

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. 001

**Subject: Russell Conwell Science Lab Modernization Project
SDP Contracts No. B-134C, B-135C, and B-136C of 2017/18**

**Location: 1849 East Clearfield Street
Philadelphia, PA 19134**

This Addendum, dated April 18, 2019, 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.

Revise as indicated below or by attachment

1. Clarification: The General Construction Prime Contractor shall be responsible for abatement and stabilization. Refer to the attached REVISED Specification titled, Asbestos Abatement and Lead Paint Stabilization.

RFI #001:

1. **Dwg. E4.01 – Can you provide the number of classrooms or quantity of lights and ceiling devices to be removed, stored and re-installed after ceilings are re-installed on the 2nd Floor?**
 - a. The number of light fixtures and devices to be removed, stored, and reinstalled are 20 light fixtures, 2 ceiling mounted speakers, 2 WAPs, 1 ceiling mounted projector & outlet, and 2 TVs.
2. **Will the school district “A” team remove the asbestos wrap on the feeder conductors in the two panels to be replaced?**
 - a. Asbestos remediation, including removal of the asbestos wrap on the feeder conductors in the two electrical panels to be replaced, is to be performed by the General Contractor in accordance with the Specification for Asbestos Abatement and Lead Paint Stabilization. Refer to the revised attached Specification for Asbestos Abatement and Lead Paint Stabilization.
3. **Drawing A1.1 – “Demo Keynote 14” and Drawing E4.01 – “Keyed New Work Note 2”. What contractor cuts and patches concrete and plaster walls for new electrical panel installation? Existing back boxes measure 20” x 30” and are not large enough to Retro-fit panel. Wall opening will need to be cut a minimum of four feet above and below the 42” panel to re-connect the 14 rigid conduit branch feeders and the 1 ½” feeder conduit.**
 - a. The new panels will be surface mounted to the wall in front of the existing panel/back box. EC will extend feeder to the new panels as required. No cutting and patching will occur on the concrete and plaster wall for the installation of the new electrical panels. This will be removed from the scope of work.

RFI #002:

1. **Please confirm that the GC patches the section of wall that's demolished per Note #1 on PD1.01, as described on Detail 1/A2.1.**
 - a. G.C. shall patch and repair section of wall that is demolished, 16 s.f. per keynote #1 on PD1.01. P.C. shall coordinate location and size of opening with G.C. prior to start of work.
2. **Are sleeves required at wall/floor penetrations that have been cored?**
 - a. Sleeves ARE required for wall/floor penetration.

3. **Per Note #2 on P1.01, please confirm that the GC patches at all wall and floor Plumbing pipe penetrations.**
 - a. Sleeves shall be provided for plumbing pipe penetrations. No patching is required by the G.C. The P.C. shall fire stop at all sleeve penetrations.

4. **Where is the re-insulation table as described in Note #3 on PD1.01? How many linear feet of insulation is required for reinsulating pipe where asbestos/insulation has been removed by others?**
 - a. Re-insulation table is located in specification section 220719, section 3.3 "Schedules." All new piping is to be insulated by the Plumbing Contractor, P.C. as per the specifications. Any pipe insulation removed as part of the asbestos abatement shall be re-insulated by the General Contractor, G.C.. New quantities of insulation shall match quantities abated as per Asbestos Abatement and Lead Paint Stabilization specification.

5. **Please confirm that all Plumbing fixtures (less the Dilution Tanks) and trim are supplied by the GC, including the Emergency Eye Wash.**
 - a. Plumbing fixtures (less dilution tanks) and trim are supplied by the General Contractor, G.C.. Eyewash shall be supplied by the Plumbing Contractor, P.C.

6. **Are there additional floors/spaces above the 3rd floor? If so, how many? How many feet exist between the 3rd Floor ceiling and the Roof?**
 - a. There is an existing attic space above the 3rd floor. It is approximately 9' between the top of the 3rd floor ceiling and the top of the roof to be field verified.

7. **Is there a clear, direct route for the new VTRs up through the Roof as shown on the Plumbing drawings?**
 - a. There is a clear, direct route for new VTR's up through roof. Provide two (2) 45-deg elbows, for each new VTR, to offset vent piping as required between 3rd floor ceiling and roof, to clear roof structural members with vertical vent riser.

8. **Who is responsible for making the roof penetrations for the new Plumbing VTRs? Who is responsible for roofing them in?**
 - a. P.C. shall coordinate location and size of roof penetrations with G.C. prior to start of work. P.C. shall make roof penetrations for VTR's. G.C. shall roof them in.

END OF ADDENDUM #001

SPECIFICATION
for
ASBESTOS ABATEMENT
and
LEAD BASED PAINT STABILIZATION
at the
RUSSELL H. CONWELL MIDDLE SCHOOL
1849 East Clearfield Street
Philadelphia, Pennsylvania 19134

prepared for:

THE SCHOOL DISTRICT OF PHILADELPHIA
OFFICE OF ENVIRONMENTAL MANAGEMENT
440 North Broad Street
3rd Floor, Room 3053
Philadelphia, Pennsylvania 19130

prepared by:

SYNERTECH INCORPORATED
228 Moore Street
Philadelphia, Pennsylvania 19148
Project # 010-4389

