PART 1- ASBESTOS REMOVAL SPECIFICATIONS

1.1 SUMMARY

1.1.1 Work Included: Remove and dispose of asbestos containing materials in accordance with the Contract Documents. The Work of this Section shall include, but not be limited to the following:

1.1.1.1 Performance of interior and exterior demolition to uncover and gain access to asbestos containing building materials.

1.1.1.2 Removal of asbestos-containing building materials listed in the *Inventory of Asbestos-Containing Materials*.

1.1.1.3 Removal of any asbestos-containing materials that may be uncovered when walls and ceiling cavities are opened.

1.1.1.4 Transportation of asbestos-containing waste materials to an approved disposal site by a licensed asbestos waste hauler.

1.1.1.5 Disposal of asbestos-containing waste materials at an approved asbestos waste disposal site.

1.1.2 Pre-Requisite Work: The Owner will be responsible for vacating the areas where work will take place and removing all movable objects and furnishings prior to the start of prep work for asbestos abatement.

1.1.3 Related Work: Work of this Section is part of a project involving mechanical system upgrades and general construction. The contractor shall coordinate the work of this Section with work specified elsewhere.

1.1.4 Limitations: Work shall be performed when children, 18 years old and younger, are not present in the building. If children must be present in the building at any time, a special application will be required and must be approved by the State of Connecticut Department of Public Health.

1.2 REFERENCES

1.2.1 Applicable Regulations

The contractor shall comply with all applicable federal and state requirements including, but not limited to the following. Where the regulations specify conflicting requirements, the contractor shall follow the stricter requirement.

1.2.1.1 U.S. Environmental Protection Agency

National Emission Standard for Hazardous Air Pollutants (40 CFR 61, Subparts A and M)
Asbestos Hazard and Emergency Response Act (40 CFR 763)

1.2.1.2 U.S. Occupational Safety and Health Administration

Respiratory Protection Standard (29 CFR 1926.103)
Asbestos Construction Standard (29 CFR 1926.1101)
Hazard Communication Standard (29 CFR 1910.1200)

1.2.1.3 Connecticut Department of Public Health

Standards for Asbestos Abatement (Sections 19a-332a (1-16))
Licensure and Training Requirements for Persons Engaged in Asbestos Abatement and Asbestos Consultation Services and Related Civil Penalties (Sections 20-440(1-9))
Asbestos in Schools Regulations (Section 19a-333(1-13))

1.2.2 Trade Association References

1.2.2.1 ANSI

ANSI Z9.2 - Fundamentals Governing the Design and Operation of Local Exhaust Systems (1979: R 1991)
ANSI Z88.2 - Respiratory Protection (1992)

1.2.2.2 ASTM

ASTM E1368 - Visual Inspection of Asbestos abatement Projects (1990)
ASTM E1494 - Encapsulants for Spray- or Trowel-Applied Friable Asbestos-Containing Building Materials (1992)

1.2.2.3 UL

UL 586 - High-Efficiency, Particulate, Air Filter Units (1990)

1.3 DEFINITIONS

1.3.1 Asbestos Containing Material (ACM)

Material containing more than one percent by weight of asbestos.

1.3.2 Amended Water

Water containing a wetting agent or surfactant.

1.3.3 Area Sampling

Sampling of asbestos fiber concentrations at stationary location which approximates the concentration of asbestos in the theoretical breathing zone but is not actually collected in the breathing zone of an employee.

1.3.4 Asbestos

A naturally occurring hydrated mineral silicate separable into commercially usable fibers, including chrysotile (serpentine), amosite (cummingtonite-grunerite), crocidolite (riebecktite), tremolite, anthopohyllite and actinolite.

1.3.5 Asbestos Control Area

Designated rooms, spaces, or areas of the building or structure where asbestos abatement activities take place. For glovebag procedures, the work area shall also include the areas contiguous to where the procedure takes place.

1.3.6 Asbestos Fibers

Those fibers having an aspect ratio of at least 3:1 and longer than 5 micrometers as determined by NIOSH Method 7400.

1.3.7 Asbestos Worker

An individual certified by the State, who disturbs, removes, encapsulates, repairs, or encloses friable asbestos material.

1.3.8 Asbestos Worker Supervisor

An individual certified by the State, who supervises the asbestos workers during the asbestos project and ensures that proper asbestos abatement procedures as well as individual safety procedures are being adhered to.

1.3.9 Asbestos Permissible Exposure Limit

A fiber level of 0.1 fibers per cubic centimeter of air as an 8-hour time weighted average measured in the breathing zone as defined by 29 CFR 1926.1101.

1.3.10 Background

The ambient airborne asbestos concentration in an uncontaminated area as measured prior to any asbestos hazard abatement efforts. Background concentrations for other (contaminated) areas are measured in similar but asbestos free locations.

1.3.11 Contractor

A public authority or any other governmental agency or instrumentality thereof, self-employed person, company, unincorporated associations, firm, partnership or corporation and any owner or operator thereof, which engages in an asbestos project or employs persons engaged in an asbestos project.

1.3.12 Encapsulation

The coating or spraying of asbestos-containing material or the bare surfaces exposed after an abatement with a pigment (non-transparent) sealant.

1.3.13 Encapsulants

Liquid material which can be applied to asbestos-containing material, or the bare surfaces exposed after an abatement which temporarily controls the possible release of asbestos fibers from the material or surface either by creating a membrane over the surface (bridging encapsulant) or by penetrating the material and binding its components together (penetrating encapsulant).

1.3.14 Friable Asbestos Material

Any asbestos or any ACM that can be crumbled, pulverized, or reduced to a powder when dry, by hand or other mechanical pressure.

1.3.15 Glovebag Technique

A method for removing friable asbestos-containing material from heating, ventilation, and air conditioning (HVAC) ducts, short piping runs, valves, joints, elbows, and other non-planar surfaces. The glovebag assembly is a manufactured device consisting of a large bag (constructed of at least 6-mil transparent plastic), two inward-projecting long sleeve gloves, one inward-projecting water wand sleeve, an internal tool pouch, and an attached, labeled receptacle for asbestos waste. The glovebag is constructed and installed in such a manner that it surrounds the object to be decontaminated and contains all asbestos fibers released during the removal process.

1.3.16 HEPA Filter

A high efficiency particulate air filter capable of trapping and retaining 99.97 percent of particles (asbestos fibers) greater than 0.3 micrometers mass median aerodynamic equivalent diameter.

1.3.17 Negative Pressure Equipment

A portable local exhaust system equipped with HEPA filtration. The system shall be capable of creating a negative pressure differential between the outside and inside of the work area.

1.3.18 Nonfriable Asbestos Material

Material that contains asbestos in which the fibers have been immobilized by a bonding agent, coating, binder, or other material so that the asbestos is well bound and will not normally release asbestos fibers during any appropriate use, handling, storage, or transportation. It is understood that asbestos fibers may be released under other conditions such as demolition, removal, or mishap.

1.3.19 PCM

Phase contrast microscopy (PCM) is a measurement protocol for the assessment of the fiber content of air (NIOSH Method 7400).

1.3.20 Personal Sampling

A method used to determine employees' exposure to airborne fibers. The sample is collected outside the respirator in the worker's breathing zone.

1.3.21 PLM

Polarized light microscopy (PLM) is a measurement protocol for the assessment of the asbestos content of bulk materials (40 CFR Part 763, Subpart F, Appendix A).

1.3.22 Project Monitor

The licensed person who has been retained by the owner to review the contractor's work practices and to perform area air sampling for the project.

1.3.23 TEM

Transmission electron microscopy (TEM) is the measurement protocol for the assessment of the asbestos fiber content of air. (40 CFR Part 763, Subpart E, Appendix A).

1.3.24 Time Weighted Average (TWA)

The TWA is an 8-hour time weighted average airborne concentration of asbestos fibers.

