

Addendum No. 2 to IFB 14-54



CITY OF SOMERVILLE, MASSACHUSETTS
Department of Purchasing
JOSEPH A. CURTATONE
MAYOR

To: All Parties on Record with the City of Somerville as Holding IFB 14-54,
Selective Demolition at Somerville High School

From: Angela M. Allen, Purchasing Director

Date: February 10, 2014

Re: Revisions to Drawings, Question Responses

Addendum No. 2 to IFB 14-54

Please acknowledge receipt of this Addendum by signing below and including this form in your proposal package. Failure to do so may subject the proposer to disqualification.

X

Name of Authorized Signatory

Title of Authorized Signatory

ADDENDUM NO.2

February 10, 2014

Notice to All Bidders

The attention of Bidders submitting proposals for the Somerville High School Renovations to the Auditorium – Selective Demolition indicated above is called to the following Addendum to the Plans and Specifications. The revisions set forth herein, whether of omission, addition or substitution, are to be included in and form a part of the Proposal Submitted.

The number of this Addendum must be entered in the space provided on the Bid Form

Changes to the Specifications

- A. Part 1, Section 00020,

Change date of Sealed General Bids from Tuesday, February 11, 2014 at 11:00 AM to **THURSDAY**, February 13, 2014 at 11:00 AM.

- B. Add Specification Section 021420 REMEDIATION GENERAL to table of context and body of specifications. See attachment B at end of addendum.

Changes to the Drawings

- A. Drawing AD102 AUDITORIUM DEMO FLOOR PLAN

1. AUDITORIUM 230, revise Plan Work Note 6.5 to read,

“REMOVE WOOD PLANKING PANELS ALONG WALLS INCLUDING FURRING STRIPS, PLASTER AND RELATED ATTACHMENTS.”

- B. Drawing AD103 AUDITORIUM BALCONY DEMO FLOOR PLAN

1. AUDITORIUM 340, revise Plan Work Note 6.5 to read,

“REMOVE WOOD PLANKING PANELS ALONG WALLS INCLUDING FURRING STRIPS, PLASTER AND RELATED ATTACHMENTS.”

2. AUDITORIUM 340, Revise demolition region of built up seating to be 4 seats worth of length to be removed on both ends.

Questions

1. *Have any holes been drilled into the floor to see what is underneath?*

No holes have been drilled.

2. *Is there a ground-level entrance to the cafeteria?*

Yes, through the loading dock area just off of the Receiving Room 129A.

3. *Is the whole ceiling coming down in the kitchen area?*

Yes, reference Plan Work Note 10.6 on sheet AD101.

4. *Who moves the kitchen equipment?*

The kitchen equipment will be moved by the city prior to the beginning of demolition.

5. *What is in the room adjacent to the walk-in fridge (room directly to the left of fridge door – it was locked)?*

The adjacent room is the Kitchen Storage, access to this room will be required for mechanical removal, reference sheet HD201.

6. *Is there a route established for removing demolition/construction debris?*

This is a means and methods issue. Anything removed or altered to remove debris will have to be replaced by the contractor.

7. *Is there a side-entrance that accesses the same level as the auditorium?*

No, the auditorium is above grade.

8. *Could the front door be used during off-hours to load machines for the auditorium demolition?*

Yes, however this would need to be coordinated with the School Department and Capital Projects prior to.

9. *Staging – Would the City pay for staging for the demolition that could remain for the GC?*

If staging is required, it is the burden of the contractor, not the City.

Attachments

- A. Drawings:

AD103

- B. Specification Section 021420 REMEDIATION GENERAL

Somerville High School
Renovations to the Auditorium – Selective Demolition
Somerville, Massachusetts

END OF ADDENDUM NO.2

ELEC: MECH: FIRE: PLUM: STRU: ARCH: CIVIL: REVIEWED BY: 2/10/2014 11:54:08 AM PROJECT FILE: C:\Users\Borin\Documents\19431-Somerville HS Study Repairs_Electrical