April 10, 2019



Bernard J. Bryson
Certified Pennsylvania Asbestos Project Designer
No. 037636

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1.00 INTRODUCTION

- .01** This specification outlines the required tasks and procedures involved in the removal of asbestos containing material (ACM) at the Russell H. Conwell Middle School in conjunction with the Science Lab Classroom Modernization Project in existing Classrooms 301, 302, 303, 304 and 305. ACM removal, associated equipment demolition and associated decontamination cleaning procedures shall be accomplished under asbestos-abatement conditions. The Asbestos Abatement Contractor (AAC) shall be employed as a sub-contractor to the Prime General Contractor (GC) awarded this project.
- a.** The AAC 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.
- .02** ACM removals include, but are not limited to:
- a.** pipe/pipe fitting insulation above and below suspended ceiling tile systems on the 2nd and 3rd Floors;
- b.** 9"x 9" and 12" x 12" floor tile in Room 301;
- c.** blackboard/tack board glue dots in Classrooms 301, 302, 303, 304 and 305;
- d.** fire doors (interior door packing is assumed asbestos-containing) in Classrooms 303 and 305;
- e.** stainless steel sink with asbestos-containing mastic on the underside in Classroom 302;
- f.** transite table top in Classroom 301;
- g.** white woven asbestos electrical wire insulation applied to the feeder wires in two (2) electrical panels in the third-floor hallway.
- .03** 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.
- .04** The AAC 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 *Section 1.09*. 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.

- .05** Lead based paint (LBP) is assumed present on all painted surfaces throughout the building (i.e. walls, ceilings, pipework, ductwork, etc.). Refer to *Section 22.00 - Lead Based Paint Stabilization* for specific guidelines and procedures in stabilizing loose, flaking, peeling, and non-adhering paint. 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.
 - c.** Refer to the Architectural Specifications for new paint product requirements.
- .06** A representative from the AAC shall attend regularly scheduled construction progress meetings while asbestos abatement is occurring during all phases of the project. The representative of the AAC must have authorization to speak for and make commitments for the AAC. The GC and AAC 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 AAC.
- .07** 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.
- a.** No work shall be performed if the AAC 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.
 - 1.** The Owner shall not be responsible for compensating the AAC 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.
- .08** The Work Scope Summarization (*Section 1.09*) beginning on the following page consists of:
- a.** The Floor in which the abatement work is being performed;
 - b.** The On-Site Room Name in which the abatement work is being performed;
 - c.** Space Numbers;
 - d.** Description of Material to be Removed;
 - e.** Determination of Confirmed or Assumed Asbestos Containing Material;
 - f.** Friability Classification;
 - f.** Approximate Amount of Material to Be Removed and Disposed of;
 - g.** 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.

		School District of Philadelphia	Survey Type					
		Work Scope Summarization 1.09	6 Month Surveillance					
		Russell H. Conwell Middle School	Three- Year Reinspection IX					
		Year Built: 1926	__X__ AIR/EIE					
		1849 E Clearfield Street, Philadelphia, PA 19134	__X__ Asbestos Abatement Activity					
		Prepared by: Bernard J. Bryson	Bulk Sampling Event					
		Certification # 0437 Date: 4/10/2019	Interior Renovations in Existing Classrooms 301, 302, 303, 304 and 305					
Science Lab Classroom Modernization								
F l o o r	Space #	On Site Room Name	Material Description	Confirmed, Assumed, NAD, Non Suspect ACM	Type (Code 1)	Amount of Material	SF LF EA	Comments/Description/Notes
2	204	Classroom 204	Pipe Insulation 2-6 inch	Confirmed	FRI	1	LF	Above suspended ceiling (below Classroom 304)
2	204	Classroom 204	Pipe Fitting Insulation	Confirmed	FRI	2	EA	Above suspended ceiling (below Classroom 304)
2	201	Classroom 201	Pipe Insulation 2-6 inch	Confirmed	FRI	21	LF	Below suspended ceiling (below Classroom 301)
2	201	Classroom 201	Pipe Insulation 2-6 inch	Confirmed	FRI	4	LF	Above suspended ceiling (below Classroom 301)
2	201	Classroom 201	Pipe Fitting Insulation	Confirmed	FRI	4	EA	Above suspended ceiling (below Classroom 301)
3	305	Classroom 305	Blackboard Glue Dots	Assumed	NF1	150	SF	Remove all glue dots behind 150 SF of Blackboards/Tackboards
3	305	Classroom 305	Fire Doors	Assumed	NF2	1	EA	Assumed asbestos-containing interior packing
3	304	Classroom 304	Blackboard Glue Dots	Assumed	NF1	32	SF	Remove all glue dots behind 32 SF of Blackboards/Tackboards
3	303	Classroom 303	Blackboard Glue Dots	Assumed	NF1	32	SF	Remove all glue dots behind 32 SF of Blackboards/Tackboards
3	303	Classroom 303	Fire Doors	Assumed	NF2	1	EA	Assumed asbestos-containing interior packing
3	302	Classroom 302	Blackboard Glue Dots	Assumed	NF1	230	SF	Remove all glue dots behind 230 SF of Blackboards/Tackboards
3	302	Classroom 302	Sink Undercoat Mastic	Confirmed	NF2	1	EA	Underside of Stainless Steel Sink - Remove sink intact

