**THE SCHOOL DISTRICT OF PHILADELPHIA**
**Office of Capital Programs**
**440 North Broad Street, 3rd. Floor – Suite 371**
**Philadelphia, PA 19130**

**TELEPHONE: (215) 400-4730**

# ADDENDUM No. 02

**Subject:** Vare-Washington Major HVAC Upgrade
SDP Contract No. B-065c, B-066c, B-067c, and B-068c of 2020/21

**Location:** Vare-Washington Elementary School
1114-50 S. 5th St.
Philadelphia PA 19147

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**This ADDENDUM dated August 26, 2021 shall modify and become part of the Contract Documents for the work of this project. Any items not mentioned herein, or affected by, shall be performed strictly in accordance with the original documents.**

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## Questions

Question #1:

Who procures and pays for the Commissioning Authority The School District of Philadelphia?

**Response:**
**SDP is responsible for procurement of the Commissioning Authority Per SUBCONTRACTOR RESPONSIBILITIES note #2 of Sheet G-001.**

Question #2:

The oil piping to/from the new fuel oil tank and inside of the Boiler Room appears on the Plumbing drawings P401, but the fuel oil piping spec section is in the Mechanical section of the specs. Should the fuel oil piping and its various tanks/accessories be in the Mechanical scope of work (and not the Plumbing)?

**Response:**
**Demolition of fuel oil equipment, piping, tanks, etc. is the responsibility of the Mechanical Contractor per M101 and M102.**

**New work associated with new fuel oil equipment, piping, tanks, etc. is the responsibility of the Plumbing Contractor per P401.**

Question #3:

Please confirm Note #3 on DWG. M101 is the responsibility of the Mechanical Contractor.

**Response:**
**The Mechanical Contractor is responsible for removal and reinstallation of ceiling tiles/grid as needed as well as providing 500 linear feet of ceiling grid and 100 replacement-in-like-kind ceiling tiles per General Note #3 of M101 through M112.**

Question #4:

Drawing M501: Univent schedule notes NEMA 12 Disconnect switch. Where do we mount? Note 1 states: "Single point electrical connection" Who wires from disconnect to uninvent if electrician has single point connection?

**Response:**

**The Mechanical Contractor shall provide *integral* factory-wired disconnect switches for unit ventilators. The Electrical Contractor shall connect wiring to the single-point electrical connection.**

Question #5:

Drawing E202, E203, E204 Key Note #1: The existing feeds to univents are not dedicated circuits and are old cloth covered wire with no ground conductors. Existing wiring was spliced and extended to new panel locations during the electrical renovations. Should we reconnect the existing cloth covered wires and use the existing conduit as a ground?

**Response:**

**The Electrical Contactor shall remove existing conduit and wire from existing unit ventilators and provide new conduit and wire from breakers to new unit ventilators.**

Question #6:

Environmental AIR, scope and specifications do not reflect current conditions.

**Response: See the attached Specification for Asbestos Abatement & Lead Based Paint Stabilization. The revised AIR will be provided to the awarded contractor for posting at the project site and applying for City permits. It is not needed for bidding and is not to be used for that purpose**

Question #7:

What is the extent of the plaster removal and reinstallation for mechanical piping and whom is to remove and replace plaster Mechanical Contractor or General Contractor?

**Response:**

**Per A-106 Photograph 4, the General Contractor is responsible for repair of damaged plaster around and adjacent to mechanical unit covers.**

**Per M107-M112 and M402 General Note 4, the Mechanical Contractor is responsible for repair of plaster ceiling and walls as necessary for Demolition and New Work. This includes work required for removal and reinstallation of mechanical piping.**

Question #8:

What is the makeup of the new spandrel panel being installed at the AC unit removal?

**Response:**

**Provide 1" Insulated Infill Panel Mapes-R or approved equal. Color and finish to match existing.**

Question #9:

Are we to turn over the AC units to the SDP or discard them?

**Response:**

**Furnish all removed window air conditioning units to SDP.**

## Drawings:

- A106: Add “MAPES-R OR APPROVED EQUAL.” to Photographs 5 & 6 leader notes following “…PROVIDE NEW SPANDREL PANEL TO MATCH EXISTING.”
- M502: Unit Ventilator Schedule – Note #1: REPLACE “FURNISH NEMA 12 DISCONNECT SWITCH TO ELECRICAL CONTACTOR” with “PROVIDE INTEGRAL FACTORY-WIRED DISCONNECT SWITCH.”
- P801: Natural Gas Booster Pump Schedule: EDIT Skid Model number for basis of design to “SYS1001.5-VS”.
- E101, E102, E103: REPLACE Keynote #2 with Keynote #1 for all unit ventilators to be demolished.
- E202, E203, E204: REPLACE Keynote #1 with Keynote #4 for all new unit ventilators.

## Specifications

- ADD the attached Asbestos Abatement & Led Stabilization
- ADD the attached Asbestos Investigation Report.
- Summary of Work - 1.10 Construction Sequencing Replace the draft phasing plan with the following:

| Task | Date |
|---|---|
| Board Meeting | OCT 2021 |
| Contractors’ Notice to Proceed | NOV 2021 |
| Construction Commences | NOV 2021 |
| Provide Pumps and Steam to Hot Water Heat Exchanger | NOV - DEC 2021 |
| Environmental Remediation – Reinsulate Steam & Condensate As-Needed | NOV 2021 – JUNE 2022 |
| Provide New Dual Temperature Water Piping and Accessories in Attic | NOV - DEC 2021 |
| Provide Building Automation System User Interface and Backbone | NOV - DEC 2021 |
| Replace Classroom Steam Piping and Unit Ventilators by Riser | JAN 2022 – JUNE 2022 |
| • Riser A: 003F, 106B, 208B, 308 | 10 JAN 2022 |
| • Riser B: 003E, 105, 208A, 307 | 24 JAN 2022 |
| • Riser C: 003D, 104, 207, 306 | 07 FEB 2022 |
| • Riser D: 003B, 003C, 103, 206, 305 | 28 FEB 2022 |
| • Riser E: 003A, 102, 205, 304 | 14 MARCH 2022 |
| • Riser F: 101A, 204, 303 | 28 MARCH 2022 |
| • Riser G: 002B, 101B, 104, 203, 302 | 11 APRIL 2022 |
| • Riser H: 002A, 102, 103, 202, 301 | 25 APRIL 2022 |
| • Riser I: 110B, 213B, 312A | 09 MAY 2022 |
| • Riser J: 110A, 213A, 312B | 23 MAY 2022 |
| • Riser K: 214, 313 | 06 JUNE 2022 |
| • Riser L: 001A, 109, 212, 311 | 20 JUNE 2022 |
| • Riser M: 001B, 108, 211, 219, 310, 321 | |
| • Riser N: 107, 210, 220, 309, 322 | |

| Task | Date |
|---|---|
| House Fan Demolition, Boiler and Chiller Rigging, AHU-1 Installation | DEC 2021 |
| Chiller Plant Installation | JAN - MARCH 2021 |
| Heating to Cooling Changeover | 15 APRIL 2022 |
| Temporary Heat Exchanger Removal & Boiler Plant Replacement | APRIL – JULY 2022 |
| Replace all other steam terminal units and piping | APRIL – JULY 2022 |
| Underground Fuel Oil Tank Replacement | APRIL – JULY 2022 |
| Final Testing, Adjusting, and Balancing | JUNE 2022 |
| Commissioning Functional Performance Testing | JULY 2022 |
| Construction Complete | 05 AUG 2022 |
| Demonstration and Training | 19 AUG 2022 |
| Project Closeout | 18 SEP 2022 |

**End of Addendum 02**

# *Specification for Asbestos Abatement & Lead Stabilization*

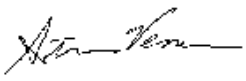
**Site:**

**Vare-Washington Elementary School**
**ULCS#: 2730**
**1198 S. 5th Street**
**Philadelphia, PA 19147**

**Prepared For:**

**The School District of Philadelphia**
**Office of Capital Programs**
**440 North Broad Street, "Portal C" Third Floor**
**Philadelphia, PA 19130**

**Prepared By:**



**Steven A. Vena, CIH**
**Pennsylvania Asbestos Project Designer: #040486**

**Date of Original Specification:**

**June 12, 2020**

**Date of Specification Revision Presented Here:**

**August 25, 2021**

**Viva EHS Project Number:**

**210207**

## Table of Contents

## 1.0 INTRODUCTION

1.1 This specification outlines the required means and methods for the removal of asbestos-containing materials (ACM) throughout Vare-Washington Elementary School, located at 1198 S. 5th Street in Philadelphia, PA 19147, as part of the Capital Unit Ventilator & Piping Replacement Project. The Asbestos Abatement Contractor (Contractor) shall be employed directly by the School District of Philadelphia (SDP) or by the General Contractor (GC) for the project, as determined by the SDP.

The Contractor shall be a current pre-qualified contractor by the School District of Philadelphia and must demonstrate they have the necessary personnel, equipment, materials, and experience to complete a project of this nature in the required time period.

The Capital Unit Ventilator & Piping Replacement Project will include abatement throughout the school within Mechanical Spaces, Classrooms, Stairwells, Crawlspaces, Chases, and Attics.

1.2 The asbestos abatement scope of work includes, but is not limited to:

- Removal of all pipe insulation associated with the unit ventilators and all attached piping throughout the building within rooms, common areas, crawlspaces, and chases.
- Removal of all pipe insulation and debris in Attic.
- Removal of all "radiator insulation" associated with existing radiators and unit ventilators found throughout the building within rooms and common areas.
- Removal of all boiler insulation and piping associated with existing boilers, including the one (1) small pony boiler and two (2) full size boilers which are assumed to contain asbestos internally.

1.3 All Prime Contractors and Subcontractors shall inform themselves fully of the scope and scale of the asbestos abatement as it relates to this project. At no time shall any Contractor/Subcontractor disturb any Asbestos Containing Material listed on the Asbestos Inspection Report (AIR), in addition to any other suspect material not otherwise identified on the AIR. Contractors and Subcontractors shall provide a copy of the AIR to all personnel from their Company upon admission to each construction work zone. A mandatory pre-commencement meeting shall be attended by all Prime Contractor(s) to discuss the AIR and the School District of Philadelphia's environmental compliance policies for all outside Contractors.

1.4 The Contractor shall submit a work plan to the School District of Philadelphia Office of Environmental Services (OEMS) ten (10) days prior to beginning the project. The work plan shall include a schedule for all work areas listed in **Table 1** - Scope of Work of the Asbestos Inspection Report. The schedule shall be approved by OEMS and the Asbestos Project Designer prior to the commencement of work. The schedule shall include dates and timelines for the completion of all work areas listed in addition to proposed crew sizes.

1.5 Lead based paint (LBP) is assumed present on all painted surfaces throughout the building (i.e. walls, ceilings, columns, floors, Air Handling Units (AHUs), pipework, ductwork, etc.). Any loose, flaking, non-adhering paint throughout the asbestos abatement work area shall be removed. All work and disposal shall be performed in compliance with all applicable Federal, State, and local regulations including, but not limited to the EPA Renovation, Repair, and Painting (RRP) rule under the Toxic Substances Control Act. On-site Contractors performing paint stabilization shall be RRP Certified and work for an RRP Certified Firm.

1.6 All pipe insulation of any kind, including, but not limited to, fiberglass pipe insulation (FGPI), zeston, neoprene, cellular glass, cork, etc. within the asbestos abatement containments be removed as part of this project.

a. Once containments and air filtration devices (AFDs) are in place but prior to start of asbestos abatement, all non-asbestos containing items can be removed and disposed of as construction debris, under 'dust control' conditions. Once asbestos abatement commences, all non-asbestos containing materials present in the work area shall be removed and disposed of as asbestos contaminated waste.

