
   F. Correct areas that are over-excavated and load-bearing surfaces that are disturbed; see Section 31 23 23.
   G. Grade top perimeter of excavation to prevent surface water from draining into excavation.
   H. Remove topsoil from areas to be further excavated, re-landscaped, or re-graded, without mixing with foreign materials.
   I. Remove subsoil from areas to be further excavated, re-landscaped, or re-graded.
   J. Remove excavated material that is unsuitable for re-use from site.
   K. Stockpile excavated material to be re-used in area designated on site in accordance with Section 31 22 00.
      1. Use areas designated on site; pile depth not to exceed 8 feet; protect from erosion.
L. Remove excess excavated material from site.

3.6 UNCLASSIFIED CLASSIFICATION:
A. Excavation for this project shall be "unclassified".
B. Excavate to subgrade elevations regardless of the character of surface and subsurface conditions encountered. Unclassified excavated materials may include rock, soil materials, and obstructions. No changes in the Contract Sum or the Contract Time will be authorized for rock excavation or removal of obstructions.
C. If excavated materials intended for fill and backfill include unsatisfactory soil materials and rock, replace with satisfactory soil materials.
D. Bottom of excavations shall be provided with 6" of compacted drainage fill for footings and piers.
E. Pipes and conduits shall be provided with 6" of Pipe Zone Bedding material to eliminate differential settlement.

3.7 STABILITY OF EXCAVATIONS
A. Comply with Section 31 4260 Excavation Support and Protection.

3.8 EXCAVATION FOR STRUCTURES
A. Excavate to indicated elevations and dimensions within a tolerance of plus or minus 1 inch (25 mm). Extend excavations a sufficient distance from structures for placing and removing concrete formwork, for installing services and other construction, and for inspections.
1. Excavations for Footings and Foundations: Do not disturb bottom of excavation. Excavate by hand to final grade just before placing concrete reinforcement. Trim bottoms to required lines and grades to leave solid base to receive other work.
2. When rock is encountered, remove additional 12” of material and provide compacted drainage fill to eliminate differential settlement.
3. Excavation for Basins Utility Structures: Excavate to elevations and dimensions indicated within a tolerance of plus or minus 1 inch. Do not disturb bottom of excavations intended as bearing surfaces.

3.9 EXCAVATION FOR WALKS AND PAVEMENTS
A. See Section 32 13 13 - Concrete Paving for excavation and backfilling requirements. Construct to indicated cross sections, elevations, and grades.
B. Excavate surfaces under walks and pavements to indicated lines, cross sections, elevations, and subgrades

3.10 EXCAVATION FOR ASPHALT PAVING AND WALKS
A. See Section 32 12 16 - Asphalt Paving for excavation and backfilling requirements. Construct to indicated cross sections, elevations, and grades.

3.11 EXCAVATION FOR UTILITY TRENCHES REFER TO SECTION 31 23 16.13

3.12 SUBGRADE INSPECTION
A. Notify Testing Laboratory, Owner's Representative and Architect when excavations have reached required subgrade.
B. If Testing Laboratory determines that unsatisfactory soil is present, notify the Owner's Representative prior to proceeding. At the direction of the Testing Laboratory and Owner's Representative, continue excavation and replace with compacted backfill or fill material as directed.
1. Additional excavation and replacement material will be paid for according to Contract provisions for changes in the Work.
C. Proof-roll subgrade below the building slabs and pavements with heavy pneumatic-tired equipment to identify soft pockets and areas of excess yielding. Do not proof-roll wet or saturated subgrades.
   1. Completely proof-roll subgrade in one direction, repeating proof-rolling in direction perpendicular to first direction. Limit vehicle speed to 3 mph.
   2. Proof-roll with a loaded 10-wheel, tandem-axle dump truck weighing not less than 15 tons.
   3. Excavate soft spots, unsatisfactory soils, and areas of excessive pumping or rutting, as determined by Architect, and replace with compacted backfill or fill as directed.

D. Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities, as directed by Architect, without additional compensation.

3.13 UNAUTHORIZED EXCAVATION
A. Authorized additional excavation and replacement material will be paid for according to Contract provisions for changes in the Work.
B. Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities, as directed by Architect, without additional compensation.

3.14 STORAGE OF SOIL MATERIALS
A. Stockpile borrow materials and satisfactory excavated soil materials. Stockpile soil materials without intermixing. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.
   1. Stockpile soil materials away from edge of excavations. Do not store within drip line of remaining trees.
   2. Provide tarp or erosion control fabric on stockpile material and a silt fence around stockpiled material.
   3. Material stockpiled outside the contract area shall be in locations approved by the Owner. If areas are not available store material off site at contractor's expense.

3.15 BACKFILL
A. Place and compact backfill in excavations promptly, but not before completing the following:
   1. Construction below finish grade including, where applicable, dampproofing, waterproofing, and perimeter insulation.
   2. Surveying locations of underground utilities for record documents.
   3. Inspecting and testing underground utilities.
   4. Removing concrete formwork.
   5. Removing trash and debris.
   6. Removing temporary shoring, bracing, and sheeting.
   7. Installing permanent or temporary horizontal bracing on horizontally supported walls.
B. Place backfill on subgrades free of mud, frost, snow, or ice.

3.16 UTILITY TRENCH BACKFILL
A. Place backfill on subgrades free of mud, frost, snow, or ice.
B. Place and compact bedding course on trench bottoms and where indicated. Shape bedding course to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits.
C. Backfill trenches excavated under footings and within 18 inches of bottom of footings with satisfactory soil; fill with concrete to elevation of bottom of footings. Concrete is specified in Division 3 Section Cast-in-Place Concrete
D. Provide 4-inch thick, concrete-base slab support for piping or conduit less than 30 inches below surface of roadways. After installing and testing, completely encase piping or conduit in a minimum of 4 inches (100 mm) of concrete before backfilling or placing roadway subbase.
E. Place and compact initial backfill of subbase material, free of particles larger than 1 inch, to a height of 12 inches over the utility pipe or conduit.
1. Carefully compact material under pipe haunches and bring backfill evenly up on both sides and along the full length of utility piping or conduit to avoid damage or displacement of utility system.