		School District of Philadelphia	Survey Type					
		Work Scope Summarization 1.09	_____ 6 Month Surveillance					
		Russell H. Conwell Middle School	_____ Three- Year Reinspection IX					
		Year Built: 1926	__X__ AIR/EIE					
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		Certification # 0437 Date: 4/10/2019	Interior Renovations in Existing Classrooms 301, 302, 303, 304 and 305					
		Science Lab Classroom Modernization						
F l o o r	Space #	On Site Room Name	Material Description	Confirmed, Assumed, NAD, Non Suspect ACM	Type (Code 1)	Amount of Material	SF LF EA	Comments/Description/Notes
3	H313	Main Hallway	Pipe Insulation 2-6 inch	Confirmed	FRI	8	LF	outside Classroom 304 - Bottom 6' is FGPI - top 8' is ACPI - Remove all insulation (1' extends above suspended ceiling)
3	H313	Main Hallway	Wire Insulation	Assumed	NF2	10	LF	Remove approx. 5 linear feet of asbestos wire wrap from two (2) electrical panels
3	301	Classroom 301	Floor Tile VAT 9" x 9"	Confirmed	NF1	550	SF	Remove VAT and Patch Floor to Receive New Finish
3	301	Classroom 301	Floor Tile VAT 12" x 12"	Assumed	NF1	140	SF	Remove VCT and Patch Floor to Receive New Finish
3	301	Classroom 301	Blackboard Glue Dots	Assumed	NF1	180	SF	Remove all glue dots behind 180 SF of Blackboards/Tackboards
3	301	Classroom 301	Transite Tabletops	Assumed	NF2	1	EA	teacher demonstration table top with metal sink - 20 SF
3	301A	Classroom 301 Closet	Floor Tile VAT 9" x 9"	Confirmed	NF1	100	SF	Shelving and stored objects throughout closet - Remove VAT and Patch Floor to Receive New Finish
3	301A	Classroom 301 Closet	Pipe Insulation 2-6 inch	Confirmed	FRI	14	LF	

- .10** Stated quantities are approximate. By submitting a bid, the AAC 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.
- a.** The City of Philadelphia Asbestos Inspection Report (AIR) that accompanies this Specification shall NOT be used for bidding purposes.
- .11** The AAC shall furnish all labor, materials, employee training, services, permits, fees, insurance and equipment necessary to carry out the asbestos removal, decontamination operations and disposal in accordance with EPA, OSHA, and all other applicable Federal, State, and local government regulations, and this Specification.

2.00 GENERAL ABATEMENT PROJECT CONDITIONS

- .01** The asbestos abatement work areas listed in *Section 1.09* are Small, Minor and Non-Friable Projects as defined by the Philadelphia Asbestos Control Regulation (ACR) and shall comply with all requirements therein.
- a.** The AAC shall have a PA licensed Supervisor on site at all times during asbestos abatement activities. The AAC shall not perform any abatement activities, including prep, bag-out, and teardown unless a City of Philadelphia certified API is on site.
 - b.** The AAC 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.
- .02** If the AAC seeks a change in the procedures and/or methods for accomplishing a certain asbestos abatement task, the AAC 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.
- .03** The Owner, API, and AAC 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.
- .04** AAC access shall be confined to the work areas indicated in this Contract. The Contract may be proceeding concurrently with others in the building. The AAC shall cooperate fully with the other Contractors in expediting the work of all trades, and avoid damage to the work of the other Contractors.
- .05** The AAC 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 3.01.a-p*).
- a.** The project shall remain halted until all matters identified in the Stop Work Order are corrected.

- .06** If it is determined that airborne asbestos contamination has occurred "outside the work area" adjacent to an active asbestos abatement work area, the AAC 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:
- a.** The loss of a negative pressure differential inside any active asbestos abatement work area;
 - b.** A breach of containment into any active asbestos abatement work area;
 - c.** Improper maintenance of AFDs/HEPA vacuums (Refer to *Section 14.07.a-c.1-2*)
 - d.** Improper worker decontamination procedures;
 - e.** Negligence of the AAC;
 - f.** Any other poor work practices of the AAC.
- .07** The Owner reserves the right to require asbestos abatement and associated work is performed at times when the building is unoccupied.

3.00 QUALITY ASSURANCE

- .01** 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.
- .02** The AAC 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.
- .03** The AAC must be a City of Philadelphia Licensed Asbestos Abatement Contractor as well as a Pennsylvania Licensed Asbestos Contractor and employ asbestos workers certified to work in the state of Pennsylvania.
- .04** 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.
- a.** Samples may be collected and analyzed via PCM and/or TEM.
 - b.** 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.

4.00 NOTIFICATIONS

- .01** The AAC 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.
- .02** The AAC 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.
- .03** 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.

5.00 MANDATORY MEETINGS/SUBMITTALS

- .01 Pre-construction meeting** - The AAC shall attend a pre-construction meeting scheduled by the Owner. The AAC shall submit to the Owner the following, if not already submitted:
- a.** Copies of required notifications, insurance, and bonds.
 - b.** Progress schedule
 - 1.** The AAC 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:
 - 1.** Asbestos abatement encapsulant (only encapsulants approved by the Department of Public Health may be used);
 - 2.** 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 AACs 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.
- .02 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 AAC must have authorization to speak for and make commitments for the AAC. The GC and AAC 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 AAC.

6.00 OWNER'S RESPONSIBILITIES

- .01 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).
- .02 The Owner shall ensure the work areas will be unoccupied prior to abatement activity commencing.
- .03 The Owner shall make water and electricity available at the site at no cost to the AAC. The Owner and/or Construction Manager shall notify the AAC of scheduled system shut downs to ensure no interruptions to the project's engineering controls.
- .04 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 AAC. 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 at the Russell H. Conwell Middle School informing them of this responsibility and the limit of the AACs responsibilities.
 - g. Any movable items remaining in the scheduled work areas at the time of the mobilization of the AAC shall be removed by the AAC.