1.7 A Contractor representative shall attend regularly scheduled construction progress meetings while asbestos abatement is occurring during all phases of the project. The Contractor representative must have authorization to speak for and make commitments for the Contractor. The GC and the Contractor shall continuously coordinate to fulfill project milestones and phasing requirements. The Owner will not pay remobilization fees, charges and/or change orders issued by the GC and/or the Contractor.

Asbestos abatement work scope items and asbestos containing material impact may be identified in the asbestos abatement specification and/or the Construction Document drawing set. Asbestos abatement work scope items that are shown in one document and not the other shall not be cause for cost increase via change order requests.

No work shall be performed if the Contractor believes the work to be performed is a change and/or addition to the work scope outlined in the construction documents without first obtaining a Notice To Proceed (NTP) from the Owner.

The Owner shall not be responsible for compensating the Contractor for work performed that is considered a change and/or addition to the construction documents without the issuance of a NTP and/or a written work directive.

1.8 Contractor access shall be confined to the work areas indicated in this specification. The abatement project may proceed concurrently with other work being performed within the building. The Contractor shall cooperate fully with the other Contractors in expediting the work of all trades and avoid damage to the work of the other Contractors.

1.9 The School District of Philadelphia reserves the right to require asbestos abatement and associated work is performed at times when the building is unoccupied.

1.10 All Prime Contractors and Subcontractors shall inform themselves fully of the scope and scale of the asbestos abatement as it relates to this project. At no time shall any Contractor/Subcontractor disturb asbestos-containing pipe/pipe fitting insulation, vinyl asbestos floor tile, asbestos-containing floor tile mastic, or any other Asbestos Containing Material listed on the Asbestos Inspection Report. Contractors and Subcontractors shall prove a copy of the Asbestos Inspection Report to all personnel from their Company upon admission to each construction work zone. A mandatory pre-commencement meeting shall be attended by all Prime Contractor(s) to discuss the Asbestos Inspection Report and the School District of Philadelphia's environmental compliance policies for all outside Contractors.

1.11 Regarding any roofing material removal and replacement, which will likely be performed by a Roofing Contractor if required by this project:

a. Existing roofing materials are presumed asbestos-containing materials (PACMs). The removal of roofing materials are non-regulated projects according to the City of Philadelphia Asbestos Control Regulation (ACR), provided:
    i. the methods utilized to remove the roofing do not render the roofing material friable. The use of rotating blade roof cutters or other powered equipment that sand, grind, cut, or abrade the roof material is prohibited. Only methods that slice, shear, or punch using equipment such as axes, hatchets, knives, spud bars, pry bars and shovels shall be permitted.
    ii. the resulting waste is disposed of at a landfill that accepts non-friable asbestos waste. No recycling of the roofing materials is acceptable without sampling and analysis that would confirm that the roofing materials are non-asbestos.
    iii. the supervisor of the crew performing the removal of the roofing material has successfully completed asbestos awareness training at a minimum, in accordance with the Pennsylvania Department of Environmental Protection (PADEP).
    iv. appropriate notification of a non-friable asbestos abatement project is submitted to the EPA, DEP, and Philadelphia Air Management Services.

1.12 Regarding the removal of existing interior or exterior caulking:

Caulks and glazing's are presumed asbestos-containing materials (PACMs). The removal of these materials are non-regulated projects according to the City of Philadelphia Asbestos Control Regulation (ACR), provided:

a. the methods utilized to remove caulk and/or glazing do not render the materials friable. Powered equipment that sand, grind, cut, or abrade the materials is prohibited.
b. the resulting waste is disposed of at a landfill that accepts non-friable asbestos waste. No recycling of the materials is acceptable without sampling and analysis that would confirm that the caulk and/or glazing's are non-asbestos;
c. the supervisor of the crew performing the removal has successfully completed asbestos awareness training at a minimum, in accordance with the Pennsylvania Department of Environmental Protection (PADEP);
d. appropriate notification of a non-friable asbestos abatement project is submitted to the EPA, DEP, and Philadelphia Air Management Services.

1.13 Quantities listed in the following table are approximations from the time of the environmental inspection. By submitting a bid, the Contractor signifies they have visited the site, examined conditions that may affect the work, verified quantities of materials, and is informed as to the extent and character of the project. Any discrepancies from stated footages shall not be cause for a contract cost adjustment.

1.14 The Work Scope Summarization (**Table 1** - Scope of Asbestos Abatement) beginning on the following page consists of:

- The Floor in which the abatement work is being performed;
- Space Numbers;
- The On-Site Room Name in which the abatement work is being performed;
- Description of Material to be Removed;
- Determination of Confirmed or Assumed Asbestos Containing Material;
- Friability Classification;
- Approximate Amount of Material to Be Removed and Disposed of;
- Pertinent Comments/Description/Notes associated with the ACM to be removed, equipment to be demolished, and/or in reference to the Construction Document drawing set.