F. Controlled Low-Strength Material: Place initial backfill of controlled low-strength material to a height of 12 inches over the utility pipe or conduit.

G. Coordinate backfilling with utilities testing.

H. Backfill voids with approved backfill materials while shoring and bracing, and as sheeting is removed.

I. Place and compact final backfill of satisfactory soil to final subgrade elevation.

J. Controlled Low-Strength Material: Place final backfill of controlled low-strength material to final subgrade elevation.

K. Install warning tape directly above utilities, 12 inches below finished grade, except 6 inches (150 mm) below subgrade under pavements and slabs.

3.17 FILL
A. Plow, scarify, bench, or break up sloped surfaces steeper than 1 vertical to 4 horizontal so fill material will bond with existing material.

B. Place and compact fill material in layers to required elevations as follows:
   1. Under grass and planted areas, use satisfactory soil material.
   2. Under walks and pavements, use satisfactory soil material.
   3. Under steps and ramps, use select fill.
   4. Under building footings, foundations and slabs on grade, use select fill.

C. Place soil fill on subgrades free of mud, frost, snow, or ice.

3.18 SOIL MOISTURE CONTROL
A. Uniformly moisten or aerate subgrade and each subsequent fill or backfill layer before compaction to within 2 percent of optimum moisture content.
   1. Do not place backfill or fill material on surfaces that are muddy, frozen, or contain frost or ice.
   2. Remove and replace, or scarify and air-dry, otherwise satisfactory soil material that exceeds optimum moisture content by 2 percent and is too wet to compact to specified dry unit weight.

3.19 COMPACTION OF BACKFILLS AND FILLS
A. Place backfill and fill materials in layers not more than 8 inches in loose depth for material compacted by heavy compaction equipment, and not more than 4 inches in loose depth for material compacted by hand-operated tampers.

B. Place backfill and fill materials evenly on all sides of structures to required elevations, and uniformly along the full length of each structure.

C. Compact soil materials to not less than the following percentages of maximum dry unit weight according to ASTM D 1557:
   1. Under structures, building slabs, steps, and pavements, scarify and recompact top 12 inches of existing subgrade and each layer of backfill or fill material at 98 percent.
   2. Under walkways, scarify and recompact top 6 inches below subgrade and compact each layer of backfill or fill material at 98 percent.
   3. Under lawn or unpaved areas, scarify and recompact top 6 inches below subgrade and compact each layer of backfill or fill material at 95 percent.

3.20 SOIL MOISTURE CONTROL
A. Uniformly moisten or aerate subgrade and each subsequent fill or backfill layer before compaction to within 2 percent of optimum moisture content.
1. Do not place backfill or fill material on surfaces that are muddy, frozen, or contain frost or ice.
2. Remove and replace, or scarify and air-dry, otherwise satisfactory soil material that exceeds optimum moisture content by 2 percent and is too wet to compact to specified dry unit weight.

3.21 GRADING REFER TO SECTION 31 22 00

A. General: Uniformly grade areas to a smooth surface, free from irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.
   1. Provide a smooth transition between adjacent existing grades and new grades.
   2. Cut out soft spots, fill low spots, and trim high spots to comply with required surface tolerances.

B. Site Grading: Slope grades to direct water away from buildings and to prevent ponding. Finish subgrades to required elevations within the following tolerances:
   1. Lawn or Unpaved Areas: Plus or minus 1 inch.
   2. Walks: Plus or minus 1/2 inch.
   3. Pavements: Plus or minus 1/2 inch.

C. Grading inside Building Lines: Finish subgrade to a tolerance of 1/2 inch when tested with a 10-foot (3-m) straightedge.

3.22 FINISH GRADING REFER TO SECTION 31 22 00

3.23 SUBBASE AND BASE COURSES

A. Place subbase and base course on subgrades free of mud, frost, snow, or ice.
B. Under pavements and walks, place subbase course on prepared subgrade and as follows:
C. follows:
   1. Compact subbase and base courses at optimum moisture content to required grades, lines, cross sections, and thickness to not less than 98 percent of maximum dry unit weight according to ASTM D 1557.
   2. When thickness of compacted subbase or base course is 6 inches or less, place materials in a single layer.
   3. When thickness of compacted subbase or base course exceeds 6 inches, place materials in equal layers, with no layer more than 6 inches (150 mm) thick or less than 3 inches thick when compacted.
   4. Compact subbase and base course at optimum moisture content to required grades, lines, cross sections, and thickness to not less than 95 percent of maximum dry unit weight according to ASTM D 1557

3.24 DRAINAGE FILL

A. Under slabs-on-grade, pavements, walks, ramps, and stairs place drainage course on prepared subgrade and as follows:
   1. Compact drainage course to required cross sections and thickness to not less than 95 percent of maximum dry unit weight according to ASTM D 698.
   2. When compacted thickness of drainage course is 6 inches or less, place materials in a single layer.
   3. When compacted thickness of drainage course exceeds 6 inches, place materials in equal layers, with no layer more than 6 inches (150 mm) thick or less than 3 inches thick when compacted.
   4. Compact each layer of drainage course to required cross sections and thicknesses to not less than 95 percent of maximum dry unit weight according to ASTM D 698.

3.25 FIELD QUALITY CONTROL

A. See Section 01 40 00 - Quality Requirements, for general requirements for field inspection and testing.
B. Provide for visual inspection of load-bearing excavated surfaces before placement of foundations.
C. Testing Agency: The Owner will engage a qualified independent geotechnical engineering testing agency to perform field quality-control testing.
D. Allow testing agency to inspect and test the following:
   1. Confirmation of existing structure, foundation depths and undisturbed soil levels.
   2. Compaction of in place soil.
   3. Supply and compaction of select fill.
   4. Subgrade and each fill or backfill layer. Proceed with subsequent earthwork only after test results
      for previously completed work comply with requirements.