7.00 ASBESTOS ABATEMENT CONTRACTOR'S (AAC) RESPONSIBILITIES

- .01 The AAC 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.
 - a. No work shall be performed if the AAC 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.
 1. The Owner shall not be responsible for compensating the AAC 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.
- .02 Project phasing, start and completion dates are subject to change at the discretion of the Owner.
- .03 The AAC shall provide all labor, tools, materials and scaffold 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.
- .04 Any movable items remaining in the scheduled work areas at the time of the mobilization of the AAC shall be removed by the AAC.
- .05 The AAC shall protect all non-movable furniture, cabinetry and equipment from damage throughout the duration of this project.
- .06 The AAC 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 AAC 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.
- .07 The AAC 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.
- .08 The AAC 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.
- .09 The AAC 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.
- .10 The AAC 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 AACs safety coordinator shall be responsible for:
 - 1. Fire/life safety entries shall be entered into the AACs log daily and shall be submitted with the AAC's final report.
 - 2. Daily entries shall include names, dates, duration, problems & corrective actions taken by the fire watch - must be signed by the safety coordinator.
- .11** Assure protection of AFD exhaust ducts from damage during asbestos abatement activities.
- .12** The AAC 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:
 - 1. all asbestos abatement work shall be halted;
 - 2. the API shall immediately notify the Asbestos Project Manager, Construction Manager and Owner for direction and input;
 - 3. the source of the leak or damage shall be determined;
 - 4. the containment breach issue shall be rectified before any asbestos abatement work will be permitted to continue.
- .13** As required by the Asbestos Control Regulation, the AAC 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.

8.00 ASBESTOS PROJECT INSPECTOR'S (API) RESPONSIBILITIES

- .01 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.
- .02 The API shall be responsible to see that required information and notifications are posted and are accessible for review by all concerned parties.
- .03 The API shall keep a daily log documenting the progress and performance of the AAC over the course of the project.
- .04 The API shall perform continuous inspections to monitor the performance of the AAC 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.
- .05 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:
 - 1. initially determine the level of respiratory protection;
 - 2. subsequently to assure that such protections remain adequate throughout the project.
- .06 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.
- .07 The API shall notify the Owner and Air Management Services of the City of Philadelphia if the AAC 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 AAC for all AAC non-compliance actions.

- .08** The AAC 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:
- 1.** all asbestos abatement work shall be halted;
 - 2.** the API shall immediately notify the Asbestos Project Manager, Construction Manager and Owner for direction and input;
 - 3.** the source of the leak or damage shall be determined;
 - 4.** the containment breach issue shall be rectified before any asbestos abatement work will be permitted to continue.

9.00 AIR MONITORING BY THE OWNER

- .01** 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 AACs work practices.
- .02** 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.
- .03** 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, five (5) 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 floor tile removal projects, five (5) 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.
- .04** 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 AAC. 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 AACs 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.

10.00 AIR MONITORING BY THE ASBESTOS ABATEMENT CONTRACTOR (AAC)

- .01** The AAC 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:

 - a.** initially determine the level of respiratory protection;
 - b.** subsequently to assure that such protections remain adequate throughout the project.
- .02** Sampling strategy and protocols shall be determined by a competent sampling professional according to NIOSH 7400 method. The AAC shall have a competent person collect personal air samples.
- .03** Personal air sample results must be posted within 24 hours of sample collection.
- .04** AAC personnel shall comply with the personal air sampling of the competent person and shall not interfere with or alter sampling protocol.

11.00 SCAFFOLDING/WALKWAYS/HOISTS/LADDERS

- .01** The AAC shall use appropriate ladders, scaffolds, lifts, and/or hoists to provide safe access for equipment demolition, removal of light fixtures 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*.
- .02** 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*.
- .03** 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.
- .04** 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.
- .05** All ladders, scaffolds, lifts, and/or hoists shall arrive at the project site in good condition and free of any visual residual asbestos contamination.

12.00 RESPIRATORY AND PERSONAL PROTECTIVE EQUIPMENT

- .01** The AAC 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 AAC.
- a.** The AAC 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.
- .02** The AAC 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.
- .03** 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.
- .04** 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.
- .05** 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.
- .06** For containments with an attached three (3) stage decontamination unit, asbestos workers shall wear a single disposable suit including hood and footwear. Before exiting the work area, the workers shall remove their respirator filters and disposable suit in the shower after appropriate wetting. These shall be disposed of as asbestos waste.
- .07** For containments utilizing a remote decontamination unit, asbestos workers shall wear two (2) disposable Tyvec-type suits. Before exiting the work area, the worker shall remove both suits and change into a clean disposable suit in the one-stage chamber. The worker shall immediately proceed to the remote centralized, decontamination chamber, equipped with a shower and clean room. Dispose of clean suit and respirator cartridges in the centralized decontamination chamber.

- a.** The use of a remote decontamination 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.

13.00 DECONTAMINATION FACILITIES

- .01 For Minor, Small and Non-Friable Projects, a one-stage decontamination unit shall be constructed and placed at the entrance to the work area, with a two-stage centralized decontamination unit/shower constructed prior to work in any project areas. Decontamination units shall have a sturdy frame comprised of studs or equivalent.
- .02 Decontamination units shall be constructed as described below:
 - a. One-stage unit:
 - 1. 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;
 - 2. Shall have a sturdy frame comprised of studs or an approved equivalent.
 - 3. Shall have danger signs posted at the entrance;
 - 4. Workers shall wear double suits while in the work area. Prior to exiting a contaminated work area, the worker shall change into a clean Tyvek suit prior to proceeding to the centralized, two stage, decontamination chamber, equipped with a shower, provided with hot and cold water, and a clean room. Dispose of suit and respirator cartridges in the centralized decontamination chamber.
 - 5. Shall be accompanied with a two-stage remote decontamination unit that provides hot and cold water for use in the shower room;
 - 6. 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.

