

# ASBESTOS TECHNICAL SPECIFICATIONS

COMMONWEALTH OF VIRGINIA  
DEPARTMENT OF PROFESSIONAL &  
OCCUPATIONAL REGULATION (DPOR)



VIRGINIA ASBESTOS LICENSE  
PROJECT DESIGNER  
ROBIN H. LIEBAL  
No. 000309

*Robin H. Liebal*



P.O. Box 6158,  
Christiansburg, VA 24073  
Cell: (540) 230-4024  
Office: (540) 381-7999  
[www.best-hdht.com](http://www.best-hdht.com)

**SECTION 02 82 13  
ASBESTOS ABATEMENT**

**PART 1 – GENERAL**

1.01 DESCRIPTION OF WORK:

The work includes the removal and disposal of friable and non-friable materials containing asbestos indicated and specified herein and the incidental procedures and equipment required to protect workers from contact with airborne asbestos fibers. The Contractor shall furnish all labor, materials, services, insurance and equipment required for the removal and disposal of asbestos-containing materials in accordance with the guidelines or regulations of the responsible state agency, the local agency, EPA or OSHA. The work at the **Elliott Building, 179 & 181 East Main Street, Abingdon, VA** includes, but is not necessarily limited to the following:

- A. All preparation of the work areas and areas outside the work areas prior to beginning asbestos removal work.
- B. Removal and disposal of all asbestos materials and waste materials contaminated with asbestos during the process of the work and any other debris generated by this project. Asbestos containing or contaminated material includes but may not be limited to the following:

**PIPE INSULATION – Approx. 150 LF (Includes elbows & tees)**

**(The majority in basement & crawlspace. May be in walls or ceilings but not identified during this investigation.)**

**CONTAMINATED SOIL IN CRAWLSPACE**

**(All visible insulation debris & at least 3” of soil within 6’ of pipe)**

**LINOLEUM – GREEN – 2<sup>nd</sup> Floor – Approx. 25 SF**

**FLOOR TILE and/or MASTIC**

- GENERATOR RM. – Approx. 400 SF
- BATHROOM – Approx. 35 SF
- BASEMENT – TAN – Approx. 35 SF
- UNDER CARPET – Approx. 1500 SF
- ALL 9X9 – Approx. 2200 SF

**EXT. WINDOW GLAZING & FRAMING CAULKS**

**2<sup>nd</sup> Floor – All Units – Approx. 22**

**EXT. WINDOW GLAZING – BASEMENT – Approx. 3 units**

**EXT. DOOR FRAMING – BASEMENT & STAIRWELL ENTRANCE**

- Approx. 2 units

**CEMENTIOUS STOREFRONT PANELS - Approx. 130 SF**

**CEMENT ON PIPE ACCESS – Approx. 2 SF (At rear of Bldg.)**

**ASSUMED TO BE ACM**

- ALL FIREDOORS

- ALL BUR ROOFING SYSTEMS &  
CEMENTS THAT MAY BE PRESENT  
UNDER EXISTING EPDM

**ALL FOOTAGE AND LOCATIONS ARE APPROXIMATE. SEE PHOTOS  
IN SURVEY PROVIDED. EXISTING CONDITIONS TO BE VERIFIED BY  
THE CONTRACTOR.**

- C. Complete cleaning and decontamination of all work areas and contents thereof.
- D. A lead-based paint inspection was performed and lead-based paint was found in the areas indicated on the lead report included in the specifications. The contractor shall be responsible for compliance with all requirements of the Virginia Occupational and Health Administration regulations regarding lead-based paint protection for workers. Evidence of worker training, RRP or Lead awareness, shall be provided prior to the onset of demolition activities.
- E. The Contractor is solely responsible for meeting all Local, State and Federal requirements for the protection of his personnel and the environment during demolition activities. Testing of demolition debris (TCLP's) to determine its disposition as hazardous waste and its proper disposal is the sole responsibility of the Contractor. Results of such tests and waste manifests shall be provided to the Owner at the completion of the project. If metal demolition components are recycled, the contractor shall be responsible for notification to the recycler that the components utilize Lead Based Paint.

