

necessary to satisfy the Contractor as to the requirements of the work for each specific phase of the project. The Contractor must notify the Owner's Representative of any conflicting information or clarifications required for the preparation of any bids, estimates, and submittal documentation.

The Contractor is responsible for the removal of all designated ACBM in the areas so designated by the Owner and in the Contract Documents. Except as otherwise noted, ACBM which are located within solid wall, floor, and ceiling cavities shall be considered accessible and within the scope of lump sum work.

1.05 EXISTING CONDITIONS

Prior to commencement of work, inspect areas in which work will be performed. Prepare a listing of damage to structure, surfaces, non-ACM insulations, equipment or surrounding properties that could be misconstrued as damage resulting from the work. Contractor is responsible for all damages to equipment, furnishings, finishes and building surfaces in the work area and adjacent caused by the Contractor during the course of abatement. Use care to prevent damages to existing surfaces during installation of solid barriers, critical barriers and primary isolation barriers. Contractor is responsible for completing all repairs to damaged items/surfaces caused by the work.

1.06 POTENTIAL ASBESTOS HAZARD:

The disturbance or dislocation of asbestos-containing materials may cause asbestos fibers to be released into the building's atmosphere, thereby creating a potential health hazard to workmen and building occupants. Apprise all workers, supervisory personnel, subcontractors and consultants who will be at the job site of the seriousness of the hazard and of proper work procedures that must be followed.

Where in the performance of the work, workers, supervisory personnel, subcontractors, or consultants may encounter, disturb, or otherwise function in the immediate vicinity of any identified asbestos-containing materials, take appropriate continuous measures as necessary to protect all building occupants from the potential hazard of exposure to airborne asbestos. Such measures shall include the procedures and methods described herein, and compliance with regulations of applicable federal, state and local agencies.

Complete, and coordinate with Owner as applicable, all communication of hazards in strict accordance with 29 CFR 1926.1101 (k). The contractor shall coordinate with the Owner to review all existing inspection records and testing results as needed. ACBM may also be present in other areas of the adjacent building spaces. Contractor shall review all existing inspection records to obtain information on the exact presence of all ACM.

1.07 CONTRACTOR USE OF PREMISES:

General: The Contractor shall limit his use of the site to the work indicated, so as to allow for Owner operations and general construction activity. Confine operations at the site to the specified work areas of the Specification. Take all precautions necessary to protect the building, any occupants, and surrounding areas from work-related hazards during the construction period.

Maintain building and work areas in a safe and structurally sound condition throughout the work.

Maintain access to the public and other trades in all areas (for example, stairwell and halls) as indicated herein and as otherwise noted by Owner. Provide additional barriers and site security as needed to accommodate such access.

Install solid barriers to prevent unauthorized access and visibility from adjacent, public or Owner-occupied areas as designated by the Owner and using materials and construction methods approved by the Owner. Contractor shall work in cooperation with, and coordinate all work with, the Owner and Owner's Representative. Areas of the hallway designated by Owner for use as temporary staging areas and waste loadout areas must be established and removed each shift

such that the hallway and adjacent areas are cleaned of any debris, materials, waste, and equipment during off-shift, nonworking hours.

1.08 STOP WORK:

If the Owner or the Owner's Representative presents a written or verbal stop work order immediately and automatically stop all work. Do not recommence work until authorized in writing by Owner's Representative.

1.00 1.09 PROJECT COORDINATION

A. Administrative and Supervisory Personnel:

Site Supervisor: Provide a full-time Site Supervisor who is experienced in administration and supervision of asbestos abatement projects including work practices, protective measures for building and personnel, disposal procedures, etc. This person is the Contractor's Representative responsible for compliance with all applicable federal, state and local regulations, particularly those relating to asbestos-containing materials.

Experience and Training: The Site Supervisor must have completed a course at an EPA Training Center or equivalent certificate course in asbestos abatement procedures, and have had a minimum of five (5) years on-the-job training in asbestos abatement procedures. The Site Supervisor must also have adequate experience working on similar projects.

Accreditation/Qualifications: The Site Supervisor is to be (1) a Competent Person as required by OSHA in 29 CFR 1926, and (2) accredited and certified in accordance with the AHERA regulation 40 CFR Part 763, Subpart E, Appendix C; and (3) licensed in accordance with 453 CMR 6.00.

Provide a contract project manager who is experienced in the management and administration of similar asbestos abatement projects. The project manager will serve as the point of contact for all contract administration, off-site communications, scheduling, submittal requirements and other related tasks. The project manager shall have sufficient corporate authority to carry out all such responsibilities.

B. Pre-Construction Conference:

An initial progress meeting, recognized as "Pre-Construction Conference", will be convened by the Owner prior to the start of work for each phase. This meeting will be held to review the scope-of-work, scheduling, coordination, and contractor plan of action and submittals, as applicable.

C. Daily Log:

Daily Log: Maintain at the work area a daily log documenting the dates and time of but not limited to, the following items:

- . Visitations; authorized and unauthorized
- . Personnel entering and leaving the work area (name, certification, expirations)
- . Special or unusual events, i.e. barrier breaching, equipment failures, accidents
- . Documentation of (1) daily inspections and test results, (2) removal of any sheet plastic barriers, (3) inspections prior to application of encapsulation, enclosure or any other operation that will conceal the condition of ACMs or the substrate from which such materials have been removed, (4) removal of waste materials from work area and site, including exact number of waste bags/containers, (5) decontamination of work area and equipment, and (6) final inspection/air test results.

1.10 STANDARDS

Applicability of Standards: It is the Contractor's responsibility to complete all work in accordance with (or exceeding) all applicable industry standards and guidelines. Except where Contract Documents include more stringent requirements, all applicable construction industry standards have the same force and effect as if bound or copied directly into Contract Documents. Standards are made a part of the Contract Documents by reference. Where compliance with an industry standard is required, comply with the most current standards in effect as of date of Contract Documents.

Conflicting Requirements: Where compliance with two or more standards is specified, and they establish different or conflicting requirements for minimum quantities or quality levels, the most stringent requirement will be enforced, unless the Contract Documents indicate otherwise. Refer to the Owner's Representative any requirements that are different or conflicting; outline the more stringent requirement before proceeding.

Comply with applicable standards including, but not limited to, American National Standards Institute (ANSI) standards and American Society for Testing and Materials (ASTM) standards.

1.11 CODES, REGULATIONS, AND STANDARDS - ASBESTOS ABATEMENT

Adhere to work practices and procedures set forth in applicable codes, regulations and standards. Obtain permits, licenses, inspections, and similar documentation, as well as payments and similar requirements associated with codes, regulations, and standards.

The Contractor shall assume full responsibility and liability for compliance with all applicable Federal, State, and local regulations pertaining to work practices, hauling, disposal, and protection of workers, visitors to the site, and persons occupying areas adjacent to the site. The Contractor is responsible for providing medical examinations and maintaining medical records of personnel as required by the applicable Federal, State, and local regulations. The Contractor shall hold the Owner and Owner's Representative harmless for failure to comply with any applicable work, hauling, disposal, safety, health or other regulation on the part of himself, his employees, or his subcontractors.

All work performed under this contract shall comply with applicable provisions, including most current versions, and not limited to the listed codes and regulations.

Federal Requirements: which govern asbestos abatement work or hauling and disposal of asbestos waste materials include but are not limited to the following:

OSHA: U.S. Department of Labor, Occupational Safety and Health Administration, including but not limited to:

Occupational Exposure to Asbestos, Tremolite, Respiratory Protection; Title 29, Part 1910 Anthophyllite, and Actinolite; Final Rules Section 134 of the Code of Federal Regulations

Title 29, Part 1910, Section 1001 and Access to Employee Exposure and Medical Records Part 1926, of the Code of Federal Regulations Title 29, Part 1910, Section 2 of the CFR

Construction Industry Specifications for Accident Prevention Signs and Tags Title 29, Part 1926, of the Code of Federal Regulations Title 29, Part 1910, Section 145 of the CFR

Hazard Communication Title 29, Part 1910, Section 1200 of the CFR

DOT: U. S. Department of Transportation, including but not limited to:

Hazardous Material Regulations
Title 29, Part 171-180 Code of Federal Regulations

EPA: U. S. Environmental Protection Agency (EPA), including but not limited to:

Asbestos Abatement Projects; Worker Protection Rule
Title 40 Part 763, Sub-part G of the Code of Federal Regulations

Asbestos School Hazard Abatement Reauthorization Act (ASHARA)
Training Requirements of (AHERA) Regulation
Asbestos Containing Materials in Schools Final Rule & Notice
Title 40, Part 763, Sub-part E, Code of Federal Regulations

Asbestos Hazard Emergency Response Act (AHERA) Regulation
Asbestos Containing Materials in Schools Final Rule & Notice
Title 40, Part 763, Sub-part E of the Code of Federal Regulations

National Emission Standard for Hazardous Air Pollutants (NESHAPS)
National Emission Standard for Asbestos, Title 40, Part 61, Sub-part A,
and Sub-part M (Revised Sub-part B) of the Code of Federal Regulations

Massachusetts State Requirements: which govern asbestos abatement work or hauling and disposal of asbestos waste materials include but are not limited to the following:

- . Department of Labor and Workforce Development, Revised 453 CMR 6.00
- . Department of Environmental Protection, 310 CMR 7.00, 7.09, 7.15
- . Department of Environmental Protection 4.10(2)(c); 7.15: U Asbestos
- . Most current revisions, memos, guidelines and policy statements

Local Requirements: Abide by all local requirements that govern asbestos abatement work or hauling and disposal of asbestos waste materials. In addition, comply with all applicable Owner terms and conditions, asbestos policies and guidelines, and contract requirements.

1.12 DEFINITIONS

A. General Definitions

General: Definitions contained in this Article are not necessarily complete, but are general to the extent that they are not defined more explicitly elsewhere in the Contract Documents.

Indicated: This term refers to graphic representations, notes or schedules on the Drawings, or other Paragraphs or Schedules in Specifications, and similar requirements in Contract Documents. Where terms such as "shown," "noted," "scheduled," and "specified" are used, it is to help locate the reference; no limitation on location is intended except as specifically noted.

Directed: Terms such as "directed", "requested", "authorized", "selected", "approved", "required", and "permitted" mean "directed by the Owner's representative", "requested by the Owner's Representative", and similar phrases. However, no implied meaning shall be interpreted to extend the Owner's Representative's responsibility into the Contractor's area of construction supervision.

Approve: The term "approved," where used in conjunction with the Owner's Representative's action on the Contractor's submittals, applications, and requests, is limited to the responsibilities and duties of the Owner's Representative as indicated in the Contract Documents. Such approval or acceptances do not express or claim any certification of completeness, compliance, or approval of programs and documentation, including but not limited to review of analytical results, historical information, and interpretations. Such approval shall not release the Contractor

from responsibility to fulfill Contract Document requirements, unless otherwise provided in the Contract Documents.