14.00 GENERAL PREPARATION FOR ALL ASBESTOS ABATEMENT ACTIVITIES

- .01** The AAC shall confine their apparatus, the storage of materials, tools, supplies and the activities of their workman to the limits established by the Owner and local ordinances.
- .02** The AAC 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.
- .03** The AAC 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, bagout chambers, critical and separation barriers, and waste storage containers.
- .04** Provide isolation barriers to separate the abatement work areas from the remaining occupied areas of each floor.
- .05** 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.
- .06** 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.
- .07** 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.

 - a.** At no time shall an AFD be dismantled and the inner HEPA filter replaced while onsite at the Russel H. Conwell Middle School. Removal and replacement of HEPA filters shall be performed offsite.
 - b.** At no time shall a HEPA vacuum be opened for cleaning/emptying outside an active asbestos abatement work area of the Russel H. Conwell Middle School.
 - c.** 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 of water column.

 - 1.** Cleaning/emptying of HEPA vacuums shall be performed directly beside an operating AFD exhausting to the exterior.
 - 2.** 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.
- .08** AFDs and all other supplies and equipment shall arrive at the project site in good condition and free of any visual residual asbestos contamination.
- .09** 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.

- .10** 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 AAC shall provide a temporary electric panel with ground fault interruption.
 - c.** The AAC 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).

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

- .12** 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 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.

15.00 – PREPARATION & ABATEMENT - PIPE/PIPE FITTING INSULATION

- .01 This section is intended to specify the acceptable friable methods for the removal of pipe/pipe fitting insulation using glove-bags.
 - a. A minimum of two (2) workers are required to perform pipe/pipe fitting insulation removal using glove-bag procedures.
 - b. pipe/pipe fitting insulation present inside floor/ceiling pipe penetrations within any given work area shall be removed as part of this project.

- .02 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.
 - a. If required, wooden isolation barriers shall be erected to completely isolate the work area from any occupied areas of the building.
 - 1. Isolation barriers shall be eight (8) feet high and shall be constructed of minimum 3/8" 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.

- .03 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.

- .04 For Small and 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 AAC with approval from the on-site API.

- .05 Pre-clean the floor and horizontal surfaces via wet wipe and HEPA vacuum techniques.
 - a. All fixed objects shall be wet wiped and sealed with one (1) layer of six (6) mil polyethylene.

- .06 Install critical barriers consisting of one (1) layer 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 one (1) layer 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.

- .07** Should the AAC chose to limit the size of each work area to the immediate spaces adjacent to the pipe/pipe fitting insulation to be removed, the AAC may construct a tent containment as specified below. If the AAC chooses not to utilize tent containments to limit the size of the work areas, the entire room/area containing the pipe/pipe fitting insulation to be removed must be considered part of the work area, and is subject to pre-cleaning, polyethylene protective sheeting for all non-movable items, decontamination, and final clearance testing as specified in other paragraphs in this Section.
- a.** Erect wall coverings, completely enclosing and isolating the pipe/pipe fitting insulation removal locations using two (2) layers of six (6) mil polyethylene sheeting. Remove suspended ceiling tiles as required to extend the wall coverings to the plaster ceilings above.
 - b.** Tape one (1) layer of six (6) mil polyethylene sheeting to the floors, extending at least five (5) feet from the pipe/pipe fitting insulation to be removed.
 - c.** All fixed, unmovable objects to be enclosed in the tent containment shall be pre-cleaned and sealed with one (1) layer of six (6) mil polyethylene sheeting.
 - d.** Polyethylene sheeting shall be installed in such a manner as to cause minimal damage to underlying surfaces. The AAC shall ensure proper adhesion of the sheeting to problem areas, such as walls with peeling paint.
 - e.** Approved high quality HEPA equipped air filtration devices (AFDs) shall be placed so as to develop and hold a negative differential air pressure.
 - 1.** The AFD exhaust shall be vented outside of the building, or tent containment.
- .08** The AAC shall construct a one-stage decontamination chamber, as appropriate at the intended location at each work area and a remote two-stage decontamination chamber complete with a shower at a designated location when utilizing a one stage decontamination chamber. Refer to *Section 13.00 - Decontamination Facilities*. Exact placement shall be at the discretion of the AAC, with approval from the on-site API.
- .09** Upon completion of the work area preparation, and approval by the on-site API, install containment bags (glove bags) around the pipe/pipe fitting insulation to be removed, 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.
- a.** Pipe insulation covered with metal jacketing shall first require the removal of the metal jacket using appropriate tin snips.
 - b.** The pipe insulation diameter worked shall not exceed one-half of the bag working length above the attached gloves.
 - c.** These bags are for single use and shall not be repositioned.
 - d.** Polyethylene sheeting shall be applied to the work area floors beneath the pipe/pipe fitting insulation to be removed, extending a minimum of five (5) feet in all directions or to the full extent of the floor space included in the tent containment, whichever is larger.

- .10** Removal of pipe/pipe fitting insulation shall be initiated only after the material has been treated with a solution of water and wetting agent.
- a.** At the start of each work day, the material to be removed shall be wetted. This wetting shall be repeated at such intervals as to prevent the insulation from drying out.
 - 1.** Continually mist the air with water using an airless sprayer to keep airborne fiber levels to a minimum.
 - 2.** 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 AAC 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.
 - 3.** 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.
 - 4.** 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.
 - b.** 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.
 - c.** 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.
- .11** Perform removal of the pipe/pipe fitting insulation using the containment-bag technique. Containment bag removal practices shall conform to the ACR Section VI.C.3.e.7-20.
- .12** 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 approve encapsulation when no visible dust or debris is evident on pipe surfaces.
- .13** Upon approval by the API, encapsulate the pipe surfaces 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 bag(s). When acceptable, the API shall approve the removal of the glove-bag.
- a.** A HEPA vacuum shall be used to collapse the glove-bag prior to removal.
- .14** The AAC shall clean all surfaces in the work area using wet-wipe and HEPA-vacuum techniques.
- .15** Upon completion of cleaning activities, the API shall inspect the sealant/encapsulant to confirm adequate and proper application.