1.3.25 Wetting Agent

A surfactant or chemical agent added to water to improve penetration.

1.4 REQUIREMENTS

1.4.1 Medical Requirements

1.4.1.1 Medical Examinations

Provide medical requirements for all Asbestos Workers and Asbestos Worker Supervisors including, but not limited to medical surveillance and medical record keeping as listed in 29 CFR 1926.1101.

1.4.1.2 Medical Records

Before exposure to airborne asbestos fibers, provide workers with a comprehensive medical examination as required by 29 CFR 1926.1101 and other pertinent State directives. This requirement must have been satisfied within the 12 months prior to the start of work on this contract. The same medical examination shall be given on an annual basis to employees engaged in an occupation involving asbestos and within 30 calendar days before or after the termination of employment in such occupation. Specifically identify x-ray films of asbestos workers to the consulting radiologist and mark medical record jackets with the work "Asbestos".

1.4.2 Training

Train all persons involved in the asbestos control work in accordance with the State training criteria for Asbestos Workers or Asbestos Worker Supervisors. The contractor shall document the training by providing dates of training and the name and address of the training entity. Furnish each Asbestos Worker and Asbestos Worker Supervisor with respirator training and fit testing as required by 29 CFR 1926.1101. Fully cover engineering and other hazard control techniques and procedures.

1.4.3 Permits, Licenses and Notifications

Obtain necessary permits and licenses in conjunction with asbestos removal, hauling and disposal, and furnish notification of such actions required by Federal and State authorities prior to the start of work. The contractor shall pay all fees as required for notification, permit and variance application (as necessary), and for any licenses and certifications.

The Contractor shall send written notification to the following agencies as required by Federal and State regulations, and shall be responsible for payment of all fees attendant to such notifications:

United States Environmental Protection Agency – Region 1
Connecticut Department of Public Health

1.4.4 Environment, Safety and Health Compliance

The contractor shall comply with all applicable Federal and State regulations, regardless of whether the regulation is cited in these specifications.

1.4.5 Respiratory Protection Program

Establish and implement a respirator program as required by ANSI Z88.2, 29 CFR 1926.1101, and 29 CFR 1926.103. Submit a written description of the program, including copies of personal air monitoring data for similar, previously completed projects, to the Project Monitor.

1.4.6 Hazard Communication

Adhere to all parts of 29 CFR Part 1926.59 and provide the Project Monitor with a copy of the Safety Data Sheets (SDS) for all materials brought to the site.

1.4.7 Contractor Qualifications

The contractor shall have held a valid State of Connecticut Asbestos Abatement Contractor license under their current company name for a minimum of three (3) years and shall not have been cited and penalized for violations of asbestos regulations in the past three (3) years. The contractor shall have adequate liability/occurrence insurance for asbestos work, have comprehensive standard operating procedures for asbestos work and have adequate materials, equipment and supplies to perform the work. The contractor shall only use workers from his/her payroll and will not be allowed to sub-contract the abatement work.

1.4.8 Project Supervisor

1.4.8.1 The Contractor shall designate a full-time Project Supervisor who shall meet the following qualifications:

- The Project Supervisor shall hold a current CT asbestos supervisor license and current EPA certificate.
- The Project Supervisor shall meet the requirements of a “Competent Person” as defined by OSHA 1926.1101 and shall have a minimum of two (2) years’ experience as a supervisor.
- The Project Supervisor must be able to read and write English fluently, as well as communicate in the primary language of the Workers.

1.4.8.2 If the Project Supervisor is not on-site at any time whatsoever, all work shall be stopped. The Project Supervisor shall remain on-site until the Project is complete. The Project Supervisor cannot be removed from the Project without written consent of the Owner and the Project Monitor. The Project Supervisor shall be removed from the Project if requested by the Owner.

1.4.8.3 The Project Supervisor shall maintain the bound Daily Project Log that also includes the entry/exit logs and the Waste Disposal Log.

1.4.8.4 The Project Supervisor shall be responsible for the performance of the Work and shall represent the Contractor in all respects at the Project site. The Supervisor shall be the primary point of contact for the Owner and Project Monitor.

1.4.9 Independent Project Monitor

The Owner will employ a Connecticut licensed asbestos project monitor, independent from the abatement contractor, to perform various services on behalf of the Owner. The project monitor will perform the necessary monitoring, inspection, testing, and other support services to ensure that building occupants, employees, and visitors will not be adversely affected by the abatement work, that the abatement work proceeds in accordance with these specifications, that the abated areas or abated buildings have been successfully decontaminated. The work of the project monitor in no way relieves the Contractor from their responsibility to perform the work in accordance with contract/specification requirements, to perform continuous inspection, monitoring and testing for the safety of their employees, and to perform other such services as specified. The cost of the project monitor and their services will be borne by the Owner except for any repeat of final inspection and testing that may be required due to unsatisfactory initial results. Any repeated final inspections and/or testing, if required, will be paid for by the Contractor.

1.5 SUBMITTALS

1.5.1 Manufacturer's Catalog data

The contractor shall submit the following Manufacturer's Catalog Data, prior to starting the asbestos abatement work:

- Local exhaust equipment
- Vacuums
- Respirators
- Pressure differential recording instrument
- Amended water
- Glovebags
- Material Safety Data Sheets
- Encapsulants
- Wastewater Filtration Systems

1.5.2 Statements

The contractor shall submit the following Statements, prior to starting the asbestos abatement work:

1.5.2.1 Health and Safety Pan

Submit a detailed plan of the safety precautions and OSHA compliance program for the project. The plan shall include, but not be limited to lockout/tagout, fall protection and confined space entry procedures. The health and safety plan shall also include both fire and medical emergency response plans.

1.5.2.2 Testing laboratory

Submit the name, address, and telephone number of each testing laboratory selected for the analysis and reporting of personal air samples. Furnish evidence that the selected laboratory is an accredited participant in the AIHA PAT programs for airborne asbestos analysis.

1.5.2.3 Approval of asbestos waste disposal site and transporter

Submit copies of permits for the asbestos waste disposal site, transfer station and the waste transporter. If the Contractor plans to utilize in-state disposal facilities, prior approval will be required from the Department of Energy & Environmental Protection Agency (DEEP).

1.5.2.4 Asbestos Worker and Supervisor certificates

Submit copies of each employee’s State asbestos certification cards.

1.5.2.5 Medical certification

Provide a written certification for each Asbestos Worker and Supervisor, signed by a licensed physician indicating that the employee has met or exceeded all the medical prerequisites listed herein and in 29 CFR 1926.1101 and 29 CRF 1926.103.

1.5.2.6 Respiratory protection program

Submit a written program manual or operating procedure including methods of compliance with regulatory statutes.

1.5.3 Field Reports

The contractor shall submit the following Field Reports, daily during the asbestos abatement work:

1.5.3.1 Personal Air Sampling Results

The contractor shall provide copies of laboratory reports for personal air samples to the Project Monitor for review within 24 hours of the "time off" of the sample pump. Notify the Project Monitor immediately of any airborne levels of asbestos fibers more than the Asbestos Permissible Exposure Limits. Post a copy of the personal air sample results at a location accessible to the affected employees. Failure to comply with these requirements may result in all work being stopped until compliance is achieved.

1.5.3.2 Pressure Differential Recordings for Local Exhaust System

For each work area, provide a local exhaust system that creates a negative pressure of at least 0.02 inches of water, relative to the pressure external to the enclosure and operate it continuously, 24 hours a day, until the temporary enclosure of the asbestos control area is removed. Submit records of the pressure differential recordings and the supervisor's inspection of the containment barriers to the Project Monitor at least twice daily.

1.5.3.3 Work Area Entry Log

The contractor shall maintain and provide to the Project Monitor a log of all employees and authorized visitors who enter asbestos work areas. All entries into the log shall be made in non-washable, permanent ink and such pen shall be strung to or otherwise attached to the log to prevent removal from the log-in area. Under no circumstances shall pencil entries be permitted.

