

ASBESTOS ABATEMENT
TECHNICAL SPECIFICATIONS

**Office of Right of Way
Property Management**

**Georgia Department of Transportation
One Georgia Center, 14th Floor
600 West Peachtree Street N.W.
Atlanta, GA 30308**

*Revision 1c
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ASBESTOS ABATEMENT TECHNICAL SPECIFICATIONS

I. SCOPE OF WORK

The Work contemplated and covered in these specifications consists of the equipment, supervision, and **all other services** required for the complete abatement, removal and proper disposal of asbestos-containing or contaminated materials from improvements, structures, or other encumbrances on the right of way or easement areas as identified in specific project areas. The abatement shall be performed by a pre-qualified Georgia licensed asbestos abatement contractor who was awarded a Demolition Contract or is subcontracted to a pre-qualified Demolition Contractor and, herein, will be referred to as the Abatement Contractor. The Abatement Contractor shall hold a current GDOT Right of Way pre-qualification certificate for the Service Classification 10.5 Property Management Services - 10.5.2 Asbestos Abatement. No sub-contractors or contract personnel which have not been pre-qualified and disclosed on the Bid Document may be employed on the project. As right of way properties are acquired for a specific project, an AHERA-accredited, pre-qualified Asbestos Inspector/Site Inspector has surveyed the structures on each parcel and identified asbestos-containing materials (ACM) required for removal to support the planned demolition. The scope of ACM removal includes all ACM identified in attached *Summary: Asbestos Inspection and Pre-Demolition Report* included in *EXHIBIT 1 – Project Requirements and Scope of Services* issued with the Bid Documents.

The *Summary: Asbestos Inspection and Pre-Demolition Report* prepared by the Site Inspector and included in the Bid Document as *Exhibit 1 – Project Requirements and Scope of Services* describes the parcels and specific activities to be performed during the abatement and/or demolition. The Abatement Contractor will submit the Project Notification Form to the GA EPD as directed in *Article IV. Scheduling*. Work will commence immediately after the Notice to Proceed is issued and will be performed in the time frame established on the submitted Project Notification Form.

Any modification to the contents of the Asbestos Abatement Technical Specifications shall be described in *EXHIBIT 1 – Project Requirements and Scope of Services* issued with the Bid Package.

II. QUALITY CRITERIA

A. Qualifications for Performance of Work

1. Abatement Contractor shall:
 - (a) Be a certified and licensed asbestos contractor in accordance with State of Georgia. Submit documentation confirming current licensure.
 - (b) Be pre-qualified by the GDOT Office of Right-of-Way.
 - (c) Utilize workers and supervisors who are trained in accordance with State of Georgia Statutes, and the OSHA Construction Standard (29 CFR 1926.1101) for Class I and II activities. Submit documentation confirming current training.
 - (d) Shall not utilize subcontractors for the performance of the Work.
 - (e) Utilize job-site supervisor who is bi-lingual if the abatement workers on the project are not fluent in English.

B. Training Requirements for Licensed Asbestos Contractors

1. The following training requirements apply to state licensed asbestos abatement contractors who remove all categories of asbestos containing material.

- (a) Each worker shall complete a state approved, EPA accredited, Asbestos Worker course, a minimum of 32-hours in duration, and annual 8-hour refreshers.
- (b) Each Competent Person shall complete a state approved, EPA accredited, Asbestos Supervisor course, a minimum of 40-hours in duration, and annual 8-hour refreshers.

C. Reference Standards

1. The Abatement Contractor acknowledges, by the executing of the Contract, awareness and familiarity with the contents and requirements of the following regulations, codes, and standards, and assumes responsibility for the performance of the Work in strict compliance therewith and, for every instance of failure, to comply therewith.
2. The current issue of each document shall govern. Where conflict among requirements or with the Contract Documents exists, the more stringent requirements shall apply.
 - (a) U.S. Environmental Protection Agency (EPA) Regulations for Asbestos (Code of Federal Regulations Title 40, Part 61, Subparts A and B).
 - (b) U.S. EPA National Emissions Standards for Hazardous Air Pollutants (Code of Federal Regulations Title 40, Part 61, Subpart M).
 - (c) U.S. EPA National Emissions Standards for Hazardous Air Pollutants (Code of Federal Regulations Title 40, Part 61, Appendix A to Subpart M).
 - (d) US EPA Asbestos Hazard Emergency Response Act (AHERA) regulations (Code of Federal Regulations Title 40 Part 763, Subpart E).
 - (e) U.S. Occupational and Safety and Health Administration (OSHA) Asbestos Regulations (Code of Federal Regulations Title 29, Part 1926, Section 1926.1101).
 - (f) U.S. EPA Office of Pesticide and Toxic Substances Guidance Document, "Guidance for Controlling Friable Asbestos-Containing Materials in Buildings", EPA 56015-85-024, June 1985.
 - (g) U.S. Department of Transportation, Hazardous Substances: Final Rule (Code of Federal Regulations Title 49 Parts 171 and 172), Federal Register November 21, 1986 and corrected February 17, 1987.
 - (h) Georgia Asbestos Safety Act, O.C.G.A. Section 12-12-1 *et seq.*
 - (i) Rules of the Georgia Department of Natural Resources, Environmental Protection Division, Chapter 391-3-14, Asbestos Removal and Encapsulation
 - (j) All state, county, and city codes and ordinances as applicable. Make available for review at the site one copy of EPA, OSHA, and applicable State, County, and City Regulations governing the Work.
3. Patent/Copyright Compliance: Comply with all patent and copyright laws involved with processes, equipment and materials regarding the work of the Contract Documents.
4. The Abatement Contractor, his assignees, and successors in interest also agrees to comply with Regulations of the Department of Transportation relative to non-discrimination in Federally-assisted programs herein defined:

- (a) Compliance with Regulations: The Abatement Contractor will comply with the regulations of the Department of Transportation relative to non-discrimination in Federally-assisted programs of the Department of Transportation (Title 15, Code of Federal Regulations, Part 8, herein referred to as the Regulations), which are herein incorporated by reference and made a part of this contract.
- (b) Non-Discrimination: The Abatement Contractor, with regard to the work performed by it after award and prior to completion of the contract work, will not discriminate on the ground of race, color, or national origin in the selection and retention of Subcontractor Contractors, including procurement of materials and leases of equipment. The Abatement Contractor will not participate either directly or indirectly in the discrimination prohibited by Section 8.4 of the Regulations, including employment practices when the contract covers a program set forth in Appendix A-11 of the Regulations.
- (c) Solicitations: In all solicitations either by competitive bidding or negotiation made by the Abatement Contractor for work to be performed under a subcontract, including procurement of materials or leases of equipment, supplier, or lessor, shall be notified by the Abatement Contractor of the Abatement Contractor's obligations under this contract and the Regulations relative to non-discrimination on the ground of race, color, or national origin.
- (d) Information and Reports: The Abatement Contractor will provide all information and reports required by the Regulations, or orders and instruction issued pursuant thereto, and will permit access to its books, records, accounts, other sources of information and its facilities as may be determined by the Department or the Federal Highway Administration to be pertinent to ascertain compliance with such Regulations, orders and instructions. Where any information required of an Abatement Contractor is in the exclusive possession of another who fails or refuses to furnish this information, the Abatement Contractor shall so certify to the Department or the Federal Highway Administration, as appropriate, and shall set forth what efforts it has made to obtain the information.
- (e) Sanctions for Noncompliance: In the event of the Abatement Contractor's noncompliance with non-discrimination provisions of this Section II (3), The Department shall impose such contract sanctions as it or the Federal Highway Administration may determine to be appropriate, including but not limited to, withholding of payments to the Abatement Contractor under the contract until the Abatement Contractor complies, and/or cancellation, termination or suspension of the contract, in whole or in part.
- (f) Incorporation of Provisions: The Abatement Contractor will include the provisions of Section II (3) in every subcontract, including procurement of materials and leases pursuant thereto. The Abatement Contractor will take such action with respect to any subcontract, procurement, or lease as the Department, or the Federal Highway Administration may direct as a means of enforcing such provisions including sanctions for noncompliance. Provided, however, that in the event an Abatement Contractor becomes involved in, or is threatened with litigation with a Subcontractor, Contractor, supplier, or lessor as a result of such direction, the Abatement Contractor may request the State enter into such litigation to protect the interest of the

State, and in addition, the Abatement Contractor may request the United States to enter into such litigation to protect the interest of the United States.