E. Testing agency will test compaction of soils in place according to ASTM D 1556, ASTM D 2167, ASTM
   D 2922, and ASTM D 2937, as applicable. Tests will be performed at the following locations and
   frequencies:
   1. Footing Subgrade: At footing subgrades, at least one test of each soil stratum will be performed to
      verify design bearing capacities. Subsequent verification and approval of other footing subgrades
      may be based on a visual comparison of subgrade with tested subgrade when approved by
      Architect
   2. Paved and Building Slab Areas: At subgrade and at each compacted fill and backfill layer, at least
      one test for every 2000 sq. ft. or less of paved area or building slab, but in no case fewer than three
      tests.
   3. Foundation Wall Backfill: At each compacted backfill layer, at least one test for each 100 feet or
      less of wall length, but no fewer than two tests.
   4. Trench Backfill: At each compacted initial and final backfill layer, at least one test for each 150
      feet or less of trench length, but no fewer than two tests.

F. When testing agency reports that subgrades, fills, or backfills have not achieved degree of compaction
   specified, scarify and moisten or aerate, or remove and replace soil to depth required; recompact and
   retest until specified compaction is obtained.

3.26 PROTECTION
A. Prevent displacement of banks and keep loose soil from falling into excavation; maintain soil stability.
B. Protect bottom of excavations and soil adjacent to and beneath foundation from freezing.
C. Protecting Graded Areas: Protect newly graded areas from traffic, freezing, and erosion. Keep free of
   trash and debris.
D. Repair and reestablish grades to specified tolerances where completed or partially completed surfaces
   become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations
   or weather conditions.
E. Scarify or remove and replace soil material to depth as directed by Architect; reshape and recompact.
F. Where settling occurs before Project correction period elapses, remove finished surfacing, backfill with
   additional soil material, compact, and reconstruct surfacing.
G. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate
   evidence of restoration to the greatest extent possible.

3.27 DISPOSAL OF SURPLUS AND WASTE MATERIALS
A. Disposal: Remove surplus satisfactory soil and waste material, including unsatisfactory soil, trash, and
   debris, and legally dispose of it off Owner's property.

END OF SECTION
SECTION 31 42 60
EXCAVATION SUPPORT AND PROTECTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

1.2 SUMMARY
A. This Section includes temporary excavation support and protection systems.
B. Related Sections include the following:
   1. Division 2 Section "Earthwork" for excavating and backfilling and for new retaining wall.

1.3 PERFORMANCE REQUIREMENTS
A. Design, furnish, install, monitor, and maintain excavation support and protection system capable of
   supporting excavation sidewalls and of resisting soil and hydrostatic pressure and superimposed and
   construction loads.
   1. Provide professional engineering services needed to assume engineering responsibility, including
      preparation of Shop Drawings and a comprehensive engineering analysis by a qualified
      professional engineer.
   2. Prevent surface water from entering excavations by grading, dikes, or other means.
   3. Install excavation support and protection systems without damaging existing buildings, pavements,
      and other improvements adjacent to excavation.

1.4 SUBMITTALS
A. Shop Drawings for Information: Prepared by or under the supervision of a qualified professional engineer
   for excavation support and protection systems.
   1. Include Shop Drawings signed and sealed by the qualified professional engineer responsible for
      their preparation.
B. Photographs or videotape, sufficiently detailed, of existing conditions of adjoining construction and site
   improvements that might be misconstrued as damage caused by the absence of, the installation of, or the
   performance of excavation support and protection systems.

1.5 PROJECT CONDITIONS
A. Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless
   permitted in writing by Architect and then only after arranging to provide temporary utility services
   according to requirements indicated.
B. Survey adjacent structures and improvements, employing a qualified professional engineer or land
   surveyor; establish exact elevations at fixed points to act as benchmarks. Clearly identify benchmarks and
   record existing elevations. Call : Call before you dig, prior to work being performed and have all
   staking of utilities and underground structures marked clearly. Owner nor Architect will not be
   responsible for interpretations or conclusions drawn from this marking and data.

PART 2 - PRODUCTS

2.1 MATERIALS
A. Wood Lagging: Lumber, mixed hardwood, nominal rough thickness of 3 inches (75 mm).

PART 3 - EXECUTION

3.1 PREPARATION
A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement,
   lateral movement, undermining, washout, and other hazards that could develop during excavation support
   and protection system operations.
   1. Shore, support, and protect utilities encountered.
B. Install excavation support and protection systems to ensure minimum interference with roads, streets, walks, and other adjacent occupied and used facilities.
   1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by authorities having jurisdiction.

C. Monitor excavation support and protection systems daily during excavation progress and for as long as excavation remains open. Promptly correct bulges, breakage, or other evidence of movement to ensure that excavation support and protection systems remain stable.

3.2 SOLDIER BEAMS AND LAGGING
A. Install steel soldier beams before starting excavation. Space soldier beams at regular intervals not to exceed allowable flexural strength of wood lagging. Accurately align exposed faces of flanges to vary not more than 2 inches (50 mm) from a horizontal line and not more than 1:120 out of vertical alignment.

B. Install wood lagging within flanges of soldier beams as excavation proceeds. Trim excavation as required to install lagging. Fill voids behind lagging with soil, and compact.

C. Install wales horizontally at centers indicated and secure to soldier beams.

3.3 BRACING
A. Bracing: Locate bracing to clear columns, floor framing construction, and other permanent work. If necessary to move brace, install new bracing before removing original brace.
   1. Do not place bracing where it will be cast into or included in permanent concrete work, unless otherwise approved by Architect.
   2. Install internal bracing, if required, to prevent spreading or distortion of braced frames.
   3. Maintain bracing until structural elements are supported by other bracing or until permanent construction is able to withstand lateral earth and hydrostatic pressures.