1.5.3.4 Daily Performance Log

The project supervisor shall document all work performed on site at a minimum of five (5) times every day. Entries shall include, but not be limited too, job progress, amount of material removed, containment inspections, project issues, etc. and shall be logged into a bound logbook with non-washable, permanent ink.

1.5.4 Project Close-out Submittals

Within forty-five (45) days of project completion, the Contractor shall submit three (3) copies of the documents listed below for review and approval prior to the Contractor's final payment.

- Originals of all waste disposal manifests, seals, and disposal logs.
- OSHA compliance air monitoring records conducted during work.
- Daily progress log, including the entry/exit log.
- All list of all workers used in the performance of the project, including name, social security number, current and original EPA training certificate and Connecticut license number.
- For each worker used in the performance of the project, submit the Worker's Acknowledgement Statement.
- Disposal Site/Landfill permit from applicable regulatory agency.
- Project notification and alternate work plans, if applicable, with State acknowledgement.

1.6 PRE-CONSTRUCTION MEETING

1.6.1 Prior to commencing the work, the Contractor shall meet with the Owner and the Owner's licensed representative to present and review, as appropriate, the items listed in Section 1.5. The Contractor's Competent Person(s) who will be on-site shall participate in the pre-start meeting. The pre-start meeting is to discuss and determine procedures to be used during the project.

PART 2 - PRODUCTS

2.1 ENCAPSULANTS

2.1.1 Only encapsulants rated as acceptable or marginally acceptable based on Battelle Columbus Laboratory test procedures and rating requirements developed under the 1978 US EPA contract shall be used for lockdown encapsulation.

2.1.2 Latex paint with solids content greater than 15 percent shall be considered a lockdown sealant for coating all non-metallic surfaces.

2.2 WETTING AGENTS

Wetting agents (surfactants) shall conform to current US EPA requirements and shall contain no toxic or hazardous substances as defined in 29 CFR 1926.59.

2.3 MASTIC REMOVAL SOLVENTS

Mastic removal solvents are not being considered for this project. If allowed, in writing by the Owner, mastic solvents shall conform to current US EPA requirements, and shall contain no toxic or hazardous substances as defined in 29 CFR 1926.59.

PART 3 - EXECUTION

3.1 EQUIPMENT

At all times, provide the Project Monitor and employees with at least two complete sets of personal protective equipment (including disposable coveralls), as required for entry to and inspection of the asbestos control areas. Provide manufacturer's certificate of compliance for all equipment used to contain airborne asbestos fibers.

3.1.1 Respirators

Select respirators from those approved by the National Institute for Occupational Safety and Health (NIOSH).

3.1.1.1 Respirators for Handling Asbestos

Provide personnel engaged in pre-cleaning, cleanup, handling, removal, and demolition of asbestos materials with respiratory protection as indicated in 29 CFR 1926.1101 and 29 CFR 1926.103.

3.1.2 Exterior Whole-Body Protection

3.1.2.1 Outer Protective Clothing

Provide personnel exposed to asbestos with disposable, whole body outer protective clothing, head coverings, gloves, and foot coverings. Provide disposable work gloves. Work gloves shall be disposed of as asbestos waste after the project. Make sleeves secure at the wrists, make foot coverings secure at the ankles, and make clothing secure at the neck by use of tape. Provide disposable undergarments for wear under the outer protective clothing.

3.1.2.2 Eye Protection

Provide goggles to personnel engaged in asbestos abatement operations when the use of a full-face respirator is not required.

3.1.3 Warning Signs and Label

Provide bilingual warning signs printed in English and Spanish (and the prevailing language spoken by employees) at all approaches to asbestos control areas. Locate signs at such a distance that personnel may read the sign and take the necessary protective steps required before entering the area. Provide labels and affix to all asbestos materials, scrap, waste, debris, and other products contaminated with asbestos.

3.1.3.1 Warning Sign

Provide vertical format conforming to 29 CFR 1926.1101, minimum 20-in x 14-in, displaying the following legend in the lower panel.

Legend	Notation
Danger	1-inch Sans Serif Gothic or Block
Asbestos	1-inch Sans Serif Gothic or Block
Cancer and Lung Disease Hazard	1/4-inch Sans Serif Gothic or Block
Authorized Personnel Only	1/4-inch Sans Serif Gothic or Block
Respirators and Protective Clothing are Required in this Area	1/4-inch Sans Serif Gothic or Block

Spacing between lines shall be at least equal to the height of the upper of any two lines.

3.1.3.2 Warning Labels

Provide labels conforming to 29 CFR 1926.1101 of sufficient size to be clearly legible, displaying the following legend:

DANGER
CONTAINS ASBESTOS FIBERS
AVOID CREATING DUST
CANCER AND LUNG DISEASE HAZARD
BREATHING ASBESTOS DUST MAY
CAUSE SERIOUS BODILY HARM

3.1.4 Local Exhaust System

For each indoor asbestos abatement area, provide a local exhaust system in accordance with ANSI Z9.2 and 29 CFR 1926.1101 that will provide at least four air changes per hour inside of the negative pressure enclosure. Local exhaust equipment shall be operated 24 hours per day, until the asbestos control area is removed and shall be leak proof the filter and equipped with HEPA filters. Maintain a minimum pressure differential in the asbestos abatement area of minus 0.02 inches of water column relative to adjacent, unsealed areas. In no case shall the building ventilation system be used as the local exhaust system for the asbestos abatement

area. Filters on exhaust system equipment shall conform to ANSI Z9.2 and UL 586. The local exhaust system shall terminate out of doors and remote from any public access or ventilation system intakes.

3.1.5 Tools

Vacuums shall be leak proof to the filter and equipped with HEPA filters. Filters on vacuums shall conform to ANSI Z9.2 and UL 586. Do not use power tools to remove asbestos containing materials unless the tool is equipped with effective, integral HEPA filtered exhaust ventilation systems. Remove all residual asbestos from reusable tools prior to storage or reuse.

3.1.6 Decontamination Facilities

Provide each regulated area with separate personnel decontamination facility (PDF) and waste/equipment decontamination facilities (W/EDF). Ensure that the PDF are the only means of ingress and egress to the regulated area and that all equipment, bagged waste, and other material exit the regulated area only through the W/EDF.

3.1.6.1 General Requirements

All personnel entering or exiting a regulated area must go through the PDF and shall follow the requirements at 29 CFR 1926.1101 (j)(1) and these specifications. All waste, equipment and contaminated materials must exit the regulated area through the W/EDF and be decontaminated in accordance with these specifications. Walls and ceilings of the PDF and W/EDF must be constructed of a minimum of 3 layers of 6 mil opaque polyethylene sheeting and be securely attached to existing building components and/or an adequate temporary framework. A minimum of 3 layers of 6 mil re-enforced poly shall also be used to cover the floor under the PDF and W/EDF units. Construct doors so that they overlap and secure to adjacent surfaces. Weight inner doorway sheets with layers of duct tape so that they close quickly after release. Put arrows on sheets so they show direction of travel and overlap. If the building adjacent area is occupied, construct a solid barrier on the occupied side(s) to protect the sheeting and reduce potential for non-authorized personnel entering the regulated area.

3.1.6.2 Temporary Facilities to the PDF and W/EDF

The Asbestos Supervisor shall provide temporary water service connections to the PDF and W/EDF. Backflow prevention must be provided at the point of connection to the VA system. Water supply must be of adequate pressure and meet requirements of 29 CFR 1910.141(d)(3). Provide adequate temporary overhead electric power with ground fault circuit interruption (GFCI) protection. Provide a sub-panel for all temporary power in the clean room. Provide adequate lighting to provide a minimum of 50-foot candles in the PDF and W/EDF. Provide temporary heat, if needed, to maintain 70^{o}F throughout the PDF and W/EDF.