III. DEFINITIONS

- A. ACM - Asbestos-containing material, any material containing more than one (1) percent asbestos as determined by Polarized Light Microscopy. PACM - Presumed asbestos-containing material as defined by OSHA as a material containing any amount of asbestos.
- B. Adequately wet - means sufficiently mix or penetrate with liquid to prevent the release of particulates.
- C. Air Monitoring - the process of measuring the fiber content of a specific volume of air in a stated period of time.
- D. Amended water - water to which a surfactant, such as a sudsy detergent, has been added.
- E. Category I Nonfriable Material - As defined by the Environmental Protection Agency (EPA), asbestos-containing packings, gaskets, resilient floor covering, and asphalt roof products (such as asphalt shingles, built-up roofing, and single-ply modified bitumen roofing) containing more than one percent asbestos as determined by Polarized Light Microscopy.
- F. Category II Nonfriable Material - all remaining types of nonfriable asbestos-containing materials (ACM) not included in Category I that when dry cannot be crumbled, pulverized, or reduced to powder by hand pressure. Nonfriable asbestos cement products, such as Transite™, are an example of Category II material.
- G. Class I Asbestos Work - activities involving the removal of asbestos-containing TSI and surfacing ACM and presumed asbestos-containing material (PACM).
- H. Class II Asbestos Work - activities involving the removal of ACM flooring, roofing, wallboard, and other materials as defined in the OSHA regulations.
- I. Competent Person - As defined by OSHA, one who, in addition to the definition in 29 CFR 1926.32 (f), is capable of identifying existing asbestos hazards and selecting the appropriate control strategy for asbestos exposure, and who has the authority to take prompt corrective measures to eliminate them. In addition, the Competent Person for asbestos work must complete specified training.
- J. Encapsulation - the sealing of surfaces involving application of a material (encapsulant/sealant).
- K. EPA - United States Environmental Protection Agency.
- L. Excursion Limit (EL) - The permissible exposure limit to an airborne fiber concentration in excess of 1.0 fibers per cubic centimeter of air (f/cc) as averaged over a sampling period of 30 minutes, as determined by PCM.
- M. Friable asbestos material - any material containing asbestos, that when dry, can be crumbled, pulverized, or reduced to powder by hand pressure or by mechanical means during abatement.
- N. Glove-bag - An impervious plastic bag-like enclosure, not more than 60 inches by 60 inches, with glove-like appendages which is sealed air-tight around an asbestos-containing material so that materials and tools may be handled.
- O. HEPA Filter - a High Efficiency Particulate Absolute (HEPA) filter capable of trapping and retaining 99.97 percent of asbestos particles 0.3 microns in diameter.

- P. HEPA Vacuum Equipment - Vacuuming equipment with a filter system capable of collecting and retaining asbestos fibers. Filters should be 99.97 percent efficient for retaining thermally generated DOP particles 0.3 microns in diameter.
- Q. Intact - As defined by OSHA, an ACM that has not been crumbled, pulverized, or otherwise deteriorated so that asbestos is no longer likely to be bound with its matrix.
- R. Negative Exposure Assessment (NEA) - A determination in accordance with the OSHA standards that employee exposures are, or that there is a high degree of certainty they will be, below the PEL (both 8 hour TWA and EL).
- S. NIOSH - National Institute for Occupational Safety and Health.
- T. OSHA - Occupational Safety & Health Administration.
- U. Permissible Exposure Limit (PEL) – The maximum exposures to an airborne fiber concentration, as expressed by the thirty-minute excursion limit and eight-hour time weighted average. Sample analysis is performed using Phase Contrast Microscopy (PCM).
- V. Regulated Area - An area established where OSHA Class I, II, or III asbestos work is conducted, any adjoining area where debris and waste from such asbestos work accumulate, and a work area within which airborne concentrations of asbestos exceed, or there is reasonable possibility they may exceed the PEL and EL. A regulated area must be demarcated with barriers and signage to allow access only by authorized, trained persons.
- W. Regulated Asbestos Containing Material (RACM):
 1. Friable asbestos material
 2. Category I nonfriable ACM that has become friable
 3. Category I nonfriable ACM that will become friable or has been subjected to sanding, grinding, cutting, or abrading
 4. Category II nonfriable ACM that has the high probability or has become crumbled, pulverized, or reduced to powder by forces expected to act on the material in the course of demolition or renovation operations performed under the State's regulations.
- X. Removal - The act of taking out or stripping asbestos-containing or contaminated materials from structures or substrates.
- Y. Surfactant - A chemical wetting agent and/or sudsy detergent added to water to improve its penetrating ability and, thus reducing the quantity of water required to saturate asbestos-containing materials.
- Z. Wet Cleaning - The process of eliminating asbestos contamination from building surfaces and objects by using cloths, mops, or other cleaning tools that have been dampened with amended water.
- AA. Work Area - Area or areas of the Project that undergo "abatement" or are contaminated. See also Regulated Area.
- BB. Waste Shipment Record - The shipping document, required to be originated and signed by the waste generator, used to track and substantiate the disposition of asbestos-containing material. A form similar to that shown as Figure 4 of the Asbestos NESHAP Regulations at 40 CFR part 61, subpart M.; 55 FR 48406; November 20, 1990.

IV. SCHEDULING AND SEQUENCING

The schedule for asbestos abatement and demolition or the removal of the improvements from the subject parcel(s) is critical. The specified time limit for the completed abatement, demolition or removal, disposal, and site restoration of this project shall be specified in *EXHIBIT 1 – Project Requirements and Scope of Services*.

Whenever the Scope of Work includes asbestos abatement work to be performed by a pre-qualified Abatement Contractor under a separate contract from that of the demolition that is to be performed by a pre-qualified Demolition Contractor, it is the responsibility of the Abatement Contractor to submit the Project Notification Form and Completion Notification Form as set forth in the paragraph below. Whenever, a Scope of Work includes the performance of asbestos abatement that is being performed under a separate contract by a pre-qualified Abatement Contractor it shall be the responsibility of the Abatement Contractor and Demolition Contractor to coordinate the submittal of the Project Notification Form and Completion Notification Form with lead responsibility by the Demolition Contractor. A copy of the submitted Project Notification Form and any revisions thereto shall be submitted simultaneously to the GA EPD and the Site Inspector. In no instance shall demolition activities be performed until the completion of the asbestos abatement activities and/or approval by the Site Inspector.

To meet this schedule, the ten (10) working day notification for demolition and/or abatement must be filed with the Georgia Environmental Protection Division (GA EPD) on the “Project Notification of Asbestos Renovation, Encapsulation or Demolition Project” (Project Notification Form) within 2 days after the Bid Opening and notification of intent to award is made to the successful bidder. Project Notification Forms may now be submitted through the Georgia EPD Online System (GEOS) portal:

<https://geos.epd.georgia.gov/GA/GEOS/Public2/GovEnt/Shared/Pages/Main/Login.aspx>.

Beginning July 1, 2018, all Project Notification Forms must be submitted through the GEOS portal.