1.02 TERMINOLOGY:

- A. *Amended Water:* Water containing a wetting agent or surfactant.
- B. *Asbestos Control Area:* An area where asbestos removal operations are performed which is isolated by physical boundaries to prevent the release of asbestos dust, fibers, or debris.
- C. *Authorized Visitor:* The Owner's representative, or a representative of any regulatory or other agency having jurisdiction over the project.
- D. *Friable Asbestos Material:* Material when dry, may be crumbled, pulverized or reduced to powder by hand pressure and includes previously non-friable material after such previously non-friable material becomes damaged to the extent that when dry is may be crumbled, pulverized, or reduced to powder by hand pressure.
- E. *HEPA Filter Equipment:* High-efficiency particulate air filtered vacuuming equipment with a filter system capable of collecting and retaining asbestos fibers. Filters shall be of 99.97 percent efficiency for retaining fibers of 0.3 microns or larger.
- F. *Negative Pressure:* A local exhaust system capable of maintaining a minimum pressure differential of minus 0.02 inch of water column relative to adjacent unsealed areas.
- G. *Non-friable Asbestos Material:* Material that contains asbestos in which the fibers have been locked in by a bonding agent, coating, binder, or other material so that

the asbestos is well bound and will not release fibers during any appropriate use, handling, demolition, storage, transportation, processing or disposal.

- H. *Owner's Representative:* Person designated in the contract as authorized individual (or his designee) to represent and mediate for the Owner in administration of the Contract.
- I. *Project Monitor:* One or more individuals employed by the Owner to inspect the Work and/or to act as clerk of the works to the extent required by the Owner. The Owner shall notify the Contractor in writing of the appointment of such Project Monitor(s).
- J. *Surfactant:* A chemical wetting agent added to water to improve penetration, thus reducing the quantity of water required for a given operation or area.
- K. *Wet Cleaning:* The process of eliminating asbestos contamination from building surfaces and objects by using cloths, mops, or other cleaning tools which have been dampened with water, and by afterwards disposing of these cleaning tools as asbestos-contaminated waste.

#### 1.03 CONFORMANCE TO REGULATORY REQUIREMENTS:

- A. In addition to detailed requirements of this specification, the contractor shall comply with laws, ordinances, rules, and regulations of federal, state, regional, and local authorities regarding handling, storing, transporting and disposing of asbestos waste materials. Comply with the applicable requirements of the current issue of the following regulatory agencies:
  - 1. Title 29, Code of Federal Regulations, Section 1926.1101 (OSHA) Occupational Safety and Health Administration, U.S. Department of Labor and the Virginia Occupational Safety and Health Standards for Industry, Department of Labor and Industry Construction.
  - 2. Title 40, Part 61, Subparts A and B. Regional National Emissions Standards for Hazardous Air Pollutants. (EPA) U.S. Environmental Protection Agency.
  - 3. 40 CFR Part 763 Subpart E , Appendix D.
- B. Submit matters of interpretation of standards to the appropriate administrative agency for resolution before starting the work. Where the requirements of this specification and referenced documents vary, the most stringent requirement shall apply.

C. When required, written notification shall be made to:

1. Department of Labor and Industry  
Attn: Accounting/Finance  
Main Street Centre  
600 East Main Street, Suite 207  
Richmond, Virginia 23219
2. Asbestos Coordinator  
USEPA Region III  
Mail Code 3LC62  
1650 Arch Street  
Philadelphia, PA 19103-2029
3. Notification shall be sent not later than 20 days prior to commencement of the work with a copy sent for the Owner's Representative. Notification shall be on a Form provided by the Commonwealth of Virginia, Department of Labor and Industry.

1.04 BUILDING PROTECTION:

The asbestos control area shall be maintained under negative pressure at all times of a minimum of .02 inches of water column relative to adjacent unsealed area. A minimum of 4 air changes per hour is required.

1.05 SUBMITTALS:

Submittals shall be made in accordance with procedures set forth in Section "Submittals."