REVISIONS		
Number	Description	Date
2	Revision No. 2	02-10-2014

ISSUED FOR BID



Repairs to Somerville
High School
Auditorium, Kitchen
and Cafeteria

81 Highland Avenue,
Somerville, MA 02143

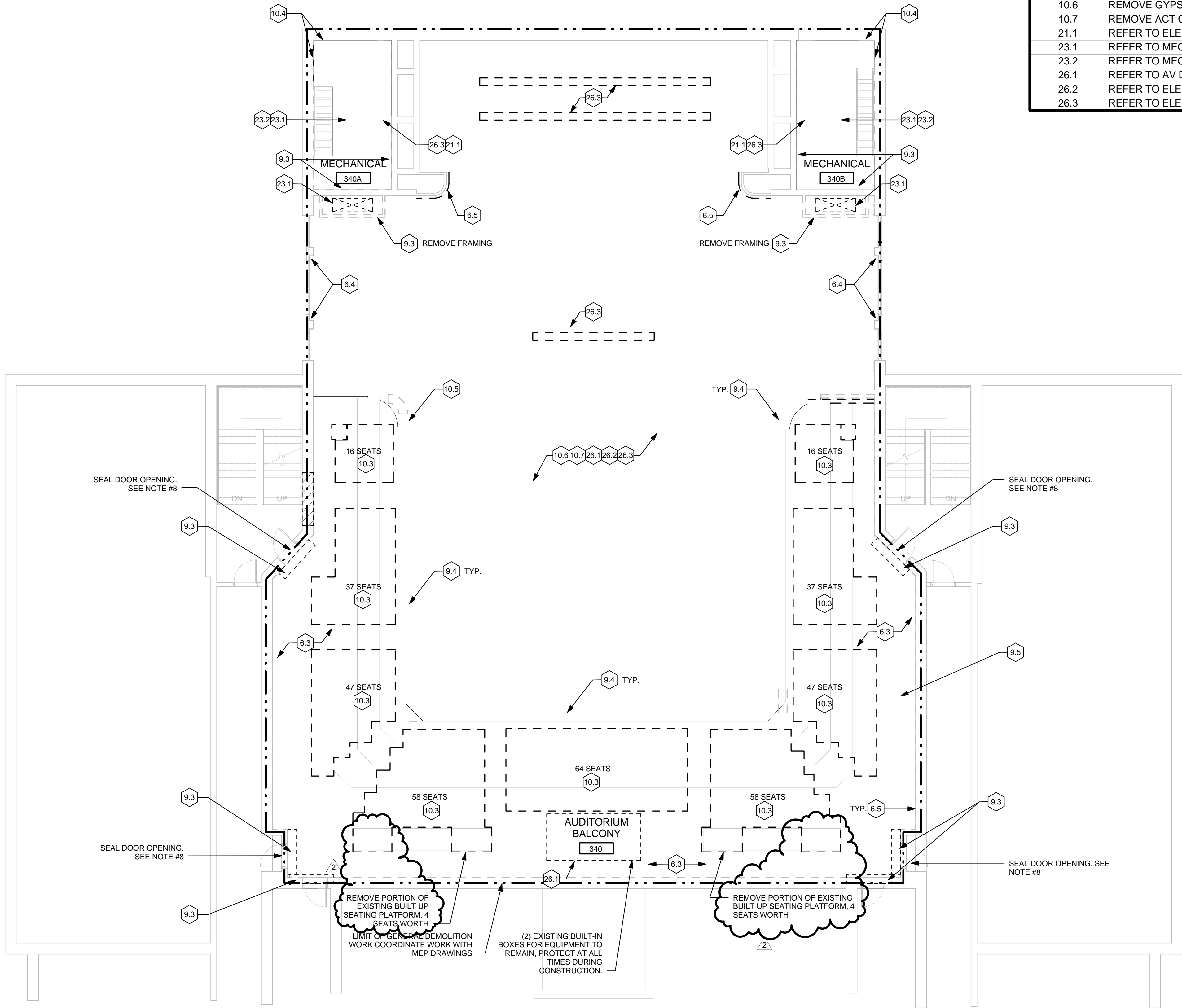
AUDITORIUM
BALCONY
DEMO FLOOR
PLAN

PROJECT NUMBER: 19431.01
DESIGNED BY: FC
DRAWN BY: EKM
CHECKED BY: FC
DATE: February 14, 2014
SCALE: As indicated
SHEET NUMBER:

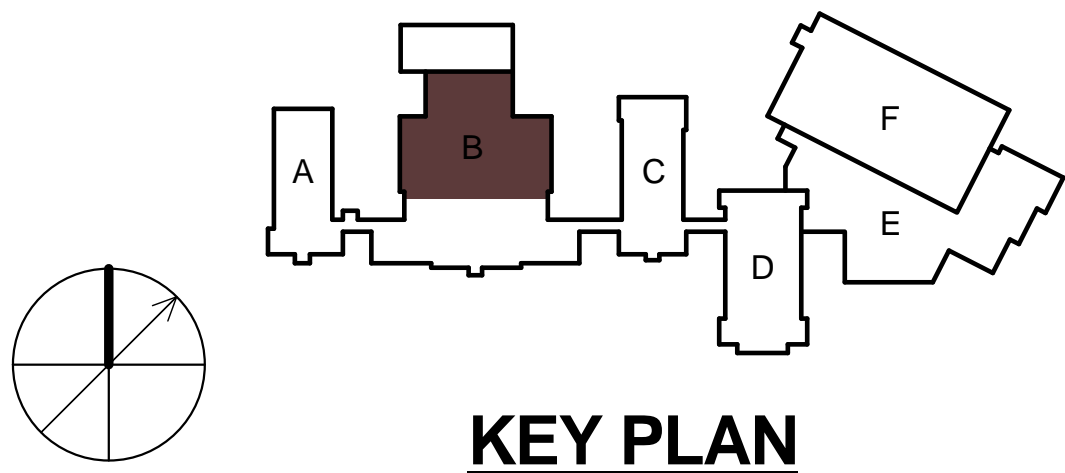
AD103
SHEET 4 OF 9

AUDITORIUM BALCONY DEMO PLAN WORK NOTES	
DEMO NOTE #	DEMO NOTE
6.3	REMOVE HARDWOOD FLOOR SUBSTRATES AND SLEEPERS
6.4	REMOVE WINDOW SILL, JAMB AND MULLIONS COORDINATE WITH NEW WORK
6.5	REMOVE WOOD PLANKING PANELS ALONG WALLS INCLUDING FURRING STRIPS, PLASTER AND RELATED ATTACHMENTS
9.3	REMOVE GYPSUM WALL BOARD FINISH. SOFFIT WALL FRAMING TO REMAIN
9.4	REMOVE WOOD PANELS AND CAP
9.5	REMOVE ALL EXISTING WOOD FLOOR FINISH
10.3	REMOVE ALL SEATING
10.4	REMOVE WALL FINISHES BACK TO BRICK INCLUDING CEMENT PLASTER, METAL LATHE AND ALL RELATED ATTACHMENT THROUGHOUT STAIRS
10.5	REMOVE ALL DRYWALL AND PLASTER SOFFITS FINISH TO EXISTING FRAMING. FRAMING TO REMAIN UNDER BALCONY
10.6	REMOVE GYPSUM PLASTER CEILING, METAL LATHE, FURRING AND RELATED ATTACHMENTS
10.7	REMOVE ACT CEILING ENTIRELY
21.1	REFER TO ELECTRICAL DRAWINGS FOR DEMOLITION OF EXISTING FIRE ALARM SYSTEM
23.1	REFER TO MECHANICAL DRAWINGS FOR REMOVAL OF HVAC UNITS, DUCTS, WIRING AND CONTROLS
23.2	REFER TO MECHANICAL DRAWINGS FOR DEMOLITION OF EXISTING PIPING INSULATION
26.1	REFER TO AV DRAWINGS FOR REMOVAL OF SOUND SYSTEM, XLR AND SPEAKER WIRING IN ITS ENTIRETY
26.2	REFER TO ELECTRICAL DRAWINGS FOR REMOVAL OF LOW VOLTAGE CAMERA DEVICES, WIRING AND CONTROLS
26.3	REFER TO ELECTRICAL DRAWINGS FOR REMOVAL OF LIGHT FIXTURES, WIRING AND CONTROLS

- ### GENERAL DEMO NOTES
- REMOVAL OF ANY WORK OR ITEM SHALL INCLUDE LEGAL DISPOSAL OF SAME UNLESS INDICATED TO BE SALVAGED. ALL REMOVAL AND DISPOSAL WORK SHALL BE PERFORMED IN A SAFE AND LEGAL MANNER. DOCUMENTATION OF RECYCLED WASTE IS REQUIRED.
 - CONTRACTOR SHALL VERIFY ALL CONDITIONS IN THE FIELD PRIOR TO COMMENCEMENT OF DEMOLITION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF ARCHITECT IN WRITING IMMEDIATELY UPON DISCOVERY.
 - DRAWINGS MAY NOT FULLY SHOW EVERY DETAIL. PROVIDE UNIT PRICES FOR WORK AS REQUIRED.
 - CONTRACTOR SHALL FIELD VERIFY THE LOCATIONS OF ALL STRUCTURAL MEMBERS PRIOR TO DEMOLITION AND SHALL PROVIDE ALL NECESSARY SHORING, BRACING AND TEMPORARY SUPPORTS REQUIRED TO ENSURE STRUCTURAL STABILITY AND PREVENT COLLAPSE OF EXISTING STRUCTURE AND CONSTRUCTION TO REMAIN.
 - CONTRACTOR SHALL PROTECT ALL ADJACENT CONSTRUCTION THAT IS TO REMAIN.
 - REFER TO THE MECHANICAL, PLUMBING, AND ELECTRICAL NOTES FOR REMOVAL AND DISPOSAL OF EQUIPMENT, PIPES, CONDUITS, WIRING OR OTHER ITEMS THAT ARE INCLUDED AS PART OF THE SCOPE OF DEMOLITION WORK IN THIS CONTRACT.
 - ALL FINISHES ON WALLS AND THE UNDERSIDE STAIRS 7 & 8 ALONG WITH THE STAIR CEILINGS SHALL BE REMOVED ENTIRELY. EXISTING RUBBER FLOORING TO REMAIN. DEMOLISH ALL LIGHTING AND FIRE ALARM DEVICES ENTIRELY.
 - DOORS AND OPENINGS WILL BE SEALED WITH 8 MIL POLYETHYLENE SHEETING TAPED TO CREATE AN AIRTIGHT DUST BARRIER BETWEEN THE CONTROLLED AREA AND THE AREA ACCESSIBLE TO BUILDING OCCUPANTS. LARGER OPENINGS SUCH AS THE SERVERY IN THE CAFETERIA AND THE MAIN ENTRANCE TO THE AUDITORIUM WILL BE SEALED WITH A SOLID BARRIER PRIOR TO SEALING WITH 8 MIL POLYETHYLENE PLASTIC SHEETING. BARRIERS WILL BE SEALED FROM INSIDE THE CONTROLLED AREA. ADDITIONAL BARRIERS MAY BE SEALED ON THE OUTSIDE.



1 AUDITORIUM BALCONY DEMO FLOOR PLAN
SCALE: 1/8" = 1'-0"



SECTION 024120 – REMEDIATION GENERAL

PART 1 – REMEDIATION GENERAL

1.1 - GENERAL REQUIREMENTS

- A. Contractor shall furnish all labor, materials, and services for the mitigation work as defined in the project documents. Work shall be coordinated through the Owner's representative.
- B. "IH" shall refer to the Industrial Hygiene (IH) firm that is designated as the "Owner's authorized representative for purposes of inspecting and monitoring the remediation Work.
- C. "Contractor" shall refer to the Contractor that is performing the Work of this specification.

1.2 - EXTENT OF WORK

It is the intent of this specification to remove identified building contents and components which have been negatively impacted by flooding associated with Hurricane Sandy. In addition, the remaining building structure within the confines of the Work Area will be cleaned and HEPA vacuumed.

1. This work will take place while the school is occupied.
2. The work area will be segregated from the remainder of the school.
3. Doorways and openings into the work area will be sealed with polyethylene plastic sheeting.
4. A solid barrier in addition to the polyethylene sheet barrier will be required at the separation of the serving area in the kitchen and cafeteria to ensure the area cannot be inadvertently accessed.

At the discretion of the contractor, areas may be separated and removal and cleaning conducted in phases if this will expedite the process. Pre-approval of phasing must be granted by the owner's representative.

All access in and out of the work area by the contractor will be conducted through the loading dock in the kitchen.

Access to other areas of the school will not be allowed to the contractor.