After the Abatement Contractor and/or Demolition Contractor has received the Notice to Proceed, the Demolition Contractor shall make appropriate revisions to the Project Notification Form for the dates and times he/she is scheduled to be on site and commence the demolition immediately. Receipts from a postal service, e-mail confirmations, or a screen shot of the GEOS portal confirming the date of submittal of forms to the GA EPD shall be kept as part of the project's on-site records. The Abatement/Demolition Contractor shall have a copy of the Project Notification Form and any amendments to the Project Notification Form, as well as, a copy of the Summary Asbestos Inspection and Pre-Demolition Report at the site at all times during the abatement and demolition efforts. ***The Abatement/Demolition Contractor should be aware that the Georgia Environmental Protection Division does inspect these projects on a random basis and there can be severe penalties if the abatement schedule is not followed or revisions filed as changes occur. The U. S. Environmental Protection Agency, Region IV also inspects the notification forms for compliance with start and completion dates.***

V. PRE-JOB SUBMITTALS

No work on this Contract may be performed until the Abatement Contractor has received a Notice to Proceed from the Procurement Office and/or the Demolition Contractor in those cases where the pre-qualified Abatement Contractor is working as a sub-contractor to the Demolition Contractor. Prior to

the issuance of a Notice to Proceed, all required submittal(s) for the Procurement Office must be received per the Bid Documents.

Additionally, the following items shall be submitted to the Site Inspector identified on the *Summary: Asbestos Inspection and Pre-Demolition Report in EXHIBIT 1 – Project Requirements and Scope of Services of the Bid Package* from the licensed Abatement Contractor:

- A. A copy of the Asbestos Removal Project Notification Form submitted to the State of Georgia Environmental Protection Division. This notice shall be filed in accordance with the NESHAP standard not less than ten working days before asbestos removal commences on the project.
- B. The work schedule for abatement on the project to identify the days and times that the abatement will take place will be furnished to the Department. Any deviation from that schedule will be reported to the Contracting Officer immediately.
- C. A project-specific Work Plan detailing the means and methods to be employed on the project. Include a description of work area containment, location of decontamination units, placement of HEPA fan units (if required), and methods to be utilized to remove and dispose of identified ACM.
- D. Certificate of Worker's Acknowledgment: Submit an original signed copy of the Certificate of Worker's Acknowledgment of Asbestos Hazard, for each worker who is to be at the job site or enter the Work Area(s). Worker's Acknowledgements must be submitted in the primary language of the worker.
- E. Training Certification: Submit evidence of each supervisor's and worker's training as well as a copy of the photo identification card issued by the training provider or other form of photo identification which will indicate the worker's social security number as well as a signature.
- F. Report from Medical Examination: Submit a doctor's written opinion for a medical examination conducted within the last 12 months as part of compliance with OSHA medical surveillance requirements for each worker who is to enter the Work Area and/or wear a negative-pressure respirator.
- H. Notarized Certifications: Submit a notarized certification, signed by an officer of the abatement contracting firm, that exposure measurements, medical surveillance, and worker training records are being kept in conformance with 29 CFR 1926.1101. Submit the most recent NEA that is related to the abatement Scope of Work for the parcel(s) being abated.
- I. Respiratory Protection Schedule: Submit level of respiratory protection intended for each operation required by the project.
- J. Respirator Fitting Documentation: Submit documentation indicating successful fit check testing of respirators, if used, for the individuals working on this project in accordance with 29 CFR 1910.134 and 29 CFR 1926.1101.
- K. A contingency plan that details the procedures to be employed in the case of emergency. Include provisions for notification to fire, police, and rescue authorities.

VI. ONGOING DOCUMENTATION

Any changes to the documents submitted prior to receiving the Notice to Proceed shall be submitted to the Site Inspector in the same form as described in the above paragraph. Changes in schedule, personnel, accreditation, licensing, waste hauler, waste disposal site, insurance, and/or bonding are to be submitted to the Site Inspector. As required by Asbestos NESHAP, any changes to the schedule, waste hauler, waste disposal site, or quantity of asbestos-containing material must be submitted to GA EPD as a revision to the Project Notification Form submitted through the GEOS system.

VII. PROJECT CONDITIONS

The Abatement Contractor shall become thoroughly familiar with the requirements of these specifications and with the existing conditions under which the work of this Contract is to be performed. The Department assumes no responsibility for the actual condition of items to be abated. Conditions existing at the time of commencement of the contract will be maintained by the Department insofar as practicable; however, some changes in building conditions and the site may occur.

- A. The Abatement Contractor shall maintain a copy of the *Summary: Asbestos Inspection and Pre-Demolition Report* as well as a copy of the pre-job submittals at the site. The Abatement Contractor is cautioned that destructive access was not utilized to access and identify potentially concealed suspect materials. In the event additional applications of concealed suspect asbestos-containing materials are discovered during the course of abatement, the Abatement Contractor will notify the Site Inspector.
 - 1. If the quantity of previously concealed suspect material is less than ten (10) square feet, the material is to be assumed ACM and is to be removed.
 - 2. Suspect ACM in quantities larger than 10 SF are to be reported to the Site Inspector. The Site Inspector will coordinate appropriate testing of encountered suspect material to verify or refute asbestos content.
 - 3. The Abatement Contractor shall submit a revised Project Notification Form to the GA EPD through the GEOS portal as appropriate to address additional quantities of ACM encountered during the course of abatement.

- B. Worker and Visitor Procedures: The Abatement Contractor is hereby advised that asbestos has been determined by the U.S. Government to be a CANCER-CAUSING AGENT and the Abatement Contractor shall provide workers and visitors with respirators, which as a minimum shall meet the requirements of OSHA 29 CFR 1926.1101, and protective clothing during preparation of system of enclosures; prior to commencing and during actual asbestos removal; and until final clean-up is completed.

VIII. UTILITIES

It shall be the responsibility of the Abatement Contractor to verify the status of the various utilities in order to prevent an accident that could result from a utility remaining connected. The Abatement Contractor is responsible for providing electricity and water to each parcel site.

IX. MATERIALS

In order to perform the work of this Contract in a manner that complies with the laws, regulations, and guidance documents listed above, the Abatement Contractor shall provide materials such as the following:

- A. Amended Water: For wetting prior to and during disturbance of ACM, use amended water, such as a non-sudsing detergent. Provide water to which a surfactant has been added. Use a mixture of surfactant and water that results in wetting of the ACM and retardation of fiber release during disturbance of the ACM.

- B. Removal Encapsulant: For wetting prior to and during disturbance of ACM, use a removal encapsulant. Provide a penetrating type encapsulant designed specifically for removal of

- ACM. Use a material that results in wetting of the ACM and retardation of fiber release during disturbance of the ACM.
- C. Lock-down Sealant: For sealing surfaces from which ACM has been removed and which have passed visual inspection. Lock-down shall be tinted blue.
 - D. Plastic Film Sheeting: Provide a single polyethylene film in the largest sheet size possible to minimize seams, 6-mils thick.
 - E. Duct Tape: Provide duct tape in 2-inch or 3-inch widths, with an adhesive that is formulated to stick aggressively to sheet polyethylene and other surfaces.
 - F. Spray Adhesive: Provide spray adhesive in aerosol cans that is specifically formulated to stick tenaciously to sheet polyethylene and other surfaces.
 - G. Waste Bags: Contain all asbestos waste within two individually sealed layers of 6-mil thick, leak tight polyethylene bags or two layers of sealed polyethylene 6-mil thick sheets labeled with text printed in large, bold letters on a contrasting background to meet the requirements of US EPA, US DOL/OSHA, US DOT, and the Georgia DNR/EPD.
 - H. Solvent: Use only solvents that will not contribute to more extensive and burdensome worker protection requirements and will not contribute to more extensive regulatory requirements for waste handling, transportation, and disposal. Solvents and/or mastic removal products containing methylene chloride shall not be used on GDOT abatement projects.