Regulation: The term "Regulations" includes laws, statutes, ordinances and lawful orders issued by authorities having jurisdiction, as well as rules, conventions and agreements within the construction industry that control performance of the Work, whether they are lawfully imposed by authorities having jurisdiction or not.

Furnish: The term "furnish" is used to mean "supply and deliver to the project site, ready for unloading, unpacking, assembly, installation, and similar operations."

Install: The term "install" is used to describe operations at project site including the actual "unloading, unpacking, assembly, erection, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning and similar operations."

Provide: The term "provide" means "to furnish and install, complete and ready for the intended use."

Installer: An "Installer" is an entity engaged by the Contractor, either as an employee, subcontractor or sub- subcontractor for performance of a particular construction activity, including installation, erection, application and similar operations. Installers are required to be experienced in the operations they are engaged to perform.

The term "experienced," when used with the term "Installer" means having a minimum of 5 previous projects similar in size and scope to this project, and familiar with the precautions required, and has complied with requirements of the authority having jurisdiction.

Project Site is the space available to the Contractor for performance of the work, either exclusively or in conjunction with others performing other construction as part of the project.

Testing Laboratories: A "testing laboratory" is an independent entity engaged to perform specific inspections or tests, either at the project site or elsewhere, and to report on, and, if required, to interpret, results of those inspections or tests.

Owner's Representative: This is the entity employed or engaged as the Owner's Representative as described in the Contract Documents. All references to Owner's Consultant, Air Monitoring Consultant, or Consultant in the Contract Documents in all cases refer to the Owner's Representative. The Owner's Representative will represent the Owner during construction and until final payment is due. The Owner's Representative may also constitute other persons representing the Owner, other than the air monitoring consultant or consultant, as indicated by the Owner. The Owner's instructions to the Contractor will be made directly to the Contractor or forwarded through the Owner's Representative.

Site Supervisor: This is the Contractor's Representative at the work site. This person will be the Competent Person required by OSHA in 29 CFR 1926 and Site Supervisor/Foreman as required by the State of Massachusetts. Provide licensed supervisor at each individual work site during work.

B. Definitions - Asbestos Abatement:

Accredited or Accreditation (when referring to a person or laboratory): A person or laboratory accredited in accordance with section 206 of Title II of the Toxic Substances Control Act (TSCA).

Adequately Wet: Means sufficiently mix or penetrate with liquid to prevent the release of particulate. If visible emissions are observed coming from the asbestos-containing material, then that material has not been adequately wetted. The absence of visible emissions is not sufficient evidence, or measure, of a material being adequately wet.

Aerosol: A system consisting of particles, solid or liquid, suspended in air.

Air Monitoring: The process of measuring the fiber content of a specific volume of air.

Amended Water: Water to which a surfactant has been added to decrease the surface tension to 35 or less dynes.

Asbestos: The asbestiform varieties of serpentinite (chrysotile), riebeckite (crocidolite), cummingtonite-grunerite, anthophyllite, and actinolite-tremolite. For purposes of determining respiratory and worker protection both the asbestiform and non-asbestiform varieties of the above minerals and any of these materials that have been chemically treated and/or altered shall be considered as asbestos.

Asbestos-Containing Material (ACM): Any material containing more than 1% of asbestos of any type or mixture of types.

Asbestos-Containing Building Material (ACBM): Surfacing ACM, thermal system insulation ACM, or misc. ACM in or on interior structure or other parts of a building.

Asbestos-Containing Waste Material: Any material that is or is suspected of being or any material contaminated with an asbestos-containing material that is to be removed from a work area for disposal.

Asbestos debris: Pieces of ACBM that can be identified by color, texture, or composition, or means dust, if the dust is determined by an accredited inspector to be ACM.

Authorized Visitor: The Owner, the Owner's Representative, testing lab personnel, emergency personnel or a representative of any federal, state and local regulatory or other agency having authority over the project.

Barrier: Any surface that seals off the work area to inhibit the movement of fibers.

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

Category I Non-Friable ACM: means ACM packings, gaskets, resilient floor covering, and asphalt roofing products containing more than 1% asbestos. Also see definition for Regulated ACM.

Category II Non-Friable ACM: means any non-friable ACM, except for Category I Non-Friable ACM.

Ceiling Concentration: The concentration of airborne substance that shall not be exceeded.

Certified Industrial Hygienist (C.I.H.): An industrial hygienist certified in Comprehensive Practice by the American Board of Industrial Hygiene.

Demolition: The wrecking or taking out of any building component, system, finish or assembly of a facility together with any related handling operations.

Disposal Bag: A properly labeled 6-mil thick leak-tight plastic bags used for transporting asbestos waste from work and to disposal site.

Encapsulant: A material that surrounds or embeds asbestos fibers in an adhesive matrix, to prevent release of fibers.

-Bridging encapsulant: an encapsulant that forms a discrete layer on the surface of an in situ asbestos matrix.

-Penetrating encapsulant: an encapsulant that is absorbed by the in situ asbestos matrix without leaving a discrete surface layer.

-Removal encapsulant: a penetrating encapsulant specifically designed to minimize fiber release during removal of asbestos-containing materials rather than for in situ encapsulation.

Encapsulation: Treatment of asbestos-containing materials, with an encapsulant.

Enclosure: The construction of an air-tight, impermeable, permanent barrier around asbestos-containing material to control the release of asbestos fibers into the air.

Excursion Limit: Ensure that no employee is exposed to airborne concentrations of asbestos in excess of 1.0 fibers per cubic centimeter of air (1.0 f/cc) as averaged over a sampling period of thirty (30) minutes, as determined by PCM analysis in accordance with NIOSH Method 7400 and as indicated in 29 CFR Part 1926. Also referred to as the short-term exposure limit, (STEL).

Filter: A media component used in respirators to remove solid or liquid particles from the inspired air.

Friable Asbestos Material: Material that contains more than 1.0% asbestos and that can be crumbled, pulverized, or reduced to powder by hand pressure when dry. This also includes materials which, when subjected to removal methods and other disturbances, may release fibers and dust due to the abatement actions.

Glovebags: Provide glovebags for removal of pipe insulation in accordance with 29 CFR Part 1926.

HEPA Filter: A High Efficiency Particulate Air (HEPA) filter capable of trapping and retaining 99.97% of asbestos fibers greater than 0.3 microns in diameter.

HEPA Filter Vacuum Collection Equipment (or vacuum cleaner): High efficiency particulate air filtered vacuum collection equipment with a filter system capable of collecting and retaining asbestos fibers. Filters should be of 99.97% efficiency for retaining fibers of 0.3 microns or larger.

High-efficiency particulate air filter: (HEPA) refers to a filtering system capable of trapping and retaining 99.97 percent of all monodispersed particles 0.3 um in diameter or larger.

Negative Pressure Respirator: A respirator in which the air pressure inside the respiratory-inlet covering is positive during exhalation in relation to the air pressure of the outside atmosphere and negative during inhalation in relation to the air pressure of the outside atmosphere.

Permissible exposure limit (PEL): the Contractor shall ensure that no employee is exposed to an airborne fiber concentration of asbestos in excess of 0.1 f/cc of air as an eight (8) hour time-weighted average (TWA) in accordance with 29 CFR Part 1926.

Personal Monitoring: Sampling of the asbestos fiber concentrations within the breathing zone of an employee.

Pressure Differential and Ventilation System: A local exhaust system, utilizing HEPA filtration capable of maintaining a pressure differential with the inside of the Work Area at a lower pressure than any adjacent area, and which cleans recirculated air or generates a constant air flow from adjacent areas into the Work Area.

Protection Factor: The ratio of the ambient concentration of an airborne substance to the concentration of the substance inside the respirator at the breathing zone of the wearer. The protection factor is a measure of the degree of protection provided by a respirator to the wearer.

Regulated ACM (RACM): RACM means friable ACM, Category I Non-friable ACM that has been rendered friable, Category I ACM that will be or has been subjected to sanding, cutting, grinding, or abrading (abrasive action), or Category II Non-friable ACM that has a high probability of becoming, or has become, crumbled, pulverized, or reduced to powder by the forces expected to act on the material in the course of renovation or demolition operations. Grinding means breaking into small pieces or fragments.

Repair: Returning damaged ACBM to an undamaged condition or to an intact state so as to prevent fiber release.

Respirator: A device designed to protect the wearer from the inhalation of harmful atmospheres.

Surfactant: A chemical wetting agent added to water to improve penetration, thus reducing the quantity of water required for a given operation or area.

Time Weighted Average (TWA): The average concentration of a contaminant in air during a specific time period.

Visible Emissions: Any emissions, coming from RACM, ACM, or ACM waste material, which is visually detectable without the aid of instruments. This does not include condensed uncombined water vapor.

Waste Shipment Record: Means the shipping document, required to be originated and signed by the waste generator, used to track and substantiate the disposition of ACM waste.

Wet Cleaning: The process of eliminating asbestos contamination from building surfaces and objects by using cloths, mops, or other cleaning utensils which have been dampened with amended water or diluted removal encapsulant and afterwards thoroughly decontaminated or disposed of as asbestos-contaminated waste.

Work Area: The area where asbestos-related work or removal operations are performed which is defined and/or isolated to prevent the spread of asbestos dust, fibers or debris, and entry by unauthorized personnel. Work area is a Regulated Area as defined by 29 CFR 1926.

1.13 NOTICES:

A. U.S. Environmental Protection Agency

Send proper written notification as required by USEPA National Emission Standards for Hazardous Air Pollutants (NESHAPS) Asbestos Regulations (40 CFR 61, Subpart M) to the regional Asbestos NESHAPS Contact - Reno/Demo Clerk - at least 10 working days prior to beginning any work which will directly or indirectly result in disturbance of asbestos-containing materials. Post notifications at job site.

B. State and Local Agencies:

Send written notification as required by state and local regulations prior to beginning any work on asbestos-containing materials. At least 10 working days prior to the start of work, submit appropriate notification to the Commonwealth of Massachusetts in accordance with 310 CMR 7.15 and 453 CMR 6.12. Post notifications at job site.

Notify all local emergency agencies of the abatement work to be completed as required. Obtain all necessary building permits as required.

C. Permits:

All asbestos containing waste is to be transported by an entity maintaining a current "DOT Common Hauler Permit" specifically for asbestos-containing materials, as required for transporting of waste asbestos-containing materials to a disposal site.

D. Licenses:

Maintain current licenses as required by applicable state and local jurisdictions for the removal, transporting, disposal or other regulated activity relative to the work of this contract. Post all worker licenses at work area entrance.