3.4 REMOVAL AND REPAIRS
A. Remove excavation support and protection systems when construction has progressed sufficiently to support excavation and bear soil and hydrostatic pressures. Remove in stages to avoid disturbing underlying soils or damaging structures, pavements, facilities, and utilities.
   1. Remove excavation support and protection systems to a minimum depth of 48 inches (1200 mm) below overlying construction and abandon remainder.
   2. Repair or replace, as approved by Architect, adjacent work damaged or displaced by removing excavation support and protection systems.

END OF SECTION
SECTION 32 11 23
AGGREGATE BASE COURSES

PART 1 GENERAL

1.1 RELATED DOCUMENTS
A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SECTION INCLUDES
A. Work in this Section includes everything necessary and proper for, or incidental to, executing and completing the work as required by this Section and as reasonably inferable from Drawings, including but not necessarily limited to following:
   B. Aggregate base course for:
      1. Base course for concrete walks, pavements, ramps, stairs, and pads.
      2. Bedding Materials for trenches and under footings.
      3. Drainage backfill for retaining walls.

1.3 REFERENCE STANDARDS
B. AASHTO T 180 - Standard Specification for Moisture-Density Relations of Soils Using a 4.54 kg (10-lb) Rammer and a 457 mm (18 in.) Drop; American Association of State Highway and Transportation Officials; 2010
D. ASTM D698 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³ (600 kN·m/m³)); 2012.
F. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³ (2,700 kN·m/m³)); 2012.
H. ASTM D2487 - Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System); 2011.
I. ASTM D3017 - Standard Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth); 2005.
J. ASTM D6938 - Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth); 2010.

1.4 SUBMITTALS
A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
B. Samples: 10 lb sample of each type of aggregate; submit in air-tight containers to testing laboratory.
C. Materials Sources: Submit name of imported materials source.
D. Aggregate Composition Test Reports: Results of laboratory tests on proposed and actual materials used.
E. Compaction Density Test Reports.

1.5 DELIVERY, STORAGE, AND HANDLING
A. When necessary, store materials on site in advance of need.
B. Aggregate Storage, General:
   1. Separate differing materials with dividers or stockpile separately to prevent intermixing.
   2. Prevent contamination.
   3. Protect stockpiles from erosion and deterioration of materials.

PART 2 PRODUCTS

2.1 MATERIALS

A. Satisfactory Soils: ASTM D 2487 soil classification groups GW, GP, GM, SW, SP, and SM, or a combination of these group symbols; free of rock or gravel larger than 2 inches in any dimension, debris, waste, frozen materials, vegetation, and other deleterious matter.

B. Unsatisfactory Soils: ASTM D 2487 soil classification groups GC, SC, ML, MH, CL, CH, OL, OH, and PT, or a combination of these group symbols.
   1. Unsatisfactory soils also include satisfactory soils not maintained within 2 percent of optimum moisture content at time of compaction.

C. Subbase Aggregate NYSDOT Gradation: Type 2: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; free of shale, clay, friable material and debris.
   1. Graded in accordance with ASTM C136, within the following limits:
      a. Maximum Size 2".
      b. 2 inch sieve: 100 percent passing.
      c. 1/4 inch sieve: 25 to 60%.
      d. No. 40: 5 to 40 percent passing.
      e. No. 200: 0 to 10 percent passing.

D. Bedding Course Aggregate NYS DOT Section 703-02 Select mixture of graded crushed stone free from organic, frozen or other deleterious materials; Natural stone; free of clay, shale, organic matter.
   1. Graded in accordance with ASTM C136, within the following limits:
      a. 1/2 inch sieve: 90 to 100 percent passing.
      b. 1/4 inch sieve: 0 to 15 percent passing.

E. Drainage Fill: Washed crushed stone;
   1. Graded in accordance with ASTM C136, within the following limits:
      a. 1-1/2 inch sieve: 100 percent passing.
      b. No. 8 sieve: 0 to 5 percent passing.

2.2 SOURCE QUALITY CONTROL

A. See Section 01 40 00 - Quality Requirements, for general requirements for testing and analysis of aggregate materials.

B. Where aggregate materials are specified using ASTM D2487 classification, test and analyze samples for compliance before delivery to site.

C. Where aggregate materials are specified using ASTM D2487 classification, testing of samples for compliance will be provided before delivery to site.

D. If tests indicate materials do not meet specified requirements, change material and retest.

E. Provide materials of each type from same source throughout the Work.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify substrate has been inspected, gradients and elevations are correct, and is dry.

3.2 PREPARATION

A. Correct irregularities in substrate gradient and elevation by scarifying, reshaping, and re-compacting.

B. Do not place aggregate on soft, muddy, or frozen surfaces.
3.3 INSTALLATION
   A. Subbase and Base Courses:
      1. Refer to Section 31 2316
   B. Under Portland Cement Concrete Paving:
      1. Refer to Section 31 2316
   C. Place aggregate in maximum 4 inch layers and roller compact to specified density.
   D. Level and contour surfaces to elevations and gradients indicated.
   E. Add small quantities of fine aggregate to coarse aggregate as appropriate to assist compaction.
   F. Add water to assist compaction. If excess water is apparent, remove aggregate and aerate to reduce moisture content.
   G. Use mechanical tamping equipment in areas inaccessible to compaction equipment.

3.4 TOLERANCES
   A. Flatness: Maximum variation of 1/4 inch measured with 10 foot straight edge.
   B. Scheduled Compacted Thickness: Within 1/4 inch.
   C. Variation From Design Elevation: Within 1/2 inch.