- .16 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 AAC shall clean the material and sufficient surrounding areas to the satisfaction of the API, via wet-wipe and HEPA-vacuum techniques.
- .17 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*.
- .18 If any of the results of clearance samples are unacceptable according to the Philadelphia ACR and AHERA, the AAC 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 and AHERA.
- .19 Upon receipt of acceptable final visual inspections and acceptable air sample clearance results according to the Philadelphia ACR and AHERA, the AAC 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 21.00 - ACM Waste Disposal*.
- .20 The AAC shall remove all glue and tape adhesive residue from all walls, floors and all other surfaces in which glue and tape were utilized in containment preparations. The API shall conduct a post teardown inspection to ensure this task has been completed.

16.00 PREPARATION & ABATEMENT – FLOOR TILE – NON-FRIABLE PROJECTS

- .01 This section shall apply to the non-friable removal of vinyl floor tile as listed in *Section 1.09*. Removal of vinyl floor tile shall be performed using infra-red heat machines or dry-ice. If it is apparent the AAC cannot remove the floor tile in a non-friable manner, the API will stop work and all requirements of a friable project will be implemented at no additional cost to the Owner.
- .02 The AAC shall assure that exits from the building are not obstructed and that appropriate safety barriers are established to prevent access to the work area by unauthorized persons. The work areas are to be kept neat, clean, and safe.
- .03 Only approved noncombustible or flame-resistant materials shall be used in the construction of temporary enclosures. Polyethylene sheeting to be used shall be certified to conform to NFPA 701.
- .04 Post OSHA specified, asbestos specific danger signs at the entrance to the work area. Such signs shall also be posted when applicable to decons, bagout chambers, critical and separation barriers, and waste storage containers.
- .05 The AAC shall confine their equipment, the storage of materials, tools, supplies, and the activities of their workmen to the limits established by the Owner and local ordinances.
- .06 Assure any HVAC systems associated with or which course through any work area are sealed, shut down and locked out.
- .07 The AAC 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 (1) layer of six (6) mil polyethylene sheeting.
 - 1. 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.
 - c. The AAC 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).
 - d. The AAC shall supply sufficient temporary lighting to illuminate the work area during abatement.
- .08 Install an approved high quality HEPA equipped air filtration devices (AFDs) so as to develop and hold a negative differential air pressure. The AFD exhaust shall be vented outside of the building.
- .09 Construct a one-stage decontamination unit at the work area entrance. Workers shall wear two disposable Tyvek-type suits and a Type A respirator in the work area. Shower facilities with soap and hot and cold water shall be available.

- .10 Install critical barriers consisting of one (1) layer of six-mil polyethylene over all windows, doors, HVAC ducts and any other critical openings inside the work area such that the work area is isolated from the rest of the building. Areas where critical barriers are to be installed shall first be pre-cleaned via wet wipe and HEPA vacuum techniques.
- .11 Upon completion of preparation of the work area and approval by the API, perform removal of the floor tile, using the appropriate non-friable method to facilitate non-friable removal. Tiles shall be removed and placed into waste containers in as complete sections as possible to minimize the release of asbestos fibers and dust.
 - a. Remove all binding strips or other restrictive moldings holding floor tile at locations such as doorways, walls, thresholds, etc...
 - b. Using the appropriate non-friable method to loosen the tile's adhesion to the substrate, wedge a scraper beneath the edge of the floor tile and lift the tile intact to minimize the release of asbestos fibers and dust.
 - c. Crews shall be structured such that tiles are packaged as they are removed. Removed floor tile shall not be permitted to accumulate in the work area, and shall be completely contained in proper asbestos waste containers, without further breakage, ready for disposal, before the end of each shift.
- .12 If it is apparent the AAC cannot remove the tiles in a non-friable manner without breakage, work will be stopped by the API and all requirements of a friable project will be implemented, as per ACR Section V1.
 - a. The removal of floor tile mastic is not addressed in this specification, and is not included in this contract's scope of work.
- .14 Upon completion of all floor tile, perform final cleaning of the work area. Final cleaning shall be performed via HEPA vacuum and wet wiping techniques. AFDs shall remain in operation during this procedure.
- .15 The API shall conduct a detailed final inspection to ensure that no visible dust or ACM debris (tile chips, dust) remains on any surfaces.
- .16 The floor surface need not be encapsulated, as some replacement tile/mastic system manufacturers instructions preclude the use of an encapsulant in order to ensure proper adhesive performance.
- .17 Following the completion of non-friable floor tile removal, five (5) clearance samples shall be collected and analyzed via PCM or TEM. Results shall be evaluated in accordance with the ACR.
- .18 Upon acceptable final visual inspections and clearance air sample results, all materials used in the work area containment shall be carefully dismantled and disposed in sealable plastic bags as asbestos contaminated waste. Refer to *Section 21.00 - ACM Waste Disposal*.