- A. Notification to Regulatory Agencies: Submit a copy of the notification of the proposed asbestos work as required under paragraph "Conformance to Regulatory Requirements."
- B. Asbestos Plan: Submit a detailed plan of the work procedures to be used in the removal and demolition of materials containing asbestos. Such plan shall include interface of trades involved in the construction, sequencing of asbestos related work, disposal plan, type of wetting agent to be used, air monitoring, and a detailed description of the method to be employed in order to control pollution. Plan shall be approved prior to start of the work.
- C. Testing Laboratory: Submit the name, address, telephone number, and copy of the VA Asbestos Laboratory License of the testing laboratory selected for the monitoring of the airborne concentrations of asbestos fibers along with certification

that persons counting the samples have been judged proficient by successful participation in the National Institute for Occupational Safety and Health (NIOSH) Proficiency Analytical Testing (PAT) Program.

- D. Disposal: Must comply with 40 CFR Part 763 Subpart E Appendix D
1. Submit evidence that all required permits for transport disposal of asbestos containing or contaminate materials, supplies, and the like have been obtained.
  2. Submit certified copies from the operator of the asbestos disposal site that the asbestos has been received, within 30 days of removal, specifying quantities and dates of delivery.
- E. Employee Qualification, Virginia Licensure Requirements:
1. Submit documentation indicating that all employees have had instruction on the hazards of asbestos exposure, on use and fitting of respirators, on protective dress, on use of showers, on entry and exit from work areas, and on all aspects of work procedures and protective measures, in accordance with OSHA and the EPA.
  2. Submit documentation of each employee's asbestos medical examination.
- F. Respirator Program: Submit a copy of the company's written respirator program in compliance with OSHA regulations. The Contractor shall have a copy of his written respirator program available on the job site at all times. Start job with appropriate respiratory protection based on a Negative Exposure Assessment (NEA) and ensure that fiber concentration inside mask does not exceed .01 fibers/cc. Use historic or objective data, documenting expected fiber count levels, to prove the proposed respiratory protection is adequate or an OSHA required Negative Exposure Assessment.
- G. Submit a written Assured Equipment Grounding Program and a Lock Out and Tag Out Program. Provide proof that programs are in effect and being enforced.
- H. Equipment: Submit manufacturer's certification that vacuums, ventilation equipment, and other equipment required to contain airborne fibers conform to ANSI 29.2-79.
- I. Submit proof of valid Virginia asbestos licenses for contractor, supervisor and workers.

## 1.06 PERSONNEL PROTECTION:

- A. Provide workers with personally issued and marked respiratory equipment in accordance with Paragraph "Equipment." Where respirators with disposable filters are employed, provide sufficient filters for replacement as required by the worker or applicable regulation.
- B. Provide workers with sufficient sets of protective full-body clothing. Such clothing shall consist of full-body overalls and headgear, gloves and foot coverings. Provide hard hats as required by applicable safety regulations. Non-disposable-type protective clothing and footwear shall be left in the contaminated equipment room until the end of the abatement work, at which time such items shall be disposed of as asbestos waste, bagged and removed as asbestos-contaminated or shall be thoroughly cleaned of all asbestos or asbestos-containing material. Disposable-type protective clothing, headgear, gloves and footwear will be provided.
- C. Provide authorized visitors with suitable protective clothing, headgear, gloves, eye protection and footwear, as described herein, whenever they are required to enter the work area.

## PART 2 – PRODUCTS

### 2.01 MATERIALS:

- A. Sheeting: Polyethylene sheet, minimum 6 mils thick unless otherwise specified, in sizes to minimize the frequency of joints.
- B. Tape: Glass fibers or other type capable of sealing joints of adjacent sheets of polyethylene sheets and for attachment of polyethylene sheet to finished or unfinished surfaces of dissimilar materials under both dry and wet conditions, including use of amended water.
- C. Surfactant (Wetting Agent): Shall consist of 50-percent polyoxylethylene ether and 50 percent of polyoxylethylene or polyglycol ester, or equivalent and shall be mixed with water to provide a concentration of 1 ounce surfactant to 5 gallons of water.
- D. Impermeable Containers: Containers shall be suitable to receive and retain any asbestos-containing or contaminated materials until disposable at an approved site. They may be in the form of polyethylene bags, sealed cardboard containers, or fiber drums. The containers shall be labeled in accordance with OSHA Regulation 29 CFR 1926.58, NESHAP 40 CFR Part 61, and DOT Regulations. Containers shall be both airtight and watertight.