Prior arrangements must be made with the school therefore a proposed schedule must be submitted with the pre-construction submittal package.

At the completion of the demolition phase and cleaning and HEPA vacuuming and prior to build back the contractor will meet the requirements of the post remediation verification.

1.3 - TASKS

- A. Removal and Cleaning Activities include removal, decontamination and disposal of impacted waste items and materials identified and cleaning of all surfaces within the work area demarcation.
- B. Administrative Activities include record keeping and security.
- C. Environmental Oversight Activities include work practice inspections and monitoring.
- D. Cleaning and Decontaminating Activities include HEPA vacuuming and washing with a detergent contents and surfaces within the work area demarcation.
- E. Post Remediation Verification Activities include final visual inspection, testing and certification of completion.

1.4 - SPECIAL CONSIDERATIONS

- A. The Contractor shall be responsible for performing all Work in the most time and cost efficient manner in accordance with industry standards.
- B. The Contractor shall use industry "State of the Art" Work standards and practices, See Reference Guidance documents as necessary section 6.1.1.

1.5 - DEFINITIONS

1.5.1 - GENERAL

Definitions and explanations here are neither complete nor exclusive of all terms used in the contract documents, but are general for the work to the extent they are not stated more explicitly in another element of the contract documents. Drawings must be recognized as diagrammatic in nature and not completely descriptive of the requirements indicated thereon.

1.5.2 - GLOSSARY

Aerosol: Solid or liquid particles, suspended in air.

Air Monitoring: The process of collecting and analyzing air samples to determine the total concentration of airborne particulate using direct read instrumentation. The process of collecting air samples for analysis of total spore for comparative purposes. Or the collection of air samples for a gravimetric determination of ambient particulate. This overall monitoring procedure is also called Air Testing, or Testing.

Authorized Visitor: Any person approved by the Contracting Officer, the contractor or any government agency which has proven jurisdiction over the work.

Barrier: Any surface that seals the work area to inhibit the movement of dust or contaminants. The barrier responsible for isolation of the work area from adjacent spaces, typically constructed of polyethylene sheeting secured in place at penetrations such as doors, windows or any other opening into the work area. **Secondary Barrier -** Any additional sheeting to collect and provide protection from debris during abatement.

Breathing Zone: A hemisphere forward of the shoulders with a radius of approximately 6 to 9 inches.

Bulk Test: The collection and analysis of samples of suspected asbestos materials. A small amount, or bulk, of the material is physically removed from the structure and placed in a rigid airtight container for transportation to an accredited lab for analysis.

Cleaning: The process of using a HEPA vacuum and wet cleaning agents to remove contaminants; the process includes the removal of bulk debris from the Work area.

Competent person: As defined in the OSHA Construction Standard (29 CFR 1926), a person who is capable of identifying or predicting hazardous Working conditions and Work areas, and who has authorization to take prompt, corrective measures to eliminate the hazards. A competent person is not necessarily a risk assessor, inspector, or abatement project supervisor.

Engineering controls: Measures other than respiratory protection or administrative controls that are implemented at the Work site to contain, control, and/or otherwise reduce exposure to hazards usually in the occupational health setting. The measures include process and product substitution, isolation, and ventilation.

High-Efficiency Particulate Air (HEPA) Filter: A filter which removes from the air 99.97% or more of monodisperse dioctyl phthalate (DOP) particles having a mean diameter of 0.3 micrometer.

HEPA Filter Vacuum Cleaner: High efficiency particulate air vacuum collection equipment with a HEPA filter system capable of filtering exhausted air at 99.97% efficiency of particles having a mean diameter of 0.3 micrometers.

Negative Air Machine (NAM): Negative air machine equipped with HEPA filtration.

Negative Pressure: Air pressure lower than surrounding areas, created by exhausting air from a sealed space (work area).

Negative Pressure System: A local exhaust system, utilizing HEPA filtration capable of maintaining a negative pressure inside the work area and a constant air flow from adjacent areas into the work area and exhausting that air outdoors.

Polyethylene Sheeting: Strong plastic barrier material usually transparent, infers the use of 6 mil thickness.

Remediation: Work that involves corrective action including cleaning and removal of impacted materials.

Sealed Work Area: Refers to the work area after barriers have been erected and a negative pressure air system installed.

Visible Emissions: Any emission containing particulate asbestos material that are visually detectable without the aid of instruments.

Work Area: Area where work, cleaning or removal operations are performed which is defined and isolated to prevent the spread of dust or debris, and the entry of unauthorized personnel.

1.6 - CODES AND REGULATIONS

1.6.1 - REFERENCED GUIDANCE DOCUMENTS

- A. Institute of Inspection, Cleaning and Restoration Certification (IICRC)
 - a. S500 Standard and Reference Guide for Professional Water Damage and Restoration, Vancouver, WA (1995)
 - b. S520 Standard Reference Guide for Professional Mold Remediation, Vancouver, WA (1995)
- B. Preventing Indoor Air Quality Problems During Construction and Renovation, Bulletin 388. The Commonwealth of Massachusetts, Executive Office of Labor and Workforce Development, department of Labor Standards, Workplace Safety and Health Program.
- C. Maintaining Indoor Environmental Quality (IEQ) During Construction and Renovation, National Institute for Occupational Safety and Health, Center for Disease Control and Prevention. 2007
- D. IAQ Guidelines for Occupied Buildings Under Construction, 2nd Edition, Sheet Metal and Air Conditioning Contractor's National Association, 4201 Lafayette Center Drive, Chantilly, VA