3.1.6.3 Personal Decontamination Facility (PDF)

The Asbestos Supervisor shall provide a PDF consisting of shower room which is contiguous to a clean room and equipment room which is connected to the regulated area. The PDF must be sized to accommodate the number of personnel scheduled for the project. The shower room, located in the center of the PDF, shall be fitted with as many portable showers as necessary to insure all employees can complete the entire decontamination

procedure within 15 minutes. The PDF shall be constructed of opaque poly for privacy. The PDF shall be constructed to eliminate any parallel routes of egress without showering.

3.1.6.3.1 Clean Room

The clean room must be physically and visually separated from the rest of the building to protect the privacy of personnel changing clothes. The clean room shall be constructed of at least 3 layers of 6 mil opaque poly to provide an airtight room. Provide a minimum of 2 - 900 mm (3 foot) wide 6 mil poly doorways. One doorway shall be the entry from outside the PDF and the second doorway shall be to the shower room of the PDF. The floor of the clean room shall be maintained in a clean, dry condition. Shower overflow shall not be allowed into the clean room. Provide 1 storage locker per person. A portable fire extinguisher, Type ABC, shall be provided in accordance with OSHA and NFPA Standard 10. All persons entering the regulated area shall remove all street clothing in the clean room and dress in disposable protective clothing and respiratory protection. Any person entering the clean room does so either from the outside with street clothing on or is coming from the shower room completely naked and thoroughly washed. Females required to enter the regulated area shall be ensured of their privacy throughout the entry/exit process by posting guards at both entry points to the PDF so no male can enter or exit the PDF during her stay in the PDF.

3.1.6.3.2 Shower Room

The Asbestos Supervisor shall assure that the shower room is a completely watertight compartment to be used for the movement of all personnel from the clean room to the equipment room and for the showering of all personnel going from the equipment room to the clean room. Each shower shall be constructed so water runs down the walls of the shower and into a drip pan. Install a freely draining smooth floor on top of the shower pan. The shower room shall be separated from the rest of the building and from the clean room and equipment room using airtight walls made from at least 3 layers of 6 mil opaque poly. The shower shall be equipped with a shower head and controls, hot and cold water, drainage, soap dish and continuous supply of soap and shampoo, and shall be maintained in a sanitary condition throughout its use. The controls shall be arranged so an individual can shower without assistance. Provide a flexible hose shower head, hose bibs and all other items shown on Shower Schematic. Wastewater will be pumped to a drain after being filtered through a minimum of a 100-micron sock in the shower drain; a 20-micron filter; and a final 5-micron filter. Filters will be changed a minimum of daily or more often as needed. Filter changes must be done in the shower to prevent loss of contaminated water. Hose down all shower surfaces after each shift and clean any debris from the shower pan. Residue is to be disposed of as asbestos waste.

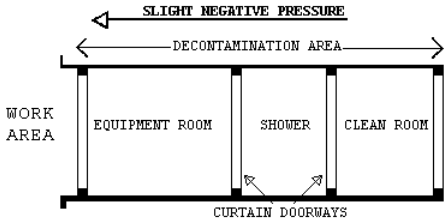
3.1.6.3.3 Equipment Room

The Asbestos Supervisor shall provide an equipment room which shall be an airtight compartment for the storage of work

equipment/tools, reusable personal protective equipment, except for a respirator and for use as a gross decontamination area for personnel exiting the regulated area. The equipment room shall be separated from the regulated area by a minimum 3-foot-wide door made with 2 layers of 6 mil opaque poly. The equipment room shall be separated from the regulated area, the shower room, and the rest of the building by airtight walls and ceiling constructed of a minimum of 3 layers of 6 mil opaque poly. Damp wipe all surfaces of the equipment room after each shift change. Provide an additional loose layer of 6 mil fire retardant poly per shift change and remove this layer after each shift. If needed, provide a temporary electrical sub-panel equipped with GFCI in the equipment room to accommodate any equipment required in the regulated area.

3.1.6.3.4 The PDF shall look like as follows:

Clean room at the entrance followed by a shower room followed by an equipment room leading to the regulated area. Each doorway in the PDF is minimum of 2 layers of 6 mil opaque poly.



3.1.6.4 Waste/Equipment Decontamination Facility (W/EDF)

The Asbestos Supervisor shall provide a W/EDF consisting of a washroom, holding room, and clean room for removal of waste, equipment, and contaminated material from the regulated area. Personnel shall not enter or exit the W/EDF except in the event of an emergency. Clean debris and residue in the W/EDF daily. All surfaces in the W/EDF shall be wiped/hosed down after each shift and all debris shall be cleaned from the shower pan. The W/EDF shall consist of the following:

3.1.6.4.1 Wash Down Station

Provide an enclosed shower unit in the regulated area just outside the Washroom as an equipment bag and container cleaning station.

3.1.6.4.2 Washroom

Provide a washroom for cleaning of bagged or containerized asbestos containing waste materials passed from the regulated area. Construct the washroom using 50 x 100 mm (2" x 4") wood framing and 3 layers of 6 mil poly. Locate the washroom so that packaged materials, after being wiped clean, can be passed to the Holding Room. Doorways in the washroom shall be constructed of 2 layers of 6 mil poly.

3.1.6.4.3 Holding Room

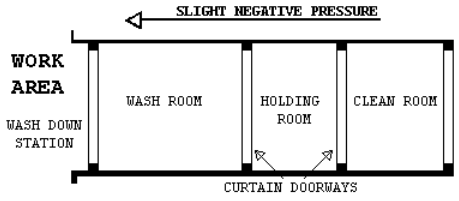
Provide a holding room as a drop location for bagged materials passed from the washroom. Construct the holding room using 50 x 100 mm (2" x 4") wood framing and 3 layers of 6 mil poly. The holding room shall be located so that bagged material cannot be passed from the washroom to the clean room unless it goes through the holding room. Doorways in the holding room shall be constructed of 2 layers of 6 mil poly.

3.1.6.4.4 Clean Room

Provide a clean room to isolate the holding room from the exterior of the regulated area. Construct the clean room using 2 x 4 wood framing and 2 layers of 6 mil poly. The clean room shall be located to provide access to the holding room from the building exterior. Doorways to the clean room shall be constructed of 2 layers of 6 mil poly. When a negative pressure differential system is used, a rigid enclosure separation between the W/EDF clean room and the adjacent areas shall be provided.

3.1.6.4.5 The W/EDF shall be provided as follows:

Washroom leading to a Holding Room followed by a Clean Room leading to outside the regulated area. See diagram.



3.1.6.5 Waste/Equipment Decontamination Procedures

At washdown station in the regulated area, thoroughly wet clean contaminated equipment and/or sealed polyethylene bags and pass into Washroom after visual inspection. When passing anything into the Washroom, close all doorways of the W/EDF, other than the doorway between the washdown station and the Washroom. Keep all outside personnel clear of the W/EDF. Once inside the Washroom, wet clean the equipment and/or bags. After cleaning and inspection, pass items into the Holding Room. Close all doorways except the doorway between the Holding Room and the Clean Room. Workers from the Clean Room/Exterior shall enter the Holding Room and remove the decontaminated/cleaned equipment/bags for removal and disposal. These personnel will not be required to wear PPE. At no time shall personnel from the clean side be allowed to enter the Washroom.

3.2 WORK PROCEDURE

Perform asbestos related work in accordance with 29 CFR 1926.1101, 40 CFR 61-Subpart M, and applicable State regulations. Use wet removal procedures for all asbestos removal work, and negative pressure enclosure techniques for all indoor asbestos removal activities.

Personnel shall wear and utilize protective clothing and equipment as specified herein. Eating, smoking, drinking, chewing gum, tobacco, or applying cosmetics shall not be permitted in the asbestos work or control areas. Personnel of other trades not engaged in the removal and demolition of asbestos containing materials shall not be exposed at any time to airborne concentrations of asbestos unless all the personnel protection and training provisions of this section are complied with by the trade personnel.