E. Posting and Filing of Regulations:

Posting and Filing of Regulations: Post all notices required by applicable federal, state and local regulations. Maintain at least one (1) copy of applicable federal, state and local regulations and standards at each job site. Post copies of the specification at the job site.

1.14 SUBMITTAL REQUIREMENTS

A. Submittal Schedule:

Submittals will be provided by the Contractor and as specified herein including (1) Preconstruction Submittal Documentation prior to start of work and (2) Project Closeout Submittals within 25 days upon completion of on-site work. Submit ongoing submittals as required herein and as specified by the Owner's Representative. Ongoing submittals will also be submitted as required for the Pre-construction and Closeouts and may not be limited to:

- . Schedule updating or modifications as needed, including description and explanations as applicable.
- . Revise proposed methods of work procedures as required. Requests for revisions in work procedures must be approved by the Owner's Representative.
- . Updated notifications and permitting.

Provide at the job site a copy of all current submittal packages and related documentation.

B. Submittal Preparation

Package and furnish each submittal appropriately and include statements detailing minor variations and limitations. Include Contractor's certification that the submittal information complies with the Contract Document and Specification requirements. Two complete copies of each submittal package shall be furnished to the Owner in accordance with the schedules stated herein.

Submittal packages shall be in a neat and orderly fashion, will include an index, and shall be compiled in the order requested herein. Clearly mark and label all sections of the submittal documents.

Do not include, as part of the Submittal Package required herein, other documents not specifically detailed herein. Additional submittal documentation to be provided by the Contractor as the Contractor deems appropriate shall be submitted as a separate supplemental submittal package and marked as such.

Submittal packages that do not meet the requirements herein may not be accepted and will be returned to the Contractor for re-submission.

By "approval" or acceptance of submittals, Owner and Owner's Representative(s) do not express or claim any certification of completeness, compliance, or approval of programs and documentation, not limited to review of analytical results, historical information, and interpretations.

Contractor is solely responsible for compliance with Specification and regulatory requirements associated with the work and submittal documentation.

C. Preconstruction Submittal Documentation:

Provide the following Preconstruction Submittal Documentation:

- . Notifications: Copies of dated EPA, State, and local notifications.

- . Waste Hauler and Landfill Permits and notifications. Submit names, address, and licenses for the waste hauler and disposal facilities.
- . Names, addresses, experience, and references for any subcontractors the Contractor proposes to utilize for Work. State if any subcontractor asbestos workers or supervisors are to be used or whether only Contractor employees.
- . Names and 24-hour phone numbers/pagers for Project Manager and other key personnel for the Contractor.
- . List of personnel to be on-site. Copies of all company, supervisor, and worker licenses and certifications required and in accordance with this Specification. Copies of current training certificates for workers and supervisors.
- . Report from Medical Examination: conducted within last 12 months as part of compliance with OSHA medical surveillance requirements for each worker who is to enter the Work Area.
- . Notarized Certifications: Submit certification signed by an officer of the abatement contracting firm and notarized that exposure measurements, medical surveillance, and worker training records are being kept in conformance with 29 CFR 1926. Certify the dates for primary and secondary HEPA filter changes for neg. air units.
- . Respiratory Protection Schedule: Submit level of respiratory protection intended for each operation required by the project. Include supporting documentation of previous exposure monitoring on a sufficient number similar project and operations in accordance with OSHA requirements.
- . Respiratory Protection Program: Submit Contractor's written respiratory protection program manual as required by OSHA 1926.
- . Material Safety Data Sheets: for all materials to be used on-site not limited to encapsulants, spray adhesives, etc. Note: It is Contractor's responsibility to notify other contractors in accordance with applicable OSHA regulations.
- . Contingency Plan: Prepare a site specific contingency plan for emergencies including fire, accident, power failure, pressure differential system failure, supplied air system failure, or any other event that may require modification or abridgement of decontamination or work area isolation procedures. Include in plan specific procedures for decontamination or work area isolation. Note that nothing in this specification should impede safe exiting or providing of adequate medical attention in the event of an emergency. The emergency contingency plan must be in accordance (meet or exceed the requirements of) with applicable OSHA requirements. Prepare and submit site specific confined space program and lockout-tagout plan in accordance with OSHA requirements.
- . Other submittals required by the Contract Documents or as indicated by the Owner, including but not limited to copy of Contractor's Confined Space Program and confined space training records (submit with bid also).

D. Closeout Submittals

Submit all documents in accordance with Owner's Project Manual. In addition, the following Closeout Submittals will be provided upon substantial completion and prior to final completion of each phase of work.

- . Copies of daily logs in accordance with this specification; Copies of analytical results and calculations for all air sampling completed by the Contractor during the project.

- . A copy of each waste manifest and chain-of-custody form, signed by the transporter and disposal facility operator, indicating that waste was packaged and disposed of properly. Include a description of any temporary storage facilities used including, dates, times, and locations of temporary storage. Note: In accordance with NESHAPS, submit all waste manifest documentation within 35 days from transport of waste from the site (provide interim submittals during the work as needed to comply with federal regulations).
- . Copy of updated Pre-construction Submittals for the work. Do not submit personnel training and licensing documentation (other than daily log information) unless the information is not included in the original Preconstruction Submittal Documentation.

1.15 AIR MONITORING:

A. Area Monitoring

Work Area Isolation: The purpose of the Owner's air monitoring is to aid in the detection of faults in the work area isolation such as:

- . Contamination of areas outside of the work area isolation barriers
- . Failure of filtration or rupture in the differential pressure system
- . Contamination of air outside the building envelop with airborne asbestos fibers.

Should any of the above occur immediately cease asbestos abatement activities until the fault is corrected. Do not recommence work until authorized by the Owner's Representative.

The Owner may monitor airborne fiber counts in the Work Area. The purpose of this air monitoring will be to detect airborne asbestos concentrations that may challenge the ability of the Work Area isolation procedures to protect the balance of the building or outside of the building from contamination by airborne fibers. Air monitoring will be performed by persons licensed and trained in accordance with 453 CMR 6.00.

B. Clearance Air Monitoring

Work Area Clearance: To determine if the elevated airborne fiber counts encountered during abatement operations have been reduced to an acceptable level, the Owner will sample and analyze air per applicable regulations and this specification.

C. Stop Action Levels:

Inside Work Area: Maintain an average airborne count in the Work Area of less than 0.20 fibers per cubic centimeter. If the fiber counts rise above this figure for any sample taken, revise work procedures to lower fiber counts. In this event, stop all work, leave pressure differential system in operation, and coordinate with the Owner's Representative as needed.

Outside Work Area: If any air sample taken outside of the Work Area exceeds the base line concentration levels, immediately and automatically stop all work except corrective action.

If it is determined by the Owner's Representative that the high reading was the result of a failure of Work Area isolation measures initiate the following actions:

- . Immediately erect new critical barriers as set forth herein to isolate the affected area from the balance of the building. Erect Critical Barriers at the next existing structural isolation of the involved space (eg. wall, ceiling, floor).
- . Decontaminate the affected area in accordance with the procedures stated herein.
- . Require that respiratory protection as set forth herein is worn in affected area until area is cleared for re-occupancy in accordance with the work area clearance requirements.

- . Leave Critical Barriers in place until completion of work and insure that the operation of the pressure differential system in the Work Area results in a flow of air from the balance of the building into the affected area.
- . If the exit from the clean room of the personnel decontamination unit enters the affected area, establish a decontamination facility consisting of a Shower Room and Changing Room as set forth herein at entry point to affected area.
- . After Certification of Visual Inspection in the Work Area remove critical barriers separating the work area from the affected area. Final air samples will be taken within the entire area.

If the high reading was the result of other causes initiate corrective action as determined by the Owner's Representative.

Effect on Contract Sum: Complete corrective work with no change in the Contract Sum if high airborne fiber counts were caused by Contractor's activities. The Contract Sum and schedule will be adjusted for additional work caused by high airborne fiber counts beyond the Contractor's control.

D. Analytical Methods:

The Owner reserves the right to use either phase contrast microscopy (PCM) and/or transmission electron microscopy (TEM) to analyze air samples. PCM analysis will be performed using the NIOSH 7400 method at the job site or at an off-site laboratory. PCM or TEM will be used, as the Owner deems necessary and for analysis of samples collected for air clearance purposes. All TEM analysis will be performed using the analysis method set forth in the AHERA regulation 40 CFR Part 763 Append. A.

E. Schedule of Air Samples:

Prior to the start of work: The Owner may collect air samples to establish a base line before start of work. Base line is an action level expressed in fibers per cubic centimeter that is twenty-five percent greater than the largest of the following:

- . Average of the PCM samples collected outside each Work Area
- . Average of the PCM samples collected outside the building
- . 0.01 fibers per cubic centimeter

Daily: From start of work involving Temporary Enclosures through the work of Project Decontamination, the Owner may be collecting samples on a regular basis. Sampling will be completed inside and outside of the work area.

- . At HEPA exhaust areas
- . Non work-area portions of the building adjacent to Critical Barriers
- . At entrance to the Decontamination Unit Clean Room
- . At least one sample outside the building
- . Adjacent occupied areas of the building

Clearances: See the Air Clearance Requirements.

F. Laboratory Testing:

The services of a testing laboratory will be employed by the Owner to perform laboratory analyses of the air samples. Samples will be sent overnight on a daily basis, so that verbal reports on air samples (PCM analysis) can be obtained within 24 hours. The Contractor will have access to all air monitoring tests and results. Results of all air monitoring tests will be available at the job site on a daily basis. Also see the requirements for air clearance testing. TEM sample analysis may take longer than 24 hours.

G. OSHA Monitoring and Additional Testing:

Additional Testing: The Contractor may conduct his own air monitoring and laboratory testing. If he elects to do this the cost of such air monitoring and laboratory testing shall be at no additional cost to the Owner.

OSHA Compliance Monitoring: Contractor must provide for collection and laboratory analysis services of Contractor's OSHA personal exposure samples, including daily TWA and STEL monitoring.

1.16 TEMPORARY FACILITIES

General: Coordinate with Owner for temporary connection to existing building utilities or provide temporary facilities as required herein or as necessary to carry out the work. Owner must approve all connections to utilities and components.

A. Water Service:

Temporary Water Service Connection: All connections to the Owner's water system shall include back-flow protection. Valves shall be temperature and pressure rated for operation of the temperatures and pressures encountered. After completion of use, connections and fittings shall be removed without damage or alteration to existing water piping and equipment. Leaking or dripping valves, on fresh water supply lines outside the work area only, shall be piped to the nearest drain or located over an existing sink or grade where water will not damage existing finishes or equipment.

Water Hoses: Employ heavy-duty abrasion-resistant hoses with a pressure rating greater than the maximum pressure of the water distribution system to provide water into each work area and to each Decontamination Unit. Provide fittings as required to allow for connection to existing wall hydrants or spouts, as well as temporary water heating equipment, branch piping, showers, shut-off nozzles and equipment.