X. EQUIPMENT

In order to perform the work of this Contract in a manner that complies with the laws, regulations, and guidance documents listed above, the Abatement Contractor shall provide equipment such as the following:

- A. Provide suitable tools for asbestos removal.
 - 1. Sprayer - Utilize airless or other low-pressure sprayer for amended water application.
 - 2. Scaffolding - Shall be as required to accomplish the specified work and shall meet all applicable safety regulations.
- B. HEPA-Filtered Vacuum: Provide vacuum collection equipment with a HEPA filter system capable of collecting and retaining 99.97 percent or more of asbestos fibers 0.3 microns or larger in diameter.
- C. Negative Pressure Ventilation System or Negative Air Machine: Provide a local exhaust system utilizing HEPA filtration capable of maintaining a negative pressure inside the work area and a constant air flow from adjacent areas into the work area and exhausting filtered air to the outside of the work area.
- D. Negative Pressure Respirator: A respirator in which the air pressure inside the respiratory-inlet covering is positive during exhalation in relation to the air pressure of the outside atmosphere and negative during inhalation in relation to the pressure of the outside atmosphere.
- E. Personal Protective Equipment: Provide negative pressure respirators; disposable protective clothing; head and eye protection; and work gloves.
- F. Transportation - Waste shall be hauled in enclosed trucks as required for loading, temporary storage, transit, and unloading of contaminated waste without exposure to persons or property.

XI. PERSONNEL PROTECTION

- A. Prior to commencement of work, all workers shall be instructed by the ~~Asbestos~~ Abatement Contractor and shall be knowledgeable, in the appropriate procedures of personnel protection and asbestos removal.
- B. The Abatement Contractor acknowledges and agrees that he is solely responsible for enforcing worker protection requirements at least equal to those required by federal regulations.
- C. The Abatement Contractor is responsible for providing respiratory protection consistent with the requirements of OSHA 29 CFR 1926.1101, OSHA's Asbestos Standard. for the Construction Industry
- D. The Abatement Contractor shall provide workers with personally issued and marked respiratory equipment approved by NIOSH and OSHA and as a minimum suitable for the asbestos exposure level in the work areas.
1. Type of respiratory protection required:
 - (a) Fibers: For purposes of this Section fibers are defined as all fibers regardless of composition as counted using the OSHA Reference Method (ORM) or NIOSH 7400 procedures, or asbestos fibers of any size as counted using a transmission electron microscope.
 - (b) Provide respiratory protection as allowed by these specifications and as set forth in 29 CFR 1910.134(d)(3)(i)(A). For the work of all sections, the level of respiratory protection that supplies an airborne fiber concentration inside the respirator below 0.01 fibers per cubic centimeters (f/cc) is the minimum level of protection allowed. **Regardless of the anticipated fiber concentrations, half-face air purifying respirators shall be the minimum level of respiratory protection for work area preparation, removal, cleaning, and decontamination activities.** Determine the proper level of protection by dividing the expected or actual airborne fiber concentration in the Work Area by the "Protection Factors" given below:

RESPIRATORY PROTECTION FACTOR	
Respirator Type	Protection Factor
Air purifying: Negative-pressure respirator, High efficiency filter, Half-face piece	10
Air purifying: Negative-pressure respirator, High efficiency filter, Full-face piece	50
Powered air purifying (PAPR): Positive-pressure respirator, High efficiency filter, Full-face piece	1000
Type C supplied air: Positive-pressure respirator, pressure-demand, Full-face piece	1000
Type C supplied air: Positive-pressure respirator, pressure-demand, Full-face piece, Equipped with an auxiliary	10,000

positive-pressure Self-contained breathing apparatus (SCBA)	
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- E. Where respirators with disposable filters are used, provide sufficient filters for replacement as necessary by the workers, or as required by applicable regulations.
- F. Permit no visitors, except for governmental inspectors having jurisdiction, or as authorized by Owner, in the work areas after commencement of asbestos disturbance or removal. Provide authorized visitors with suitable respirators in accordance with 29 CFR 1926.1101.
- G. Provide workers with sufficient sets of protective disposable clothing, consisting of full-body coveralls, head covers, gloves, and foot covers; of sizes to properly fit individual workers in accordance with 29 CFR 1926.1101.
- H. Provide authorized visitors with a set of suitable protective disposable clothing, headgear, eye protection, and footwear of sizes to properly fit visitors whenever they are required to enter the work area, to a maximum of six sets per day.

XII. WORK AREA PREPARATION

Work Area preparation is required to contain and/or isolate the area that asbestos removal will be performed. Varying levels of work area preparation are required to support removal of different categories of ACM. The method of work area containment required is related to the type of ACM to be removed and corresponding fiber release potential.

The Abatement Contractor may be required to selectively demolish building components to facilitate removal efforts. The selective demolition will be limited to the areas affected by the abatement efforts. Additionally, the Abatement Contractor may be required to remove items abandoned in the structure by the previous owner to properly prepare the work area. The Abatement Contractor shall properly dispose of all materials selectively demolished or removed from the work area to facilitate the removal of identified asbestos-containing/contaminated materials. The non-contaminated materials that are selectively removed or demolished will not be stored on site but are to be placed into containers for disposal as provided by the Abatement Contractor and/or Demolition Contractor as they may agree. Asbestos-containing/contaminated materials shall be disposed of in accordance with Section XV of the Technical Specifications. Other materials may be disposed of as ordinary construction debris.

The Abatement Contractor shall not salvage building components for his future use, resale, or redistribution.

Methods of Work Area Preparation include:

- A. Regulated, Non-contained Work Area
 1. Demarcate work area using construction barrier tape and "Danger Asbestos" tape. Do not allow any unauthorized personnel inside the barrier tape.
 2. Create a buffer zone with a minimum distance of 20 feet surrounding the perimeter of the construction tape.
 3. Provide warning signs outside barriers surrounding work area, reading as follows:

**DANGER
ASBESTOS
MAY CAUSE CANCER
CAUSES DAMAGE TO LUNGS
WEAR RESPIRATORY PROTECTION AND**

**PROTECTIVE CLOTHING IN THIS AREA
AUTHORIZED PERSONNEL ONLY**

4. Provide a remote, 2-stage worker and waste/equipment decontamination units in compliance with EPA guidelines and OSHA regulations concerning number, size and placement of airlocks, etc. Shower in worker decontamination unit shall open on two sides and open into airlock on both sides. Construct decontamination units of appropriate materials including polyethylene sheeting (to provide airtight barriers) and plywood or other suitable rigid materials. Require all persons and equipment without exception to pass through this decontamination unit for exiting from the work area for any purpose.

B. Contained Work Area

1. For removal of resilient floor coverings, as well as other miscellaneous materials that may become friable during removal, the Abatement Contractor shall provide a fully contained work area utilizing critical barriers. Primary and secondary barriers are not required unless facility salvage and/or reuse is planned.
2. Provide warning signs outside barriers, reading as follows:

**DANGER
ASBESTOS
MAY CAUSE CANCER
CAUSES DAMAGE TO LUNGS
WEAR RESPIRATORY PROTECTION AND
PROTECTIVE CLOTHING IN THIS AREA
AUTHORIZED PERSONNEL ONLY**

3. Construct 2-stage worker and waste/equipment decontamination units in compliance with EPA guidelines and OSHA regulations concerning number, size and placement of airlocks, etc. Shower in worker decontamination unit shall open on two sides and open into airlock on both contaminated and uncontaminated sides. Construct decontamination units of appropriate materials including polyethylene sheeting (to provide airtight barriers) and plywood or other suitable rigid materials to allow work area containment to be maintained. Require all persons and equipment without exception to pass through this decontamination unit for entry into and exiting from the work area for any purpose. Do not allow parallel routes for entry or exit. Supply sufficient number of lockers, in worker decontamination unit change or “clean” room, for workers’ clothing. Reserve one locker for Department Representative, Asbestos Inspector, and/or Site Inspector.