## Table 1 – Scope of Asbestos Abatement

| Scope of Asbestos Abatement | School District of Philadelphia<br>Vare-Washington Elementary School (K-8)<br>1198 S. 5th Street, Philadelphia, PA 19147<br>ULCS# 2730<br>**Year Built: 1937** | | | | Prepared by: Steven Vena, Asbestos Investigator #: 0554<br>Date: 08/23/2021<br>All quantities are estimates and should be confirmed by Contractors prior to bidding. Additional ACBM may be present inside of hard walls and above hard ceilings. | | | |
|---|---|---|---|---|---|---|---|---|
| ***Floor*** | ***Space #*** | ***On Site Room Name*** | ***Material Description*** | ***Confirmed/ Assumed/ NAD/ Non Suspect ACM*** | ***Amount of Material*** | ***SF LF EA*** | ***Condition (Code 2)*** | ***Action (Code 3)*** | ***Comments*** |
| 3 | S302 | Stairwell opposite Classroom 302 | Pipe Insulation 2-6 inch | Confirmed | 20 | LF | ND | REM | |
| 3 | S302 | Stairwell opposite Classroom 302 | Radiator Insulation | Confirmed | 18 | SF | ND | REM | |
| 3 | 300 | After-school Program Office 300 | Pipe Insulation 2-6 inch | Confirmed | 24 | LF | ND | REM | |
| 3 | 301 | Classroom 301 | Radiator Insulation | Confirmed | 15 | SF | ND | REM | |
| 3 | 302 | Classroom 302 | Pipe Insulation 2-6 inch | Confirmed | 12 | LF | ND | REM | |
| 3 | 302 | Classroom 302 | Radiator Insulation | Confirmed | 15 | SF | ND | REM | |
| 3 | 303 | Classroom 303 | Radiator Insulation | Confirmed | 15 | SF | ND | REM | |
| 3 | 303 | Classroom 303 | Pipe Insulation 2-6 inch | Confirmed | 12 | LF | ND | REM | |
| 3 | 304 | Classroom 304 | Radiator Insulation | Confirmed | 15 | SF | ND | REM | |
| 3 | 305 | Classroom 305 | Radiator Insulation | Confirmed | 15 | SF | ND | REM | |
| 3 | 306 | Classroom 306 | Radiator Insulation | Confirmed | 15 | SF | ND | REM | |
| 3 | S303 | Stairs adjacent to Classroom 306 | Pipe Insulation 2-6 inch | Confirmed | 20 | LF | ND | REM | |
| 3 | S303 | Stairs adjacent to Classroom 306 | Radiator Insulation | Confirmed | 18 | SF | ND | REM | |
| 3 | 307 | Classroom 307 | Radiator Insulation | Confirmed | 15 | SF | ND | REM | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3 | 308 | Classroom 308 | Pipe Insulation 2-6 inch | Confirmed | 24 | LF | ND | REM | |
| 3 | 308 | Classroom 308 | Radiator Insulation | Confirmed | 15 | SF | ND | REM | |
| | | | | | | | | | |
| 3 | H301A | Girl's Restroom | Radiator Insulation | Confirmed | 18 | SF | ND | REM | |
| | | | | | | | | | |
| 3 | H301 | Hallway from Classrooms 301-306 | Radiator Insulation | Confirmed | 54 | SF | ND | REM | |
| | | | | | | | | | |
| 3 | 309A | Psychologist's Office 309A | Radiator Insulation | Confirmed | 10 | SF | ND | REM | |
| 3 | 309 | Counselor's Suite 309 | Radiator Insulation | Confirmed | 12 | SF | ND | REM | |
| 3 | 309 | Counselor's Suite 309 | Pipe Insulation 2-6 inch | Confirmed | 12 | LF | ND | REM | |
| | | | | | | | | | |
| 3 | 310 | Speech Room 310 | Radiator Insulation | Confirmed | 15 | SF | ND | REM | White |
| | | | | | | | | | |
| 3 | 314 | Faculty Room 314 | Pipe Insulation 2-6 inch | Confirmed | 12 | LF | ND | REM | |
| | | | | | | | | | |
| 3 | 311 | Classroom 311 | Radiator Insulation | Confirmed | 15 | SF | ND | REM | White |
| | | | | | | | | | |
| 3 | S301 | Stairwell next to Classroom 312 | Pipe Insulation 2-6 inch | Confirmed | 12 | LF | ND | REM | |
| 3 | S301 | Stairwell next to Classroom 312 | Radiator Insulation | Confirmed | 12 | SF | ND | REM | |
| | | | | | | | | | |
| 3 | 312 | Classroom 312 | Radiator Insulation | Confirmed | 30 | SF | ND | REM | |
| | | | | | | | | | |
| 3 | 313 | CATCH Room 313 | Radiator Insulation | Confirmed | 15 | SF | ND | REM | |
| | | | | | | | | | |
| 3 | H302A | Boy's Restroom | Radiator Insulation | Confirmed | 12 | SF | ND | REM | |
| | | | | | | | | | |
| 3 | H302A-PC | Pipe Chase in Boy's Restroom | Pipe Insulation 2-6 inch | Confirmed | 35 | LF | ND | REM | |
| 3 | H302A-PC | Pipe Chase in Boy's Restroom | Pipe Fitting Insulation | Confirmed | 8 | EA | ND | REM | |
| | | | | | | | | | |
| 3 | H302 | Hallway from Office 300 to Classroom 312 | Radiator Insulation | Confirmed | 60 | SF | ND | REM | |
| | | | | | | | | | |
| 3 | H302-PC | 312 | Pipe Insulation > 6 inch | Confirmed | 64 | LF | ND | REM | |
| | | | | | | | | | |
| 2 | S202 | Stairs adjacent to Classroom 208 | Pipe Insulation 2-6 inch | Confirmed | 20 | LF | ND | REM | |
| 2 | S202 | Stairs adjacent to Classroom 208 | Radiator Insulation | Confirmed | 25 | SF | ND | REM | |
| | | | | | | | | | |
| 2 | 201 | Storage Room 201 | Pipe Insulation 2-6 inch | Confirmed | 42 | LF | ND | REM | |
| 2 | 201 | Storage Room 201 | Pipe Fitting Insulation | Confirmed | 9 | EA | ND | REM | |
| 2 | 201 | Storage Room 201 | Radiator Insulation | Confirmed | 15 | SF | ND | REM | |
| | | | | | | | | | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2 | 202 | Classroom 202 | Radiator Insulation | Confirmed | 10 | SF | ND | REM | |
| | | | | | | | | | |
| 2 | 203 | Classroom 203 | Pipe Insulation 2-6 inch | Confirmed | 15 | LF | ND | REM | |
| 2 | 203 | Classroom 203 | Pipe Fitting Insulation | Confirmed | 4 | EA | ND | REM | |
| 2 | 203 | Classroom 203 | Radiator Insulation | Confirmed | 15 | SF | ND | REM | |
| | | | | | | | | | |
| 2 | 204 | Classroom 204 | Radiator Insulation | Confirmed | 15 | SF | ND | REM | |
| | | | | | | | | | |
| 2 | 205 | Classroom 205 | Radiator Insulation | Confirmed | 10 | SF | ND | REM | |
| | | | | | | | | | |
| 2 | 206 | Classroom 206 | Radiator Insulation | Confirmed | 15 | SF | ND | REM | |
| | | | | | | | | | |
| 2 | S203 | Stairs adjacent to Classroom 206 | Radiator Insulation | Confirmed | 15 | SF | ND | REM | |
| | | | | | | | | | |
| 2 | 207 | Computer Room 207 | Pipe Insulation 2-6 inch | Confirmed | 10 | LF | ND | REM | |
| 2 | 207 | Computer Room 207 | Radiator Insulation | Confirmed | 15 | SF | ND | REM | |
| | | | | | | | | | |
| 2 | 215 | Classroom 208A | Radiator Insulation | Confirmed | 15 | SF | ND | REM | |
| | | | | | | | | | |
| 2 | 208 | Classroom 208B | Radiator Insulation | Confirmed | 15 | SF | ND | REM | |
| | | | | | | | | | |
| 2 | H201A | Girl's Restroom across from Classroom 203 | Pipe Insulation 2-6 inch | Confirmed | 18 | LF | ND | REM | |
| 2 | H201A | Girl's Restroom across from Classroom 203 | Pipe Fitting Insulation | Confirmed | 6 | EA | ND | REM | |
| 2 | H201A | Girl's Restroom across from Classroom 203 | Radiator Insulation | Confirmed | 12 | SF | ND | REM | |
| | | | | | | | | | |
| 2 | H201 | Hallway from Classrooms 202-207 | Radiator Insulation | Confirmed | 48 | SF | ND | REM | |
| | | | | | | | | | |
| 2 | H201PC | Pipe Chase in Hallway from Classrooms 202-207 | Pipe Insulation 2-6 inch | Confirmed | 20 | LF | ND | REM | |
| | | | | | | | | | |
| 2 | 209A | Men's Staff Lounge | Pipe Insulation 2-6 inch | Confirmed | 16 | LF | ND | REM | |
| 2 | 209A | Men's Staff Lounge | Pipe Fitting Insulation | Confirmed | 6 | EA | ND | REM | |
| 2 | 209A | Men's Staff Lounge | Radiator Insulation | Confirmed | 8 | SF | ND | REM | |
| | | | | | | | | | |
| 2 | 209APC | Pipe Chase in Staff Lounge | Pipe Insulation 2-6 inch | Confirmed | 25 | LF | ND | REM | |
| 2 | 209APC | Pipe Chase in Staff Lounge | Pipe Fitting Insulation | Confirmed | 5 | EA | ND | REM | |
| | | | | | | | | | |
| 2 | 210 | ESOL Room 210 | Pipe Insulation 2-6 inch | Confirmed | 15 | LF | ND | REM | |
| 2 | 210 | ESOL Room 210 | Pipe Fitting Insulation | Confirmed | 7 | EA | DD | REM | |
| 2 | 210 | ESOL Room 210 | Radiator Insulation | Confirmed | 12 | SF | ND | REM | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2 | 210A | Closet between Office 211 and ESOL Room 210 | Radiator Insulation | Confirmed | 10 | SF | ND | REM | |
| | | | | | | | | | |
| 2 | 211 | ESOL Room 211 | Pipe Insulation 2-6 inch | Confirmed | 20 | LF | ND | REM | |
| 2 | 211 | ESOL Room 211 | Pipe Fitting Insulation | Confirmed | 6 | EA | ND | REM | |
| 2 | 211 | ESOL Room 211 | Radiator Insulation | Confirmed | 15 | SF | ND | REM | |
| | | | | | | | | | |
| 2 | 211A | Teacher's Lounge | Radiator Insulation | Confirmed | 14 | SF | ND | REM | |
| 2 | 211A | Teacher's Lounge | Pipe Insulation 2-6 inch | Confirmed | 32 | LF | ND | REM | |
| 2 | 211A | Teacher's Lounge | Pipe Fitting Insulation | Confirmed | 10 | EA | ND | REM | |
| 2 | 211A | Pipe Chase in Teacher's Lounge | Pipe Insulation 2-6 inch | Confirmed | 10 | LF | ND | REM | |
| | | | | | | | | | |
| 2 | 212 | Ryan Howard Library 212 | Pipe Insulation 2-6 inch | Confirmed | 12 | LF | ND | REM | |
| 2 | 212 | Ryan Howard Library 212 | Pipe Fitting Insulation | Confirmed | 9 | EA | ND | REM | |
| 2 | 212 | Ryan Howard Library 212 | Radiator Insulation | Confirmed | 30 | SF | ND | REM | |
| | | | | | | | | | |
| 2 | S201 | Stairwell adjacent to Library 212 | Radiator Insulation | Confirmed | 15 | SF | ND | REM | |
| | | | | | | | | | |
| 2 | 213 | Art Room 213 | Radiator Insulation | Confirmed | 30 | SF | ND | REM | |
| | | | | | | | | | |
| 2 | 214 | Admin Office Room 214 | Radiator Insulation | Confirmed | 15 | SF | ND | REM | |
| | | | | | | | | | |
| 2 | 214B | Music Room 214 Restroom | Pipe Insulation 2-6 inch | Confirmed | 55 | LF | ND | REM | |
| 2 | 214B | Music Room 214 Restroom | Pipe Fitting Insulation | Confirmed | 11 | EA | ND | REM | |
| | | | | | | | | | |
| 2 | H202A | Boy's Restroom next to Room 214 | Radiator Insulation | Confirmed | 10 | SF | ND | REM | |
| | | | | | | | | | |
| 2 | H202 | Hallway from Classrooms 201-213 | Pipe Insulation 2-6 inch | Confirmed | 52 | LF | ND | REM | |
| 2 | H202 | Hallway from Classrooms 201-213 | Pipe Fitting Insulation | Confirmed | 14 | EA | ND | REM | |
| 2 | H202 | Hallway from Classrooms 201-213 | Radiator Insulation | Confirmed | 32 | SF | ND | REM | |
| 2 | H202 | Pipe chase in H202 next to water fountain | Pipe Insulation 2-6 inch | Confirmed | 1 | LF | SD | REM | |
| | | | | | | | | | |
| 1 | S104 | Main Entrance Vestibule | Radiator Insulation | Confirmed | 25 | SF | ND | REM | |
| | | | | | | | | | |
| 1 | 113 | Main Offfice | Radiator Insulation | Confirmed | 18 | SF | ND | REM | |
| | | | | | | | | | |
| 1 | 114 | Principal's Office | Radiator Insulation | Confirmed | 15 | SF | ND | REM | |
| | | | | | | | | | |
| 1 | 115 | Nurse's Office | Radiator Insulation | Confirmed | 8 | SF | ND | REM | |
| | | | | | | | | | |
| 1 | 101 | Classroom 101 | Radiator Insulation | Confirmed | 20 | SF | ND | REM | |
| | | | | | | | | | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 102 | Classroom 102 | Radiator Insulation | Confirmed | 10 | SF | ND | REM | |
| | | | | | | | | | |
| 1 | 103 | Resource Room 103 | Radiator Insulation | Confirmed | 10 | SF | ND | REM | |
| | | | | | | | | | |
| 1 | H101 | Hallway from Main Office to Resource Room 103 | Radiator Insulation | Confirmed | 72 | SF | ND | REM | |
| | | | | | | | | | |
| 1 | S103 | Stairwell next to Classroom 104 | Pipe Insulation 2-6 inch | Confirmed | 20 | LF | ND | REM | |
| 1 | S103 | Stairwell next to Classroom 104 | Radiator Insulation | Confirmed | 32 | SF | ND | REM | |
| | | | | | | | | | |
| 1 | 104 | Classroom 104 | Radiator Insulation | Confirmed | 10 | SF | ND | REM | |
| | | | | | | | | | |
| 1 | S102 | Stairwell next to Classroom 106 | Pipe Insulation 2-6 inch | Confirmed | 20 | LF | ND | REM | |
| 1 | S102 | Stairwell next to Classroom 106 | Radiator Insulation | Confirmed | 40 | SF | ND | REM | |
| | | | | | | | | | |
| 1 | 105 | Classroom 105 | Radiator Insulation | Confirmed | 10 | SF | ND | REM | |
| | | | | | | | | | |
| 1 | 106 | Classroom 106 | Radiator Insulation | Confirmed | 20 | SF | ND | REM | |
| | | | | | | | | | |
| 1 | 107 | Classroom 107 After School Room | Radiator Insulation | Confirmed | 10 | SF | ND | REM | |
| | | | | | | | | | |
| 1 | 109 | Head Start Classroom 108/109 | Radiator Insulation | Confirmed | 20 | SF | ND | REM | |
| | | | | | | | | | |
| 1 | S101 | Stairs adjacent to Classroom 109 | Pipe Insulation 2-6 inch | Confirmed | 24 | LF | ND | REM | |
| 1 | S101 | Stairs adjacent to Classroom 109 | Radiator Insulation | Confirmed | 32 | SF | ND | REM | |
| | | | | | | | | | |
| 1 | 110 | Head Start Classroom 110 | Pipe Insulation 2-6 inch | Confirmed | 60 | LF | ND | REM | |
| 1 | 110 | Head Start Classroom 110 | Pipe Fitting Insulation | Confirmed | 18 | EA | ND | REM | |
| 1 | 110 | Head Start Classroom 110 | Radiator Insulation | Confirmed | 30 | SF | ND | REM | |
| | | | | | | | | | |
| 1 | 110C | Classroom 110 Boy's Restroom | Pipe Insulation 2-6 inch | Confirmed | 27 | LF | ND | REM | |
| 1 | 110C | Classroom 110 Boy's Restroom | Pipe Fitting Insulation | Confirmed | 5 | EA | DD | REM | |
| | | | | | | | | | |
| 1 | 110F | Classroom 110 Girl's Restroom | Pipe Insulation 2-6 inch | Confirmed | 1 | LF | ND | REM | |
| 1 | 110F | Classroom 110 Girl's Restroom | Pipe Fitting Insulation | Confirmed | 2 | EA | ND | REM | |
| | | | | | | | | | |
| 1 | 110A | Teacher's Lounge | Radiator Insulation | Confirmed | 10 | SF | ND | REM | |
| 1 | 110PC | Pipe Chase in Teachers Lounge | Pipe Fitting Insulation | Confirmed | 4 | EA | ND | REM | |
| 1 | 110PC | Pipe Chase in Teachers Lounge | Pipe Insulation 2-6 inch | Confirmed | 40 | LF | DD | REM | |
| | | | | | | | | | |
| 1 | 112 | Auditorium | Radiator Insulation | Confirmed | 120 | SF | ND | REM | |
| | | | | | | | | | |
| 1 | H102 | Hallway from Auditorium to Classroom 110 | Radiator Insulation | Confirmed | 48 | SF | ND | REM | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| B | S001PC | Pipe Chase in Stairwell opposite Music Room 100 | Pipe Insulation 2-6 inch | Confirmed | 36 | LF | ND | REM | |
| | | | | | | | | | |
| B | 1 | Music Room 100 | Pipe Insulation 2-6 inch | Confirmed | 32 | LF | ND | REM | |
| B | 1 | Music Room 100 | Pipe Fitting Insulation | Confirmed | 4 | EA | ND | REM | |
| B | 1 | Music Room 100 | Radiator Insulation | Confirmed | 30 | SF | ND | REM | |
| B | 001A | Music Room Storage Closet on Boiler Room side | Radiator Insulation | Confirmed | 30 | SF | ND | REM | White |
| B | 001B | Music Room Storage Closet on Gym side | Radiator Insulation | Confirmed | 15 | SF | ND | REM | |
| B | 001B | Music Room Storage Closet on Gym side | Pipe Insulation 2-6 inch | Confirmed | 150 | LF | ND | REM | |
| B | 001B | Music Room Storage Closet on Gym side | Pipe Fitting Insulation | Confirmed | 46 | EA | ND | REM | |
| | | | | | | | | | |
| B | 9 | Girl's Restroom | Pipe Insulation 2-6 inch | Confirmed | 14 | LF | ND | REM | |
| B | 9 | Girl's Restroom | Pipe Fitting Insulation | Confirmed | 2 | EA | ND | REM | |
| | | | | | | | | | |
| B | H001 | Hallway from Classroom 100 to the Gym | Pipe Insulation 2-6 inch | Confirmed | 55 | LF | ND | REM | |
| B | H001 | Hallway from Classroom 100 to the Gym | Pipe Fitting Insulation | Confirmed | 6 | EA | ND | REM | |
| B | H001 | Hallway from Classroom 100 to the Gym | Radiator Insulation | Confirmed | 25 | SF | ND | REM | |
| | | | | | | | | | |
| B | 7 | Building Engineer's Storage Room | Pipe Insulation 2-6 inch | Confirmed | 46 | LF | ND | REM | |
| B | 7 | Building Engineer's Storage Room | Pipe Fitting Insulation | Confirmed | 6 | EA | ND | REM | |
| | | | | | | | | | |
| B | 006 | Boy's Restroom | Radiator Insulation | Confirmed | 16 | SF | ND | REM | |
| B | 006 | Boy's Restroom | Pipe Insulation 2-6 inch | Confirmed | 16 | LF | ND | REM | |
| B | 006 | Boy's Restroom | Pipe Fitting Insulation | Confirmed | 2 | EA | ND | REM | |
| | | | | | | | | | |
| B | 005 | Building Engineer's Office | Pipe Fitting Insulation | Confirmed | 2 | EA | ND | REM | Tan |
| B | 005 | Building Engineer's Office | Pipe Insulation 2-6 inch | Confirmed | 32 | LF | ND | REM | |
| B | 005 | Building Engineer's Office | Radiator Insulation | Confirmed | 8 | SF | ND | REM | |
| | | | | | | | | | |
| B | 4 | Cafeteria | Pipe Insulation 2-6 inch | Confirmed | 60 | LF | ND | REM | |
| B | 4 | Cafeteria | Pipe Fitting Insulation | Confirmed | 12 | EA | ND | REM | |
| B | 4 | Cafeteria | Radiator Insulation | Confirmed | 30 | SF | ND | REM | |
| B | 004A | Cafeteria Storage Room | Pipe Fitting Insulation | Confirmed | 1 | EA | SD | REM | |
| | | | | | | | | | |
| B | 8 | Boiler Room | Exterior Boiler Insulation | Confirmed | 25 | SF | ND | REM | Small Pony Boiler |
| B | 8 | Boiler Room | Interior Boiler Insulation | Assumed | 560 | CF | ND | REM | Full Size Boilers |
| B | 8 | Boiler Room | Pipe Insulation 2-6 inch | Confirmed | 6 | LF | DD | REM | locations at ceiling:above Boiler and above entrance stair. |
| | | | | | | | | | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| B | 002A | Boiler Room Time Clock Room | Pipe Fitting Insulation | Confirmed | 3 | EA | ND | REM | |
| B | 002A | Boiler Room Time Clock Room | Pipe Insulation 2-6 inch | Confirmed | 20 | LF | ND | REM | |
| | | | | | | | | | |
| B | 003A | Utility Entrance/Pump Room | Pipe Insulation 2-6 inch | Confirmed | 20 | LF | ND | REM | |
| B | 003A | Utility Entrance/Pump Room | Pipe Fitting Insulation | Confirmed | 6 | EA | ND | REM | |
| | | | | | | | | | |
| B | 003APC | Pipe Chase in Utility Entrance/Pump Room | Pipe Insulation 2-6 inch | Confirmed | 140 | LF | ND | REM | |
| | | | | | | | | | |
| B | H002 | Hallway from Auditorium Crawlspace to Cafeteria | Radiator Insulation | Confirmed | 25 | SF | ND | REM | |
| | | | | | | | | | |
| A | AT | Attic accessible by 3rd Floor East Stairwell | Pipe Insulation 2-6 inch | Confirmed | 1000 | LF | SD | REM | |
| A | AT | Attic accessible by 3rd Floor East Stairwell | Pipe Insulation > 6 inch | Confirmed | 400 | LF | SD | REM | |
| A | AT | Attic accessible by 3rd Floor East Stairwell | Pipe Insulation Debris | Confirmed | 800 | SF | SD | REM | |
| | | | | | | | | | |
| C | 3 | Auditorium Crawlspace | Pipe Fitting Insulation | Confirmed | 13 | EA | ND | REM | |
| C | 3 | Auditorium Crawlspace | Pipe Insulation 2-6 inch | Assumed | 230 | LF | ND | REM | |