Hot Water: may be secured from the building hot water system, provided back-flow protection is installed at point of connection as described in this section under Temporary Water Service connection, and if authorized in writing by the Owner.

B. Electrical Service:

General: Comply with applicable OSHA, NEMA, NECA and UL standards and governing regulations for materials and layout of temporary electric service. Provide temporary power panels and extensions as required.

Ground Fault Protection: Equip all circuits for any purpose entering Work Area with ground fault circuit interrupters (GFCI). Locate GFCI's exterior to Work Area so that all circuits are protected prior to entry to Work Area. Provide circuit breaker type ground fault circuit interrupters (GFCI) equipped with test button and reset switch for all circuits to be used for any purpose in work area, decontamination units, exterior, or as otherwise required by national electrical code, OSHA or other authority. Locate in panel exterior to Work Area.

Electrical Power Cords: Use only grounded extension cords; use "hard-service" cords where exposed to abrasion and traffic. Use single lengths or use waterproof connectors to connect separate lengths of electric cords, if single lengths will not reach areas of work. Provide sufficient power cords to complete the Work and for the Owner's Representative to use as required for the performance of air monitoring and clearance testing.

Lamps and Light Fixtures: Provide general service incandescent lamps or fluorescent lamps of wattage indicated or required for adequate illumination as required by the work or this section. Protect lamps with guard cages or tempered glass enclosures, where fixtures are exposed to breakage by construction operations. Provide vapor tight fixtures in work area and

decontamination units. Provide exterior fixtures where fixtures are exposed to the weather or moisture.

Temporary Power: Provide service to Decontamination Unit sub-panel with minimum 60 amp, 2 pole circuit breaker or fused disconnect connected to the buildings main distribution panel. Sub-panel and disconnect shall be sized and equipped to accommodate all electrical equipment required for completion of the work.

Voltage Differences: Provide identification warning signs at power outlets that are other than 110-120 volt power. Provide polarized outlets for plug-in type outlets, to prevent insertion of 110-120 volt plugs into higher voltage outlets. Dry type transformers shall be provided where required to provide voltages necessary for work operations.

C. First Aid:

First Aid Supplies: Comply with governing regulations and recognized recommendations within the construction industry.

D. Fire Extinguishers:

Fire Extinguishers: Provide Type "A" fire extinguishers for temporary offices and similar spaces where there is minimal danger of electrical or grease-oil-flammable liquid fires. In other locations provide sufficient number of type "ABC" dry chemical extinguishers, or a combination of several extinguishers of NFPA recommended types for the exposures in each case.

E. Execution

General: Use qualified tradesmen for installation of temporary services and facilities. Locate temporary services and facilities where they will serve the entire project adequately and result in minimum interference with the performance of the Work. Coordinate all such work with the Owner.

- Require that tradesmen be licensed as required by local authorities.
- Relocate, modify and extend services and facilities as required during the course of work so as to accommodate the entire work of the project.

1.17 TEMPORARY PRESSURE DIFFERENTIAL AND AIR CIRCULATION SYSTEM

A. Monitoring

Continuously monitor and record the pressure differential between the Work Area and the building outside of the Work Area. Maintain accurate records of time and locations of testing on-site and in daily logs.

B. HEPA Filtered Fan Units:

Supply the required number of HEPA filtered fan units to the site in accordance with these specifications. Units must meet the requirements of all applicable regulations and standards. Provide certification of filter change dates. Also see applicable Division 2 Specification Sections.

1.18 WORKER PROTECTION

Comply with respiratory protection requirements as specified in this specification and applicable regulations. Provide worker protection as required by the most stringent OSHA and/or EPA regulations and industry standards applicable to the work. The following procedures are minimums to be adhered to regardless of fiber count in the Work Area.

A. Worker Training:

AHERA Accreditation: All workers are to be accredited as Abatement Workers as required by the AHERA regulation 40 CFR 763 Appendix C to Subpart E, April 30, 1987. All training must be current. Workers that have training that expires during the work must either renew the training or must not be allowed to continue work until refresher training certification is provided.

All removal of thermal systems insulation is OSHA Class 1 asbestos work and shall be completed in strict accordance with 29 CFR Part 1926.1101. Recent EPA regulations and interpretations of certain nonfriable ACM, such as floor tile and mastic, define it as Category I nonfriable ACM. However, Category I nonfriable ACM that will be or has been subjected to sanding, grinding, cutting, or abrading is defined as Regulated ACM. The EPA NESHAPs regulation defines grinding as breaking into small pieces. In addition, OSHA defines ACM flooring abatement as Class II asbestos work. As such all flooring work must be completed in accordance with 29 CFR 1926.1101.

Train, in accordance with NESHAPs and 29 CFR 1926, all supervisors and workers in the dangers inherent in handling asbestos and breathing asbestos dust, in proper work procedures and personal and area protective measures, confined space, and other hazards anticipated during the work. All workers and supervisors must be licensed and certified as required by 453 CMR 6.00 and other applicable State regulations. All workers must have adequate experience completing similar projects in accordance with Massachusetts and federal rules and regulations.

Train all workers in accordance with 29 CFR Part 1926 on the work place hazards present at the site, including but not limited to confined space entry, lock-out/tag-out, hazard communication, fall hazards, and other general construction hazards anticipated for the work.

B. Medical Examinations:

Provide medical examinations for all workers who may encounter an airborne fiber level of 0.1 f/cc or greater for an 8 hour Time Weighted Average. In the absence of specific airborne fiber data provide medical examinations for all workers who will enter the Work Area for any reason. Examination shall at a minimum meet OSHA requirements as set forth in 29 CFR 1926 and 29 CFR 1910.20. In addition, provide an evaluation of the individuals ability to work in environments capable of producing heat stress in the worker.

C. Protective Clothing:

Coveralls: Provide cloth full-body coveralls and hats, require that they be worn by all workers in the Work Area. Require that workers change out of coverall in the Equipment Room of the Personnel Decontamination Unit. Dispose of coverall as asbestos waste at completion of all work.

Other: Provide other personal protective equipment as required by OSHA regulations and industry standards, not limited to: hard hats, eye protectives (goggles), gloves, fall safety, footwear, and confined space entry protection.

D. Entering Work Area:

Each time Work Area is entered, remove all street clothes in the changing (clean) room of the personnel decontamination unit and put on new disposable coverall, new head cover, and a clean respirator. Proceed through shower room to equipment room and put on work boots. Only properly licensed/certified personnel shall enter the decontamination unit and work area. All personnel entering the work area must post their State license at the decontamination unit entrance.

E. Decontamination Procedures:

Require all workers to adhere to the following personal decontamination procedures whenever they leave the Work Area:

- . HEPA vacuum all gross debris from the protective clothing prior to entering the equipment room of the decontamination unit. When exiting area, remove disposable coveralls, disposable head covers, and disposable footwear covers or boots in the equipment room.
- . Still wearing respirators, proceed to showers. Showering is mandatory. Care must be taken to follow reasonable procedures in removing the respirator to avoid asbestos fibers while showering. The following procedure is required as a minimum:
- . Carefully wash facepiece of respirator inside and out. Each worker leaving the work area must shower completely with soap and water. Rinse thoroughly. Proceed from shower to clean room and change into street clothes or into new disposable work items.

F. Within Work Area:

Require that workers NOT eat, drink, smoke, chew tobacco or gum, or apply cosmetics in the Work Area. Maintain proper use of personnel protective equipment.

G. Respiratory Protection:

Provide sufficient respiratory protection in accordance with applicable OSHA requirements in addition to ANSI, NIOSH, and MSHA standards. Select proper level of protection based on personnel exposure monitoring and the applicable OSHA Permissible Exposure Limits.

Instruct and train each worker involved in asbestos abatement or maintenance and repair of asbestos-containing materials in proper respiratory use and require that each worker always wear a respirator, properly fitted on the face in the Work Area from the start of any operation which may cause airborne asbestos fibers until the Work Area is completely decontaminated. Use respiratory protection appropriate for the fiber level encountered and as required for other toxic or oxygen-deficient situations encountered.

Except to the extent that more stringent requirements are written directly into the Contract Documents, the following regulations and standards have the same force and effect (and are made a part of the Contract Documents by reference) as if copied directly into the Contract Documents, or as if published copies were bound herewith. Where there is a conflict in requirements set forth in these regulations and standards, meet the more stringent requirement.

OSHA - U.S. Department of Labor Occupational Safety and Health Administration, Safety and Health Standards 29 CFR 1910, Section 1001 and Section 1910.134. 29 CFR 1926.

CGA - Compressed Gas Association, Inc., New York, Pamphlet CGA G-7, "Compressed Air for Human Respiration", and Specification CGA G-7.1 "Commodity Specification for Air".

ANSI - American National Standard Practices for Respiratory Protection, ANSI Z88.2-1992, and most current revisions.

NIOSH - National Institute for Occupational Safety and Health

MSHA - Mine Safety and Health Administration

Respiratory Protection Program: Comply with ANSI Z88.2 - 1992 (and most current revisions) "Practices for Respiratory Protection" and OSHA 29 CFR 1910 and 1926. Require that respiratory protection be used at all times that there is any possibility of disturbance of asbestos-containing materials whether intentional or accidental.

Require that a respirator be worn by anyone in a Work Area at all times, regardless of activity, until the area has been cleared for re-occupancy.

Regardless of Airborne Fiber Levels: The minimum level of respiratory protection used must be half-face negative pressure respirator with high efficiency filters during pre-cleaning and abatement of nonfriable ACBM and PAPR's during abatement of friable ACBM. Provide and complete all necessary fit testing for respiratory protection in strict accordance with applicable OSHA regulations.

In the event that applicable OSHA PEL's (8-hour TWA and 30-minute STEL) are exceeded, stop work. Do not recommence work until work procedures, including use of engineering controls, are modified to maintain exposures within the acceptable PEL's.

1.19 TEMPORARY ENCLOSURES

Work areas are to be considered contaminated during the work and shall be completely isolated from other parts of the building such that asbestos fibers cannot pass through or beyond the perimeters of the work area and into non work areas. Should areas beyond the work area become contaminated with asbestos as a result of the Contractor's work, the Contractor shall be responsible for cleaning non-work areas as required. All costs including cleaning, decontaminating, monitoring and testing shall be borne by the contractor.

Contractor shall construct temporary containment enclosures in each work area as required in the Contract Documents and as required by the Owner. Prior to proceeding with work of each of the following Specification Sections, coordinate and complete inspections of the work in progress with the Owner's Representative as indicated and requested by the Owner's Representative. Proceed with work sequentially as listed or indicated.