1.7 - NOTIFICATIONS, PERMITS, AND LICENSES

- A. Written notification is required by USEPA National Emission Standards for Hazardous Air Pollutants (NESHAPS) for Demolitions and Renovations. If Demolition and Renovation is part of this remediation, assure that this has been sent to and received by the regional NESHAPS Contact at least 10 Days prior to beginning any demolition or renovation Work.
- B. State and Local Agencies: Send written notification as required by state and local regulations prior to beginning any demolition or renovation Work.
 - a. Commonwealth of Massachusetts - Department of Environmental Protection and written notification sent and received 10 Working days prior to beginning any demolition or renovation Work.
 - b. Local Board of Health. Send letter and copy of DEP notification 10 Working days prior to the start of Work.
 - c. Local Fire Department. Send written notification 10 Days prior to the start of Work.
- C. Notify the local police department of the remediation project. Coordinate with the police for all security aspects of the project, as necessary.

1.8 - PROJECT COORDINATION

Minimum administrative and supervisory requirements necessary for coordination of work on the project are personnel, contingency arrangements and security.

1.8.1 - PERSONNEL

- A. Supervisory Personnel: Shall consist of a qualified general superintendent, and appropriate number of qualified or competent foremen required to complete the remediation within contract time. Supervisory personnel will be capable and qualified to discuss the progress of the project and respond to issues that may arise as well as liaison with the owner's representative.
- B. Non-Supervisory Personnel: Laborers employed for remediation shall be knowledgeable of the project requirements and be trained in company policies.

1.8.2 - CONTINGENCY PLANS AND ARRANGEMENTS

Prepare a contingency plan for emergencies including fire, accident, failure of power, failure of negative air system, failure of supplied air system or any other event that may require modification of standard operating procedures during abatement. Include specific procedures to ensure safe exiting and to provide medical attention in the event of an emergency. Post the telephone numbers and locations of emergency services including fire, ambulance, doctor, hospital, police, power company and telephone company in the clean room of personnel decontamination facilities. Provide assistance on developing

contingency plans for responding safely and efficiently to any emergency during abatement. Provide and clearly indicate the location of approved fire extinguishers for every 10,000 sq. ft. and train the crew on the use of the equipment. Standards such as NFPA 241, "Safeguarding Construction, Alteration and Demolition Operations, 1993", shall be followed to ensure a safe environment during construction.

1.8.3 - SECURITY

Provide a 24-hour security system, which consists solely of a guard and log book to ensure that every entry to the containment will be logged in and that only properly trained and outfitted workers will be allowed to enter. Entrance will be allowed also to any personnel authorized by the owner, such as their inspectors, engineers, etc., and inspectors from regulatory agencies. Security during non-working hours shall consist of securing all entrances to the work area by means of a lock. A copy of the keys or combinations to these locks shall be provided to the Owner. The contractor shall provide a 24-hour emergency response telephone number to the owner in the event of an engineering control failure within the work area.

1.9 - WORKER PROTECTION

A. Respiratory Protection

1. As appropriate under the contractors respiratory protection program the contractor will comply with respiratory protection requirements.
2. The Contractor shall provide all Workers, foremen, superintendents, authorized visitors, and inspectors personally-issued and marked respiratory protective equipment approved by NIOSH. When respirators with disposable filters are employed, the Contractor shall provide sufficient filters for replacement as necessary by the Worker or authorized visitor. Filters shall be disposed of as contaminated waste.

B. The Contractor shall provide personnel protection as required by all applicable guidance and regulations.

C. Respirators, disposable coveralls, head covers, safety glasses, rubber gloves/boots and footwear covers shall be provided by the Contractor for all Workers, the Consultant and other authorized visitors who may inspect the job site as appropriate in compliance with contractors' policies.

D. The Contractor shall require that Workers NOT eat, drink, smoke, chew gum or tobacco, or use toilet facilities (either existing or temporary) within the Work Area.

E. Contractor's personnel shall not enter into the occupied school area directly from the work area.

1.10 - NEGATIVE PRESSURE FILTRATION SYSTEMS

Contractor shall provide enough HEPA filtered negative air units to completely exchange the work air 4

times/hour. Contractor shall demonstrate the number of units needed per work area for 4 room air changes by calculating the volume flow rate (cfm) delivered by each unit under 2 inches pressure drop across filters. Provide at least one standby unit in the event of a machine failure or emergency such as contamination in surrounding non-work area. When the pressure differential system is operational provide enough HEPA filtration units to maintain a pressure differential in the work area of -0.02 inches of water or 5 Pascal's.

As part of the negative pressure filtration system the contractor must have adequate manometric devices to illustrate the continued negative pressure.

1.10.1 - SUBMITTALS

Before start of work submit design of negative air system. Submittal shall include number, location and size of HEPA units, points of exhaust, projected airflow within work area, anticipated pressure differential and supporting calculations for sizing. In all cases, submit the following:

- A. Manufacturer's product data on the HEPA units.
- B. Methods of supplying adequate power to the units and designation of panels supplying power.
- C. Description of testing methods for correct airflow and pressure differential and
- D. Manufacturer's product data on pressure differential monitor.

1.10.2 - PRESSURE DIFFERENTIAL

Provide a fully operational negative air system within the work area continuously maintaining a pressure differential across work area enclosures of -0.02 inches of water. Demonstrate to the IH the pressure differential by use of a pressure differential meter or a manometer, before beginning the remediation project.

1.10.3 - MONITORING

Continuously monitor and record the pressure differential between the work area and the building outside of the work area with either a monitoring device or pressure log incorporating a strip chart recorder or in written format on a log. Make the strip chart record part of the project log.