3.5 FIELD QUALITY CONTROL
   A. See Section 01 40 00 - Quality Requirements, for general requirements for field inspection and testing.
   B. Compaction density testing will be performed on compacted aggregate base course in accordance with ASTM D1556.
   C. If tests indicate work does not meet specified requirements, remove work, replace and retest.
   D. Frequency of Tests: 2,000 square feet.
   E. Proof roll compacted aggregate at surfaces that will be under slabs-on-grade.

3.6 CLEANING
   A. Leave unused materials in a neat, compact stockpile.
   B. Remove unused stockpiled materials, leave area in a clean and neat condition. Grade stockpile area to prevent standing surface water.
   C. Leave borrow areas in a clean and neat condition. Grade to prevent standing surface water.

END OF SECTION
SECTION 32 12 16

ASPHALT PAVING

PART 1  GENERAL

1.1 RELATED DOCUMENTS
   A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SECTION INCLUDES
   A. Aggregate base course.
   B. Single course bituminous concrete paving.

1.3 RELATED REQUIREMENTS
   A. Section 32 11 23 - Aggregate Base Courses: Aggregate base course.
   B. Section 31-2316 Excavation

1.4 QUALITY ASSURANCE
   A. Perform Work in accordance with State of New York Highways standard.
   C. Obtain materials from same source throughout.

1.5 REGULATORY REQUIREMENTS
   A. Conform to applicable code for paving work on public property.

1.6 FIELD CONDITIONS
   A. Do not place asphalt when ambient air or base surface temperature is less than 40 degrees F, or surface is wet or frozen.
   B. Place bitumen mixture when temperature is not more than 15 F degrees below bitumen supplier's bill of lading and not more than maximum specified temperature.

PART 2  PRODUCTS

2.1 MATERIALS
   A. General: Asphalt concrete and all related items shall meet the requirements of NYSDOT Section 400

2.2 ASPHALT PAVING MIXES AND MIX DESIGN
   A. Wearing Course: 5 to 7 percent of asphalt cement by weight in mixture in accordance with Al MS-2.

PART 3  EXECUTION

3.1 EXAMINATION
   A. Verify that compacted subgrade is dry and ready to support paving and imposed loads.
   B. Verify gradients and elevations of base are correct.

3.2 BASE COURSE
   A. Proof roll subbase surface with a ten (10) ton static steel wheel roller to check for unstable or otherwise unsuitable areas, as determined by the Architect. Replace and recompact all unsatisfactory areas, as approved by the testing agency reports, prior to commencement of paving operations.
   B. Construction of crushed stone base shall be in accordance with the applicable requirements of Section 304 of the New York State Specifications and as required herein.
   C. Section 32 11 23 - Aggregate Base Courses.
3.3 **PLACING ASPHALT PAVEMENT - SINGLE COURSE**

A. Asphalt concrete shall not be applied on a wet surface or when the air temperature is below 45 degrees F. unless otherwise directed, or when weather conditions would prevent proper construction.

B. Install Work in accordance with State of New York Highways standards 400 unless otherwise specified.

C. Place to 3 inch compacted thickness.

D. Compact pavement by rolling to specified density. Do not displace or extrude pavement from position. Hand compact in areas inaccessible to rolling equipment.

E. Perform rolling with consecutive passes to achieve even and smooth finish without roller marks.

3.4 **PATCHING AND REPAIRS**

A. Patching: Saw cut perimeter of patch and excavate existing pavement section to sound base. Recompact new subgrade. Excavate rectangular or trapezoidal patches, extending 12 inches into adjacent sound pavement, unless otherwise indicated. Cut excavation faces vertically.

1. Tack coat faces of excavation and allow to cure before paving.

2. Fill excavation with dense-graded, hot-mix asphalt base mix and, while still hot, compact flush with adjacent surface.

3. Partially fill excavation with dense-graded, hot-mix asphalt base mix and compact while still hot. Cover asphalt base course with compacted, hot-mix surface layer finished flush with adjacent surfaces.

B. Leveling Course: Install and compact leveling course consisting of dense-graded, hot-mix asphalt surface course to level sags and fill depressions deeper than 1 inch (25 mm) in existing pavements.

1. Install leveling wedges in compacted lifts not exceeding 3 inches thick.

C. Crack and Joint Filling: Remove existing filler material from cracks or joints to a depth of 1/4 inch (6 mm). Refill with asphalt joint-filling material to restore watertight condition. Remove excess filler that has accumulated near cracks or joints.

3.5 **TOLERANCES**

A. Flatness: Maximum variation of 1/4 inch measured with 10 foot straight edge.

B. Compacted Thickness: Within 1/4 inch of specified or indicated thickness.

C. Variation from True Elevation: Within 1/2 inch.

3.6 **FIELD QUALITY CONTROL**

A. See Section 01 40 00 - Quality Requirements, for general requirements for quality control.

B. Provide field inspection and testing. Take samples and perform tests in accordance with Al MS-2.

3.7 **PROTECTION**

A. Immediately after placement, protect pavement from mechanical injury for 2 days or until surface temperature is less than 140 degrees F.

**END OF SECTION**
SECTION 32 17 31
STEEL GUARDRAIL

PART 1 GENERAL

1.1 RELATED DOCUMENTS
A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division I Specification Sections, apply to this Section.

1.2 SECTION INCLUDES
A. Steel guardrail and steel posts.

1.3 RELATED REQUIREMENTS
A. Section 03 30 00 - Cast-in-Place Concrete: Concrete foundation for posts.

1.4 REFERENCE STANDARDS
D. ASTM A500/A500M - Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes; 2010a.

1.5 SUBMITTALS
A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
B. Shop Drawings: Indicate plan layout, spacing of components, post foundation dimensions, anchorage, and schedule of components.
C. Product Data: Provide data on rail, posts, accessories, hardware and structural capabilities of rail section.