Prior to conducting pre-cleaning work, completely isolate the Work Area from other parts of the building so as to prevent asbestos-containing dust or debris from passing beyond the isolated area. Should the area beyond the Work Area(s) become contaminated with asbestos-containing dust or debris as a consequence of the work, clean those areas in accordance with the decontamination and cleaning procedures indicated in this Specification. Perform all such required cleaning or decontamination at no additional cost to owner.

Place all tools, scaffolding, staging, etc. necessary for the work in the area to be isolated prior to completion of Work Area isolation. The Owner will remove of all uncontaminated, non-fixed equipment, furniture, and other items from the Work Areas. Disable ventilating systems or any other system bringing air into or out of the Work Area. Disable system by disconnecting wires, removing circuit breakers, by lockable switch or other positive means that will prevent accidental premature restarting of equipment.

Complete all lock-out and tag-out of power and air handling systems to, and within, the Work Area. Coordinate all lock-out and tag-out with the Owner. Provide lock-out and tag-out in strict accordance of applicable OSHA regulations. Complete lock-out and tagging of all other equipment and systems as needed to complete the work in a safe manner. Coordinate with Owner and local fire department authorities the handling of heat and smoke detectors in the work areas, including sealing of detectors during work and removal of seals at the completion of work or shifts.

1.20 REGULATED ACM

All ACM (and ACBM) to be removed during the Work of the Contract Documents shall be handled as Regulated ACM (RACM). This is based on the types of ACM present, conditions of the material, anticipated impact of removal and decontamination methods, and other related conditions.

PART 2 - PART 2 – PRODUCTS

2.01 RELATED DOCUMENTS

General provisions of the Contract, including General and Supplementary Conditions, apply to the work of each of the Specification Sections.

2.02 PRODUCTS

Provide new or used materials and equipment that are undamaged and in serviceable condition. Provide only materials and equipment that are recognized as being suitable for the intended use and in strict compliance with appropriate standards. Do not bring products, materials, and equipment to the Owner's facility that are damaged or contain construction or potential contaminated debris.

Warning Signs, Caution Signs and Demarcation: Provide all demarcation, warning signs, caution signs, and other postings required for the work and in accordance with State and federal codes and regulations.

Polyethylene Sheet: A single polyethylene film in the largest sheet size possible to minimize seams, in 6.0-mil and 10.0-mil thickness, clear or black as indicated. Sheeting must be fire retardant and approved by Owner.

Duct Tape: Provide heavy-duty industrial grade duct tape in 3" widths with an adhesive that is formulated to stick aggressively to sheet polyethylene.

Spray Cement: Provide spray adhesive in aerosol cans which is specifically formulated to stick tenaciously to sheet polyethylene.

Foam Pack: Provide foam pack for sealing small crevices and cracks at critical barriers as required. All foam pack must be approved by the Owner and local authorities, not limited to the Fire Department.

Scaffolding: Provide all scaffolding, ladders and/or staging, etc. as necessary to accomplish the work of this contract. Scaffolding may be of suspension type or standing type such as metal tube and coupler, tubular welded frame, pole or outrigger type or cantilever type. The type, erection and use of all scaffolding shall comply with all applicable OSHA provisions.

- Equip rungs of all metal ladders, etc. with an abrasive non-slip surface.
- Provide a nonskid surface on all scaffold surfaces subject to foot traffic.

First Aid Supplies: Comply with governing regulations and recognized recommendations within the construction industry.

Fire Extinguishers: Provide type "ABC" dry chemical extinguishers, or a combination of several extinguishers of NFPA recommended types for the exposures in each case, in all areas affected by work.

Wetting Materials: For wetting prior to disturbance of Asbestos-Containing Materials use either amended water or a removal encapsulant:

- . Amended Water: Provide water to which a surfactant has been added. Use a mixture of surfactant and water which results in wetting of the Asbestos-Containing Material and retardation of fiber release during disturbance of the material equal to or greater than that provided by the use of one ounce of a surfactant consisting of 50% polyoxyethylene ester and 50% polyoxyethylene ether mixed with five gallons of water.

Cabinet: Constructed of durable materials able to withstand damage from rough handling and transportation. The width of the cabinet should be less than 30 inches to fit through standard-size doorways. Provide units whose cabinets are:

- Factory-sealed to prevent asbestos-containing dust from being released during use, transport, or maintenance
- Arranged to provide access to and replacement of all air filters from intake end
- Mounted on casters or wheels

Fans: Rate capacity of fan according to usable air-moving capacity under actual operating conditions.

HEPA Filters: Provide units whose final filter is the HEPA type with the filter media (folded into closely pleated panels) completely sealed on all edges with a structurally rigid frame. Certify most recent dates for filter changes and approximate hours of usage.

Provide units with a continuous rubber gasket located between the filter and the filter housing to form a tight seal.

Provide HEPA filters that are individually tested and certified by the manufacturer to have an efficiency of not less than 99.97 percent when challenged with 0.3 μm dioctylphthalate (DOP) particles when tested in accordance with Military Standard Number 282 and Army Instruction Manual 136-300-175A. Provide filters that bear a UL586 label to indicate ability to perform under specified conditions. Provide filters that are marked with: the name of the manufacturer, serial number, airflow rating, efficiency and resistance, and the direction of test airflow.

Pre-filters: which protect the final filter by removing the larger particles, are required to prolong the operating life of the HEPA filter. Two stages of pre-filtration are required. Provide units with the following pre-filters:

First-stage pre-filter: low-efficiency type (e.g., for particles 100 μm and larger)

Second-stage (or intermediate) filter: medium efficiency (e.g., effective for particles down to 5 μm)

Provide units with pre-filters and intermediate filters installed either on or in the intake grid of the unit and held in place with special housings or clamps.

Provide appropriate charcoal pre-filters during all work involving use of solvents to minimize odors. Allow HEPA units to run for a sufficient period of time after use of solvents to allow for adequate number of air changes and filtration.

Instrumentation: Provide units equipped with:

- Magnehelic gauge or manometer to measure the pressure drop across filters and indicate when filters have become loaded and need to be changed
- A table indicating the usable air-handling capacity for various static pressure readings on the Magnehelic gauge affixed near the gauge for reference, or the
- Magnehelic reading indicating at what point the filters should be changed, noting Cubic Feet per Minute (CFM) air delivery at that point
- Elapsed time meter to show the total accumulated hours of operation

Safety and Warning Devices: Provide units with the following safety and warning devices:

Electrical (or mechanical) lockout to prevent fan from operating without a HEPA filter
Automatic shutdown system to stop fan in the event of a rupture in the HEPA filter or blocked air discharge

Warning lights to indicate normal operation (green), too high a pressure drop across the filters (i.e., filter overloading) (yellow), and too low of a pressure drop (i.e., rupture in HEPA filter or obstructed discharge)

Audible alarm if unit shuts down due to operation of safety systems

Electrical components: Provide units with electrical components approved by the National Electrical Manufacturers Association (NEMA) and Underwriter's Laboratories (UL). Each unit is to be equipped with overload protection sized for the equipment. The motor, fan, fan housing, and cabinet are to be grounded.

Monitoring: Continuously monitor and record the pressure differential between the Work Area and the building outside of the Work Area. Maintain accurate records of time and locations of testing at the job site and in supervisor daily logs.

2.04 AUXILIARY GENERATOR

Provide a gasoline-powered self-starting generator (auto-start in event of power outage) with a capacity adequate to power a minimum of 75% of the HEPA filtered fan units in operation at any time during the work. Install emergency generator in Owner-designated exterior location. Provide emergency lighting for exits.

PART 3 - EXECUTION

3.01 RELATED DOCUMENTS

General provisions of the Contract, including General and Supplementary Conditions, apply to the work of each of the Specification Sections.

3.02 TEMPORARY ENCLOSURES

A. Control Access:

Isolate the Work Area to prevent entry by building occupants and the public into Work Area or surrounding controlled areas. Notify the Owner of all doors and other openings that must be secured to isolate Work Area. Access to stairwells and building exits must be maintained as indicated by Owner. Construct work area containments and isolation barriers as required allowing for Owner operations and as approved by Owner.

Secured Access: Arrange Work Area so that the only access into Work Area is through securable doors to personnel and equipment decontamination units.

Solid Construction Barriers: Provide solid construction barriers as indicated by the Owner to prohibit unauthorized access and visibility by adjacent occupants and public. At a minimum provide solid barriers as necessary to isolate all work areas with abatement activity that is conducted during periods with school in operation.

Provide Warning Signs at each door and barrier leading to Work Area reading as follows:

LEGEND

DANGER
KEEP OUT
BEYOND THIS POINT
CONSTRUCTION WORK
IN PROGRESS

Immediately inside door (leading to Work Area) and outside all accessible critical barriers post an manufactured caution sign, approximately 20 inch by 14 inch, displaying the following legend with letter sizes and styles of a visibility required by 29 CFR 1926:

LEGEND

DANGER
ASBESTOS

Determining the Air circulation Requirements: Provide a fully operational air circulation system supplying a minimum of the following air circulation rate: 8 air changes per hour. Provide a minimum of two additional air units for emergency purposes.

H. Exhaust System:

Exhaust all units from the Work Area (to outside of the building) to meet air circulation requirement of this section. Vent to outside of building, unless authorized by the Owner and Owner's Representative. Locate fan unit(s) so that makeup air enters work area primarily through decontamination facilities and traverses Work Area as much as possible. This may be accomplished by positioning the HEPA filtered fan unit(s) at a maximum distance from the worker access opening or other makeup air sources. Contractor shall be responsible for all temporary construction required to seal off exhaust penetration points for security and critical barrier purposes.

I. Use of Pressure Differential and Air Circulation Systems:

Demonstrate operation of the pressure differential system including, but not limited to, the following: plastic barriers and sheeting move lightly in toward Work Area; curtain of decontamination units move lightly in toward Work Area; noticeable movement of air through the Decontamination Unit; use smoke tube to demonstrate air movement from Clean Room through Shower Room to Equipment Room; use smoke tubes to demonstrate a definite motion of air across all areas in which work is to be performed; use a differential pressure meter or manometer to demonstrate the required pressure differential at every barrier separating the Work Area from the balance of the building, equipment, duct work or outside. Note: Provide continuous manometer measurements and printouts for all work performed adjacent to public occupied spaces if such spaces are occupied during the work.

Use of System During Abatement Operations: Start fan units before beginning work (before any asbestos-containing material is or may be disturbed). After abatement work has begun, run units continuously to maintain a constant pressure differential and air circulation until decontamination of the work area is complete and the air clearance criteria have been met as required herein. Do not turn off units at the end of the work shift or when abatement operations temporarily stop. Do not shut down air pressure differential system during encapsulating procedures. Supply sufficient pre-filters to allow frequent changes.