Shut down the building heating, ventilating, and air conditioning system, cap the openings to the system, prior to the commencement of asbestos work. Disconnect electrical service where wet removal is performed and provide temporary electrical service with verifiable ground fault circuit interrupter (GCI) protection prior to the use of any water.

If an asbestos fiber release or spill occurs outside of the asbestos control area, stop work immediately, correct the condition to the satisfaction of the Project Monitor prior to resuming work.

3.2.1 Protection of Adjacent Building Areas

Perform work without damage or contamination of adjacent building areas. Where such areas are damaged or contaminated as verified by the Project Monitor using visual inspection or sample analysis, it shall be restored to its original condition or decontaminated by the contractor at no expense to the owner as deemed appropriate by the Project Monitor. This includes inadvertent spill of dirt, dust, or debris in which it is reasonable to conclude that asbestos may exist. When these spills occur, stop work immediately. Then clean up the spill. When satisfactory visual inspection and air sampling results are obtained from the Project Monitor, asbestos abatement work may be resumed.

3.2.2 Furnishings

Furniture, miscellaneous equipment, and trash are found in the buildings. In areas where asbestos removal work will take place, the contractor shall move all furniture, miscellaneous equipment, and trash from the asbestos control area.

3.2.3 Pre-cleaning

Wet wipe and HEPA vacuum all surfaces within the work area prior to establishment of an enclosure. Fixed objects within the proposed work area shall be pre-cleaned by HEPA filtered vacuum equipment and/or wet cleaning methods as appropriate and enclosed with 6-mil plastic sheeting sealed to protect from contamination.

3.2.4 Asbestos Control Area Procedures

The following requirements apply to all indoor areas:

3.2.4.1 Isolation barriers

Separate any operations in the regulated area from adjacent areas using 6-mil plastic sheeting and duct tape. Individually seal with two layers of 6-mil

poly and duct tape all HVAC openings into the regulated area. Individually seal all lighting fixtures, clocks, doors, windows, convectors, speakers, or any other objects/openings in the regulated area.

3.2.4.2 Floor and Wall Plastic

In addition to the isolation barriers, floor shall be covered with two layers of 4-mil plastic sheeting and wall surfaces shall be sealed with a minimum of two layers of 6-mil plastic sheeting, except where asbestos floors and/or walls are being removed, in which case they need not be sealed. The plastic layers on the floor shall extend 12 inches up the walls. Walls shall be covered with plastic sheeting down to the floor level, thus overlapping the floor material by a minimum of 12 inches. There shall be a distance of at least 12 inches between seams of adjacent layers.

3.2.4.3 Emergency and Fire Exits

Emergency and fire exit locations from the work area shall be maintained, or alternative exits shall be established in accordance with applicable codes and regulations. Exits shall be checked daily against exterior blockage or impediments to exiting. Entrances to the workplace that will not be used for worker entry or emergency exits shall be locked to prevent unauthorized entry.

3.2.4.4 Sanitary Facilities

Adequate portable toilet and hand washing facilities shall be provided by the contractor.

3.2.5 Negative Pressure Enclosure

Provide negative pressure HEPA ventilation for all indoor asbestos control areas as follows:

3.2.5.1 The negative pressure ventilation equipment shall be operated continuously, 24 hours a day, from the establishment of isolation barriers through successful clearance air monitoring. If such equipment shuts off; adjacent areas shall be monitored for asbestos fibers.

3.2.5.2 A static negative air pressure of 0.02 inches (minimum) water column shall always be maintained in the workplace during abatement to ensure that contaminated air in the work area does not filter back to uncontaminated areas.

3.2.5.3 If more than one ventilation unit is installed, units shall be turned on one at a time while checking the integrity of all barriers for secure attachment and the need for additional reinforcement.

3.2.5.4 A dedicated power supply for the negative pressure ventilating units shall be utilized.

3.2.5.5 On loss of negative pressure or electric power to the negative pressure ventilating units, abatement shall stop immediately and shall not resume until power is restored and negative pressure

ventilation equipment is operating again. When power failure or loss of negative pressure equipment lasts or is expected to last longer than one-half hour:

- the make-up air inlets shall be sealed airtight, and
- the decontamination systems shall be sealed airtight after the evacuation of workers and/or authorized visitors from the work area, and
- all adjacent areas shall be monitored for asbestos fiber concentration upon discovery of, and subsequently throughout the power failure.

3.2.5.6 Negative pressure ventilation equipment shall be installed and operated to provide at least one air change in the work area every 15 minutes.

3.2.5.7 Negative pressure ventilation equipment shall be exhausted to the outside of the building away from occupied areas.

- At no time shall the negative pressure ventilation unit exhaust within 20 feet of a receptor or adversely affect the air intake ports, louvers, or entrances for the building or adjacent buildings.
- Heavy duty ducting or equivalent, or larger, shape and dimension as that of the negative pressure ventilation exhaust port shall be used to exhaust to the outside of the structure.
- All ducting shall be sealed and braced or supported to maintain airtight joints.

3.2.5.8 Careful installation shall be done to ensure that the ducting does not release fibers into uncontaminated building areas.

3.2.5.9 The Contractor shall provide a manometer to verify negative air pressure. Manometers shall be read twice daily by the Contractor's Supervisor and recorded within the Daily Project Log.

3.2.5.10 The system shall include a series of pre-filters and filters to provide High Efficiency Particulate Air (HEPA) filtration of particles down to 0.3 microns at 100% efficiency and below 0.3 microns at 99.9% efficiency. The Contractor shall supply enough replacement filters to replace pre-filters every 2 hours, secondary filters every 24 hours and primary HEPA filters every 600 hours of operation. A log shall be provided for each unit brought to the site with the current hours of use for each filter. Failure to provide this log will require that all filters be changed at the beginning of the project.

3.2.5.11 Once installed and operational, the Contractor's Supervisor shall conduct daily inspections of the Work Area to ensure the airtight integrity of the enclosure and operation of the negative air system. Findings shall be recorded within the Daily Project Log.

3.2.6 Alternate Work Practices

The use of an alternate work practice will be allowed only after review by, and with the consent of, the Owner's representative. The contractor shall be responsible for

filing any applications for alternative work practices, and payment of all fees associated with such applications.

3.2.7 Interior & Exterior Asbestos Removal Procedures

Wet asbestos material with a fine spray of amended water during removal, cutting, or other handling to reduce the emission of airborne fibers. Place sharp-edged asbestos materials in burlap bags prior to placement in 6-mil plastic disposal bags. Other asbestos materials which are unlikely to puncture the plastic shall be removed and placed directly into 6-mil plastic disposal bags. Remove asbestos containing material in a gradual manner, with continuous application of the amended water or wetting agent in such a manner that no asbestos material is disturbed prior to being adequately wetted. Where unusual circumstances prohibit the use of 6-mil plastic bags, submit an alternate proposal for containment of asbestos fibers to the Project Designer for approval. (For example, in the case where non-friable lab counter tops are removed whole, wrapped, and sealed in two layers of 6-mil plastic sheeting and labeled in accordance with NESHAP and OSHA requirements.) Asbestos material shall be containerized while wet. At no time shall asbestos material be allowed to accumulate or become dry. Lower and otherwise handle asbestos containing material as indicated in 40 CFR 61-Subpart M. All asbestos waste generated from removal activities must be completely bagged up, removed from the containment, and placed in the secure waste storage trailer at the end of each work shift.