## 2.0 GENERAL ABATEMENT PROJECT CONDITIONS

2.1 The asbestos abatement work areas listed in the **Table 1**-Scope of Asbestos Abatement are Major and Minor Friable Projects as defined by the Philadelphia Asbestos Control Regulation (ACR) and shall comply with all requirements therein.

a. The Contractor must have a PA-licensed Supervisor on-site at all times during asbestos abatement activities. The Contractor shall not perform any abatement activities, including prep, bag-out, and teardown unless a City of Philadelphia certified API is on-site.

b. The Contractor shall provide a schedule for all work areas listed. The schedule shall be approved by the Owner and API prior to the commencement of work. The schedule shall include dates and timelines for the completion of all work areas listed in addition to proposed crew sizes.

c. If the Contractor seeks a change in the procedures and/or methods for accomplishing a certain asbestos abatement task, the Contractor may submit a written request to the Asbestos Project Designer for an alternative method, identifying the procedure for which an alternative is being sought, and the reason for seeking a change. The Asbestos Project Designer shall review the request and render a decision within twenty-four (24) hours of receipt of the written request.

d. The Owner, API, and Contractor shall conduct an inspection for existing damages prior to the commencement of work. All parties shall agree in writing on building conditions and list all damaged materials, furnishings, etc.

e. Contractor access shall be confined to the work areas indicated in this Contract. The Contract may be proceeding concurrently with others in the building. The Contractor shall cooperate fully with the other Contractors in expediting the work of all trades and avoid damage to the work of the other Contractors.

f. The Contractor shall be served with a Stop Work Order by the Project Designer and/or API when they are in non-compliance with this Contract Specification and/or other pertinent regulations (Refer to *Section 3.1.a-p*). The project shall remain halted until all matters identified in the Stop Work Order are corrected.

g. If it is determined that airborne asbestos contamination has occurred "outside the work area" adjacent to an active asbestos abatement work area, the Contractor shall contain and clean the affected premises under the direction of the API at no additional cost to the Owner. Causes for "outside the work area" airborne asbestos contamination include, but are not limited to:

   i. The loss of a negative pressure differential inside any active asbestos abatement work area;
   ii. A breech of containment into any active asbestos abatement work area;
   iii. Improper maintenance of AFDs/HEPA vacuums (Refer to *Section 14.7 & 14.8)*
   iv. Improper worker decontamination procedures;
   v. Negligence of the Contractor;
   vi. Any other poor work practices of the Contractor.

h. The Owner reserves the right to require asbestos abatement and associated work is performed at times when the building is unoccupied.

i. The Contractor shall submit to the API the number of AFDs projected to obtain a negative pressure differential sufficient to provide a minimum of four (4) air changes of the work area per hour along with the calculations used to determine this. The Contractor shall install a manometer to confirm the differential, which should read a minimum of -0.02 inches of water column.

Number of AFDs projected to obtain a negative pressure differential sufficient to provide a minimum of four (4) air changes of the work area per hour:

$$\frac{L \times W \times H \times 4 \text{ air changes per hour}}{\text{CFM Rating of AFD} \times 60}$$

AFDs should be placed within a containment at the farthest point from the entrance to the containment.

## 3.0 QUALITY ASSURANCE

3.1 All work and disposal shall be performed in compliance with all applicable Federal, State, and local regulations including, but not limited to:

**a.** 29 CFR 1926.1101 (OSHA);
**b.** 29 CFR 1926.501 (OSHA);
**c.** 40 CFR Part 61 (NESHAP);
**d.** 40 CFR Part 763 (AHERA);
**e.** 40 CFR 761 **(**PCB Regulations);
**f.** Resource Conservation and Recovery Act (RCRA);
**g.** 40 CFR 300-399, EPA Comprehensive Environmental Response Compensation & Liability Act
**h.** 40 CFR 745, EPA Toxic Substances Control Act; LBP Poisoning Prevention
**i.** EPA Renovation, Repair, and Painting (RRP) rule under the Toxic Substances Control Act
**j.** 49 CFR 171-180, DOT Hazardous Material Regulations
**k.** 42 CFR Part 84 & 30 CFR Part 11 (NIOSH/DHHS respirator standards);
**l.** the Asbestos Control Regulation (Philadelphia Department of Public Health);
**m.** Act 194 & Act 161 (Pennsylvania Department of Labor and Industry);
**n.** Section F-315.8 (R) of the Philadelphia Fire Prevention Code;
**o.** NADCA ACR 2006 (HVAC System cleaning standards);
**p.** this Specification.

3.2 The Contractor has the responsibility of informing themselves fully of the requirements of these agencies and shall satisfy completely this Specification and all referenced regulations. All other applicable federal state and local regulations are incorporated by reference.

3.3 The Contractor must be a City of Philadelphia Licensed Asbestos Abatement Contractor as well as a Pennsylvania Licensed Asbestos Contractor and employ asbestos workers holding current licenses certifying their ability to work as abatement personnel in the state of Pennsylvania.

3.4 The Philadelphia Federation of Teacher's (PFT) Environmental Consultant shall have the option to conduct side by side final clearance air samples within 24 hours of notice of work area completion with the API. Samples will be collected, analyzed, and addressed, in accordance with all applicable, Federal, State, and local regulations.

3.5 Samples may be collected and analyzed via PCM and/or TEM.

a. Results shall be evaluated in accordance with the ACR and AHERA.

b. Acceptable airborne fiber concentrations for individual "outside the work area" air samples shall be < 0.010 f/cc for PCM and < 0.010 s/cc for TEM.

## 4.0 NOTIFICATIONS

4.1 The Contractor shall notify all applicable agencies including the EPA, DEP, and Philadelphia Air Management Services, using the appropriate form(s), ten (10) days prior to the commencement of asbestos abatement projects.

4.2 The Contractor shall submit written notification of the asbestos abatement project schedule to the local police and fire departments ten (10) days prior to beginning the project.

4.3 The Owner shall provide a minimum of ten (10) calendar days advance notification of intended asbestos abatement to all occupants. This notice shall conform to the Philadelphia ACR, *Section VI.B.2* and shall remain posted until the re-occupancy standard is met.