Start cleaning and abatement work at a location farthest from the fan units and proceed toward them. If an electric power failure occurs, immediately stop all abatement work and do not resume until power is restored and fan units are operating again. At completion of abatement work, allow fan units to run as specified under Project Decontamination requirements, to remove airborne fibers that may have been generated during abatement work and cleanup and to purge the Work Area with clean makeup air.

When a final inspection and the results of final air tests indicate that the area has been decontaminated, fan units may be removed from the Work Area. Before removal from the Work Area, remove and properly dispose of pre-filter, decontaminate exterior of machine and seal intake to the machine with 6-mil polyethylene to prevent environmental contamination from the filters.

J. Pre-Clean Work Area:

Preclean all work area surfaces using HEPA vacuums and wet wiping. As applicable, coordinate with Owner for detachment of all electrical and mechanical items, such as lighting fixtures, clocks, diffusers, registers, escutcheon plates, etc. which cover any part of the surface to be worked on or which may be impacted during work. Do not complete any work that may result in disturbance to the ACM until all other work area preparations are completed. Coordinate all such work with the Owner. Complete the following after installation of (1) critical barriers, (2) pressure differential/air filtration systems, and (3) decontamination facilities as indicated below and in other Specification Sections.

- Preclean fixtures and equipment as needed and then seal non-removable fixtures and equipment with at least 2 layers of 6-mil polyethylene sheeting. Provide a minimum of 12" of overlap, sealed with spray adhesive and duct tape on both flap ends, on all joints in the barriers. Do not damage materials and items to be covered.
- After lock-out/tag-out (to be coordinated for with Owner), light fixtures will be either (1) removed, cleaned using HEPA vacuums and wet wiping, inspected to ensure all debris and dust has been cleaned, and then removed from the work area and disposed of as non-ACM waste in accordance with local, State and federal regulations, or (2) removed and disposed of as ACM waste.
- Coordinate handling of heat and smoke detectors with the Owner and City Fire Department. Include written description of handling of such detection equipment and existing sprinklers in the notification to the local emergency authorities.

Install transparent inspection windows in the containment barriers as indicated by the Owner's Representative. Maintain inspection window clean of debris and do not block to allow for inspection of work in progress.

K. Primary Barrier:

Protect building and other surfaces in the Work Area from damage from water and high humidity or from contamination from asbestos-containing debris, slurry or high airborne fiber levels by covering with a primary barrier as described below.

Primary Barrier Sheet Plastic: Protect floor surfaces with a minimum of 2 layers of 6-mil plastic sheeting. Protect all existing wall, ceilings, fixed equipment, and other building surfaces with a minimum of 2 layer of 6-mil plastic sheeting in addition to critical barrier systems. Walls and ceiling surfaces that impervious may be left unprotected in accordance with current State regulations and all such surfaces must be fully decontaminated by Contractor following gross removal. (Owner reserves the right to conduct spot confirmation of such decontamination effort with the collection and analysis of surface dust samples).

Provide a minimum of 12" of overlap, sealed with spray adhesive and duct tape on both flap ends, on all joints in the barriers Extend floor sheeting up adjoining walls a minimum of 18 inches. Do not place seams at, or within 18" of any wall, ceiling, or floor joints. Stagger all joints by at least 18 inches.

Protect all existing building surfaces and fixed equipment/items, also including non-ACM insulations in the work areas, with a minimum of 2 layers of 6-mil plastic sheet as required to maintain existing conditions and to prevent contamination, water damage, or other damages due to the work. Provide a minimum of 12" of overlap, sealed with spray adhesive and duct tape on both flap ends, on all joints in the barriers. Install protection only after sufficient precleaning is completed.

L. Ventilation Systems

Coordinate with the Owner shutdown and lock-out/tag-out of all air handling equipment either in or running through the work areas, as applicable. Air handling systems shall be shutdown prior to the start of work. Seal all ducts and equipment with primary barriers as indicated above and in applicable Specification Sections, in addition to OSHA requirements.

M. Stop Work:

If the Critical or Primary Barrier falls or is breached in any manner stop work immediately and repair the breach as required. Do not start work until authorized by the Owner's Representative. Any contamination and/or suspect contamination, as determined by the Owner, resulting from a

breach in the barriers or other neglect by the Contractor shall be thoroughly abated in accordance with this Specification at no additional cost to the Owner.

N. Decontamination Units:

Provide personnel and equipment decontamination facilities and require that the personnel decontamination unit be the only means of ingress and egress for the Work Area. Require that all materials exit the Work Area through the equipment decontamination unit. Provide portable shower units, sufficient for personnel decontamination in accordance with State of Massachusetts and OSHA regulations, and cascaded filter units on drain lines from showers or any other water source carrying asbestos-contaminated water from the Work Area. Provide units with disposable filter elements as indicated below. Connect so that discharged water passes primary filter and output of primary filter passes through secondary filter and final filter.

- . Primary Filter - Passes particles 20 microns and smaller
- . Secondary Filter - Passes particles 10 microns and smaller
- . Final Filter - Passes particles 5 micron and smaller

Do not discharge filtered water unless testing and permitting has been completed as applicable in accordance with State and local requirements.

Provide a personnel decontamination unit contiguous to the Work Area consisting of a serial arrangement of connected rooms or spaces, changing (clean) room, shower room, equipment room. Require all persons without exception to pass through this decontamination unit for entry into and exiting from the Work Area for any purpose. Do not allow parallel routes for entry/ exit.

Personnel decontamination units may be constructed out of wood, metal, or plastic supports as necessary. The units must be completely sealed and watertight. A minimum of 2 layers of 6-mil polyethylene sheeting shall be installed on all interior walls and floors in the unit. Install all sheeting in the manner indicated for critical and primary barriers in this specification. Install black sheeting as necessary for privacy. Construct each section of the unit with sufficient size to adequately accommodate decontamination and other work activities.

Construct the unit such that traffic out of the Work Area proceeds (1) into the equipment room, (2) through an airlock, (3) into the shower room, (4) through an airlock, (5) into the clean room, and (6) exit the containment system. Install air locks between the clean room, shower room, and equipment room. At a minimum, air locks must be 24" in length. Install polyethylene sheeting in the air locks in the same manner as noted above.

Clean Room: Do not allow any asbestos-contaminated material in this room. Access is only from the non-work area (or non-containment areas) or from the shower room after complete decontamination.

Shower Room: Shower room shall contain one or more showers with proper fixtures and hot and cold water supply. Provide an adequate supply of soap, shampoo, and towels for personnel entering the work area. Collect all shower water and filter through the primary, secondary, and final filters. Provide additional protective coverings as needed to protect the building surface from water or humidity damage.

Flap Doors: Provide flap doors separating each section of the unit. Fabricate from two (2) overlapping sheets with openings a minimum of three feet (3') wide. Configure so that sheeting overlaps adjacent surfaces. Weigh sheets at bottoms as required so that they quickly close after being released. One sheet shall be secured at the top and left side, the other sheet at the top and right side.

Provide an equipment decontamination unit contiguous to the Work Area consisting of a serial arrangement of connected rooms or spaces, constructed in the manners indicated for the personnel decontamination unit. Require all materials, equipment, other contaminated items used during the work, and waste containers to exit through the equipment decontamination unit.

Clean debris and residue from inside of Decontamination Units on a daily-, and ongoing-, basis. Damp wipe or hose down all surfaces after each shift change. If the clean room of the personnel decontamination unit becomes contaminated with asbestos-containing debris, abandon the entire Decontamination Unit and erect a new Decontamination Unit. Use the former clean room as an inner section of the new equipment room.

Post an approximately 20 inch by 14 inch manufactured caution sign at each entrance to the Work Area displaying the following legend with letter sizes and styles of a visibility required by 29 CFR 1926:

LEGEND
DANGER
ASBESTOS
CANCER AND LUNG DISEASE HAZARD
AUTHORIZED PERSONNEL ONLY
RESPIRATORS AND PROTECTIVE CLOTHING ARE REQUIRED
IN THIS AREA

Adequately secure door to entrance of decontamination unit at the completion of each shift.

3.03 REMOVAL OF ASBESTOS-CONTAINING MATERIALS

A. Inspections:

Prior to commencing Work of this Section, the Work Area must pass an inspection by the Owner's Representative to document that sufficient area preparations are completed. Commence with Work of this Section only after authorization is received from the Owner's Representative. Maintain all work area isolation and controls during work of this section.

The Contractor is responsible for conducting routine and regular inspections of surrounding areas beneath, as applicable, and adjacent to the work areas for containment breeches and leaks. The Contractor is responsible for completing any clean up and decontamination work that is necessitated due to breeches and leaks as determined by the Owner or Owner's Representative.

B. Secondary Barrier:

Over any floors in the work areas, install as a drop cloth a clear 6-mil sheet plastic in all areas where asbestos removal work is to be carried out. Completely cover floor with sheet plastic. Install Secondary Barrier at the beginning of each work shift. Install only sufficient plastic for work of that shift. Remove Secondary Barrier at end of each work shift or as work in an area is completed. Carefully pack in disposal bags.

C. Wet Removal - General:

Thoroughly wet ACMs to be removed prior to stripping and/or tooling to reduce fiber dispersal into the air. Maintain materials as adequately wetted during Work and as required by NESHAPS. Accomplish wetting by a fine spray (mist) of amended water. Saturate material sufficiently to wet to the substrate without causing excess dripping. Allow time for amended water to penetrate material and seams thoroughly. If amended water is used, spray material repeatedly during the work process to maintain a continuously wet condition. If a removal encapsulant is used, apply in strict accordance with manufacturer's written instructions.

Allow penetration of amended water. Where necessary, carefully strip away while simultaneously spraying amended water on the installation to minimize dispersal of asbestos fibers into the air. Mist work area continuously with amended water whenever necessary to reduce airborne fiber levels. Do not allow ACMs to dry out. As it is removed, simultaneously pack material into appropriate disposal bags. Twist neck of bags, bend over and seal with minimum three wraps of duct tape. Clean outside and move to the equipment decontamination unit for further cleaning and packaging.

D. Airborne Fiber Counts:

General: Use work procedures that result in 8-hour TWA and STEL airborne fiber counts within the required limits established by OSHA. If airborne fiber counts exceed this level immediately mist the area with amended water to lower fiber counts and revise work practices and engineering controls to maintain level within the required limits.

E. Handling of suspect ACBM Encountered

During the course of work, use care when accessing previous inaccessible spaces. In the event that gasket material, caulk, or other suspect insulation are encountered, notify Owner and IH Consultant immediately such that proper testing and inspection can be arranged for. In the event that ACBM is identified requiring abatement, conduct abatement in accordance with this specification and the Contract Documents and as authorized by Owner. In the event that additional suspect ACBM or known ACBM is encountered within wall, floor, or ceiling space that was inaccessible previous to the work, stop work in the effected area and immediately notify the Owner and IH Consultant such that proper inspection and testing can be arranged for. Conduct abatement of such addition ACBM in accordance with this specification and the Contract Documents and as authorized by Owner.