PART 2 PRODUCTS

2.1 MATERIALS
A. Guardrail Beam: Hot- or cold-formed, ASTM A500 Grade D or ASTM A501, structural steel box section, 3 1/4" inch by 1'-1" inch size, 12 GUAGE inch wall thickness, punched or drilled holes for attachment to posts, steel spigot splice sections to fit inside dimensions of box beam for site joints, steel end closures.
B. Steel Posts: ASTM A36/A36M rolled steel shapes. 3S" x 5.7 galvanized beams
C. Guide Rail: ASTM 36 1'-0" NY state DOT Weak Post Corrugated Issued under EB 13-028

2.2 ACCESSORIES
A. Concrete: Type specified in Section 03 30 00.
B. Hardware: Steel, bolts, nuts and washers to suit rail profile.
C. Include flairs on each end.

2.3 FINISHES
A. Components: Galvanized in accordance with ASTM A123/A123M.
PART 3 EXECUTION

3.1 INSTALLATION

A. Install rails and posts and accessories in accordance with manufacturer's instructions and per drawings, see detail sheet.
B. Set top of rail at height indicated.
C. Space posts at intervals not exceeding 6'-3" feet.
D. Space posts as indicated.
E. Drive posts plumb to correct elevations.
F. Attach rails securely to posts with anchoring hardware.

3.2 TOLERANCES

A. Posts - Maximum Variation From Plumb: 1/2 inch.
B. Rail - Maximum Offset From True Position: 1 inch.
C. Rail - Maximum Variation From True Height: 1/2 inch.
D. Components shall not infringe adjacent property lines.

END OF SECTION
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 SECTION INCLUDES
A. Fence framework pieces, and accessories for new chain link fencing and repair to existing.
B. Provide new manual Heavy Duty Aluminum sliding gates, and related hardware.

1.3 RELATED REQUIREMENTS
A. Section 03 30 00 - Cast-in-Place Concrete: Concrete anchorage for posts.

1.4 REFERENCE STANDARDS
F. ASTM F668 - Standard Specification for Polyvinyl Chloride (PVC) and Other Organic Polymer-Coated Steel Chain-Link Fence Fabric; 2011.
H. ASTM F1665 - Standard Specification for Poly(Vinyl Chloride)(PVC) and Other Conforming Organic Polymer-Coated Steel Barbed Wire Used with Chain-Link Fence; 2008 (Reapproved 2013).

1.5 SUBMITTALS
A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
B. Product Data: Provide data on fabric, posts, accessories, fittings and hardware.
C. Shop Drawings: Indicate plan layout, spacing of components, post foundation dimensions, hardware anchorage, and schedule of components.
D. Samples: Submit two samples of fence fabric, 4 inch by 4 inch in size illustrating construction and colored finish.

PART 2 PRODUCTS

2.1 MANUFACTURERS
A. Chain Link Fences and Gates:
   1. Hoover Fence Co.; Product Cantilever Sliding gate.

2.2 MATERIALS
A. Posts, Rails, and Frames: Formed from hot-dipped galvanized steel sheet, ASTM A653/A653M, HSLAS, Grade 50, with G90 (Z275) zinc coating.
C. Concrete: Type specified in Section 03 30 00.

2.3 COMPONENTS
   A. Line Posts: 2.38 inch diameter.
   B. Corner and Terminal Posts: 3.5 inch.
   C. Gate Posts: 3.5 inch diameter.
   D. Top, Mid, Bottom and Brace Rail: 1.66 inch diameter, plain end, sleeve coupled.
   E. Gate Frame: 1.66 inch diameter for welded fabrication.
   F. Fabric: 1 inch diamond mesh interwoven wire, 6 gage thick, top selvage knuckle end closed, bottom selvage twisted tight.
   G. Tension Band: 1/2 inch thick steel.
   H. Tie Wire: Aluminum alloy steel wire.

2.4 ACCESSORIES
   A. Caps: Cast steel galvanized; sized to post diameter, set screw retainer.
   B. Fittings: Sleeves, bands, clips, rail ends, tension bars, fasteners and fittings; steel.
   C. Hardware for Single Swinging Gates: 180 degree hinges, 2 for gates up to 60 inches high, 3 for taller gates; fork latch with gravity drop and padlock hasp; keeper to hold gate in fully open position.
   D. Hardware for Double Swinging Gates: 180 degree hinges, 2 for gates up to 60 inches high, 3 for taller gates; drop bolt on inactive leaf engaging socket stop set in concrete, active leaf latched to inactive leaf preventing raising of drop bolt, padlock hasp; keepers to hold gate in fully open position.

2.5 FINISHES
   A. Components and Fabric: Vinyl coated over coating of 1.8 oz/sq ft galvanizing.
   B. Hardware: Hot-dip galvanized to weight required by ASTM A153/A153M.
   C. Accessories: Same finish as framing.
   D. Color(s): Black.

PART 3 EXECUTION

3.1 INSTALLATION
   A. Install replacement framework on chain link fences, reinstall fabric with new ties, existing fabric to be removed and re-used, and accessories in accordance with ASTM F567.
   B. Provide Steel Guardrail as shown on the drawings.
   C. Provide new aluminum Fence sliding gate structure, with footings and foundations per mfg. requirements, Place fabric on outside of supports, bars, posts and rails.
   D. Set intermediate posts plumb, in concrete footings with top of footing 2 inches above finish grade. Slope top of concrete for water runoff.
   E. Line Post Footing Depth Below Finish Grade: ASTM F567.
   F. Corner, Gate and Terminal Post Footing Depth Below Finish Grade: ASTM F567.
   G. Brace each gate and corner post to adjacent line post with horizontal center brace rail and diagonal truss rods. Install brace rail all bays.
   H. Provide top rail through line post tops and splice with 6 inch long rail sleeves.
   I. Install center and bottom brace rail at all locations.
   J. Do not stretch fabric until concrete foundation has cured 7 days.
   K. Stretch fabric between terminal posts or at intervals of 100 feet maximum, whichever is less.
   L. Fasten fabric to top rail, line posts, braces, and bottom rail with tie wire at maximum 15 inches on centers.
M. Attach fabric to end, corner, and gate posts with tension bars and tension bar clips.
N. Install gate with fabric to match fence. Install hardware.
O. Provide concrete center drop to footing depth and drop rod retainers at center of double gate openings.