**17.00 - PREPARATION & ABATEMENT – BLACK/TACK BOARD GLUE DOTS –
NON-FRIABLE PROJECTS**

- .01** This section is intended to specify the acceptable methods for non-friable removal of assumed asbestos containing glue adhesive behind blackboards and tack boards as listed in *Section 1.09*.
- a.** Glue-dot adhesive is classified as a non-friable Category I material. The removal shall be performed as a non-friable project. Only methods that remove the glue-dots intact are permitted. The use of any equipment that may sand, grind, saw, or abrade the material is prohibited.
 - b.** If the on-site API deems the work as friable, work shall be halted and the project shall proceed in accordance with full containment protocols, as per ACR Section V1.
- .02** Delineate and restrict the work areas using asbestos specific barrier tape and OSHA specified, asbestos specific danger signs.
- .03** Install floor coverings consisting of one (1) layer of six (6) mil polyethylene beneath the blackboards/tackboards, extending at least five (5) feet in all directions.
- .04** Begin the non-friable removal of glue dots.
- a.** Carefully remove the BB/TBs and glue dots.
 - 1.** Unfasten the BB/TBs from the wall, remove, and:
 - a.** If glue dot adhesive is adhering to the backside of the BB/TBs, wrap the boards in two (2) layers of six (6) mil polyethylene sheeting, sealed with tape and dispose as asbestos contaminated waste.
 - b.** If glue dot adhesive is not adhering to the backside of the BB/TBs or if it has been determined by the onsite API that all glue dots have all been removed from the boards, dispose of the boards as ordinary construction waste.
 - 2.** Removal of the glue-dots from the wall and from behind the black/tack boards may be performed by the following methods:
 - a.** Mechanical removal using hammer and flat-bladed scraper/screwdriver.
 - b.** Heat removal using heat-gun or open-flame propane torch. Open flame shall be used only to soften glue-dots sufficiently for removal – no ignition or singeing of dots shall be permitted. Adequate ventilation shall be ensured at all times. Ensure that fire protection procedures are complied with.
 - c.** Other methods must be submitted and demonstrated for approval.
 - 3.** After removal of the glue-dots from the wall and from behind the black/tack boards, clean all residue from surfaces and fastener holes, as well as any debris fallen onto the polyethylene sheeting, utilizing wet-wiping and HEPA vacuum techniques.
- .05** The AAC shall perform a final cleaning via wet wiping and HEPA vacuuming of all surfaces in the work area.

- .06** The API shall perform a work area inspection to ensure no debris exists in the work area and that all asbestos waste has been properly removed and sealed in double bags.
- .07** No clearance sampling shall be required following the completion of this non-friable work provided that the adjacent clean area samples collected during the non-friable abatement <0.010 f/cc. If clean area samples exceeded 0.010 f/cc during the non-friable abatement tasks, five (5) clearance samples shall be collected and analyzed via PCM.
- .08** Upon acceptable final visual inspections and clearance air sample results, all materials used in the work area containment shall be carefully dismantled and disposed in sealable plastic bags as asbestos contaminated waste. Refer to *Section 21.00 - ACM Waste Disposal*.

18.00 - PREPARATION & ABATEMENT – TRANSITE TABLE TOP AND STAINLESS-STEEL SINK WITH UNDERCOAT MASTIC - NON-FRIABLE PROJECTS

- .01 This section is intended to specify the acceptable methods for non-friable removal of the transite demonstration table top and stainless-steel sink with undercoat mastic as listed in *Section 1.09*
- .02. These materials are classified as non-friable Category II materials. **The removal of these materials shall be performed as non-regulated non-friable projects.** Only methods that remove the materials intact are permitted. The use of any equipment that may sand, grind, saw, or abrade the materials is prohibited.
- .03 Delineate and restrict the work area(s) using asbestos specific barrier tape and asbestos specific danger signs. The AAC shall assure that appropriate safety barriers are established to prevent access to the work area by unauthorized persons. The work areas are to be kept neat, clean, and safe.
- .04 Install floor coverings consisting of one (1) layer of six (6) mil polyethylene beneath the material to be removed, extending at least five (5) feet in all directions.
- .05 Carefully remove all anchoring systems (screws, bolts, adhesive, etc.) holding the materials in place. Spray the panels with amended water before and during removal activities, to wet the materials and minimize creation of dust.
- .06 When all fasteners are removed, carefully remove the intact panel and sink sections. The sections shall carefully be placed onto a sheet of polyethylene and wrapped securely with two (2) layers of six (6) mil polyethylene sheeting. Seams shall be sealed with tape. Apply labels to the wrapped panels and dispose of as asbestos waste.
- .07 After removal of the panel and sink sections, clean all residue from surfaces and fastener holes using HEPA-vacuum and wet-wipe techniques, as well as any debris fallen onto the polyethylene sheeting below.
- .08 Carefully roll up the polyethylene sheeting. Place the rolled polyethylene sheeting into appropriate asbestos waste containers. All wrapped panels and polyethylene sheeting shall be disposed of as asbestos waste in accordance with *Section 21.00 - ACM Waste Disposal*.
- .09 Upon conclusion of removal and cleaning, a visual inspection shall be made by the API to ensure completeness of the removal.
- .10 No clearance sampling shall be required following the completion of this non-friable work provided that the adjacent clean area samples collected during the non-friable abatement ≤ 0.010 f/cc. If clean area samples exceeded 0.010 f/cc during the non-friable abatement tasks, five (5) clearance samples shall be collected and analyzed via PCM.

**19.00 – REMOVAL OF ASSUMED ASBESTOS CONTAINING FIRE DOORS –
NON-FRIABLE PROJECTS**

- .01** This section is intended to specify the acceptable methods for the removal of the assumed asbestos packed fire doors as listed in *Section 1.09*.

 - a.** Internal asbestos containing door packing is a friable material but is at the same time is enclosed in the wood or metal door casing. This allows for the removal of the doors to be treated in a non-friable method.
- .02** Carefully unhinge the asbestos containing fire door.