## 2.02 EQUIPMENT:

- A. Air-Handling Equipment: Equipment shall be a high-efficiency particulate air (HEPA) filtration system, equipped with filtration equipment in compliance with ANSI 29.2-79, and a monitoring device, known as a manometer, to continuously gauge and record negative pressure conditions. Manometer tape to be retained by Contractor for future reference by Owner if necessary. No air-movement system or air equipment shall discharge asbestos fibers outside the work area. Pressure shall be maintained at a minimum of -.02 inches of water column relative to adjacent unsealed areas. A minimum of 1 air change every 15 minutes will be required.

## **PART 3 – EXECUTION**

### 3.01 PREPARATION OF WORK AREAS:

- A. Provide temporary power sources and equipment per applicable electrical code requirements and provide 24-volt safety lighting and ground-fault interrupter circuits as power source for electrical equipment.
- B. Seal off all openings, including, but not limited to, corridors, doorways, skylights, ducts, grilles, diffusers, and any other penetrations of the work areas, with plastic sheeting sealed with tape. Doorways and corridors which will not be used for passage during work must be sealed with barriers as described in Paragraph "Decontamination Enclosure Systems."
- C. When applicable, carpet in work area to be removed under containment conditions as contaminated or as directed by the project monitor. Cover surfaces that aren't being removed, with plastic sheeting sealed with tape. Use a minimum of two layers of minimum 6-mil plastic on floors and walls. Cover floors first so that plastic extends at least 12 inches up on walls, then cover walls with a minimum of 6-mil plastic sheeting to the floor level.
- D. Sealing of critical barriers and non-movable objects only will be acceptable during the removal of those Non-Friable asbestos materials in areas where smooth, non-porous surfaces shall be exposed.
- E. Exterior ACM, such as windows, caulks, panels, roofing, etc., are to be removed using barrier tape on the building exterior a minimum of 10' from work area and ground cover. Workers are to don personal protective clothing and respiratory protection.
- F. Maintain emergency and fire exits from the work areas, or establish alternative exits satisfactory to the applicable fire officials.



- G. Provide 5.0-micron filters on all shower drains. Asbestos-contaminated waste water is to be placed in a sanitary sewer system after filtration through the 5.0 micron filter.
- H. After preparation of the work areas and decontamination enclosure systems, remove Asbestos Containing Building Material as required.

### 3.02 DECONTAMINATION ENCLOSURE SYSTEMS:

- A. Worker Decontamination Enclosure System: Construct a worker decontamination enclosure system contiguous to the work area consisting of three totally enclosed chambers and air locks as follows:
  - 1. An equipment room with two curtained doors, one to the work area and one to the air lock.
  - 2. Air lock with two curtained doors, one to equipment room and one to shower room.
  - 3. A shower room with two curtained doorways, one to the air lock on work room side and one to the air lock on the clean room side. The shower room shall contain at least one shower with hot and cold or warm water. Careful attention shall be paid to the shower enclosure to ensure against leaking of any kind. Ensure a supply of liquid soap at all times in the shower room.
  - 4. Air lock with two curtained doors, one to shower room and one to clean room.
  - 5. A clean room with two curtained doors, one to the air lock on the shower side and one to the exterior. Clean room shall be constructed to meet or exceed requirements of OSHA Regulations.
  - 6. Separation of Work Areas from Occupied Areas: Separate parts of the building required to remain in use from parts of the building that will undergo asbestos abatement by means of airtight barriers.
  - 7. For abatement of non-friable ACM, the shower may be replaced with a cleaning station consisting of a bucket of clean water, liquid soap and/or wipes for use by employees. Respirators to be cleaned prior to removal and face and all exposed skin cleaned prior to exiting the work area.
- B. Maintenance of Enclosure Systems:

1. Ensure that barriers and plastic linings are effectively sealed and taped. Repair damaged barriers and remedy defects immediately upon discovery.
2. Visually inspect enclosures at the beginning of each work period.
3. Use smoke methods to test effectiveness of barriers when directed by the Project Monitor.