3.2.7.1 Removal/Disturbance of CMU WALLS with Friable Asbestos-Containing Spray-on Insulation Materials ($\geq$3 SF or $\geq$3 LF of Material)

For penetrations and demolition greater than three square or three linear feet or removal of ducts from any walls or building cavities. The work shall be performed under full containment conditions as follows:

3.2.7.1.1 Containment shall be constructed on both sides of the wall where the work on the CMU wall will take place.

3.2.7.1.2 Mist work area continuously with amended water whenever necessary to reduce airborne fiber levels.

3.2.7.1.3 Remove required ducts, CMU blocks, bricks, building materials, etc. in a gradual manner and place directly into waste disposal bags. Ducts can be wrapped in two layers of 6-mil plastic sheeting in place of disposal bags.

3.2.7.1.4 Remove any residue on the edges of the CMU wall openings with stiff bristle nylon hand brush or scraper/wire brush.

3.2.7.1.5 HEPA vacuum into the block wall on all sides of the opening to remove all accessible residual spray-on insulation.

3.2.7.1.6 Remove saturated ACM in small sections from all areas. Do not allow material to dry out. As it is removed, simultaneously pack material while still wet into disposal bags.

3.2.7.1.7 Twist the neck of bags, bend over and seal with minimum three wrap of duct tape. Clean outside of bag and move to washdown station in the EDF.

3.2.7.1.8 Seal the edges and openings of the block wall with fire-retardant spray-foam or equivalent after the opening has been visually inspected by the independent project monitor and before the final air clearance

3.2.7.2 Removal/Disturbance of CMU WALLS with Friable Asbestos-Containing Spray-on Insulation Materials (<3 SF or <3 LF of Materials)

3.2.7.2.1 MEP Contractor will mark all locations where opening will be required through CMU and/or sheet rock walls and ceilings.

3.2.7.2.2 Restrict area with warning signs and physical barriers. Place 6-mil plastic sheeting on the floor and use OSHA approved Glove Bag method.

3.2.7.2.3 Seal a glove bag on the back side of the CMU or sheet rock wall where penetrations will be made to catch any materials that may break through when the core/hole is made.

3.2.7.2.4 Use a drill or core machine with a manufacturer's approved HEPA shroud, of the same brand and make of the drill being used, to core holes in the locations designated by the MEP contractor.

3.2.7.2.5 Seal the edges of the core opening with Owner approved material to allow others to place a sleeve or lag bolts in the opening.

3.2.7.2.6 HEPA vacuum the air out of the glovebag secured to the wall and then seal with duct tape before removing it from the wall.

3.2.7.3 Asbestos Sheet Rock Removal Procedures

Mist work area continuously with amended water whenever necessary to reduce airborne fiber levels. Ensure that the water penetrates the sheet rock before removal. Remove the sheet rock in large pieces to prevent generating large amounts of dust and place all waste directly into waste containers/disposal bags. Do not allow sheet rock waste to accumulate on the containment floor.

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3.2.7.4 Chalk Board/Tack Board Adhesive Removal Procedures

All mastic/adhesive removal shall be accomplished using mechanical and hand grinding tools. Chemical removal shall not be used without the written consent of the Owner.

3.2.7.5 Final Cleaning Procedures

Final cleaning procedures shall be initiated after gross removal and double bagging of ACM waste has been completed. At a minimum, final cleaning shall consist of HEPA vacuuming and wet wiping all exposed surfaces in the work area.

3.2.7.6 Lockdown Encapsulation

Lockdown encapsulation shall be applied to seal nonvisible residue on all surfaces in the work area, including those surfaces from which ACM was removed. Encapsulant shall be applied using airless spray equipment. Spraying shall occur at the lowest pressure range possible to minimize fiber release from encapsulant impact at the surface. It shall be applied with a consistent horizontal or vertical motion.

3.2.8 Exterior Asbestos Removal Procedures (Caulk)

Exterior asbestos abatement areas shall be performed as follows:

3.2.8.1 The work area shall be the area from which ACM materials are being

removed and shall extend 25 feet from the perimeter of the removal area.

3.2.8.2 Non-certified workers are not allowed in the work area until it is cleared by the asbestos project monitor.

3.2.8.3 Remote personnel decontamination enclosures shall be constructed outside of the work area, as close to the regulated abatement work area as physically possible, but no greater than fifty (50) feet from the building.

3.2.8.4 All openings within twenty-five (25) of the work areas shall be sealed with two layers of 6-mil polyethylene sheeting.

3.2.8.5 The Contractor is required to provide temporary protection of the building at the end of each work shift to maintain the building in a watertight condition.

3.2.8.6 Dumpsters used for waste storage shall be lined with two layers of six mil polyethylene sheeting. The top of the dumpster shall be closed with polyethylene sheeting that is sealed at the end of each work shift.

3.2.8.7 Personal protective equipment, including respirators, shall be utilized and worn during all removal operations until the work area is cleared by the asbestos project monitor.

3.2.9 Air Sampling

The contractor is responsible for performing personal air sampling in accordance with 29 CFR 1926.1101. Area air sampling, including pre-abatement, during abatement and post-abatement will be carried out by the Project Monitor, as required by the client and in compliance with applicable State and Federal regulations.

3.2.10 Inspection of Work

While performing asbestos removal work, the contractor shall be subject to on-site inspection by the Project Monitor and other representatives of the Owner. If the work is found to be in violation of this specification, the Owner's representative will immediately issue a stop work order to be in effect and until the violation is resolved. All related costs including standby time required to resolve the violation shall be at the contractor's expense.

3.2.10.1 Final Visual Inspection

The contractor will notify the Project Monitor when asbestos removal is completed in each work area so that a final visual inspection can be scheduled. The Project Monitor will inspect the area, accompanied by Asbestos Worker Supervisor. During the inspection, the Project Monitor will identify any areas where remedial action is required, including damaged containment barriers, defective or malfunctioning HEPA filter units, asbestos and non-asbestos debris, and any safety violations. If the area is deemed satisfactory by the Project Monitor, the contractor will be permitted to proceed with lockdown encapsulation of the work area. If the visual inspection is not satisfactory, the contractor will bear the added cost of re-cleaning and re-inspecting the area.

3.2.10.2 Clearance Air Testing

The Project Monitor will perform clearance air testing in each work area where ≥3 square feet or ≥3 linear feet of suspect materials area removed, after cleaning has been completed and lockdown encapsulation has dried. The contractor shall not dismantle the containment barriers, decontamination facilities or engineering controls until the Project Monitor provides an executed Certification of Final Visual Inspection (Attachment 028213-1) and laboratory analysis report indicating that the clearance air test results are satisfactory. Re-occupancy air samples for all work areas containing more than or equal to 160 square feet or 260 linear feet of asbestos containing materials shall be Transmission Electron Microscopy air samples (TEM) in accordance with AHERA regulations. All other air samples shall be analyzed by Phase Contrast Microscopy (PCM) in accordance with NIOSH Method P&CAM 7400.

For PCM air samples the re-occupancy air monitoring shall be considered satisfactory when every sample is less than or equal to 0.01 f/cc. For TEM air samples the re-occupancy air monitoring shall be considered satisfactory when the average of all the inside samples is less than 70 structures/mm2. If the clearance air test results are not satisfactory, the contractor will bear the added cost of re-cleaning, re-inspecting, and retesting the area.

Final clearance air testing will not be required in all abatement areas where demolition of the existing structure is to follow. This only applies if the building is not to be reoccupied and demolition is to follow immediately after the abatement, final visual and encapsulation are completed.