 - a.** If any of the assumed asbestos containing door casings become damaged and/or packing becomes exposed, pre-wet the packing with amended water and cover the exposed area with polyethylene sheeting, sealed with tape.
- .03** Wrap each fire door with two (2) independent layers of six (6) mil polyethylene sheeting, sealed with tape.
- .04** Dispose of each wrapped fire door in an asbestos waste dumpster. Refer to *Section 21.00 - ACM Waste Disposal*.
- .05** Dropping of these doors out of windows, down stairwells or during carryout shall be **strictly prohibited**.
- .06** No clearance samples shall be required, provided there was no damage to the door(s) during unhooking and disposal. If any internal asbestos containing door packing was at any time exposed, five (5) clearance samples shall be collected and analyzed via PCM.

20.00 - PREPARATION & ABATEMENT – WIRE INSULATION - NON-FRIABLE PROJECTS

- .01** This section is intended to specify the acceptable methods for non-friable removal of woven wire insulation as listed in *Section 1.09*. A licensed and certified electrician shall provide written notice to the AAC informing the AAC that electricity has been de-energized to the electrical panel where the assumed asbestos containing woven wire insulation is scheduled to occur.
- a.** Woven wire insulation is classified as a non-friable Category II material. **The removal of this material shall be performed as non-regulated non-friable projects.** Only methods that remove the material intact are permitted. The use of any equipment that may sand, grind, saw, or abrade the material is prohibited.
- .02** Delineate and restrict the work area(s) using asbestos specific barrier tape and asbestos specific danger signs. The AAC shall assure that appropriate safety barriers are established to prevent access to the work area by unauthorized persons. The work areas are to be kept neat, clean, and safe.
- .03** Install floor coverings consisting of one (1) layer of six (6) mil polyethylene beneath the panels to be removed, extending at least five (5) feet in all directions.
- .04** Remove electrical wire insulation wrap using non-friable methods.
- a.** Unfasten the wires from the electrical panel and dispose of the wires along with the intact insulation as asbestos contaminated waste.
- 1.** If necessary, wiring may be cut into manageable sections using wire-cutters, which shear through the outer cloth wrap and interior cable. The cloth wrap shall be sprayed with amended water at cut points before and during removal activities, to wet the material and enhance dust control.
- .05** After removal of the woven wire insulation, clean all residue from surfaces using HEPA-vacuum and wet-wipe techniques, as well as any debris fallen onto the polyethylene sheeting below.
- .06** Carefully roll up the polyethylene sheeting. Place the rolled polyethylene sheeting into appropriate asbestos waste containers. All woven wire insulation and polyethylene sheeting shall be disposed of as asbestos waste in accordance with *Section 21.00 - ACM Waste Disposal*.
- .07** Upon conclusion of removal and cleaning, a visual inspection shall be made by the API to ensure completeness of the removal.
- .08** No clearance sampling shall be required following the completion of non-friable work provided that the adjacent clean area samples collected during the non-friable abatement ≤ 0.010 f/cc. If clean area samples exceeded 0.010 f/cc during the non-friable abatement tasks, five (5) clearance samples shall be collected and analyzed via PCM.

21.00 ACM WASTE DISPOSAL

- .01 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 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.
- .02** 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.
- .03** 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.
- .04** 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.
 - 1.** 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 water tight drum.
- .05** The AAC shall label asbestos waste with the name of the generator and the location from which the waste was generated.
- .06** 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)

- .07** 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.
- .08** 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 AAC shall wet mop the waste removal route to assure continued cleanliness and removal of any debris associated with the waste transport tasks.
- .09** 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.
- .10** Should the Owner not receive a receipt of the waste shipment record within 35 days, the Owner shall contact the AAC to determine the status/disposition of the waste.
- .11** Should the Owner not receive a receipt of the waste shipment record within 45 days, the Owner shall notify the EPA.

22.00 – LEAD BASED PAINT STABILIZATION

- .01 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.
- .02 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.
- .03 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.
- .04 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.
- .05 Close all windows and doors in the work area.
- .06 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.
- .07 Install tack-pads at all paint stabilization work area entrances and exits that are adjacent to areas occupied by other trades and school occupants.
- .08 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.
- .09 Unauthorized persons must be prevented from entering the active work area by posting warning signs and by establishing barriers around the work area.
 - a. 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.

- .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).
- .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.
- .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 water tight 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 and cutting into lead-based paint are prohibited.
- .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.
- .14** Surfaces shall be HEPA- vacuumed to remove residual paint and dust. Any remaining paint shall be sound and exhibiting good adherence.
- .15** Utilize two buckets to fine clean the surfaces in which lead based paint was removed.
- a.** One bucket containing a trisodium phosphate (TSP) based cleaning solution and the other bucket for rinsing.
- b.** Change the rinse water frequently and replace rags, sponges, and mop heads often.
- .16** Repaint all surfaces as per manufacturer's recommendations.
- a.** Refer to the Architectural Specifications for new paint product requirements.
- .17** Perform a final cleaning of all surfaces utilizing HEPA vacuum and wet wiping techniques.

- .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.
- .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.
 - a.** 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.
 - b.** All paint chips, dust and materials used in the construction of the containment shall be packaged in polyethylene bags or water tight drums prior to leaving the work area.
- .20** Upon receipt of an acceptable final visual inspection, carefully dismantle materials used in the work area containment.
- .21** Removed lead-based paint and materials used in 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.

23.00 PROJECT CLOSEOUT

- .01** After achieving acceptable air sample clearance and dismantling the work area, the AAC 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.
- .02** Upon completion of the project, the AAC shall submit final documentation to the Owner, including but not limited to, all waste handling/shipping documentation/manifests.

END OF SPECIFICATION