### 3.03 AIR MONITORING:

#### A. General Requirements:

1. Provide daily air monitoring both in and outside the work area throughout all asbestos stripping, removal and cleaning. Outside monitoring samples shall be taken by the Project Monitor.
2. Samples shall be collected by calibrated pumps whose flow rates can be determined to an accuracy of plus or minus 5%. Calibrate pumps with a representative filter in line.
3. Personal air monitoring shall be in compliance with 1926.1101 of the OSHA standards.
4. Analysis of samples shall be done in compliance with OSHA standards 1926.1101 by a competent trained person or laboratory.
5. The sampling schedule shall be posted outside of the containment area showing sample frequency, duration of the sample, and pump flow rates.
6. Results of all samples shall be posted outside of the containment area within 24 hours of collection and maintained there until the job has been concluded. This data shall include the results of 8-hour TWA determinations. Posted results should include a synopsis of work activities of which the results are representative.

#### B. Air Monitoring by Contractor:

1. Throughout the removal and cleaning operations, personal air monitoring shall be conducted by a Testing Laboratory employed by the Contractor or by the Contractor's personnel. Air monitoring shall be performed to provide the following samples:
  - a. work area environmental,
  - b. personal breathing 8-hour TWA and excursion,

Samples for air monitoring shall be collected by a competent person in accordance with methods prescribed in the Federal OSHA Industrial Hygiene Field Operations Manual or by equivalent.

2. The Contractor shall be responsible for personnel and environmental air monitoring samples taken inside the work compartment and all costs in connection with testing and air sampling shall be borne by the Contractor.
3. The Contractor shall determine the release of asbestos from any work or waste storage area is not taking place at concentrations higher than .01 actual fibers/cc.
4. All analytical results shall be presented as signed "Certificates of Analysis." Form shall state:
  - a. date and time sampling began
  - b. flow rate of samples
  - c. sampling time elapsed
  - d. concentration in fibers/cc
  - e. site/individual sampled
  - f. synopsis of work activities which sample was taken
  - g. name and signature of analysts
5. Two copies of analytical results shall be delivered in writing to the job site within 24 hours of sample collection (excluding non-working days). A copy of the results shall be submitted to the Project Monitor when received by the Contractor.
6. Analytical results indicating potential for a hazard higher than limits set forth in this section shall be reported immediately, by the most expeditious means possible, either telephone or carrier, to the Owner.
7. The Project Monitor shall be informed immediately of any area samples outside of the containment with results in excess of .01 fibers/cc actual.
8. Operations shall be discontinued immediately any time emissions are observed emanating from the work area.
9. Contractor will provide a written plan to the Owner stating steps to be undertaken to assure compliance with all regulations, including but not limited to the following:
  - a. qualifications of personnel taking and analyzing samples
  - b. containment procedures
  - c. respirator program
  - d. sampling strategy

### 3.04 ASBESTOS ABATEMENT:

- A. Spray asbestos material with amended water, using spray equipment capable of providing a "mist" application to reduce the release of fibers. Saturate the material sufficiently to wet it to the substrate without causing excess dripping or delamination of the material. Spray the asbestos material repeatedly during work process to maintain wet condition and to minimize asbestos fiber dispersion.
- B. Remove the saturated asbestos material in small sections. As it is removed, pack the material in sealable plastic bags of 6-mil minimum thickness and place in labeled containers or a second plastic bag of 6-mil minimum thickness for transport. If the Contractor chooses plastic bags for transport, the double-bag method of containment will be used. Material shall not be allowed to dry out prior to insertion into the original sealable, plastic bag.
- C. Seal filled containers. Place danger labels on containers in accordance with OSHA regulation 29 CFR 1926.58. Additional labeling indicating the name of the waste generator and the location where the waste was generated shall be affixed to each container in accordance with NESHAP regulation 40 CFR Part 61. Clean external surfaces of containers thoroughly by wet sponging in the designated area of the work area which is part of the equipment decontamination enclosure system. Move containers to washroom, wet clean each container thoroughly, and move to holding area pending removal from the holding area by workers who have entered from uncontaminated areas dressed in clean coveralls. Ensure that workers do not enter from uncontaminated areas into the washroom or the work area; ensure that contaminated workers do not exit the work area through the equipment decontamination enclosure system.
- D. After completion of stripping work, all surfaces from which asbestos has been removed or contaminated shall be wire brushed and/or wet sponged or cleaned by an equivalent method to remove all visible material. During this work, the surfaces being cleaned shall be kept wet.