## 5.0 MANDATORY MEETINGS/SUBMITTALS

5.1 **Pre-construction meeting** - The Contractor shall attend a pre-construction meeting scheduled by the Owner. The Contractor shall submit to the Owner the following, if not already submitted:

a. Copies of required notifications, insurance, and bonds.

b. Progress schedule:
   i. The Contractor shall provide a schedule for all work areas listed. The schedule shall be approved by the Owner and API prior to the commencement of work. The schedule shall include the number of active abatement work areas at any given time, proposed crew sizes, and waiting periods following the delivery of the work area to the API for final visual inspections and clearance testing.

c. Work plan delineating phasing and preparation of the work site, including intended locations of water and electrical sources, and the intended storage locations for furniture and ceiling mounted light fixtures and other ceiling mounted items. Description of decontamination sequence, removal methods to be used and waste handling.

d. Supervisor credentials and delineation of responsibility for work site supervision, including name, telephone number and pager number for both the project manager and the on-site supervisor.

e. Worker qualifications, current licenses, fit tests, and medicals. These may be submitted as the crew is selected or changed, however, no workers will be permitted to remain on site without submission and approval of qualifications.

f. Safety Data Sheets (SDS) for the materials to be used on the job:
   i. Asbestos abatement encapsulant (only encapsulants approved by the Department of Public Health may be used);
   ii. Heavy-duty polyethylene tape used for sealing fixed objects, the construction of critical barriers, decontamination chambers and floor/wall containments;

g. Name of Waste Hauler(s) and disposal site with EPA/DEP identification numbers;

h. Name of the firm or competent person performing the Contractors OSHA required personnel monitoring and the laboratories PAT Certification and Philadelphia Laboratory Certification;

i. A detailed *written* description of emergency procedures to be followed in the event of injury or fire. This submittal must include execution procedures, source of emergency assistance (including telephone numbers), and access procedures to be used by emergency personnel.

5.2 **Progress meetings** - Meetings shall be held at the job site at the discretion of the Owner/Construction Manager/API to discuss the progress of the work, phasing and other Contractor coordination, work schedule, and any conflicts or problems. The representative of the Contractor must have authorization to speak for and make commitments for the Contractor. The GC and Contractor shall continuously coordinate to fulfill project milestones and phasing requirements. The Owner will not pay remobilization fees, charges and/or change orders issued by the GC and/or Contractor.

## 6.0 OWNER'S RESPONSIBILITIES

6.1 The Owner shall employ the services of an Asbestos Project Inspector (API) who is licensed by the City of Philadelphia to perform asbestos project inspection as defined by the Asbestos Control Regulation (ACR).

6.2 The Owner shall ensure the work areas will be unoccupied prior to abatement activity commencing.

6.3 The Owner shall make water and electricity available at the site at no cost to the Contractor. The Owner and/or Construction Manager shall notify the Contractor of scheduled system shutdowns to ensure no interruptions to the project's engineering controls.

6.4 The Owner shall be responsible to remove all computers, monitors, printers, all other computer related components, personal effects, books, or other items deemed too valuable or sensitive to leave in the scheduled work areas to be handled by the Contractor. A list of such items includes:

a. Personal items throughout any previously mentioned work areas;
b. All computers and computer accessories in any previously mentioned work areas;
c. Stored maintenance and building supply items, paper products, paints, cleaners, replacement ceiling tiles and florescent light bulbs, excess furniture, etc. located in any of the work areas scheduled for abatement, demolition and/or cleaning.
d. Any other items deemed appropriate by the Owner.
e. The Owner shall store items in areas not scheduled for asbestos abatement work.
f. The Owner shall send written notices to the appropriate and responsible School District personnel informing them of this responsibility and the limit of the Contractor's responsibilities.
g. Any movable items remaining in the scheduled work areas at the time of the mobilization of the Contractor shall be removed by the Contractor.

## 7.0 ASBESTOS ABATEMENT CONTRACTOR'S (CONTRACTOR) RESPONSIBILITIES

7.1 The Contractor is responsible for visiting the site and verifying quantities of asbestos containing materials, locations of utilities, and waste out routes *prior to* submitting a bid. Submission of a bid is confirm

a. No work shall be performed if the Contractor believes the work to be performed is a change and/or addition to the work scope outlined in the construction documents without first obtaining a Notice To Proceed (NTP) from the Owner.

i. The Owner shall not be responsible for compensating the Contractor for work performed that is considered a change and/or addition to the construction documents without the issuance of an NTP and/or a written work directive.

7.2 Project phasing, start and completion dates are subject to change at the discretion of the Owner.

7.3 The Contractor shall provide all labor, tools, materials and scaffolding necessary to complete the project safely, in a timely fashion, and in accordance with the specification and all applicable regulations.

a. All tools, ladders, equipment, etc. shall arrive at the project site in good condition and free of any visual residual asbestos contamination.

7.4 Any movable items remaining in the scheduled work areas at the time of the mobilization of the Contractor shall be removed by the Contractor.

7.5 The Contractor shall protect all non-movable furniture, cabinetry, and equipment from damage throughout the duration of this project.

7.6 The Contractor shall supply, at their own expense, all construction materials, supplies, and all electrical, water, and waste connections, tie-ins, or extensions. Temporary service lines shall be installed to prevent tripping, slipping, or falling. The Contractor must utilize a licensed electrician to install separate temporary electric panels, receptacles, and lights, all with ground fault interruption and current-overload protection. All temporary electrical set-ups shall be in accordance with OSHA regulation and NEMA standards.

7.7 The Contractor shall maintain current copies of certifications for workers on-site and shall keep copies of all pertinent specifications and regulations on-site. The API retains the right to prohibit work by employees without current certifications.

7.8 The Contractor shall maintain a detailed sign-in/sign-out log, which must be filled out by every person entering the work area. All entries shall be complete and legible.

7.9 The Contractor shall be responsible for security of the work site, fire/smoke detection, and maintenance of existing utility systems as it relates to the performance of this project.

7.10 The Contractor shall provide fire protection in accordance with all State and Local codes. This includes, but is not limited to:

a. Providing a written fire prevention and emergency action plan.

b. Providing multi-purpose ABC rated fire extinguishers, insuring that on-site personnel are aware of the location and proper use of all fire extinguishers and other safety equipment.

c. Performing a fire watch of the overall work area.

d. Designating a safety coordinator to implement the above actions. The Contractor's safety coordinator shall be responsible for:

i. Fire/life safety entries shall be entered into the Contractors log daily and shall be submitted with the Contractor's final report.
ii. Daily entries shall include names, dates, duration, problems & corrective actions taken by the fire watch - must be signed by the safety coordinator.

7.11 Assure protection and correct alignment of AFD exhaust ducts from damage during asbestos abatement activities. AFDs should be placed inside of a work area at the furthest point away from the entrance or decontamination chamber for that work area.

7.12 The Contractor Supervisor and API shall perform a visual inspection of the entire floor immediately below all active abatement work areas at the end of each 8-hour shift to verify that no water leaks, fallen material, or any other type of damage has occurred.

a. If water leaks, fallen material, or any other type of damage has occurred:
i. all asbestos abatement work shall be halted;
ii. the API shall immediately notify the Asbestos Project Manager, Construction Manager and Owner for direction and input;
iii. the source of the leak or damage shall be determined;
iv. the containment breech issue shall be rectified before any asbestos abatement work will be permitted to continue.

7.13 As required by the Asbestos Control Regulation, the Contractor shall provide a minimum 18" square transparent viewing window consisting of shatterproof material greater than or equal to 1/8" in thickness located at a height appropriate for accessible viewing and in such a manner as to maximize visibility of the abatement work area.

7.14 During the performance of final cleaning of all surfaces inside the active abatement work area, all horizontal surfaces "outside the work area" shall also be cleaned. This includes the dirty shower and clean rooms of decontamination chambers attached to the asbestos abatement work area being tested, and all immediate surroundings of representative makeup air entering each independent asbestos abatement work area being tested.

7.15 During final cleaning activities, the Contractor shall implement the following cleaning process several times until a no visible emission, dust free environment is established: Floors, walls, ceilings, materials, equipment, building supplies, critical and containment barriers shall be swept with the exhaust of electric leaf blowers to dislodge any remaining dust within the asbestos abatement work area. Allow for the HEPA equipped AFDs to provide several air changes within the work area prior to HEPA vacuuming and wet wiping.

7.16 During the APIs final inspection: floors, walls, ceilings, critical and containment barriers shall be swept with the exhaust of electric leaf blowers. If visible emissions produced from the leaf blowing activity are generated, the Contractor shall be directed to continue the cleaning process. This sequence shall be continued until the API is satisfied with the outcome of the final visual inspection and can definitively document that the work area is sufficiently clean.

## 8.0 ASBESTOS PROJECT INSPECTOR'S (API) RESPONSIBILITIES

8.1 The API shall act as the Owner's representative on the work site to assure and document compliance with this Specification and applicable regulations and to perform all project sampling and analysis required by the Philadelphia ACR and AHERA.

8.2 The API shall be responsible to see that required information and notifications are posted and are accessible for review by all concerned parties.

8.3 The API shall keep a daily log documenting the progress and performance of the Contractor over the course of the project.

8.4 The API shall perform continuous inspections to monitor the performance of the Contractor and to assure and document compliance with this Specification and applicable regulations. Inspections shall be performed during all phases of the project including verifying compliance with standard operating procedures, checking engineering controls, personal protection and decontamination systems, and handling and disposition of the resulting asbestos waste materials.

8.5 The API shall be responsible for performing all project sampling and analysis required by the Philadelphia ACR and AHERA.

a. The API shall also perform representative personal air sampling on themselves during the project as defined within OSHA 1926.1101 and 1910.1001. Personal air samples shall be collected to establish a time weighted average (TWA) and a short- term excursion limit (STEL). Such air samples shall be collected within the breathing zone and used to:
   i. initially determine the level of respiratory protection;
   ii. subsequently to assure that such protections remain adequate throughout the project.

8.6 The API shall routinely perform smoke testing at all critical barriers throughout the performance of asbestos abatement activities until the receipt of acceptable clearance air sample results to verify the integrity of critical barriers and presence of an adequate negative pressure differential.

8.7 The API shall notify the Owner and Air Management Services of the City of Philadelphia if the Contractor is found to be in non-compliance with the technical specifications or those Municipal, State or Federal regulations applicable to this project.

a. The API shall serve written notice to the Contractor for all Contractor non-compliance actions.

8.8 The Contractor Supervisor and API shall perform a visual inspection of the entire floor immediately below all active abatement work areas at the end of each 8-hour shift to verify that no water leaks, fallen material, or any other type of damage has occurred.

a. If water leaks, fallen material, or any other type of damage has occurred:
   i. all asbestos abatement work shall be halted;
   ii. the API shall immediately notify the Asbestos Project Manager, Construction Manager and Owner for direction and input;

iii. the source of the leak or damage shall be determined;
iv. the containment breech issue shall be rectified before any asbestos abatement work will be permitted to continue.

8.9 The API shall conduct a detailed final inspection to ensure that no visible dust or debris remains on any surfaces. This includes all surfaces inside the abatement work area and all horizontal surfaces in the immediate surroundings of representative makeup air entering each independent asbestos abatement work area being tested.

## 9.0 AIR MONITORING BY THE OWNER

9.1 The Owner shall employ the services of an API who is in licensed by the City of Philadelphia to perform air monitoring and quality assurance of the Contractors work practices.

9.2 The API shall collect pre-test and project air samples in accordance with the Philadelphia Asbestos Control Regulations and AHERA. Project air monitoring during abatement activities shall include samples inside and outside the work area to ensure airborne fiber concentrations remain at acceptable levels. Acceptable airborne fiber concentrations outside the work area shall be < 0.010 f/cc for PCM and < 0.010 s/cc for TEM. The API may also perform discretionary random personnel monitoring. Pre-test and project samples shall be analyzed via Phase Contrast Microscopy (PCM), NIOSH Method 7400.

a. Transmission Electron Microscopy (TEM) sampling may be performed in locations outside the containment work areas at the owner/consultant's discretion throughout the abatement project. Results shall be evaluated in accordance with AHERA and/or the ACR.