F. Handling of suspect contaminated soils at Horace Mann School.

All soils excavated at the Horace Mann School shall be protected with 6 mil poly sheeting beneath and on top of the stockpile prior to use as backfill in the same area.

3.04 INITIAL CLEAN-UP WORK:

Once gross removal is completed, clean all visible debris on the substrate and primary barrier using HEPA vacuums, scrub brushes, and wet-wiping. Do not allow materials to dry out. As material is removed and clean up is completed, simultaneously pack wetted material into proper waste disposal bags or package as noted above. For waste bags, twist the neck of the bags, bend the neck over, and seal with a minimum of three wraps of duct tape. Clean the outside of the bags with wet wiping and HEPA vacuum and move to the wash down station in the Equipment Decontamination Unit. Once washed clean, place the clean disposal bags into a second asbestos disposal bag and seal the bag in the same manner as the first. Bags will then be transported from the work area to the asbestos waste dumpster. Note: Waste dumpster must remain labeled and locked at all times when loading is complete or idle.

Label waste dumpsters in accordance with 29 CFR 1910.145: Legend

DANGER
ASBESTOS DUST HAZARD
CANCER & LUNG DISEASE HAZARD
AUTHORIZED PERSONNEL ONLY

Change all filters on the pressure differential systems and properly dispose of as asbestos waste. Maintain adequate filtration and pressure differential during all filter changes.

3.05 PROJECT DECONTAMINATION

General: Complete decontamination of the Work Area following asbestos abatement in accordance with regulatory requirements and industry standards.

Work of This Section includes the decontamination of air in the Work Area which has been, or may have been, contaminated by the elevated airborne asbestos fiber levels generated during

abatement activities, or which may previously have had elevated fiber levels due to friable asbestos-containing materials in the space. Work of This Section includes cleaning, decontamination, and removal of temporary facilities installed prior to abatement work, including:

- . Primary and Critical Barriers
- . Decontamination Unit
- . Pressure Differential System

Work of This Section includes the cleaning, and decontamination of all surfaces (ceiling, walls, floors, and contractor equipment and materials) of the Work Area, and all other furniture or equipment in the Work Area.

A. Start of Work:

Previous Work: During completion of the asbestos abatement work specified in other sections, all Secondary Barriers of polyethylene sheeting will have been removed and disposed of along with any gross debris generated by the asbestos abatement work.

Start of Work: Work of this section begins with the cleaning of the Primary Barrier. At start of work the following will be in place and fully operational: primary barriers, critical barriers, decontamination units, and pressure differential/air filtration systems.

B. First Cleaning:

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/or a High Efficiency Particulate Air (HEPA) filtered vacuum. (Note: A HEPA vacuum may fail if used with wet material.) 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. Continue this cleaning until there is no visible debris from removed materials or residue on plastic sheeting or other surfaces.

Provide adequate lighting on all surfaces being cleaned, sufficient number of ladders as applicable, sufficient number of personnel misting the area as needed, and adequate numbers of HEPA vacuum equipment.

Contractor's Testing: At the completion of the above cleaning visually inspect all surfaces. Reclean if any dust, debris, etc. is found. Inspect the area and if any debris or dust is found, repeat the cleaning. Continue this process until no debris dust or other material is found while sweeping of all surfaces with forced-air equipment.

Remove all filters in Air Handling System(s) and dispose of as asbestos-containing waste in accordance with specification requirements. Use oscillating fans as necessary to assure circulation of air in all parts of work areas during this period. Maintain Pressure Differential System in operation for adequate settling period.

C. Second and Third Cleaning:

Second Cleaning: Carry out a second cleaning of all surfaces in the work area in the same manner as the first cleaning. Remove all drop-cloth layers of polyethylene sheeting on the floor leaving one layer of the primary barrier remaining. Clean newly exposed areas as above. Third Cleaning: Carry out a third cleaning of all surfaces in the same manner as the first cleaning. Change filters on pressure differential systems and properly dispose of as asbestos waste. Allow for sufficient settling period prior to clearance testing. Complete additional cleaning as required.

D. Visual Inspection:

Accompanied by the Owner's Representative, perform a complete visual inspection of the entire Work Area including: all surfaces, ceiling, walls, floor, decontamination unit, all plastic sheeting,

seals over ventilation openings, doorways, windows, and other openings; look for debris from any sources, residue on surfaces, dust or other matter. During visual inspection sweep entire work area including walls, ceilings, ledges, floors, and other surfaces in the room with exhaust from forced air equipment (leaf blower with approximately 1 horsepower electric motor or equivalent). If any debris, residue, dust or other matter is found repeat final cleaning and continue decontamination procedure from that point. Visual inspection is complete when the area is visually clean, and if after sweeping of all surfaces with leaf blower, no debris, residue, dust or other material is found.

Provide adequate lighting during the visual inspection. Provide ladders, scaffolding, and lifts as required to provide access to all surfaces in the area to be subjected to visual inspection. Encapsulation of substrate: After successful visual inspection, perform encapsulation of substrate as directed. Only apply encapsulant materials that are compatible to any replacement materials to be installed. Owner must approve all encapsulants to be applied. Maintain Pressure Differential System in operation during encapsulation work.

E. Clearance Testing:

Air clearance sampling will be conducted by the Owner's Representative in strict accordance with AHERA and State of Massachusetts regulations and as required below. Air clearance testing will not be completed until the work area has adequate air changes and surfaces have had sufficient time to dry.

F. Removal of Work Area Isolation:

Only after all requirements of this section and the work area clearance sections have been met and verified by the Owner's Representative:

Remove all Primary Barrier sheeting and equipment decontamination unit(s), leaving only: critical barriers, personnel decontamination unit, and operational pressure differential/air filtration systems. Properly dispose of sheeting as asbestos-waste. Reinspect all work area surfaces and adjacent areas for any dust and debris that may have originated from the work. With critical barriers and pressure differential/air filtration systems still in place and in operation, clean all surfaces using HEPA-vacuums and wet-wiping as required and until all surfaces are clean of visible debris. Shut down and remove the Pressure Differential System. Seal HEPA filtered fan units, HEPA vacuums and similar equipment with 6-mil polyethylene sheet and duct tape to form a tight seal at intake end before being moved from Work Area.

Remove personnel decontamination unit. Remove the critical barriers and properly dispose of as asbestos-waste. Remove any small quantities of residual material found upon removal of critical barrier plastic sheeting with wet wiping, HEPA filtered vacuum cleaners and local area protection.

If significant quantities, the entire area affected shall be decontaminated as specified herein using newly installed critical barriers and negative pressure. Once fully cleaned, remove all equipment, materials, and debris from the work site. Dispose of all asbestos-containing waste material as specified herein.

G. Final Cleaning:

General: Complete work upon completion of Removal of Work Area Isolation as required above. This cleaning is now being applied to existing room conditions. Take care to avoid watermarks or other damages. Wet-wipe and HEPA vacuum surfaces in the work area until clean and free from dust and debris. Complete final cleaning in accordance with the project closeout requirements.

3.06 WORK AREA CLEARANCE

A. Contractor Release Criteria:

The Work Area is cleared when the Work Area meets the visual inspection criteria described in the project decontamination sections of this specification and airborne asbestos structure concentrations have been reduced to the level specified below.

B. Air Monitoring:

To determine if the elevated airborne asbestos structure concentration encountered during abatement operations has been reduced to the specified level, the Owner will secure samples and analyze them according to the procedures stated herein. Contractor must provide at least 48 hours advance notice to the Owner's Representative for any clearance testing or other inspections required, or for any changes to existing schedules.

C. Analytical Method:

The number and volume of air samples taken and analytical methods used by the Owner will be in accordance with the following schedule. Sample volumes given may vary depending upon the analytical instruments used. TEM clearance testing and analysis will be performed for clearance purposes in accordance with the protocols stated in AHERA.

D. Laboratory Testing:

The services of a testing laboratory will be employed by the Owner to perform laboratory analysis of the air samples. Samples will be sent daily by overnight mail, so that verbal reports on air samples can be obtained within 24 hours (Monday through Fridays).

E. Aggressive Sampling:

Air clearance samples will be collected by the Owner in all containment areas using aggressive sampling techniques in accordance with Massachusetts regulations and AHERA.

F. TEM Air Clearance Testing:

TEM air clearance testing will be completed in the work area after completion of all cleaning work; a minimum of 13 samples will be taken and analyzed as follows:

- . Samples will be collected at 9.9 liters per minute (LPM);
- . A minimum of 5 samples inside of the work area and 5 samples outside of the work area will be collected;
- . A minimum of 1,200 liters of air will be collected for each sample, and samples will be collected simultaneously.
- . A total of 3 blanks will be used in accordance with AHERA for each work area clearance.

Each sample will be collected on a 25mm sample cassette with a nonconductive extension cowl and 0.45 micron pore size, mixed cellulose ester filter media. Analysis will be performed using the analysis method set forth in the AHERA Regulation 40 CFR Part 763 Appendix A. Asbestos Structures referred to in this Section include asbestos fibers, bundles, clusters or matrices, as defined by method of analysis.

Release Criteria: Decontamination of the work site is complete if either of the following two sets of conditions are met:

1. Work Area Samples are below filter background levels:
 - . All Work Area sample volumes are greater than 1,199 liters for a 25 mm. sampling cassette.
 - . The average concentration of asbestos on the five Work Area Samples does not exceed the filter background level of 70 structures per square millimeter of filter area.
2. Work Area Samples are not statistically different from Outside samples (see below note):

- . All sample volumes except for blanks are greater than 1,199 liters for a 25 mm. sampling cassette.
- . The average asbestos concentration of the three blanks is below the filter background level of 70 structures per square millimeter of filter area.
- . Average asbestos concentrations in Work Area Samples are not statistically different from Outside samples, as determined by the Z-test calculation found in 40 CFR Part 763, Subpart E, Appendix A (Z is ≤ 1.65)

If these conditions are not met then the decontamination is incomplete and the cleaning procedures shall be repeated.

The Contractor shall be responsible for all costs for each subsequent and additional round of TEM analysis required until the clearance criteria is met. Note: In the event that the Contractor requests the use of the clearance criteria indicated in Paragraph 2 above, then the Contractor will be responsible for the costs for analyzing the 5 outside samples and 3 blanks in the event that the results Z-Test Method still fails to meet the clearance criteria. All such costs shall be deducted by the Owner from final payment(s) to the Contractor.

Termination of Analysis: if the arithmetic mean (average) asbestos concentration on the blank filters exceed 70 structures per square millimeter of filter area the analysis will cease and new samples collected.