3.3 CLEAN-UP AND DISPOSAL

3.3.1 Disposal of Asbestos

3.3.1.1 Procedure for Disposal

Collect asbestos waste, asbestos contaminated water, scrap, debris, bags, containers, equipment, and asbestos contaminated clothing which may produce airborne concentrations of asbestos fibers and place in sealed fiber-proof, waterproof, non-returnable containers (e.g. double 6-mil plastic bags, cartons, drums or cans). Wastes within the containers must be adequately wet in accordance with 40 CFR 61-Subpart M. Affix a warning and Department of Transportation label to each container and/or bag. The name of the abatement contractor and license number, the name of the waste generator and the location at which the waste was generated shall be clearly indicated on the outside of each container. Prevent contamination of the transport vehicle. These precautions include lining the vehicle cargo area with plastic sheeting and thorough cleaning of the cargo area after transport and unloading of asbestos debris is complete. Dispose of waste asbestos materials at an EPA and State-approved asbestos landfill. Consolidation of loads at an asbestos waste transfer station is permissible provided that the transfer station is properly permitted under regulations of the State of Connecticut. Workers unloading the waste containers shall wear appropriate respirators and personal protective equipment when handling asbestos materials at the disposal site.

3.3.1.2 Transportation and Disposal Site

The following shall apply to the Contractor's waste hauler and disposal site:

- The Contractor's hauler and disposal site shall be approved by the Owner.
- Waste shall be removed from the site only during normal working hours unless otherwise specified or approved by the Owner.
- All waste generated as part of the asbestos project shall be removed from the site with ten (10) calendar days after successful completion of all asbestos abatement work.
- Unless specifically approved by the Owner, the Contractor shall not permit any off-site transfers of the waste or allow the waste to be transported or combined with any other off-site asbestos materials. The Hauler must travel directly to the disposal site as identified on the notifications with no unauthorized stops.

3.3.1.3 Asbestos Waste Shipment Records

For each shipment of asbestos waste generated at the site, the contractor shall supply the owner with a properly executed Waste Shipment Record, in accordance with 40 CFR 61-Subpart M. The contractor shall notify the owner and contact the EPA regional office if a copy of the waste shipment record, signed by the owner or operator of the disposal site, is not received within 35 days of the date the waste was accepted by the transporter.

PART 4 - LEAD SPECIFICATIONS

4.1 SUMMARY

4.1.1 Work Included: The removal and disposal of lead containing materials in accordance with the Contract Documents. The Work of this Section shall include, but not be limited to the following:

4.1.1.1 Removal of lead-containing building materials listed in Attachment 028213-3.
4.1.1.2 Transportation of any lead hazardous waste to an approved disposal site by a licensed lead waste hauler.
4.1.1.3 Disposal of lead-containing waste materials at an approved lead waste disposal site.

4.1.2 Lead Paint Warning: All contractors shall comply with the requirements of the OSHA Construction Standard for Lead (29 CFR 1926.62) when disturbing painted surfaces at this facility.

The lead paint screening conducted at this facility does not meet OSHA requirements for identifying lead paint subject to OSHA regulations because OSHA does not recognize any method of paint file evaluation as an acceptable means of determining the applicability of these regulations. It is the responsibility of contractors on this project to determine which of their activities are subject to the OSHA construction standard for lead and to implement all controls required by that standard at no additional cost to the Owner.

All paint on existing structural steel at this facility shall be handled as “lead-based-paint” unless proven otherwise. Any testing conducted to prove otherwise shall be at the expense of the party requiring such proof.

4.2 APPLICABLE LEAD STANDARDS

4.2.1 The lead regulations listed below are applicable to this project:

1. 29 CFR 1926.62 - OSHA Lead Standard for the Construction Industry
2. 40 CFR Parts 260-270 (RCRA) - EPA Regulations for Hazardous Wastes
3. Section 406 (B) - Toxic Substances Control Act (TSCA)
4. “Guidance for the Management and Disposal of Lead-Contaminated Materials Generated in the Lead Abatement, Renovation, and Demolition Industries” dated November 4, 1994, revised November 21, 2005, and updated May 18, 2007.
5. EPA’s 2008 Lead-Based Paint Renovation, Repair and Painting Program Rule (as amended in 2010 and 2011)

Notes: If there is a conflict between any of the applicable regulations listed above, the contractor shall conduct the work in accordance with the more stringent requirements.

If there is a conflict between these specifications and any of the regulations listed above, the contractor shall inform the Owner and conduct the work in accordance with the regulations.

4.3 CONTRACTOR QUALIFICATIONS

4.3.1 The work described in these specifications shall be carried out by persons who are knowledgeable, qualified, and trained in the removal, treatment and handling of lead

paint, and the subsequent cleaning of the affected environment. The lead abatement contractor shall always have a competent supervisor on site during lead abatement work. This person's training shall comply with all applicable State and federal requirements.

4.3.2 The lead abatement contractor shall be licensed by the State of Connecticut Department of Public Health and shall have maintained their current license, in good standing, for a minimum of five (5) years.

4.4 FILINGS AND SUBMITTALS

4.4.1 The lead abatement contractor shall be responsible for securing all required permits for the work of these specifications, including obtaining the temporary EPA ID number, and for paying all applicable fees.

4.4.2 The lead abatement contractor shall submit the following materials to the Owner prior to starting the work, and shall provide copies of the materials at the job site:

1. Names of workers/supervisors assigned to the project
2. Medical examination records for all workers/supervisors
3. Respirator fit test records for all workers/supervisors
4. The contractor's respiratory protection plan
5. The contractor's site safety plan
6. Name and permits for waste hauler and disposal
7. Certificate of insurance
8. Copies of original training and refresher certificates for all workers/supervisors

4.5 PROJECT RESPONSIBILITIES

4.5.1 The lead abatement contractor shall furnish all labor, services, materials, equipment, tools, and supplies necessary to complete the work in a professional and timely fashion.

9.5.2 An industrial hygienist may be retained at the Owner's expense to monitor the work and will be retained to perform post-abatement testing services. If hired to monitor the work on a full-time basis, the hygienist will be authorized by the Owner to stop or direct changes in work procedures if the safety of workers or building occupants is being compromised.

4.6 OWNER'S RESPONSIBILITIES

4.6.1 The owner shall notify the historical society of the lead abatement project if the property is over fifty years old. Notification shall be sent to:

Connecticut Historical Commission/Preservation
59 South Prospect Street, Hartford, CT 06106
Phone: (860) 566-3005 Fax: (860) 566-5078

9.6.2 The owner shall vacate all abatement areas and provide unrestricted access to the required building areas.

4.7 MATERIAL AND EQUIPMENT

4.7.1 Prior to the start of work the contractor shall provide and maintain enough quantity of materials and equipment to assure continuous and efficient work throughout the

project. Do not start work unless the following items have been delivered on site and the contractor supervisor has submitted verification to the Owner to this effect:

4.7.1.1 Flame-resistant polyethylene sheeting 4 and 6 mil in clear, opaque, and black shades, moisture resistant duct tape capable to continuously sealing polyethylene through project abatement duration, lumber, drywall and plywood for enclosure, posters, signs and notices.

4.7.1.2 Installation and plumbing hardware, shower stalls, hoses, drain pans, sump pumps and water storage drums or wastewater filters.

4.7.1.3 Scrapers, brushes, brooms, staple guns, shovels, ladders and scaffolds of suitable height and length, water hose to reach all areas, airless spray equipment, and other hand tools, electric cords, electric power with ground fault interruption.

4.7.1.4 Impermeable drums and 6 mil polyethylene bags for lead containing waste; spray adhesive free of methylene chloride to seal seams on polyethylene material.

4.7.1.5 Respirators, disposable and recyclable protective clothing, goggles, gloves, and footwear.

4.7.2 Deliver materials to the job site in their original packaging or containers. Store all materials away from damage, weather, and contamination. Protect polyethylene from cold exposure. Do not store flammable material inside buildings. Inspect material regularly for damage, deterioration, or contamination. Discard any damaged material. Discard waste per these specifications. Do not block or hinder use of site by employees and visitors of the site by placing or storing material in any unauthorized place.