3.2 TOLERANCES
A. Maximum Variation From Plumb: 1/4 inch.
B. Maximum Offset From True Position: 1 inch.

END OF SECTION
SECTION 32 31 19
DECORATIVE METAL FENCES AND GATES

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 SECTION INCLUDES
A. Decorative steel fences.

1.3 RELATED REQUIREMENTS
A. Section 03 33 00 - Cast-in-Place Concrete.
B. Section 31 23 16 - Excavation.

1.4 REFERENCE STANDARDS
I. ASTM D3359 - Test Method for Measuring Adhesion by Tape Test; 2009e2.
J. ASTM F2408 - Ornamental Fences Employing Galvanized Steel Tubular Pickets; 2011.

1.5 SUBMITTALS
A. Product Data: Submit manufacturer's data sheets on each product to be used, including:
   1. Preparation instructions and recommendations.
   2. Storage and handling requirements and recommendations.
   3. Installation methods.
B. Shop Drawings:
   1. Indicate plan layout, spacing of components, post foundation dimensions, hardware anchorage, gates, and schedule of components.
C. Installer's Qualification Statement.
D. Manufacturer's Warranty.

1.6 QUALITY ASSURANCE
A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with minimum five years documented experience.
1.7 DELIVERY, STORAGE AND HANDLING
A. Store materials in a manner to ensure proper ventilation and drainage. Protect against damage, weather, vandalism and theft.

1.8 WARRANTY
A. Finish: 20 years.

PART 2 PRODUCTS

2.1 MANUFACTURERS
A. Decorative Metal Fences:
   3. Invincible style with single lockable gate complete with panic bar with protection plate.
   4. Substitutions: See Section 01 60 00 - Product Requirements.

2.2 FENCES
A. Fences: Complete factory-fabricated system of posts and panels, accessories, fittings, and fasteners; finished with electrodeposition coating, and having the following performance characteristics:
   1. Capable of resisting vertical load, horizontal load and infill performance requirements for fence categories defined in ASTM F2408.
   
B. Electro-Deposition Coating: Multi-stage pretreatment/wash with zinc phosphate, followed by epoxy primer and acrylic topcoat.
   1. Total Coating Thickness: 2 mils, minimum.
   2. Color: As indicated below.
   3. Coating Performance: Comply with general requirements of ASTM F2408.
      a. Adhesion: ASTM D3359 (Method B); Class 3B with 90 percent or more of coating remaining in tested area.
      b. Corrosion Resistance: ASTM B117, D 714 and D 1654; 1/8 inch coating loss or medium No.8 blisters after 1,500 hours.
      c. Impact Resistance: ASTM D2794; 60 inch pounds.
      d. Weathering Resistance: ASTM D523, D 822 and D 2244; less than 60 percent loss of gloss.
   
C. Steel: ASTM A653/A653M; yield strength 45,000 psi, minimum.
   2. 62 percent recycled steel, minimum.

D. Conform to code requirement, a ball of 4" diameter, shall not fit through any parts of the fencing system.

2.3 MECHANICALLY FASTENED STEEL FENCE
A. Provide fence meeting requirements for Industrial class as defined by ASTM F2408.

B. Fence Panels: Mechanically fastened with internal reinforcement and tamperproof fasteners; 8 feet high by 7' - 9" max feet long.
   1. Panel Style: Four Rails.
   2. Panel Strength: Capable of supporting 600 pound load applied at midspan without deflection.
   3. Attach panels to posts with manufacturer's standard panel brackets.

C. Posts:
   1. Size: 3 inches square by 12 gage, with manufacturer's standard cap.

D. Rails: Manufacturer's standard, double-wall steel channel; 1-3/4 inch square by 14 gage with pre-punched picket holes.
   1. Picket Retaining Rods: 0.125 inch galvanized steel.
2. Picket-to-Rail Intersection Seals: PVC grommets.

E. Pickets: Steel tube.
   1. Spacing: 4.175 inch on center.
   2. Size: 1 inch square by 14 gage
   3. Style: Pickets with finial extend above top rail.
   4. Finial: Spear point.

F. Gates Post 3" square 12 gauge, Single leaves with panic bars from interior protected from exterior of gate with 12" steel panel, to block access from exterior of panic bar action.

G. Flexibility: Capable of following variable slope of up to 1:4.

PART 3 EXECUTION

3.1 EXAMINATION
   A. Do not begin installation until substrates have been properly prepared.

3.2 PREPARATION
   A. Clean surfaces thoroughly prior to installation.

3.3 INSTALLATION
   A. Install in accordance with manufacturer's instructions.
   B. Set fence posts in accordance with the manufacturer recommended spacing.
   C. When cutting rails immediately seal the exposed surfaces by:
      1. Removing all metal shavings from cut area.
      2. Apply zinc-rich primer to thoroughly cover cut edge and drilled hole; allow to dry.
      3. Apply 2 coats of custom finish spray paint matching fence color.

3.4 ERECTION TOLERANCES
   A. Maximum Variation From Plumb: 1/4 inch.
   B. Maximum Offset From Indicated Position: 1 inch.

3.5 CLEANING
   A. Clean jobsite of excess materials; scatter excess material from post hole excavations uniformly away from posts. Remove excess material if required.
   B. Clean fence with mild household detergent and clean water rinse well.
   C. Touch up scratched surfaces using materials recommended by manufacturer. Match touchup paint color to fence finish.

3.6 PROTECTION
   A. Protect installed products until completion of project.
   B. Touch-up, repair, or replace damaged products before Substantial Completion.