C. Contained, Negative Pressure Work Area

1. For removal of Thermal System Insulation (TSI), Surfacing ACM, and wallboard and joint compound, the Abatement Contractor shall provide a fully contained HEPA filtered negative pressure containment utilizing critical barriers. Primary and secondary barriers are not required unless facility salvage and/or reuse is planned. Floor surfaces shall be covered minimally with 1 layer of 6 mil polyethylene.
2. Provide warning signs outside barriers, reading as follows:

**DANGER
ASBESTOS
MAY CAUSE CANCER**

**CAUSES DAMAGE TO LUNGS
WEAR RESPIRATORY PROTECTION AND
PROTECTIVE CLOTHING IN THIS AREA
AUTHORIZED PERSONNEL ONLY**

3. Provide diminished air pressure within the work area (negative pressure) using HEPA filtration systems. Allow no air movement system or air-filtering equipment to discharge unfiltered air outside the work area. Maintain a diminished air pressure within the work area continuously (24 hours per day) from the start of asbestos removal and until the area has been decontaminated and confirmed by the required visual inspection of the Site Inspector.
4. Construct 3-stage worker and waste/equipment decontamination units in compliance with EPA guidelines and OSHA regulations concerning number, size and placement of airlocks, etc. Shower in worker decontamination unit shall open on two sides and open into airlock on both contaminated and uncontaminated sides. Construct decontamination units of appropriate materials including polyethylene sheeting (to provide airtight barriers) and plywood or other suitable rigid materials to allow negative pressure to be maintained in Work Area. Supply sufficient number of lockers, in worker decontamination unit change or "clean" room, for workers' clothing. Reserve one locker for Department Representative, Asbestos Inspector and/or Site Inspector.

D. Mini-Containment, Negative Pressure Work Area

1. For removal of TSI and Surfacing ACM, the Abatement Contractor may provide a negative pressure mini-containment enclosure in lieu of completely containing the entire work area.
2. The enclosure shall consist of two chambers of critical and primary barriers, a work area and a change room.
 - (a) The work area chamber shall be of sufficient size to enclose the material to be abated and accommodate one worker and all the tools required to perform the work.
 - (b) The work area shall be separated from the change room by a double curtained polyethylene door.
 - (c) The change room shall be of sufficient size to accommodate one worker with a minimum of nine (9) square feet.
 - (d) The change room shall be separated from the non-work area by a double curtained poly door.
3. A local exhaust system shall be utilized. An obvious and noticeable differential pressure within the work area shall be demonstrated by a smoke test and maintained throughout the abatement work efforts.
4. Provide warning signs outside barriers surrounding the work area, reading as follows:

**DANGER
ASBESTOS
MAY CAUSE CANCER
CAUSES DAMAGE TO LUNGS
WEAR RESPIRATORY PROTECTION AND
PROTECTIVE CLOTHING IN THIS AREA
AUTHORIZED PERSONNEL ONLY**

5. Provide a remote, 3-stage worker and waste/equipment decontamination unit in compliance with EPA guidelines and OSHA regulations concerning number, size, and placement of airlocks, etc. Shower in worker decontamination unit shall open on two sides and open into airlock on both sides. Construct decontamination units of appropriate materials including polyethylene sheeting (to provide airtight barriers) and plywood or other suitable rigid materials. Require all persons and equipment without exception to pass through this decontamination unit for exiting from the work area for any purpose.

The methods of work area containment required for removal of indicated ACM Categories and OSHA-designated Classes of ACM removal are specified below.

Method of Work Area Preparation	ACM Category and Class of ACM Removal	ACM Type
Regulated, Non-Contained Work Area	Category I and Category II Non-Friable ACM that will remain non-friable during the removal process	Asphalt roof products (such as asphalt shingles, built-up roofing, and single-ply modified bitumen roofing), and asbestos cement products (such as Transite™ siding).
Contained Work Area	RACM or Category I and Category II Non-Friable ACM that may become friable during the removal process. [Class II Work as defined by OSHA regulations.]	Resilient floor covering and other Miscellaneous ACM that are currently friable, or may become friable during removal.
Contained, Negative Pressure Work Area	RACM [Class I Work as defined by OSHA Regulations.]	TSI, Surfacing ACM, and Wallboard and Joint Compound.
Mini-Containment Work Area	RACM [Class I Work as defined by OSHA Regulations.]	TSI and Surfacing ACM.

XIII. REMOVAL OF ASBESTOS CONTAINING MATERIALS

- A. Properly remove and dispose of asbestos-containing materials indicated to be removed as described in *EXHIBIT 1 – Project Requirements and Scope of Services* in accordance with the methods and procedures outlined in the U.S. Department of Labor Occupational Safety and Health Administration (OSHA) Asbestos Regulation (Code of Federal Regulations Title 29, Part 1926, Section 1926.1101) or as more stringently specified herein.
- B. Ensure that all barriers and critical seals remain effectively sealed and taped for duration of asbestos removal and subsequent cleaning. Repair damaged barriers and remedy defects immediately upon discovery. Visually inspect enclosures at the beginning of each work period. Use smoke methods to test effectiveness of barriers when directed by Asbestos Inspector.

- C. Maintain emergency and fire exits from the work areas, or establish alternative exits satisfactory to fire officials.
- D. Provide temporary power, lighting and heating, utilizing ground fault protection devices as necessary, to maintain a comfortable work environment.
- E. Maintain for the duration of the abatement of each parcel from the first activity requiring disturbance of asbestos-containing material, a sign in/out log in the immediate area of the change room. Log shall be utilized by every person each time upon entering and leaving the work area(s). Submit copies of this log to the Site Inspector for permanent file upon completion of the parcel's abatement.
- F. Filter shower wastewater using filters having a pore size of 20-microns and 5-microns installed in-line. Dispose, drain and/or pump filtered shower wastewater into the structure's sanitary and/or septic system. Replace contaminated filters when they become clogged but not less than every third day. Dispose of filters as contaminated waste. Abatement Contractor may trap and collect shower wastewater in impermeable containers and dispose of as contaminated material, at his option, rather than filtering and draining into a sanitary sewer and/or septic wastewater system.
- G. Asbestos-containing waste in disposal bags shall not be stored in the work area.
- H. Prepare work areas as previously specified based upon the ACM Category and OSHA Class of ACM removal.
 - 1. Spray-applied Fireproofing Material, Architectural Acoustical Finish, and Other Surfacing ACM
 - (a) Remove and properly dispose of all asbestos-containing fireproofing, architectural acoustic finish, and other surfacing ACM in accordance with federal, state and local regulations, or as more stringently specified herein.
 - (b) Fireproofing or architectural finish or other surfacing ACM on solid substrate: Spray ACM with a fine mist of amended water. Allow time for amended water to saturate materials to substrate. Do not over saturate to cause excess dripping. Scrape materials from substrate. Remove materials in manageable quantities and control the descent to staging or floor below; if over 15 feet, use enclosed inclined drop chute to contain material through descent. Spray mist surface continuously during removal process. Remove residue remaining on substrate after scraping using stiff nylon-bristled hand brush. If substrate dries before complete removal of residue, rewet with amended water.
 - (c) Fireproofing or architectural finish or other surfacing ACM on wire lath: Spray asbestos-containing fireproofing or architectural acoustic finish with a fine mist of amended water. Allow time for amended water to completely saturate material. Do not over saturate to cause excess dripping. If surface of material has been painted or otherwise coated, cut small holes as required and apply amended water from above. Cut wire lath into 2-ft by 6-ft sections and cut hanger wires. Roll up complete with asbestos-containing material and hand place in disposal containers. Place rolled-up wire lath in corrugated cardboard boxes before placing in disposal bags. After removal of lath and asbestos-containing material, remove any overspray on decking and structure above using stiff nylon bristled brush.
 - (d) After removal of asbestos-containing material, all surfaces shall be wet-cleaned to remove residual accumulated material. Continue wet cleaning until surface is free of visible material.