4.8 ENCAPSULANTS

4.8.1 The use of encapsulants is not anticipated for this project.

4.9 REQUIRED POSTING OF LEAD WORK AREAS

4.9.1 The work areas shall be vacated by all unauthorized personnel while lead remediation work is in progress.

4.9.2 All entrances to the work area shall be posted in accordance with 29 CFR 1910.1200(f) of OSHA's Hazard Communication Standard:

4.10 LEAD DECONTAMINATION FACILITIES

4.10.1 A worker decontamination facility (wash-up station) shall be established prior to the commencement of lead abatement or cleaning. The facility shall be accessible to the work area and located inside the building on the floor where lead abatement work is taking place.

4.10.2 The decontamination facility shall provide a changing area with storage for equipment and protective clothing and for street clothes. The worker decontamination facility shall be supplied with hot and cold water, soap, disposable towels, and a container for disposal of towels and other lead-contaminated wastes.

4.11 WORK AREA ENTRY/EXIT

4.11.1 Before entering any work area, all workers and authorized visitors shall proceed to the decontamination facility, remove all street clothing, and store these items in the designated changing area. The individual shall then don respiratory protection and disposable coveralls with hoods and foot coverings.

4.11.2 On exiting the work area, the worker or visitor shall proceed to the decontamination facility. In the decontamination area, the individual shall remove the protective clothing and respirator, and wash face and hands before leaving the area.

4.12 RESPIRATORY PROTECTION - LEAD

4.12.1 Respiratory protection shall be worn by all individuals inside the work area from the initiation of the lead abatement project until the area has successfully passed the re-occupancy criteria. The contractor shall provide all respirators and they shall be NIOSH approved.

4.12.2 The contractor shall conduct an exposure assessment in accordance with 29 CFR 1926.62, at the initiation of the operation to ascertain expected exposures during the project. The assessment must be completed in time to comply with the requirements which are triggered by exposure data or the lack of a "negative exposure assessment", and to provide information necessary to assure that all control systems planned are appropriate for that operation and will work properly.

4.12.3 The contractor shall provide respirators that meet the minimum requirements, based on the initial exposure assessment and personal air monitoring results for the project.

4.13 LEAD WORK AREA PREPARATION

4.13.1 Restrict access to the work area by placing barrier tape around the perimeter and posting warning signs. A layer of 6-mil protective sheeting shall be placed on the floor of the room where the lead item will be removed. The protective sheet shall be taped to the wall to prevent dust and water from getting behind/under the floor sheeting. All work area preparation is to conform to State, Local and Federal regulations.

4.13.2 Once the area has been set up, employ work procedures that result in an 8-hour Time Weighted Average (TWA) airborne lead level less than the OSHA Permissible Exposure Level (PEL). If the airborne lead exceeds this level, stop work immediately and mist the area with water to lower the airborne lead and revise work procedures to maintain the level within the required limit.

4.14 LEAD WASTE DISPOSAL

4.14.1 Based on the amount of material to be removed and disposed of as lead hazardous waste the hazardous waste generator status for this project is determined to be a Small Quantity Generator “SQG”

4.14.2 All items listed in the scope of work have not been sampled by TCLP procedures and have instead been assumed to be hazardous lead waste. This material should not be mixed to reduce the lead content to acceptable levels without proper TCLP sampling.

Hazardous Lead Waste includes any class of materials found to have TCLP-Lead content greater than 5.0 Parts per Million (PPM).

4.14.3 Any waste materials that are not being recycled as described above shall be treated and disposed of as hazardous waste.

4.14.4 All lead waste on site shall be immediately placed in the appropriate disposal containers. Disposal containers must be properly labeled and dated, maintained in good condition, leak proof and made weather tight at the end of each work shift. All costs associated with wastewater and leaks that occur from failure to properly secure containers shall be the sole responsibility of the Contractor

4.14.5 The Contractor must pay special attention to pages 20 – 26 of the “Guidance for the Management and Disposal of Lead-Contaminated Materials Generated in the Lead Abatement, Renovation, and Demolition Industries” dated November 4, 1994, revised November 21, 2005, and updated May 18, 2007. If the Contractor fails to comply with the monitoring requirements, the Owner’s environmental representative shall perform these necessary duties and the Contractor shall bare all associated costs.

4.14.6 After the project, the contractor shall furnish copies of properly executed waste manifests to the Owner. Final payment for the work will not be issued until all the waste manifests have been delivered.

END OF SECTION 028213

ATTACHMENT 028213-1 CERTIFICATION OF FINAL VISUAL INSPECTION

Work Area: _____

CONTRACTOR'S CERTIFICATION

As the contractor's authorized representative, I have visually inspected the work area (all surfaces including pipes, beams, ledges, walls, ceiling, and floor), and certify that the area is free of any dust, debris, or asbestos-containing materials or residue. I further certify that the asbestos abatement work was carried out in conformance with the specifications and all applicable State, Federal and Local regulations.

_____ _____

Abatement Contractor's Representative Date

PROJECT MONITOR'S CERTIFICATION

As the Project Monitor, I have performed a final visual inspection of work area and conducted clearance air testing. The inspection found the area free of visible asbestos residue, and clearance air test results met the release criteria for the work area.

_____ _____

Project Monitor Date

All costs associated with the performance of repeat clearance air testing as the result of failed clearance air sample results shall be borne by the Contractor.

ATTACHMENT 028213-2
INVENTORY OF ASBESTOS CONTAINING BUILDING MATERIALS

BASE BID

ACBM Description	Location (s) in Building	Estimated Quantity	Comments
Spray-on Insulation	1970 Building – Inside CMU block walls, original wall chases and wall cavities	Not Available	Any penetrations through or disturbances on the CMU block walls, original wall chase, and wall cavities in the 1970 building will impact asbestos containing spray-on insulation. All demolition on CMU walls and all penetrations through CMU walls must be performed by the asbestos abatement contractor.
Chalkboard & Tackboard Adhesive	1975/77 Building – Room 217, 221, 323, 327, 328	9 boards/locations	The boards in the locations where the new chases will be built shall be removed.
Sheet Rock Joint Compound	1970 & 1975/77 Building - In most classrooms one or two walls have sheet rock present. - Sheet rock is present above lockers in the halls - Some sheet rock ceilings are present in limited locations in hallways	Not Available	Any penetrations through or disturbances on the sheet rock ceilings or walls must be performed by the asbestos abatement contractor.
Gray Caulk Behind Window Panels	1977 Building	Not Available	In each room where the unit ventilator will be removed, the panel will be removed and filled. The caulk must be removed by the asbestos abatement contractor.
Electrical Backer Boards	1970 3rd Floor NE Electrical Closet 1970 2nd Floor NE Electrical Closet	1 Unit/location	The backer boards and clips on the interior of the unit are assumed to be asbestos containing. The removal of the board and the anchors may disturb spray-on in the CMU walls

ALTERNATE #01

ACBM Description	Location (s) in Building	Estimated Quantity	Comments
Spray-on Insulation	1977 Building – Inside CMU block walls, original wall chases and wall cavities	Not Available	Any penetrations through or disturbances on the CMU block walls, original wall chase, and wall cavities in the 1977 building will impact asbestos containing spray-on insulation. All demolition on CMU walls and all penetrations through CMU walls must be performed by the asbestos abatement contractor.

ATTACHMENT 028213-3
SITE INVENTORY OF LEAD HAZARDOUS MATERIALS

Material	Comments
Interior Structural Steel	If welding is to occur on any structural steel, the paint must first be removed on all sides of the beam a minimum of 1-foot from the weld point/location.

ATTACHMENT 028213-4
PROJECT DESIGNER LICENSE

WALLET CARD

STATE OF CONNECTICUT
DEPARTMENT OF PUBLIC HEALTH

NAME
JAMES M. TWITCHELL

VALIDATION NO. 03-976839
CERTIFICATE NO. 001822
CURRENT THROUGH 07/31/23

PROFESSION
LEAD INSPECTOR RISK ASSESSOR

SIGNATURE
COMMISSIONER

WALLET CARD

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NAME
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STATE OF CONNECTICUT
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NAME
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