3.07 DISPOSAL OF ASBESTOS-CONTAINING WASTE MATERIAL

A. General:

Asbestos-containing waste materials and debris which is packaged in accordance with the provisions of this Specification may be disposed of at designated sanitary landfills when certain precautions are taken not limited to: notice to appropriate EPA Regional Offices and notice and permit from appropriate State and local agencies are completed.

Waste disposal site(s) must be properly licensed, permitted, and qualified to accept and handle ACM waste in accordance with all applicable local, State, and federal codes and regulations.

B. Disposal:

Comply with the following sections during all phases of this work: worker protection requirements and respiratory protection requirements. All waste is to be hauled by a waste hauler with all required licenses from all state and local authority with jurisdiction.

Carefully load all containerized asbestos-containing waste material on sealed trucks or other appropriate vehicles for transport. Exercise care before and during transport, to insure that no unauthorized persons have access to the materials.

All materials are to be properly containerized in one of the following: (1) Two 6 mil disposal bags, or (2) Two 6 mil disposal bags and a fiberboard drum. Do not store disposal-bagged material outside of the work area. Take bags or drums from the work area directly to a sealed truck or dumpster. Glovebags shall not be used as waste disposal bags.

Owner will provide a designated location for placement of proper waste dumpster. Waste dumpster(s) will not be allowed to remain at the job site for longer than 72 hours upon completion of each phase (work area) of work by the Contractor. Do not transport disposal-bagged materials on open trucks. Label drums with same warning labels as bags. Uncontaminated drums may be reused. Treat drums that have been contaminated as asbestos-containing waste and dispose of in accordance with this specification. During loading and unloading, properly demarcate and label dumpster on all 4 sides. Dumpster shall be sealed, labeled and locked during all non-loading periods.

In accordance with NESHAPs and State regulations, advise the landfill operator or processor in advance of transport, of the quantity of material to be delivered. At disposal site unload containerized waste:

At a disposal site, sealed plastic bags may be carefully unloaded from the truck. If bags are broken or damaged, leave in truck and clean entire truck and contents using procedures set forth herein.

Retain receipts from landfill or processor for materials disposed of. At completion of hauling and disposal of each load submit copy of waste manifest, chain of custody form, and landfill receipt to Owner's Representative.

3.08 RESTORATION AND REPLACEMENT

The Contractor shall provide all labor and materials required to (1) restore the building, building finishes, and building contents from damages due to the Contractor's work. All restoration work shall be completed in strict compliance with all City and State building codes, regulations, and industry standards. Provide/ install materials that meet or exceed the strictest requirements indicated herein and in the Contract Documents.

Contractor shall pay for and obtain all necessary permits for the work. The Contractor shall provide written certification that all replacement and restoration materials, as applicable, are asbestos-free. The Contractor shall use skilled, qualified craftsmen to complete all such work; the Contractor will use licensed craftsmen as required.

Complete all repair work as designated by the Owner and to meet or exceed existing conditions as indicated in the Contract Documents. Provide asbestos-free repair materials. All workers conducting repair work must be trained, experienced, and licensed in accordance with State and local codes and regulations. All such work must be completed in strict accordance with all State and local building codes, regulations, and industry standards. The Owner must approve all repair and replacement materials and work.

Owner will provide all material, labor, and other incidentals necessary to install new asbestos-free insulation on all fittings and straight-barrel pipe insulation removed during the course of work.

3.09 PROJECT CLOSEOUT

A. Restoration Work:

Complete all replacement work and restoration, as applicable, in accordance with the Contract Documents. Provide certification that all replacement and restoration materials are asbestos-free.

B. Substantial Completion

Preliminary Procedures: Before requesting inspection for certification of Substantial Completion, complete the following: (1) complete all abatement and decontamination, interim or ongoing submittal requirements, final air clearance requirements, and removal of containment barriers; and (2) complete general house cleaning, touch-up painting, replacement work, repair and restoration of marred exposed finishes, and other work as required to restore the work area to meet or exceed existing conditions as designated by the Owner.

C. Final Acceptance

Preliminary Procedures: Before requesting final inspection for Final Acceptance, complete the following: (1) Submit Closeout Submittals and (2) complete any remaining punch-list items.

Reinspection Procedure: The Owner will reinspect the Work upon receipt of notice that the Work, including inspection list items from earlier inspections, has been completed, except items whose completion has been delayed because of circumstances acceptable to the Owner's Representative.

D. Record Document Submittals

Record Specifications: Maintain one complete copy of the Specification, including addenda, and one copy of other written construction documents such as Change Orders and modifications issued in printed form during construction. Mark these documents to show substantial variations in actual work performed in comparison with the text of the Specifications and modifications.

E. Execution:

General: General cleaning during construction is required by the General Conditions and included in Section "Temporary Facilities". Complete all final, general house-keeping and cleaning in the work areas in accordance with such activities in accordance with 29 CFR Part 1910 and 29 CFR Part 1926, as applicable. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to the condition expected in a normal, commercial building cleaning and maintenance program. Complete the following cleaning operations before requesting inspection for substantial completion.

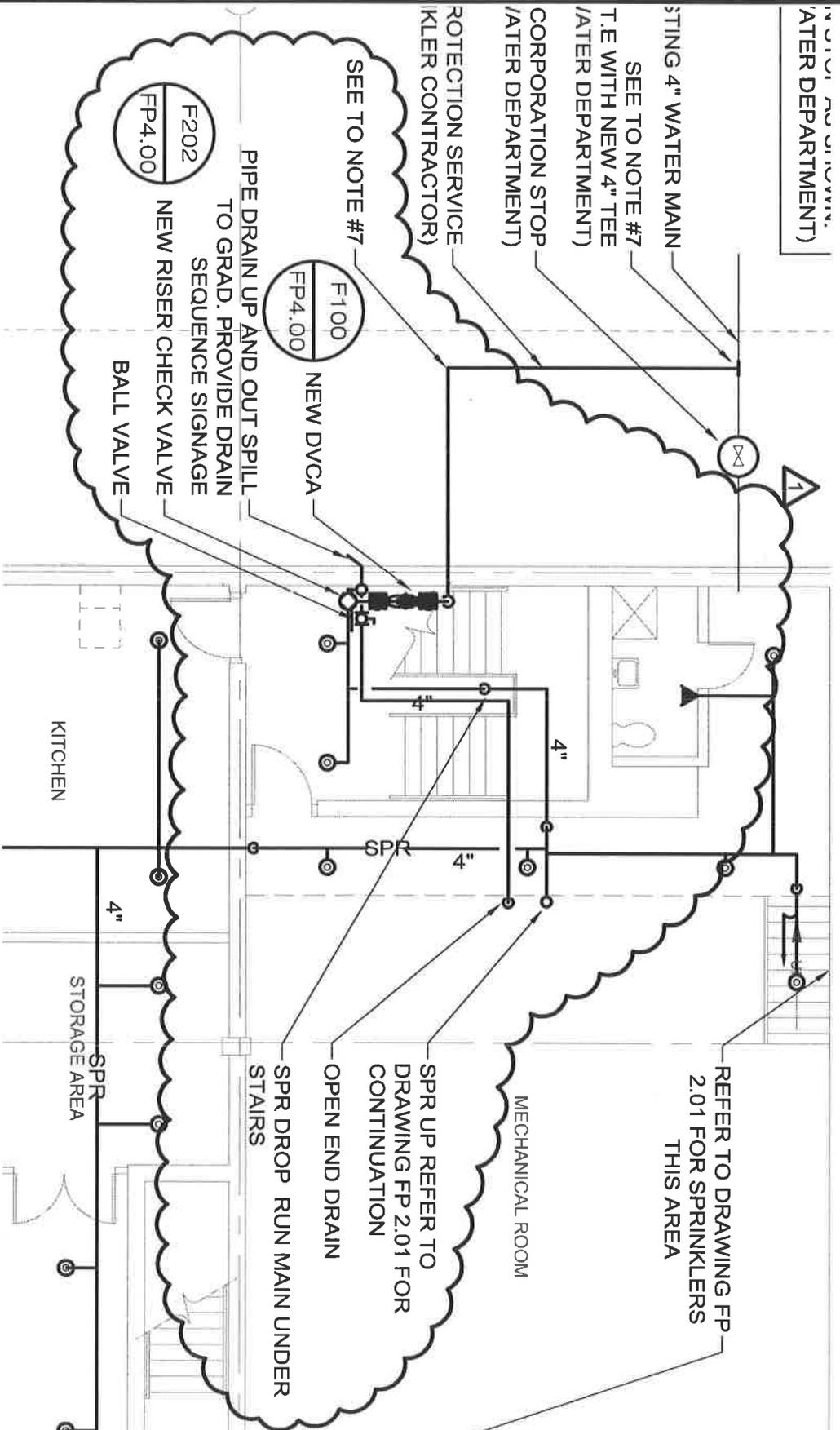
- . Clean exposed exterior and interior hard-surfaced finishes to a dust-free condition, free of stains, films and similar foreign substances. Restore reflective surfaces to their original reflective condition. HEPA-vacuum adjacent carpeted surfaces and other building surfaces in and adjacent to the work areas.
- . Wipe surfaces of mechanical and electrical equipment. Remove excess lubrication and other substances. Clean light fixtures and lamps.
- . Clean the site as applicable, including landscape development areas, of rubbish, litter and foreign substances.

Removal of Protection: Remove temporary protection and facilities installed for protection or security of the work during construction.

Compliance: Comply with regulations of authorities having jurisdiction and safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on the Owner's property. Do not discharge volatile, harmful or dangerous materials into drainage systems. Remove waste materials from the site and dispose of in a lawful manner. Where extra materials of value remaining after completion of associated Work have become the Owner's property, arrange for disposition of these materials as directed.

END OF SECTION

WATER DEPARTMENT)



Andover, MA - Boston, MA - Amherst, MA
Durham, NC - Charlotte, NC

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PROJECT

NUMBER _____

DATE: 04-02-1

REVISION: Addendum 1

BURR, ZERVAS AND HORACE MANN
ELEMENTARY SCHOOL
FIRE PROTECTION SYSTEM REPLACEMENT
NEWTON, MA 02461

DRAWING

DRAWN BY: _____

CHECKED BY: _____

SCALE: 1/8" = 1'-0"

REFERENCE DRAWING: _____

FIRE PROTECTION
HORACE MANN
LOWER LEVEL

SKFPP1

PROJECT

NUMBER _____

DATE _____

04-02-12

REVISION _____

Addendum 1

BURR, ZERVAS AND
HORACE MANN
ELEMENTARY SCHOOL
FIRE PROTECTION
SYSTEM REPLACEMENT
NEWTON, MA 02461

DRAWING

DRAWN BY _____

DD

CHECKED BY _____

RM

SCALE _____

1/8" = 1'-0"

REFERENCE DRAWING _____

FIRE PROTECTION
ZERVAS
FIRST FLOOR PLAN B

SKFP3