2. TSI on Mechanical Equipment and Ductwork
 - (a) Remove and properly dispose of all asbestos-containing insulation materials in accordance with federal, state, and local regulations, or as more stringently specified herein.
 - (b) Thoroughly wet asbestos-containing materials to be removed prior to stripping and/or tooling to reduce fiber dispersal into the air. Accomplish wetting by a fine spray (mist) of amended water. Saturate material sufficiently to wet to the substrate without causing excess dripping. Allow time for water to penetrate material thoroughly. Spray material repeatedly during the work process to maintain a continuously wet condition. Perforate outer covering of any installation which has been painted and/or jacketed in order to allow penetration of amended water or, where necessary, carefully strip away while simultaneously spraying amended water on the insulation to minimize dispersal of asbestos fibers into the air. Mist work area with amended water whenever necessary to reduce airborne fiber levels.
 - (c) Remove saturated asbestos-containing material 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. TSI on Mechanical Piping
 - (a) Remove and properly dispose of all asbestos-containing pipe insulation in accordance with federal, state, and local regulations, or as more stringently specified herein.
 - (b) Spray pipe insulation with a mist of amended water. Allow amended water to saturate material to substrate. Cut bands holding preformed pipe insulation, slit jackets at seams, remove, and hand place in a disposal bag. Remove job molded fitting insulation in chunks and hand place in a disposal bag. Do not drop to floor. Remove any residue on pipe or fitting with amended water and stiff nylon bristle hand brush.
 - (c) In locations where pipe-fitting insulation is removed from pipe with straight runs insulated with fibrous glass or other non-asbestos containing fibrous material, remove all fibrous material within 6-inches of the point where it contacts the asbestos-containing insulation.
 - (d) Wall Penetrations:
 - i. Where asbestos-containing pipe insulation passes through a wall within the workspace, remove all insulation within the wall penetration.
 - ii. Where asbestos-containing pipe insulation passes through a wall (or floor slab) that is a work area boundary, remove all insulation to a minimum depth of one inch into the wall or slab. Seal the penetration with expandable foam fire stop material.
 - (e) After removal of asbestos-containing material, wet clean all surfaces to remove residual accumulated material. Continue wet-cleaning until surface is free of visible material.

4. TSI on Mechanical Piping Utilizing Glove-bag Procedures

- (a) General: In work area(s) where ACMs are limited to intact pipe insulation and pipe joint insulation, Abatement Contractor may, with Site Inspector's approval, utilize glove-bag procedures as specified herein.
- (b) Prepare areas as a contained work area and cover floor in vicinity of work area and 6-ft beyond with 6-mil polyethylene drop sheet. Where work is adjacent to wall, extend drop sheet up wall and secure at ceiling with duct tape.
- (c) Perform glove-bag procedures as follows:
 - i. Wrap any damaged areas of pipe insulation in one layer of 6-mil plastic. Seal seams and ends with duct tape.
 - ii. Place one layer of duct tape around pipe insulation at points where glove-bag will be attached.
 - iii. Attach and use glove-bag in accordance with manufacturer's instructions, unless more stringently specified herein.
 - iv. Insert wand from garden sprayer through water sleeve. Duct tape water sleeve tightly around the wand to prevent leakage.
 - v. Use smoke tube and aspirator bulb to test seal. Gently squeeze glove-bag and look for smoke leaks. Seal leaks and retest.
 - vi. Wet the ACM within the glove-bag with amended water prior to removal. Utilize two asbestos workers per glove-bag.
 - vii. Carefully cut and remove ACMs within the glove-bag. Exercise care while cutting ACMs from piping.
 - viii. Thoroughly wet removed material, bag, and piping with amended water. Scrub exposed piping with a bristle or nylon brush. Remove visual accumulations of debris from piping. Allow mist to settle.
 - ix. Seal exposed ends of pipe insulation not removed and exposed piping in glove-bag with encapsulant.
 - x. Remove tools, through gloves or tool pouch by inverting, twisting glove, taping at twist to seal, and severing glove at midpoint of tape.
 - xi. Collapse glove-bag by inserting HEPA-vacuum. Twist bag several times at the top of bag. Twist and tape to secure.
 - xii. Place appropriately labeled 6-mil bag around glove-bag. Score glove-bag above taped seal to remove from pipe and place inside 6-mil bag. Seal 6-mil bag around disassembled glove-bag.
 - xiii. If more than one adjacent section of pipe insulation is to be removed, Abatement Contractor may elect to advance the glove-bag to the next section of insulation. Use the HEPA vacuum to collapse the glove-bag, twist the bag to seal the throat, loosen the tape at both ends of the bag and slide the bag to the new position. Ends of the glove-bag must be resealed prior to untwisting the throat of the bag. If these procedures are not followed precisely or workers are not skilled in glove-bag movement procedures, then glove-bags are not to be moved to adjacent sections and should be

limited to single-use and placement applications. In no case shall the glove-bag be reused on adjacent sections more than three times.

5. Abandoned Piping Assemblies with Asbestos-Containing Insulation
 - (a) General: At the Abatement Contractor's option, in lieu of removing asbestos-containing pipe insulation from piping assemblies, entire pipe assembly with intact pipe insulation may be removed and properly disposed. Remove and properly dispose of complete sections of insulated piping as ACMs in accordance with federal, state, and local regulations, or as more stringently specified herein.
 - (b) Prepare areas as a contained work area and cover floor in vicinity of work area and 6-ft beyond with 6-mil polyethylene drop sheet. Where work is adjacent to wall, extend drop sheet up wall and secure at ceiling with duct tape.
 - (c) Determine lengths of insulated piping that can readily be handled by available personnel and equipment during cutting, transportation, and disposal.
 - (d) Using glove-bag procedures, remove asbestos-containing pipe insulation, minimum eighteen inches in length, from pipe at locations where pipe will be cut.
 - (e) Wrap insulated sections of pipe with at least two layers of 6-mil plastic sheeting prior to cutting. Seal ends and seams of each layer with duct tape, and then "candy-stripe" the entire assembly with duct tape.
 - (f) Handle and support pipe securely during cutting, transportation, and disposal; do not drop or cause any other impact that might damage the protective plastic wrap.
 - (g) Cut wrapped pipe into sections, attach labels identifying the insulated pipe sections as asbestos-containing waste, and transport the materials to the disposal site in accordance with the requirements of these Asbestos Abatement Technical Specifications.
6. Asbestos-Containing Ceiling Tiles
 - (a) Remove and properly dispose of all asbestos-containing acoustical ceiling tiles in accordance with federal and state regulations, or as more stringently specified herein.
 - (b) Spray sections of ceiling tile from above with a mist of amended water to reduce the release of fibers. Spray the material sufficiently to wet it without causing excessive dripping.
 - (c) Do not permit removed ACM to fall to the floor. Lift ceiling tiles from the grid and hand tiles down to be placed in a 6-mil disposal bag. Do not break tiles.
 - (d) After removal of ACM, wet-clean surfaces of ceiling grid and/or other ceiling system components and associated substrates to remove residual material. Continue wet-cleaning until surface is free of visible material.
7. Asbestos-Containing Floor Tile and Adhesive
 - (a) Remove and properly dispose of all asbestos-containing resilient floor covering material and/or adhesive in accordance with federal, state, and local regulations, or as more stringently specified herein.