1.10.4 - TESTING THE SYSTEM

Test negative pressure system prior to any remediation and after the work area has been prepared, and the exhaust unit(s) installed, start the unit(s) (one at a time). Demonstrate operation and testing of negative pressure system to the IH.

1.10.5 - DEMONSTRATION OF NEGATIVE AIR SYSTEM OPERATION

- A. Demonstrate the operation of the negative pressure system to the IH to include, but not be limited to the following:

1. Demonstrate pressure differential system will maintain -0.02" of water. Use a differential pressure meter or manometer to demonstrate a pressure difference across every barrier separating the Work Area from the balance of the building or outside. Modify the negative pressure system as necessary to successfully demonstrate the above.

1.10.5 - DEMONSTRATION OF NEGATIVE AIR SYSTEM OPERATION

- A. Demonstrate the operation of the negative pressure system to the IH to include, but not be limited to the following:

1.10.1 - SUBMITTALS

Before start of work submit design of negative air system. Submittal shall include number, location and size of HEPA units, points of exhaust, projected airflow within work area, anticipated pressure differential and supporting calculations for sizing. In all cases, submit the following:

- A. Manufacturer's product data on the HEPA units.
- B. B. Methods of supplying adequate power to the units and designation of panels supplying power.
- C. Description of testing methods for correct airflow and pressure differential and manufacturer's product data on pressure differential monitor.

1.10.2 - PRESSURE DIFFERENTIAL

Provide a fully operational negative air system within the work area continuously maintaining a pressure differential across work area enclosures of -0.02 inches of water. Demonstrate to the IH the pressure differential by use of a pressure differential meter or a manometer, before beginning the remediation project.

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1.10.5 - DEMONSTRATION OF NEGATIVE AIR SYSTEM OPERATION

- A. Demonstrate the operation of the negative pressure system to the IH to include, but not be limited to the following:
 - 1. Demonstrate pressure differential system will maintain -0.02" of water. Use a differential pressure meter or manometer to demonstrate a pressure difference across every barrier separating the Work Area from the balance of the building or outside. Modify the negative pressure system as necessary to successfully demonstrate the above.

2. Positive motion of air across all areas in which work is to be performed. Use smoke tubes to demonstrate air motion. Use a differential pressure meter or manometer to demonstrate a pressure difference of at least -0.02 inches of water across every barrier separating the Work Area from the balance of the building or outside. Modify the negative pressure system as necessary to successfully demonstrate the above.

1.10.6 - USE OF SYSTEM DURING DEMOLITION OPERATIONS

- A. Start exhaust units before beginning remediation work, after work has begun, run units continually to maintain a constant negative pressure until the work is complete. Do not turn off units at the end of the work shift or when remediation operations temporarily stop.
- B. Once removal of identified items and building components has been conducted, begin the cleaning process. Start cleaning at a location farthest from the exhaust units and proceed toward them. If an electric power failure occurs, immediately stop all removal work and do not resume until power is restored and all exhaust units are operating again.
- C. At completion of the remediation work, allow exhaust units to run as specified under this section, to remove airborne particulate that may have been generated during remediation work and cleanup and to purge the work area with clean make-up air.

1.10.7 - DISMANTLING THE SYSTEM

When post remediation inspection and testing indicate that the area has met the standards, exhaust units may be removed from the work area. Before removal from the work area, properly remove and dispose of pre-filters, and seal intake while machine is running with 6 mil. polyethylene sheeting to prevent environmental contamination from the negative air machine.

1.11 - CONTAINMENT BARRIERS AND COVERINGS OF WORK AREA

1.11.1 - GENERAL

Seal off perimeter of work area to completely isolate remediation areas and to contain all airborne particulate created by remediation work. Cover all surfaces of the work area to protect them from cross contamination, to facilitate more efficient clean-up, and to protect the finishes from the work, as necessary. Should the area beyond the seal off limits become contaminated as a consequence of the work, clean those areas in accordance with procedures described in this section at no additional cost to the Owner.

The Work Area may be broken into smaller areas to ease project phasing and coordination at the discretion of the contractor. This segregation must be submitted and approved prior to the start of the work.

1.11.2 PREPARATION PRIOR TO SEALING OFF

Erect solid barriers consisting of new clean plywood in areas of openings from the work area larger than a standard doorway. Place all tools, scaffolding, staging, etc. necessary for the work in the area to be isolated prior to erection of temporary plastic sheeting enclosure. Disable ventilating systems or any other system bringing air into or out of the work area. Disable system utilizing positive means that will prevent accidental premature restarting of equipment, i.e., disconnecting wires, removing circuit breakers, lockable switch.

1.11.3 CRITICAL BARRIERS

- A. Completely separate the work area from other portions of the building, and the outside by means of two layers of polyethylene sheeting barrier at least 6 mil. in thickness and duct tape. Individually seal all ventilation openings (supply and exhaust), lighting fixtures, clocks, doorways, windows, connectors and speakers, and other openings into the work area as appropriate with two layers polyethylene sheeting at least 6 mil. in thickness, taped securely in place with duct tape. Maintain seal until all work is completed. Take care in sealing off lighting fixtures to avoid melting or burning of sheeting. Seal the perimeter of all sheet plastic barriers with duct tape or spray cement.
- B. All doors to the work area will be sealed with the critical barrier on both the inside and outside (building occupant side) to prevent from being used.
- C. Critical barriers will be inspected daily for integrity and shall be repaired and/or replaced as necessary.

1.11.4 - CONTROL ACCESS TO WORK AREA

Permit access to the work area only through the controlled designated entry point. All other means of access shall be closed off and sealed and warning signs displayed on the clean side of the sealed access.