9.3 The API shall provide clearance air sampling:

a. For Major Projects, five (5) clearance samples shall be collected and analyzed via TEM. Results shall be evaluated in accordance with the ACR.
b. For Small and Minor Projects, two (2) clearance samples shall be collected and analyzed via Phase Contrast Microscopy (PCM) or TEM. Results shall be evaluated in accordance with the ACR.
c. For Non-Friable Projects, two (2) clearance samples shall be collected and analyzed via Phase Contrast Microscopy (PCM) or TEM. Results shall be evaluated in accordance with the ACR.
d. Clearance air sampling shall be performed using aggressive techniques. Sampling procedures and clearance criteria shall follow all requirements of the Philadelphia ACR and AHERA.

9.4 The Owner shall be responsible for costs incurred for the initial required laboratory work. Any subsequent testing required due to limits exceeded during abatement or any clearance sampling shall be paid by the Contractor. These costs include both labor and analysis.

a. The API shall invoice the Owner, on a separate invoice, for all costs relating to labor and analyses resulting from additional testing required due to limits exceeded during abatement or failure of first round clearance sampling.

b. The Contractors contract amount shall be reduced by an amount equal to the costs for labor and analyses resulting from additional testing required due to limits exceeded during abatement or failure of first round clearance sampling.

c. The Owner shall retain possession and ownership of all air sampling data and documentation.

9.5 The Z-test method found in 40 CFR 763, Subpart E., Appendix A, is a test method in which inside and outside area averages can be used to pass an area based upon the outcome of the arithmetic comparison of both areas. However, the analysis and comparison of the inside and outside air samples via the Z-test method is not permitted as part of this project.

a. "Inside" the work area samples analyzed by TEM will be compared to the acceptable geometric means listed in the Philadelphia ACR. "Outside" the work area samples shall be analyzed and compared independently.

   i. An Exceedance of the geometric mean inside the work area and/or an exceedance of 0.010 s/cc outside the work area shall require corrective action recleaning by the Contractor.

b. Inside and outside final clearance air samples shall be collected and analyzed via PCM or TEM. Results shall be evaluated in accordance with the ACR and AHERA.

c. Acceptable airborne fiber concentrations for individual "outside the work area" air samples shall be < 0.010 f/cc for PCM and < 0.010 s/cc for TEM.

d. During all phases of the project, the API/Consulting Firm shall be required to notify the Department of Public Health in the event an "outside the work area" air sample is in exceedance of 0.01 s/cc.

## 10.0 AIR MONITORING BY THE ASBESTOS ABATEMENT CONTRACTOR(CONTRACTOR)

10.1 The Contractor shall perform representative personal air sampling as defined within OSHA 1926.1101 and 1910.1001. Personal air samples shall be collected to establish a time weighted average (TWA) and a short-term excursion limit (STEL). Such air samples shall be collected within the breathing zone and used to:

i. initially determine the necessary assigned protection factor required for respiratory protection;

ii. subsequently to assure that such protections remain adequate throughout the project.

10.2 Sampling strategy and protocols shall be determined by a competent sampling professional according to NIOSH 7400 method. The Contractor shall have a competent person collect personal air samples.

10.3 Personal air sample results must be posted within 24 hours of sample collection.

10.4 Contractor personnel shall comply with the personal air sampling of the competent person and shall not interfere with or alter sampling protocol.

## 11.0 SCAFFOLDING/WALKWAYS/HOISTS/LADDERS

11.1 The Contractor shall use appropriate ladders, scaffolds, lifts, and/or hoists to provide safe access for equipment demolition and removal of ACM. Personnel safety lines and harnesses are required where appropriate.

a. Fall protection equipment and guidelines shall comply with OSHA Regulation Standards *29 CFR 1926.501*.

11.2 All scaffolding shall be of sound condition and assembled per OSHA requirements on a level, secure base. Scaffolding shall not be overloaded. The scaffolding shall be secured or tied into the building whenever possible. Guardrails consisting of top and mid-rails and toe boards shall always be installed. A post set-up inspection and daily inspections shall be conducted. Scaffold work platforms shall comply with OSHA Regulation Standards *29 CFR 1926.451*.

11.3 All stairs, platforms, catwalks and walking surfaces shall be kept, as is practical, free from obstructions, accumulation of water, and tripping hazards, and where elevated, be protected by OSHA specified top-rails, mid-rails, and toe boards.

11.4 Ladders of sufficient quantity and of suitable length or height shall be provided. Only electrically non-conductive materials, such as wood or fiberglass, shall be used. Ladders shall be kept in good repair and inspected regularly. Personnel shall be instructed in the proper use of ladders. No structural alterations shall be made to any ladder.

11.5 All ladders, scaffolds, lifts, and/or hoists shall arrive at the project site in good condition and free of any visual residual asbestos contamination.

## 12.0 RESPIRATORY AND PERSONAL PROTECTIVE EQUIPMENT

12.1 The Contractor shall provide approved respirators and protective clothing to all workers. Authorized representatives of the Owner, State or other Government entity who arrive to inspect the work site shall be permitted access to the work area provided the visitor arrives with their own approved respirator. Protective clothing shall be provided to these visitors by the Contractor.

a. The Contractor shall provide approved respirators to all visitors that can provide proof that a Pulmonary Function Test, Medical exam and chest x-ray has been performed on the visitor, and that a doctor has performed a pulmonary evaluation of the visitor indicating that the visitor has been deemed able to safely wear a respirator.

12.2 The Contractor shall require that each person entering the work area shall wear an approved respirator and protective clothing. There shall be no exceptions to this rule.

12.3 Respiratory protection shall be in compliance with:

a. OSHA regulations 29 CFR 1910.1001, 1926.1101, and 1910.134;
b. ANSI Z88.2-1980;
c. NIOSH 30 CFR Part 11 for type B and C respiratory protection;
d. NIOSH and DHHS 42 CFR Part 84 for non-powered, air-purifying particulate- filter respirators.

12.4 At a minimum, the respiratory protection at the start of the project shall be Type B (PAPR). After the initial exposure assessment establishes the expected airborne asbestos concentrations during removal, the respiratory protection shall be:

a. .01-1.0 f/cc - Dual Cartridge, Air Purifying respirator, Type A.
b. 1.0-2.5 f/cc - Powered Air Purifying Respirators - Type B (PAPR).
c. >2.5 f/cc- - Supplied Air with Constant Flow - Type C.

12.5 All persons performing asbestos abatement work requiring respiratory protection (including Type B) shall be clean shaven and have an unobstructed face mask seal. Only mustaches that do not exceed the corners of the upper lip and sideburns that do not extend below the earlobes are permitted.

## 13.0 DECONTAMINATION FACILITIES

13.1 For Major Projects, the Contractor shall construct and place a three-stage decontamination unit at the entrance to the work area.

For Minor Projects, a one-stage decontamination unit shall be constructed and placed at the entrance to the work area, with a centralized decontamination unit/shower constructed prior to work in any abatement work areas. Decontamination units shall have a sturdy frame comprised of studs or equivalent.

13.2 Decontamination units are not required for Non-Friable Projects.

13.3 Decontamination units shall be constructed as described below:

a. Three-stage unit (clean room, shower room, equipment room):

i. Interior of the chamber shall be covered with two layers of six (6) mil polyethylene with triple flap airlocks installed between each chamber;
ii. Shall have a sturdy frame comprised of studs and ⅜"plywood.
iii. Entrance shall be equipped with a secure, lockable plywood door with louver system;
iv. Shall have danger signs posted at the entrance;
v. Shall be provided with hot and cold water for use in the shower room;
vi. Shower water shall be added to waste materials or pumped through a five (5) micron filter element prior to discharging it to the sanitary sewer or floor drains.

b. One-stage unit:

i. Interior of the chamber shall be covered with two layers of six (6) mil polyethylene and triple flap airlocks shall be placed at entrance and exit;
ii. Shall have a sturdy frame comprised of studs or an approved equivalent.
iii. Shall have danger signs posted at the entrance;
iv. Asbestos workers shall wear two (2) disposable Tyvek-type suits. Before exiting the work area, the worker shall remove the outer suit in the single- stage decontamination chamber. The worker shall immediately proceed to the remote centralized, decontamination chamber, equipped with a shower and clean room. The inner disposable suit and respirator shall be removed after appropriate wetting. Dispose of the inner suit and respirator cartridges in the centralized decontamination chamber. Workers shall shower with liquid bath soap and shampoo. Clean, dry towels shall be available for drying;
v. Hot and cold water shall be available for use in the shower room;
vi. Shower water shall be added to waste materials or pumped through a five (5) micron filter element prior to discharging it to the sanitary sewer or floor drains.

c. The Contractor shall provide one decontamination chamber for every eight (8) workers.

13.4 The use of a remote decontamination unit for MAJOR PROJECTS requires the submission of an Alternative Method Request to the City of Philadelphia's Air Management Services, Asbestos Division, and receipt of approval by that office.

13.5 Asbestos abatement shall not commence until the Contractor can demonstrate to the API that the shower unit is fully operational.

## 14.0 GENERAL PREPARATION FOR ALL ASBESTOS ABATEMENT ACTIVITIES

14.1 The Contractor shall confine their personnel, the storage of materials, tools, waste, and supplies to the limits established by the Owner and local ordinances.

14.2 The Contractor shall assure that building exits are not obstructed and that appropriate safety barriers are established to prevent access by unauthorized persons. The works areas are to be kept neat, clean, and safe.

14.3 The Contractor shall post OSHA specified, asbestos specific danger signs at the entrance to each work area. Such signs shall also be posted when applicable to decontamination chambers, bag-out chambers, critical and separation barriers, and waste storage containers.

14.4 Provide isolation barriers to separate the abatement work areas from the remaining occupied areas of each floor.

14.5 All necessary building occupants remaining in the building during the asbestos abatement project shall be denied access to the asbestos abatement work area(s) by isolation barriers and/or locked doors.

14.6 All moveable objects shall be removed from the work area. Movable objects shall be wet wiped & HEPA vacuumed prior to their relocation to a clean area.

14.7 AFDs and HEPA vacuums require different maintenance schedules and attention depending on the model. Check the user's manual to determine and comply with the maintenance, filter replacement, and cleaning requirements of each AFD and HEPA vacuum being used.

14.8 At no time shall an AFD be dismantled and the inner HEPA filter replaced while on-site. Removal and replacement of HEPA filters shall be performed offsite.

a. At no time shall a HEPA vacuum be opened for cleaning/emptying outside an active asbestos abatement work area.
b. Cleaning/emptying a HEPA vacuum shall be performed INSIDE an active asbestos abatement work area with a minimum negative pressure differential of – 0.02 inches on the water column.
c. Cleaning/emptying of HEPA vacuums shall be performed directly beside an operating AFD exhausting to the exterior.
d. HEPA vacuums shall be cleaned/emptied only during gross removal of asbestos and/or equipment demolition. No HEPA vacuums shall be cleaned/emptied, or opened for any other reason, during final cleaning and/or encapsulation.

14.9 AFDs and all other supplies and equipment shall arrive at the project site in good condition and free of any visual residual asbestos contamination.

14.10 Assure HVAC systems associated with, or that pass through any abatement work areas are shut down. Provide appropriate lock and tag out devices at the shut off point of the fan.

14.11 De-energize the work areas and all conduit running through the work areas.

a. Appropriate lock and tag out devices shall be installed at the breakers.

b. The Contractor shall provide a temporary electric panel with ground fault interruption.

c. The Contractor shall supply sufficient temporary lighting to illuminate the work areas during asbestos abatement and paint stabilization. All active work areas shall be lighted to not less than the minimum illumination intensities listed in OSHA Regulation 29 CFR 1926.56(a), Table D-3 for Indoors: warehouses, corridors, hallways, and exit ways (e.g. - 5-foot candles).