END OF SECTION
SECTION 33 41 11
SITE STORM DRAINAGE PIPING AND STRUCTURES

PART 1 GENERAL

1.1 RELATED DOCUMENTS
A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SECTION INCLUDES
A. Storm drainage piping, fittings, and accessories.
B. Connection of drainage system to existing systems.
C. Trench drains, Paved area drainage, and Site surface drainage.

1.3 RELATED REQUIREMENTS
A. Section 03 30 00 - Cast-in-Place Concrete: Concrete for trench drain and cleanout base pad construction.
B. Section 31 23 16 - Excavation: Excavating of trenches, fill and backfill.

1.4 DEFINITIONS
A. Bedding: Fill placed under, beside and directly over pipe, prior to subsequent backfill operations.

1.5 REFERENCE STANDARDS
I. DIN EN 1433 - Drainage Channels for Vehicular and Pedestrian Areas - Classification, Design and Testing Requirements; Marking and Evaluation of Conformity; 2005.
J. DIN 19580 - Drainage Channels for Vehicular and Pedestrian Areas - Durability, Mass per Unit Area and Evaluation of Conformity; 2010.

1.6 SUBMITTALS
A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
B. Product Data: Provide data indicating pipe, pipe accessories.
C. Manufacturer's Installation Instructions: Indicate special procedures required to install Products specified.
D. Project Record Documents:
   1. Record location of pipe runs, connections, catch basins, cleanouts, and invert elevations.

PART 2 PRODUCTS

2.1 PIPE MATERIALS
A. Provide products that comply with applicable code(s).
B. Plastic Pipe: ASTM D3350, High Density Polyethylene (HDPE) corrugated wall pipe with integrally formed smooth liner; inside nominal diameter of 6" unless otherwise shown inch, meeting the requirements of AASHTO M252, Type S, for diameters between 3 inches and 10 inches and AASHTO M294, Type S, for diameters between 12 inches and 60 inches, soil-tight, bell and spigot joints with rubber gaskets, with pipe and fittings manufactured from virgin PE compounds with cell classification 3254420C.

2.2 PIPE ACCESSORIES

A. Fittings: Same material as pipe molded or formed to suit pipe size and end design, in required tee, bends, elbows, cleanouts, reducers, traps and other configurations required.

2.3 CATCH BASIN, TRENCH DRAIN AND COMPONENTS

A. Trench Drain System: Trench drain system assembled from factory fabricated, polymer concrete castings in standard lengths and variable depths, with integral joint flanges and integral grating support rails; includes joint gaskets and grating.

2. Load Class: DIN 19580, Class A.
3. ADA Compliant.
5. Grating Material and Style: Slotted stainless steel.
6. Nominal Internal Width 12".
7. Overall Width 14.2"
8. Slope 0.5%
10. Interlocking channels.
11. Compressive Strength: 14,000 psi.
12. Flexural Strength 4,000 psi
13. Tensile Strength 1,500 psi
14. Water Absorption 0.07%
15. Frost Proof.
16. Conform to B117 Salt Spray
17. Locking Device.
19. Trench Overall Width: 5.12"
20. Trench Section Length: 39 inches, and 19-1/2 inches.
22. Compressive strength: 14,000 psi.
23. Flexural strength: 4,000 psi
24. Water absorption 0.07%
25. Frost proof.
27. Dilute acid and alkali resistant.
28. Wall thickness: 0.5.
29. Invert Slope: 5% minimum.
30. Accessories:
   a. Vertical outlet strainer.
PART 3 EXECUTION

3.1 TRENCHING

A. Hand trim excavation for accurate placement of pipe to elevations indicated.
B. Backfill around sides and to top of pipe with cover fill, tamp in place and compact, then complete backfilling.

3.2 INSTALLATION - PIPE

A. Verify that trench cut is ready to receive work and excavations, dimensions, and elevations are as indicated on layout drawings.
B. Install pipe, fittings, and accessories in accordance with manufacturer's instructions. Seal watertight.
   1. Plastic Pipe: Also comply with ASTM D2321.
C. Lay pipe to slope gradients noted on layout drawings; with maximum variation from true slope of 1/8 inch in 10 feet.
D. Connect to building storm drainage system, foundation drainage system, and utility/municipal sewer system.

3.3 INSTALLATION - CATCH BASINS, TRENCH DRAINS AND CLEANOUTS

A. Form bottom of excavation clean and smooth to correct elevation.
B. Form and place cast-in-place concrete base pad, with provision for sanitary sewer pipe end sections.
C. Level top surface of base pad; sleeve concrete shaft sections to receive storm sewer pipe sections.
D. Establish elevations and pipe inverts for inlets and outlets as indicated.
E. Mount lid and frame level in grout, secured to top cone section to elevation indicated.
F. Prefabricated trench drains:
   1. Excavate; prepare substrate and supports according to the manufacturer's printed installation instructions.
   2. Install prefabricated trench drain system according to the manufacturer's printed installation instructions.
   3. Expansion, Construction, and Control Joints: Do not locate trench drain system on an expansion, construction or control joint in concrete or pavement. Where concrete or pavement joints running transverse to direction of flow cross the trench drain system, locate concrete or pavement joints and trench drain system joints so that both coincide.
   4. Concrete Trench Support: 5,000 psi compressive strength, minimum.
      a. Provide support on all sides of trench in minimum 8” thickness or greater as recommended by trench drain system manufacturer.
      b. Screed and finish top edge of concrete flush with 1/8” above top surface of trench drain channel edge.
      c. Do not use secondary edge finishing tools.

3.4 FIELD QUALITY CONTROL

A. Perform field inspection and testing in accordance with Section 01 40 00.
B. If tests indicate Work does not meet specified requirements, remove Work, replace and retest at no cost to Owner's Spec Name.

3.5 PROTECTION

A. Protect pipe and bedding cover from damage or displacement until backfilling operation is in progress.

END OF SECTION