Where the area adjacent to the work area is accessible to the public, construct a solid barrier on the public side of the sheeting as required by this specification.

Construct barrier with nominal 2X4 wood stud's 16" on center, securely anchored to prevent movement, signs at each visual and physical barrier.

Post alternate emergency exits if applicable.

1.12 - ENVIRONMENTAL OVERSIGHT (MONITORING, INSPECTION AND TESTING)

1.12.1 - MONITORING, INSPECTION AND TESTING BY CONTRACTOR

The contractor is responsible for his/her employees and for providing safe conditions inside the work area for all authorized persons entering a work area. Keep a daily log of personnel, activities, and area conditions and make such log available to the IH. The log shall contain, but not be limited to, information on activities being performed, controls being utilized, failures to systems and the response to the failure.

1.12.2 - MONITORING, INSPECTION AND TESTING BY OWNER'S REPRESENTATIVE

- A. The owner's representative will monitor the remediation project on a daily basis to document and verify the integrity of the controls used to contain the spread of contamination from the Work Area to the adjacent spaces.
 - 1. Monitoring will consist of daily inspection of the activities and verification of the contractor's use of dust control measures.
 - 2. Monitoring outside the Work Area will be conducted to verify the absence of elevated dust and debris outside the work area.

1.13 - SUBMITTALS

- A. The Contractor shall submit to the Owner's representative three (3) copies of the following listed documents. No remediation activities shall commence until these items are reviewed and approved by the Owner's representative. Submittal data shall be in sufficient detail to enable the Owner's representative to identify the particular process, product or equipment, and to form an opinion as to its conformity to the Specifications.
 - 1. Completed copies of all applicable notifications, and permits.
 - 2. Name and qualifications of Supervisor and Foremen.
 - 3. Plan of Action & Standard Operating Procedures: Submit a detailed plan of the procedures and engineering controls proposed for use in complying with the requirements of this Specification. Include in the plan; drawings or sketches detailing isolation barriers; Work area limits or perimeter and HEPA exhaust unit locations.
 - 4. Detailed work schedule.
 - 5. Contingency Plan: Submit a contingency plan for emergencies including fire, accident, power failure, negative air system failure, or any other event that may require modifications or abridgment of Work practices. Include in plan specific procedures for Work Area isolation breach. It is understood that immediate

- A. danger to life and health (IDLH) hazard levels will take precedent to these specifications. Note that nothing in this Specification should impede safe exiting or providing of adequate medical attention in the event of an emergency.
 - 1. Respiratory Protection Program: Submit level of respiratory protection intended for each operation required by the Project. Reference 29 CFR 1910.134 if applicable.
 - 2. Manufacturer's documentation, including MSDS's, for all equipment, supplies or chemicals to be utilized during this project.
- B. Submit the following items to the Owner's representative for approval within 30 days of project completion:
 - 1. Project logs.
 - 2. Recordings from Work Area pressure differential monitor, if utilized.

PART 2 – EXECUTION

2.1 - GENERAL

Prior to the start of the work, the Contractor will verify the IH has conducted baseline sampling in and around the work area and facility. No work shall begin until these samples have been collected. These samples are vital to the determination of the efficacy of the remediation.

Remove identified building components and items impacted by the flooding associated with Hurricane Sandy. The Work Area and any remaining component or content shall be cleaned in accordance with this specification and the Reference Guidance Documents (see section # 1.6.1).

If it is determined that the HVAC system(s) need to be cleaned, the Contractor will follow the "NADCA General Specification for the Cleaning of Commercial Heating, Ventilating and Air Conditioning Systems," NADCA Copyright ©1997, Washington, D.C., as well as the applicable portions of this specification. Copies can be obtained from NADCA at 1518 K Street, N.W., Suite 503, Washington, D.C. 20005, 202-737-2926. E-mail: nadca@aol.com. Web site: www.nadca.com.

2.2 - STOP REMEDIATION

- A. If the owner's representative presents a stop work order, immediately stop all remediation and initiate dust reduction activities. Do not resume work until authorized in writing by the owner's representative. A stop work order will be issued at any time the owner's representative determines conditions are not within specification requirements. Stoppage will continue until conditions have been corrected. Standby time and cost required for corrective action is at the contractor's expense. The occurrence of the following events shall be reported in writing to the Owner's Representative and shall require the contractor to immediately stop work and initiate dust reduction activities. At a minimum improved construction area ventilation and barriers before work resumes.

1. Excessive airborne dust concentrations outside the work area (visible dust or concentrations or levels that are statistically greater than pre-work).
2. Visible dust observed in adjacent non-construction areas.
3. Break in the containment barriers.
4. Loss of negative air pressure (At or below -0.02 inches of water; 5 Pascal's).
5. Serious worker injury within the containment area which necessitates interruption of the normal activities.
6. Presence of a fire and safety emergency.
7. Power failure.
8. Excessive dust inside the work area (excessive accumulation on materials to be maintained).

2.3 - REMOVAL OF WASTE ITEMS AND ITEMS TO BE CLEANED OFF SITE

- A. All items to be discarded will be removed from the Work Area and discarded in waste containers and removed from the site.
- B. Waste should be transferred from the Work Area directly outside into waste containers, waste should not enter into the occupied areas of the school. If waste must be transported through the occupied areas of the school prior approval must be requested from the owner's representative. All waste not transported directly outside into waste containers must be in clean, sealed waste receptacles.
- C. For waste transported from within the Work area into a waste container via a chute, the chute must be a covered chute.
- D. Contractor must use dust control means such as misting, as necessary to control ambient dust during the demolition and discarding processes.