14.12 Only approved noncombustible or flame-resistant materials shall be used for work area preparation. Polyethylene sheeting shall be certified to conform to NFPA 701.

14.13 The dropping, lowering, transporting or otherwise moving any open or packaged waste through any shaft during this project is strictly prohibited. When the asbestos abatement work area itself is a shaft, asbestos waste must be packaged and lowered in a controlled fashion to the base of the shaft. No dropping of waste in any shaft shall be permitted at any time.

## 15.0 PREPARATION & ABATEMENT – MAJOR/MINOR PROJECT WORK AREAS

15.1 This section is intended to specify the acceptable methods for the removal of all friable and non-friable asbestos containing material listed in **Table 1**-Scope of Work of the Asbestos Inspection Report utilizing full containment protocols.

15.2 The Contractor shall assure that exits from the building are not obstructed. The work areas are to be kept neat, clean, and safe.

15.3 Only approved noncombustible or flame-resistant materials shall be used in the construction of temporary enclosures. Polyethylene sheeting shall be certified to conform to NFPA 701.

15.4 Post OSHA specified, asbestos specific danger signs at the entrance to the work area. Such signs shall also be posted when applicable to decontamination chambers, bag-out chambers, critical and separation barriers, and waste storage containers.

15.5 All building occupants shall be removed from the work area floors during the performance of the removal project unless access to the work area is restricted by an isolation barrier or lockable doors.

15.6 For Major Project work areas, wooden isolation barriers will be erected to completely isolate the work area from any occupied areas of the building.

15.7 Isolation barriers shall be eight (8) feet high and shall be constructed of minimum ⅜" fire-rated plywood supported by 2'x3' stud framing, or equivalent, placed on sixteen-inch (16") centerlines. Appropriate footings and bracings shall be installed to provide proper support.

15.8 The Contractor shall confine their equipment, storage of materials, tools, supplies, and activities of their workers to the limits established by the Owner and local ordinances.

15.9 Assure any HVAC systems associated with or which course through the work area are sealed, shut down, and locked out.

15.10 Approved high quality HEPA equipped air filtration devices (AFDs) shall be placed so as to develop and hold a negative differential air pressure. Each AFD shall be equipped with a magnehelic gauge or manometer to measure pressure drop across the filters, indicating overload and a need to change filters. An automatic shutdown system shall be provided in the event of improper filter fit, a rupture in the HEPA filter, or a blocked air discharge.

15.11 The negative differential air pressure shall be sufficient to provide a minimum of four (4) air changes of the work area per hour. The Contractor shall install a manometer to confirm this differential, which should read minimum of -0.02 inches of water column.

a. Negative differential air pressure shall be continuously maintained 24 hours a day, from the time the isolation barrier is first established until final clearance air sampling is completed, and the Contractor is released by the API.

b. The AFD exhaust shall be vented outside of the building, where feasible.

iii. AFDs should be placed within a containment at the farthest point from the entrance to the containment.

15.12 For Major Project work areas, construct a three-stage decontamination unit at the work area entrance. For Minor Project work areas, construct and attach a one-stage decontamination unit at the work area entrance. A remote two-stage decontamination unit shall also be constructed at an appropriate location. Exact decontamination unit placements shall be at the discretion of the CONTRACTOR with approval from the on-site API.

15.13 Pre-clean the floor and horizontal surfaces via wet wipe and HEPA vacuum techniques.

a. All fixed objects, including but not limited to, unit-vents, radiators, motors, AHUs, ductwork, etc. shall be wet wiped and sealed with one (1) layer of six (6) mil polyethylene.

15.14 Install critical barriers consisting of two (2) separate identifiable layers of six-mil polyethylene over all windows, doors, openings between walls and ceilings, and any other critical openings inside the work area such that the work area is isolated from the rest of the building.

a. Ensure all electrical panels, control panels, and control boxes are protected with watertight critical barriers consisting of two (2) separate identifiable layers of six- mil polyethylene.
b. Areas where critical barriers are to be installed shall first be pre-cleaned via wet wipe and HEPA vacuum techniques.

15.15 Critical 'containment' barriers shall be erected to cover openings greater than six feet in width, consisting of two (2) separate identifiable layers of six-mil polyethylene. Studs or equivalent shall support these barrier(s). Note: these are considered critical barriers, and application of two additional layers of wall coverings shall be required.

15.16 All floor and wall surfaces (including polyethylene critical 'containment' barriers) shall then be covered with two (2) layers of six-mil polyethylene sheeting. Sheeting shall be installed in such a manner as to cause minimal damage to underlying surfaces. The Contractor shall ensure proper adhesion of the sheeting to problem areas, such as walls with peeling paint.

15.17 Wall coverings shall extend from ceiling level to floor level and overlap the floor sheeting. Floor coverings shall extend twelve inches (12") up behind the wall coverings. All seams shall be staggered as to overlap a minimum of twelve inches and be sealed with duct tape.

15.18 Note that floor coverings shall be omitted in areas where vinyl asbestos floor tile is scheduled for removal.

15.19 The Contractor shall de-energize the work area and all conduit running through the work area, if possible.

a. Appropriate lock and tag out devices shall be installed at the circuit breakers.

b. All conduit that cannot be de-energized shall be wrapped with a minimum of one layer of six (6) mil polyethylene sheeting.
c. Suspend OSHA approved, electrical - voltage and shock hazard warning tags from the energized conduit traveling through the work area every six feet. The warning tags shall remain in place for the duration of the abatement project.
d. The Contractor shall provide a temporary electrical panel board with ground fault interruption. All electrical power shall be brought into the work area via ground fault interrupters (GFIs).

15.20 The Contractor shall supply sufficient temporary lighting to illuminate the work areas during abatement. Refer to *Section 14.11.c.*

15.21 Erect ladders, scaffolding, and/or raised work platforms to access elevated areas of pipe/pipe fitting insulation.

a. Ladders, scaffolding and/or raised work platforms shall be of sound condition and assembled per OSHA requirements on a level, secure base.
b. Ladders, scaffolding and/or raised work platforms shall not be overloaded.
c. Scaffold work platforms shall comply with OSHA Regulation 29 CFR 1926.451.

15.22 Upon completion of the work area preparation, and approval by the on-site API, install containment bags (glove bags) around all pipe/pipe fitting insulation in accordance with the ACR Section VI.C.3.e.2-5. The containment bag, once attached, shall be smoke tested using a smoke tube and aspirator bulb. The containment bags shall be utilized in order to further contain any airborne asbestos fibers released during the removal tasks and simplify the subsequent final cleaning tasks.

15.23 Removal of pipe/pipe fitting insulation shall be initiated only after the material has been treated with a solution of water and wetting agent. At the start of each workday, the pipe/pipe fitting insulation to be removed shall be wetted. This wetting shall be repeated at such intervals as to prevent the material from drying out.

15.24 If removal of pipe/pipe fitting insulation will be performed using the containment-bag (glove-bag) technique, instead of a full containment, the containment bag removal practices shall conform to the ACR Section VI.C.3.e.7-20.

a. The API shall conduct a visual inspection prior to encapsulation. The on-site API shall approve the area when no visible dust is evident.
b. Prior to removing the glove-bag, any residue shall be removed using a stiff nylon brush or a scraper. The pipe surfaces shall then be wet wiped to remove any visible debris. The API shall conduct a visual inspection and shall approve encapsulation to be performed when no visible ACM dust or debris is evident on any surfaces.
c. Upon approval by the API, encapsulate the pipe surface prior to removing the containment bag. The API shall inspect the sealant/encapsulant to confirm adequate and proper application and approve subsequent removal of the glove bags. When acceptable, the API shall approve the removal of the glove-bag.
d. A HEPA vacuum shall be used when evacuating and breaking the seal of the glove-bag.

15.25 Removal of asbestos shall be initiated only after the material has been treated with a solution of water and wetting agent. This wetting shall be repeated at such intervals as to prevent the asbestos from drying out. Removal shall be performed in a manner that minimizes the release of asbestos fibers.

a. Continually mist the air with water using an airless sprayer to keep airborne fiber levels to a minimum.
b. No standing water shall be tolerated inside of the work area. Standing water would have the potential of leaking to spaces below the work area. The Contractor shall designate a worker to constantly monitor the work area and vacuum or mop up any standing water resulting from the pre-wetting or air misting procedures.
c. All wastewater generated in the decontamination chamber shower shall be retrieved and added to packaged asbestos waste materials or pumped through a five (5) micron filter element prior to discharging it to the sanitary sewer or floor drains.
d. All wastewater generated in the abatement work area shall be retrieved and added to packaged asbestos waste materials and/or placed in plastic lined leak-tight drums for disposal in accordance with VI.C.7 of the Asbestos Control Regulation.
e. All removed ACM must be placed in asbestos waste containers simultaneously with their removal. Removed ACMs shall not be permitted to accumulate in the work area and shall be completely contained in proper asbestos waste containers, ready for disposal, before the end of each shift.
f. ACM removed at a height shall be bagged at that time or lowered to the ground in a controlled manner and then bagged. No dropping of ACM shall be permitted.
g. Remove all fiberglass insulation and any other porous material within the contained work areas.

15.26 Upon completion of removal, perform final cleaning of all surfaces in the work area. Assure that all surfaces to which asbestos insulation was applied are visibly free of insulation material. Work area surfaces shall then be HEPA vacuumed and/or wet wiped to remove any visible debris.

a. Wet remaining debris with a fine water mister or "Hudson" sprayer.
   i. Pick up large pieces by hand and/or shovel and place into asbestos waste bags. Broom sweeping is not permitted at any time on any asbestos abatement project.
b. Any residues shall be removed using a stiff nylon brush or scraper.
c. **The following cleaning process shall be performed several times until a no visible emission, dust free environment is established:** Floors, walls, ceilings, materials, equipment, building supplies, critical and containment barriers shall be swept with the exhaust of electric leaf blowers to dislodge any remaining dust within the asbestos abatement work area. Allow for the HEPA equipped AFDs to provide several air changes within the work area prior to HEPA vacuuming and wet wiping.

15.27 During the performance of final cleaning of all surfaces inside the active abatement work area, all horizontal surfaces "outside the work area" shall also be cleaned. This includes the dirty, shower and clean rooms of decontamination chambers attached to the asbestos abatement work area being tested and all immediate surroundings of representative makeup air entering each independent asbestos abatement work area being tested.

15.28 Remove the top layer of polyethylene sheeting and dispose as asbestos waste.

15.29 The Contractor shall again, clean all surfaces in the work area, including polyethylene sheeting, via wet-wipe and HEPA-vacuum techniques.

15.30 Upon completion of cleaning activities, the API shall conduct a detailed visual inspection prior to encapsulation and shall approve the area for encapsulation when no visible dust or debris is evident on any surfaces.

a. The Contractor must deliver the encapsulant in the manufacturer's original sealed and labeled containers and store encapsulant in compliance with manufacturer's printed instructions. A copy of manufacturer's printed instructions shall be available on site at all times.
b. The Contractor shall encapsulate the work area with an encapsulant whose manufacturer's instructions indicate that the encapsulant is approved for use on the intended surfaces following asbestos abatement tasks.
c. Encapsulation shall not be performed with any packaged ACM or objectionable equipment remaining in the work area.

15.31 Upon approval by the on-site API, encapsulate all surfaces in the work area and the polyethylene sheeting used in work area preparation. The sealant/encapsulant shall be tinted to provide a visual confirmation of uniformity and completeness of application.