- (b) Prepare areas as a contained work area.
 - (c) Wet floor tiles with amended water to minimize fiber release during its removal. Use amended water sparingly and apply with a sponge or cloth to eliminate standing water and to prevent water from traveling on the floor.
 - (d) Remove individual tiles by wedging a scraper under one edge of the tile and exerting a prying twisting force as it is moved under the tile until the tile releases from the floor. Do not break tiles. If tiles do not release easily, a mallet or hammer may be used to strike the scraper and force it under the tile; hot air blowers may be used to heat a tile and soften the adhesive. Place tiles immediately in disposal bags as they are removed. Place bags in barrels before removing from work area.
 - (e) As small areas of subfloor are cleared of tile, scrape up remaining adhesive and deposit scrapings in disposal bags. Clean floor of all adhesive residue by wet mopping with solvent.
 - (f) Wet clean all surfaces in the flooring material removal area and proceed with work area cleanup procedures.
8. Asbestos-Containing Resilient or Vinyl Sheet Flooring (VSF)
- (a) Remove and properly dispose of all asbestos-containing VSF and adhesive in accordance with federal, state, and local regulations, or as more stringently specified herein.
 - (b) Make a series of parallel cuts, with a knife, four to eight inches apart parallel to the wall, keeping cut lines wet.
 - (c) Start at the end of the room farthest from the entrance door. Pry up the corner of the first strip, separating the backing layer. As the strip is being removed, spray a constant mist of amended water into the delamination nip point to minimize the release of airborne fibers. Felt remaining on the floor and on the back of the strip must be kept thoroughly wet.
 - (d) Roll the strip tightly as it is removed. Tie or tape the roll securely and place in a disposal bag or closed impermeable container for disposal. Scrape wet felt backing material from the floor and place immediately, while wet, into disposal bags.
 - (e) As small areas of subfloor are cleared of sheet flooring, scrape up remaining adhesive and deposit scrapings in disposal bags. Clean floor of all adhesive residue by wet mopping with solvent.
9. Asbestos-Containing Drywall Joint Compound and Contaminated Gypsum Wallboard
- (a) Remove and properly dispose of all asbestos-containing drywall joint compound in accordance with federal, state, and local laws and regulations, or as more stringently specified herein.
 - (b) Prepare areas as contained, negative pressure work areas.
 - (c) Wet walls with amended water to minimize fiber release during removal. Use an airless sprayer to apply amended water.
 - (d) Cut the gypsum wallboard with a utility or carpet knife and remove in sections as large as possible. Do not allow material to accumulate on the floor, but bag or wrap it as it is removed. Wrap large pieces of wallboard in two layers of six-mil plastic and seal with duct tape.

- (e) As areas of studs or furring are revealed by removal of the wallboard and joint tape compound, remove remnants of wallboard attached to fasteners or otherwise lodged in the framing assembly. Nail heads and fasteners must be removed or cleaned of any wallboard debris or residual coating of drywall joint compound.
 - (f) Dispose of gypsum wallboard, tape, and joint compound material as asbestos-contaminated waste. If framing members are indicated to be removed, they may be disposed of as non-asbestos waste after they are thoroughly cleaned within the work area.
10. Asbestos-Containing Ceiling Texture Finish and Plaster
- (a) Remove and properly dispose of all asbestos-containing plaster finish materials on ceilings and walls in accordance with federal, state, and local laws and regulations, or as more stringently specified herein.
 - (b) Prepare areas as contained, negative pressure work areas.
 - (c) Mist surface of ceiling or walls with amended water to minimize fiber release during removal. Where surface of material has been painted or otherwise coated, cut small holes as required and apply amended water from above/behind.
 - (d) Where plaster is found applied to gypsum wallboard:
 - i. Wet substrates with amended water to minimize fiber release during removal. Use an airless sprayer to apply amended water.
 - ii. Cut the gypsum wallboard with a utility or carpet knife and remove in sections as large as possible. Do not allow material to accumulate on the floor, but bag or wrap it as it is removed. Wrap large pieces of wallboard in two layers of six-mil plastic and seal with duct tape.
 - (e) Where the plaster is found in a suspended ceiling, cut wire lath into manageable sections and cut hanger wires. Roll-up lath complete with ACM and hand place in disposal containers. Place rolled-up wire lath in corrugated cardboard boxes before placing in disposal bags. After removal of lath and ACM, remove any overspray on decking and structure above using stiff nylon bristled brush.
 - (f) Where the plaster is found on a framed partition, remove lath and plaster in sections as large as possible. Do not allow material to accumulate on the floor, but bag or wrap it as it is removed. Wrap large pieces of lath and plaster in two layers of six-mil plastic and seal with duct tape.
 - (g) As areas of studs or furring are revealed by removal of the lath and plaster, remove remnants of lath and plaster attached to fasteners or otherwise lodged in the framing assembly.
 - (h) Dispose of lath and plaster as asbestos-contaminated waste.
11. Asbestos-Containing Roofing and Flashing Materials
- (a) Remove and properly dispose of any asbestos-containing roof flashing materials and built-up roofing materials in accordance with federal, state, and local regulations or as more stringently specified herein.
 - (b) Provide a regulated, non-contained work area.

- (c) Provide appropriate worker footwear to assure firm footing while walking on the roof. Asbestos-containing surfaces will be wetted with amended water and may be slippery. Use extreme caution during work on roof surfaces and comply with OSHA regulations at 29 CFR 1926.500-503 related to worker fall protection safety.
- (d) Spray large areas of asbestos material with amended water using spray equipment recommended by surfactant manufacturer capable of providing a “mist” application to reduce the release of fibers. Saturate the material sufficiently to wet it without causing excessive dripping or ponding. Spray the asbestos material repeatedly during the work process to maintain wet condition but do not use excessive amounts of water.
- (e) Remove the saturated ACMs in small sections, using knives, cutting spuds, or other non-abrasive techniques for cutting roofing and flashing materials.
- (f) As it is removed, place wet materials into double plastic disposal bags of minimum of 6-mil thickness and seal with tape. Wet clean outside of bag just prior to transporting the bag from the roof work area.
- (g) Transport material from roof work area to ground using an enclosed chute or lower bagged material by hand or mechanically into a closeable, lockable dumpster or similar container double-lined with two layers of 6-mil thick plastic. Do not allow bags to fall or break.

Clean area and remove all non-asbestos debris from roof and dispose with other non-asbestos debris removed from the parcel. Do not allow non-asbestos roof debris to remain on roof or fall onto yard or other ground level surfaces.

- (h) Cleaning and Clearance Sequence (roofing material work areas)
 - i. Clean work area of all visible debris continually during work. Do not allow debris to accumulate. After removal of visible debris, clean surface with vacuum equipped with HEPA filter and damp-mop. Do not perform dry dusting or dry sweeping. Continue this cleaning until there are no visible bulk accumulations of debris from removed materials on any surfaces.
 - ii. Clean all equipment (excluding that which will be needed for further cleaning in the work area) and remove from work area.
 - iii. After the work area is found to be visually clean, apply one coat of approved sealant to all dried, exposed surfaces from which ACMs have been removed.
- (i) In place of building decontamination units on the roof, workers may don two disposable protective clothing suits during asbestos removal of roofing and flashing materials. Follow the procedures below for personnel decontamination when using the two-suit method:
 - i. Prior to leaving the roof work area and while wearing respirator, HEPA vacuum outer suit completely and remove, turning it inside out while doing so. Place suit in a disposal bag.
 - ii. Proceed directly to centralized decontamination unit (units from other work areas may be used following the acceptance of final air test from the work area) while wearing respirator.

- iii. While continuing to wear the respirator, remove second suit in the equipment room section of the decontamination unit and proceed to shower with respirator still on.
 - iv. After initial shower wetting, remove respirator and following proper showering techniques, proceed to the clean room to change back into street clothes.
12. Cement-Asbestos Board and Transite™ Siding
- (a) Carry out removal of cement asbestos board in a manner that will minimize pulverizing, breaking or abrading of involved materials.
 - (b) Prepare areas as regulated, non-contained work areas.
 - (c) Cover ground in vicinity of work area and 6-ft beyond with 6-mil polyethylene drop sheet. For two-story or gabled areas, extend ground covering to 10-ft beyond.
 - (d) Wet area of fasteners with amended water or removal encapsulant and back out fasteners. Use caution to prevent breakage of cement asbestos board. Hold cement asbestos board in place until all fasteners are removed.
 - (e) Take down cement-asbestos board and wrap in two layers of 6-mil sheet plastic or a double disposal bag. Dispose of as ACM.
 - (f) Shingle nails and any backing material, such as building vapor barrier felt or felt fastener strips, located between the cement asbestos board and the structure shall be considered as asbestos-contaminated and removed and disposed of as ACM.
 - (g) For project were abatement of both drywall joint compound and cement-asbestos siding is required, the abatement of the interior materials (drywall joint compound,) will be completed before the exterior cement asbestos siding is removed.