2.4 - CLEANING METHODS

There are two methods that have the potential for use in a water intrusion situation, depending on whether or not there is contamination that needs to be addressed.

a. Air based methods

1. HEPA vacuuming or vacuuming with units that exhaust a safe distance outside the structure.
2. Air washing is a method that uses an air stream to blow contaminants or moisture off surfaces, which can result in aerosolizing, creating potential exposure

for workers and occupants. This method shall not be used except in outdoors or in laminar-airflow or high volume cleaning chambers, or in other situations where engineering controls are adequate to prevent excessive concentration of contaminants and minimize spreading of contaminants in Category 2 or 3 water. Air washing has the potential to drive contaminants and fragments deeper into porous materials such as padding or upholstery.

B. Liquid based Methods

C. Liquid based methods rely on water combined with physical or mechanical cleaning process to dislodge contamination. The following are examples of acceptable liquid-based cleaning methods:

1. Immersion cleaning with an appropriate cleaning agent
2. Ultrasonic cleaning
3. Washing with an appropriate cleaning agent
4. Steam cleaning with live steam systems

2.5 - REMEDIATION INSPECTION AND PREPARATIONS

- A. Perform all preparatory work for the work area in accordance with the approved detailed work schedule. Execute the preparatory work in accordance with the specification.
- B. Upon completion of all preparatory work, the IH will inspect the work and systems and will notify the contractor and owner when such work is in accordance with these specifications.
- C. IH shall document the remediation inspection described above.
- D. Upon satisfactory inspection of the installation and systems and satisfactory demonstration of operations the IH will notify the contractor to proceed.

2.6 - CLEANING

Usually cleaning can be accomplished by using one or more of the following cleaning methods:

1. Detergent washing and rinsing
2. Damp wiping with cleaning agent
3. After thorough cleaning restorers should remove cleaning residue and follow up with rapid drying and appearance enhancement as appropriate.

If heavy odors exist, multiple cleanings and deodorizing attempts may be needed.

2.6.1 - FIRST CLEANING

Carry out a first cleaning of all surfaces of the work area including items of remaining sheeting, tools, scaffolding and/or staging by use of damp-cleaning and mopping, and HEPA filtered vacuuming. Do not perform dry dusting or dry sweeping. Use each surface of a cleaning cloth one time only and then dispose of as contaminated waste. Recyclable cleaning cloths shall be disposed in appropriately marked containers. Continue this cleaning until there is no visible debris from removed materials or residue on plastic sheeting or other surfaces. Maintain negative pressure system in operation for the entire 24 hour period.

2.6.2 - FIRST CLEANING VERIFICATION

The IH will perform a thorough and detailed visual inspection at the end of the first cleaning to determine whether there are any signs of visible dust or debris in the work area. If the visual inspection is satisfactory, the IH will notify the contractor's supervisor to complete the cleaning process by following the steps for a "second cleaning".

2.6.3 SECOND CLEANING

- A. Following the first visual inspection, perform a thorough cleaning of all surfaces of the work area in the same manner as the first cleaning. Leave only the following barrier and facilities.
 - 1. Critical barrier which forms the sole barrier between the work area and other portions of the building or the outside.
 - 2. Critical barrier sheeting over lighting fixtures and clocks, ventilation openings, doorways, connectors, speakers and other openings as appropriate.
 - 3. Negative pressure system in continuous operation.

2.6.4 - SECOND CLEANING VERIFICATION

The inspection will include the entire work area with all critical barriers in place. If any debris, residue on surfaces, dust or other matter is detected the area will be re-cleaned.

2.7 - POST REMEDIATION AND VERIFICATION

2.7.1 - GENERAL

Notify the IH when the removal of identified materials and the second cleaning has been completed.

2.7.2 - AIR SCRUBBING AND EQUALIZATION

Once the area is deemed visually clean, the negative pressure air filtration system will be set to scrub mode. The NAM's will be allowed to operate in scrub mode for a minimum of a 24 hour period. At the completion of the scrub period, the NAM's will be shut down in order for the area to reach equilibrium with the remainder of the building for a period of 24 hours.

The HEPA-exhaust systems must remain running until the intake is sealed. Only, after the intake is adequately sealed with 6-mil polyethylene and duct tape will the system be shut down. After the equalization period, air samples will be collected.

2.7.3 - VERIFICATION TESTING

- A. The Post Remediation Verification testing may take place using aggressive air sampling technique by operating circulating fans and leaf blowers during the verification sampling to ensure effective air circulation. The final verification will consist of a visual inspection and collecting air samples.
- B. Samples collected for Post Remediation Verification will be analyzed using Spore Trap methodology.
- C. Samples will be deemed acceptable when the concentrations and identification of particulate detected on the samples collected from inside the work area are equal to or less than the concentration of particulate detected on the samples collected from outside the work area and outside the building. In addition the identification of the particulate from samples collected inside the work area will be similar to the identification of particulate from the samples collected outside the work area and outside the building with no spikes or anomalies.

2.7.4 COMPLETION OF REMEDIATION WORK

- A. After achieving the level of cleanliness and decontamination, as specified herein and as confirmed by the post remediation inspections and testing, the Contractor will be notified.
- B. After successful completion of the post remediation air testing, the Contractor shall carefully remove any temporary barrier walls or tunnels that will not remain during the build back phase.
- C. A sufficient number of HEPA-vacuum shall be kept on-site during this final disassembly Work to cleanup any dust or debris.
- D. Remove NAM and all equipment not necessary for the build back phase of the project from the work area.
- E. Submit copies of the daily log and pressure log to the IH.

END OF SECTION