15.32 The API shall inspect the sealant/encapsulant to confirm adequate and proper application. After the encapsulant has dried, the CONTRACTOR shall remove the last layer of polyethylene floor and wall sheeting, leaving only the Critical and Containment Barriers.

15.33 The API shall conduct a detailed final inspection to ensure that no visible dust or debris remains on any surfaces. If any suspect or objectionable material is evident, the CONTRACTOR shall clean the material and sufficient surrounding areas to the satisfaction of the API, via wet-wipe and HEPA-vacuum techniques.

15.34 During final inspection, floors, walls, ceilings, critical and containment barriers shall be swept with the exhaust of electric leaf blowers. If visible emissions produced from the leaf blowing activity are generated, the Contractor shall be directed to continue the cleaning process. This sequence shall be continued until the APIs are satisfied with the outcome of the final visual inspection and can definitively document that the work area is sufficiently clean.

15.35 Upon completion of removal, cleaning, encapsulation, and an acceptable visual inspection, final clearance samples shall be collected and analyzed. Refer to *Section 9.00 - Air Monitoring by the Owner*.

15.36 If <u>any</u> of the results of clearance samples are unacceptable according to the Philadelphia ACR and AHERA, the Contractor shall re-clean the work area via wet-wipe and HEPA-vacuum techniques. Following an acceptable inspection, the API shall re-test the area. This sequence shall be repeated until receipt of acceptable air sample results according to the

Philadelphia ACR.

15.37 Upon receipt of acceptable final visual inspections and acceptable air sample clearance results according to the Philadelphia ACR and AHERA, the Contractor shall carefully dismantle critical barriers, plastic sheeting, tape, and other materials used in the work area construction. These materials shall be disposed of in sealable plastic bags as asbestos contaminated waste. Refer to *Section 16.00 - ACM Waste Disposal*.

## 16.0 WASTE DISPOSAL

**16.1** The dropping, lowering, transporting or otherwise moving any open or packaged waste through any shaft during this project is strictly prohibited.

**16.2** Approval must be obtained from the API prior for temporary storage of any asbestos waste containers or construction debris on site, prior to being loaded into appropriate dumpsters. The waste shall be appropriately packaged according to the type of waste. A polyethylene drop cloth and covering shall be provided and the storage areas restricted by barrier tape and appropriate signage. Asbestos waste containers must be distinctly stored separately from other waste. No long-term storage may occur in these areas.

**16.3** The loading, transportation, and disposal of asbestos waste at the landfill shall occur in accordance with regulatory requirements of NESHAPS and applicable state and local guidelines and regulations.

**16.4** Waste disposal containers shall conform to one of the following. Waste with sharp edges shall not be disposed of solely in polyethylene bags. All six-mil polyethylene bags shall be transparent so that when filled, the contents of the bag are readily visible.

**a.** Two (2) six-mil polyethylene bags, one placed inside the other, separately sealed. The bags shall be carefully closed to minimize dead air space and taped shut.
  **i.** Six-mil polyethylene disposal bags containing asbestos and asbestos contaminated materials shall be placed into a second six-mil polyethylene bag inside an approved bag-out chamber or decontamination chamber while being removed from the work area. The second bag shall not be applied inside the work area.

**b.** Material first shall be placed into burlap bags or equivalent to prevent edges/corners from tearing or penetrating polyethylene waste bags. The encased material may then be placed in two (2) six mil polyethylene bags, as per *Subsection a* above.

**c.** One (1) six mil polyethylene sealed bag inside an air and watertight drum.

**16.5** The Contractor shall label asbestos waste with the name of the generator and the location from which the waste was generated.

**16.6** The container used for transporting and disposing of ACM waste shall be clearly and properly labeled as specified in EPA and DOT regulations. In addition to generator labels, containers must carry the following labels:

**DANGER**
**CONTAINS ASBESTOS FIBERS**
**AVOID CREATING DUST**
**CANCER AND LUNG DISEASE HAZARD**

…and…

DOT labels requirement: (Easily readable in sharp relief)

**CAUTION**
**Contains Asbestos Fibers**
**Avoid Opening or Breaking Container**
**Breathing Asbestos is Hazardous**
**to your Health**
**RQ ASBESTOS**
**9,NA2212,PG III**
**(ASBESTOS)**

**16.7** During waste load out, post asbestos specific danger signs along the waste disposal route, and on and around the vehicle or dumpster being used to transport the waste off site.

**a.** Polyethylene drop cloths shall be utilized along routes in which bagged ACM waste is passed through the building. Proposed waste removal route shall be presented to the API and Asbestos Project Manager/Designer for approval prior to performing delivery of asbestos waste material to the intended waste container. The API must document the proposed route and the APIs subsequent approval in an activity log.

**16.8** Waste routes must be approved by the Owner and on-site API prior to the commencement of work. All waste being transported through the building must be placed in covered/enclosed containers bearing proper warning signs. The waste route must be kept clean.

**a.** The rolling of waste drums or the dropping of waste bags down stairs is strictly prohibited.
**b.** After transport of waste through the building is completed, the CONTRACTOR shall wet mop the waste removal route to assure continued cleanliness and removal of any debris associated with the waste transport tasks.

**16.9** All documentation of transportation and disposal transactions such as dump receipts, trip tickets and waste manifests shall be completed and delivered to the Owner for their records.

**16.10** Should the Owner not receive a receipt of the waste shipment record within 35 days, the Owner shall contact the Contractor to determine the status/disposition of the waste.

**16.11** Should the Owner not receive a receipt of the waste shipment record within 45 days, the Owner shall notify the EPA.

## 17.0 LEAD BASED PAINT STABILIZATION

17.1 Lead based paint (LBP) is assumed present on all painted surfaces throughout the building (i.e. walls, ceilings, pipework, ductwork, etc.). All renovation work, paint stabilization, and all other activities that impact painted surfaces shall be performed in accordance with the EPA Renovation, Repair, and Painting (RRP) rule under the Toxic Substances Control Act.

**a.** This includes all painted surfaces throughout the specified work areas.
**b.** Refer to the Architectural Floor Plans for approximate dimensions of work areas and surfaces/equipment to receive paint stabilization and repainting.

17.2 Renovation work will involve scraping of loose and flaking paint from walls, ceilings and other surfaces, repairing of wall and ceiling plaster damage, and repainting. This section is intended to specify the acceptable methods for the stabilization of all painted surfaces throughout the building.

17.3 All moveable objects shall be removed from the work area. Movable objects shall be wet wiped & HEPA vacuumed prior to their relocation to a clean area.

17.4 Cover the floor surface surfaces with taped-down polyethylene sheeting ten (10) feet from the area of paint disturbance or a sufficient distance to contain the dust, whichever is greater. If a vertical containment system is constructed, the floor covering may stop at the vertical barrier, providing the barrier extends from floor to ceiling and is tightly sealed at floors, ceilings, and walls.

17.5 Close all windows and doors in the work area.

17.6 Construct an airlock at the entrance to the work area. The airlock consists of two sheets of polyethylene sheeting.

a. One sheet is completely taped along all four edges. The polyethylene sheeting is then cut down the middle.
b. The second sheet is only taped along the top and acts as a flap covering the slit in the first sheet of plastic.

17.7 Install tack-pads at all paint stabilization work area entrances and exits that are adjacent to areas occupied by other trades and school occupants.

17.8 De-energize all HVAC present in the work area or which pass through the work area. Close and cover all ducts openings in the work area with polyethylene sheeting.

17.9 Unauthorized persons must be prevented from entering the active work area by posting warning signs and by establishing barriers around the work area.

a. Contractor will post signs clearly defining the work area and warning occupants and other persons not involved in renovation activities to remain outside of the work area. These

signs should be in the primary language of the occupants and should say "Warning – Lead Work Area" and "Poison, No Smoking or Eating."

b. Utilize barrier tape in large areas and polyethylene sheeting on doorways.

17.10 Supply sufficient temporary lighting to illuminate the work area during paint removal and encapsulation (repainting). All electrical power shall be brought into the work areas from a temporary electric panel with ground fault interruption.

a. Sufficient lighting means all active work areas shall be lighted to not less than the minimum illumination intensities listed in OSHA Regulation 29 CFR 1926.56(a), Table D-3 for Indoors: warehouses, corridors, hallways, and exit ways (e.g. - 5- foot candles).

17.11 Workers shall wear protective clothing including Tyvek suits, gloves and (minimum) NIOSH-certified disposable respirators with a HEPA (High-Efficiency Particulate Air) filter (N-100, R-100, or P-100) during paint stabilization operations.

17.12 Manually remove loose, flaking, peeling, and non-adhering paint only after misting with water. Remaining paint edges should be feathered.

a. All paint chips and dust shall be in packaged in polyethylene bags or watertight drums as removal occurs. No accumulations of removed paint shall be permitted to remain in the work area.
b. Before and during manual paint scraping, spray water on painted surfaces to keep dust from spreading (referred to as wet-scraping). Sanding, drilling, or cutting into lead-based paint is prohibited.

17.13 Removal of ceiling tiles littered with paint chips:

Lay plastic sheeting on the floor beneath the ceiling tiles to be removed extending at least ten (10) feet beyond the extents of removal. Carefully remove the ceiling tiles. While standing on the plastic sheeting, turn the ceiling tiles on their side and shake to allow settled plaster and paint chips to fall onto the sheeting below. Plastic sheeting may be moved and reused within a specific room. Once all ceiling tiles are removed and the paint chips emptied onto the sheeting, the sheeting shall be carefully rolled up for disposal.

17.14 Surfaces shall be HEPA- vacuumed to remove residual paint and dust. Any remaining paint shall be sound and exhibiting good adherence.

17.15 Utilize two buckets to fine clean the surfaces in which lead based paint was removed.

a. One bucket containing a detergent cleaning solution and the other bucket for rinsing.
b. Change the rinse water frequently and replace rags, sponges, and mop heads often.

17.16 Repaint all surfaces as per manufacturer's recommendations.

a. Refer to the Architectural Specifications for new paint product requirements.

17.17 Perform a final cleaning of all surfaces utilizing HEPA vacuum and wet wiping techniques.

17.18 Mist the polyethylene sheeting floor coverings before folding it dirty side inward. Sheeting used to isolate contaminated rooms from non-contaminated rooms must remain in place until after the cleaning and removal of other sheeting.

17.19 The work area should be left clean at the end of every day and must be cleaned thoroughly at the end of the job. The area must be completely free of dust and debris.

17.20 Ensure that all personnel, tools, and other items, including the exteriors of containers of waste, are free of dust and debris before leaving the work area.

17.21 All paint chips, dust and materials used in the construction of the containment shall be packaged in polyethylene bags or watertight drums prior to leaving the work area.

a. Upon receipt of an acceptable final visual inspection, carefully dismantle materials used in the work area containment.
b. Lead-based paint waste, wastewater, and cleaning materials used during removal containment shall be disposed of in accordance with the Hazardous and Universal Waste Disposal Regulations set forth by the Resource Conservation and Recovery Act (RCRA); 40 CFR 260-299.

## 18.0 PROJECT CLOSEOUT

**18.1** After achieving acceptable air sample clearance and dismantling the work area, the Contractor shall be released after the following items are completed:

**a.** Removal of all temporary signs, labels, tape and glue/tape adhesive residue.
**b.** Removal of all temporary devices, facilities, and equipment.
**c.** Cleaning the project site and storage areas of trash, etc.
**d.** Replacement/repair of any damage.
**e.** SDP deems the repair work (if any) is acceptable for re-occupancy.
**f.** Removal of all waste containers (asbestos, scrap, and construction debris) from site and proper disposal of waste.

**18.2** Upon completion of the project, the Contractor shall submit final documentation to the Owner, including but not limited to, all waste handling/shipping documentation/manifests.

**END OF SPECIFICATION**