XIV. PROJECT CLEAN UP AND CLEARANCE

The Site Inspector will perform a post abatement visual clearance inspection or final inspection on all abatement projects prior to demolition efforts. Additionally, on-site inspections may be performed at any time during the abatement process using a qualified Department representative or Site Inspector. For projects that fail the visual inspection, the Abatement Contractor will correct any deficiencies, complete an amendment to the *Project Completion Form*, and redistribute as described above.

- A. Provide general clean-up of work areas concurrently with the removal of asbestos-containing materials. Do not permit accumulation of removed materials on floor or ground.
- B. The Abatement Contractor shall properly dispose of all materials selectively demolished to facilitate the removal of identified asbestos-containing/contaminated materials. Asbestos-containing/contaminated materials shall be disposed of in accordance with Section XV of the Asbestos Abatement Technical Specifications. Other materials may be disposed of as ordinary construction debris.
- C. The asbestos abatement work area is cleared when the work area is visually clean in accordance with ASTM Standard E1368-14 *Standard Practice for Visual Inspection of Asbestos Abatement Projects* does not reveal the presence of visible dust, debris, residue, or other suspect matter. In the event that release criteria are not met, the Abatement Contractor shall bear all costs associated with re-cleaning.

D. Cleanup Sequence:

1. Remove all visible accumulations of asbestos material and debris.
2. Wet clean all surfaces in the work area(s).
3. Clean all sealed impermeable containers and all equipment (excluding that which will be needed for further cleaning) used in the work area(s) and remove from work area(s) via the equipment decontamination enclosure system.
4. Work area cleaning will be deemed to be complete when a visual inspection in accordance with ASTM Standard E1368-14 does not reveal the presence of visible dust, debris, residue, or other suspect matter.
5. Following the cleaning sequence and prior to removing plastic sheeting; all surfaces from which ACMs were removed shall receive one coat of sealant to seal existing surfaces. The sealant will be tinted blue or other approved color. Misting, spraying and pumping equipment, as recommended by the encapsulate material's manufacturer, shall be used. The Abatement Contractor will notify the Site Inspector of the schedule and progress of the abatement efforts. The Abatement Contractor shall contact the Site Inspector to schedule final inspections. **Do not apply sealant before final visual clearance inspection by the Site Inspector.**
6. Mist and seal all exposed surfaces of the plastic sheeting and carefully remove plastic sheeting from walls and floor, folding inward to trap debris. Doors, windows, vents and other openings shall remain sealed.
7. The Abatement Contractor shall not use sealant sprayed into the air as a means of reducing fiber levels after plastic sheeting is removed.
8. Dismantle and remove sturdy barriers and plastic seals on all openings and wet clean immediate areas.
9. Dismantle decontamination enclosure systems and thoroughly wet clean immediate areas.
10. Dispose of debris, used cleaning materials, unsalvageable materials used for sturdy barriers, and any other remaining materials. Consider the materials as contaminated and dispose of accordingly.

XV. DISPOSAL OF CONTAMINATED WASTE

- A. Remove sealed and labeled containers of ACM and wastes and dispose of in an approved sanitary landfill. The Georgia Rules for Solid Waste Management, Chapter 391-4-3.04(8) provides for the disposal of asbestos containing waste into permitted landfills. Disposal site shall be approved by the Environmental Protection Division of the Georgia Department of Natural Resources and shall be acceptable to the Department. Treat all waste materials, regardless of friability, as regulated asbestos-containing materials (RACM).
- B. Notify the Site Inspector, not less than 24 hours prior to the proposed time of removing and delivery of contaminated waste to the landfill. The Site Inspector and/or Owner's Representative may elect to observe this operation.
- C. Seal asbestos waste in leak-proof impermeable containers labeled in accordance with Title 29, Code of Federal Regulations, Section 1926.1101, and Title 49, Code of Federal Regulations, Sections 171 and 172.

All trucks and/or roll-off containers, while stationary on site or at the landfill during unloading, shall be labeled with a warning sign as follows:

**DANGER
ASBESTOS
MAY CAUSE CANCER
CAUSES DAMAGE TO LUNGS
WEAR RESPIRATORY PROTECTION AND
PROTECTIVE CLOTHING IN THIS AREA
AUTHORIZED PERSONNEL ONLY**

- D. Transport double-bagged contaminated waste from work area to disposal container in fiber or steel drums if waste bags rip or tear during moves from work area to dumpster.
- E. Use only enclosed or covered trucks to haul impermeable containers to prevent loss or damage to containers in route to sanitary landfill.
- F. Pre-clean truck using HEPA vacuum equipment and wet-cleaning methods and place one layer of six mil plastic sheeting on walls and floor of truck prior to transport of contaminated waste.
- G. Allow only sealed plastic bags or impermeable containers to be deposited in landfill. Leave damaged, broken, or leaking plastic bags in the impermeable container and deposit entire container in landfill.
- H. Ensure that there are no volatile or visible emissions to the outside air from site where materials and waste are deposited as a result of materials from this project.
- I. Submit landfill receipts after completion of the work to the Site Inspector.
- J. Following the last trip to dispose of contaminated waste, all plastic sheeting shall be removed from the walls and floor of the truck and also be disposed of as contaminated waste.

XVI. FIELD QUALITY CONTROL

- A. A final visual observation will be performed by the Site Inspector after final clean up to inspect for visible trash, dust, dirt, debris and areas of damage.
- B. The Abatement Contractor shall perform additional cleaning of area(s) if, in the opinion of the Site Inspector, previous clean-up operations are determined to be inadequate.

XVII. WASTE DISPOSAL

Abatement Contractor agrees to indemnify and hold harmless the Department, its employees, representatives and Site Inspectors from any and all claims in connection with the removal of hazardous material related to the performance of the Contract. Waste shipment records or manifests shall be prepared for job completion submittals to the Site Inspector.

XVIII. JOB COMPLETION/REQUEST FOR PAYMENT

Upon completion of the demolition project, the Demolition Contractor must submit payment request, waste shipment records and/or manifests, and the attached "Certificate of Compliance" in electronic form to the Site Inspector. The Site Inspector will forward the submitted documentation along with final inspection reports to the Department to be processed for payment. Payment and bond release payments will be made within forty-five (45) days after approval of the site by the Site Inspector.

XIX. PENALTIES

As the construction schedule is critical for these projects, the Abatement Contractor must begin work as soon as is practical after the Notice to Proceed. If the work on a specific project has not commenced within two weeks of the Notice to Proceed and the Contracting Officer deems that the work remaining cannot be completed by the completion date as established for that project, the State of Georgia may terminate the Contract.

Any Abatement Contractor who is found to have non-responsive or disqualified bids will be removed from the list of pre-qualified Abatement Contractors for a period of one year from the date of the second infraction.

Any citation given to the Abatement Contractor by the US EPA, OSHA, or GA EPD shall be forwarded to the Contracting Officer through the Site Inspector. The Department may terminate the contract for the Abatement Contractor based on the severity or frequency of citations or non-performance and may remove the Abatement Contractor from the list of pre-qualified Abatement Contractors for a period of one year from the date of the second infraction.

The State of Georgia may cancel, terminate, or suspend the Contract in whole or in part wherein it is determined by the State that the Abatement Contractor is in violation of this instrument. Additionally, The Abatement Contractor may also be removed from the pre-qualified Abatement Contractor's List if the Abatement Contractor is determined to be in violation of this Contract.