### 3.05 GLOVE BAG REMOVAL:

- A. All glove bag work will be performed within a controlled area. The controlled area is established by installing critical barriers of minimum 6-mil poly over any doors or other openings as needed. Negative air is to be maintained in this controlled area at all times from initial disturbance of material until final clearance is certified. The use of a negative air glove bag will not preclude this requirement.
- B. Attach glove bag to pipe with ends and top seam securely taped. Leave enough slack in bag so that bag can be lifted at least 3 inches above pipe at center of attached length.

- C. Have all tools needed for removal inside bag, prior to attachment of bag.
- D. Insert and seal hoses for HEPA vac and amended water sprayer.
- E. One person sprays amended water and control HEPA vac hose while other person removes insulation and cleans pipe.
- F. Place tools into glove, pull to outside, and double-tie glove for tool removal. Cut between ties.
- G. After all insulation is removed and pipe cleaning is finished, continue to ventilate the bag for 3 minutes. Adjust airflow to allow full bag venting.
- H. Remove the HEPA vac and water hoses and seal openings.
- I. While vacuuming along the top seal of the bag, remove the bag, twist the top and seal with tape with the top doubled down.
- J. Place sealed glove bag into labeled asbestos disposal bag and seal.
- K. Plastic floor drop cloth and wall poly may be moved as needed, provided that no visible contamination has accumulated. If any contamination exists or job is completed, this poly is to be properly double-bagged and disposed of as asbestos waste.

### 3.06 CLEANUP:

- A. Remove visible accumulations of asbestos material and debris. Wet clean all surfaces within the work area.
- B. The windows and doors shall remain sealed and any HEPA-filtered negative air pressure systems, air filtration, and decontamination enclosure systems shall remain in service until final clearance is certified.
- C. Clean all surfaces in the work area and any other contaminated areas with water and/or with HEPA-filtered vacuum equipment all surfaces in the work area. After completion of the second cleaning operation, perform a complete visual inspection of the work area to ensure that the work area is free of visible asbestos debris.
- D. Sealed drums and all equipment used in the work area shall be included in the cleanup and shall be removed from work areas, via the equipment decontamination enclosure system, at an appropriate time in the cleaning sequence. The transport vehicle shall be lined with two layers of minimum 6-mil. polyethylene sheeting.

- E. If the Project Monitor, within 24 hours, finds visible accumulations of asbestos debris in the work area, the Contractor shall repeat the wet cleaning until the work area is in compliance, at the Contractor's expense.
- F. Final air samples will be taken by the Virginia Licensed Project Monitor and shall certify not to exceed .01 f/cc using the NIOSH 7400 PCM method of analysis. Aggressive sampling methods may be performed. If the final air samples do not meet acceptable standards, the Contractor shall be held responsible for the cost of subsequent sampling. All exits, vents, and critical barriers shall remain sealed and negative air machines will remain on until final clearance is certified.
- G. Contractor shall provide necessary electrical outlets for air clearance equipment.

### 3.07 DISPOSAL:

Comply with 40 CFR PART 763 SUBPART E APPENDIX D, the Virginia Department of Environmental Quality and the Virginia Department of Transportation.

- A. Disposal of Asbestos-Containing Materials and Asbestos-Contaminated Waste: As the work progresses and to prevent exceeding available storage capacity on site, remove sealed and labeled containers of asbestos waste and dispose of such containers at an authorized disposal site in accordance with the requirements of disposal authority. Submit documentation regarding disposal to Owner within 30 days of removal.
- B. Procedure for hauling and disposal shall comply with 40 CFR 61 (Sub-part B), state, regional, and local standards. If drums are chosen as the container for the disposal bags, the bags will be removed by hand from drums into the burial site unless the bags have been broken or damaged. Damaged bags shall remain in the drum and the entire contaminated drum shall be buried. Uncontaminated drums may be recycled. If the double bag method of containment was used, the entire waste package shall be hand placed into the burial site.  
Workers shall wear appropriate respirators and personal protective equipment when handling asbestos materials at the jobsite and at the disposal site.
- C. All procedures are to follow NESHAP regulations, the Virginia Department of Waste Managements' Solid Waste Regulations, the Virginia Department of Transportation and the Virginia Department of Environmental Quality regulations.

**END OF SECTION 02 82 13**