



***PROJECT SPECIFICATIONS***  
**FOR THE REMOVAL OF ASBESTOS-CONTAINING MATERIALS**

**MARSHALL COURTS – PHASE IV AND V  
741 34<sup>TH</sup> STREET  
NEWPORT NEWS, VIRGINIA**

**ECS PROJECT NO. 47:3961**

**FOR**

**VIA DESIGN ARCHITECTS, PC**

**JUNE 9, 2017**

**PROJECT SPECIFICATIONS  
FOR THE REMOVAL OF ASBESTOS-CONTAINING MATERIAL**

For

Marshall Courts – Phase IV and V  
741 34<sup>th</sup> Street  
Newport News, Virginia

ECS Project No. 47:3961

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**SECTION 02080  
ENGINEERING CONTROL OF ASBESTOS CONTAINING MATERIALS**

**PART 1 – GENERAL**

1.1 RELATED DOCUMENTS

- A. The GENERAL CONDITIONS (AIA DOCUMENT A201), SUPPLEMENTAL GENERAL CONDITIONS and DIVISION 1 GENERAL REQUIREMENTS, shall apply as fully as if included herein.

1.2 NOTES FOR DEMOLITION

- A. The Abatement Contractor shall coordinate with the Demolition and General Contractors to ensure that all appropriate systems that will be impacted by demolition have been properly decommissioned prior to the start of any work.
- B. The Abatement Contractor shall coordinate with the General Contractor selected for this project to verify that the structure will support the planned activities and comply with local building codes and OSHA requirements.

1.3 WORK INCLUDED

- A. The work includes the furnishing of all labor, materials, equipment, insurance and services necessary for and reasonably incidental to the completion of asbestos removal and related work.
- B. Comply with all governing regulations, which the specifications supplement.
- C. Comply with DIVISION 1 GENERAL REQUIREMENT.
- D. All other work as herein specified. The Contractor will be responsible for obtaining any local, state, and federal permits, as appropriate for this project, prior to starting work. All permits, notifications, patent restrictions or requirements, whether specified in these specifications or not, are the sole responsibility of the Contractor performing the work described in these specifications. **Note:** If during the course of the contract, the Contractor is found to be not in compliance with the project specifications, the Contractor will stop all work until any deficiencies in his performance of this work are corrected. Standby time required to resolve any violations shall be at the Contractor's expense. Likewise the Contractor will pay for any project delay that his violation causes the Building Owner. The contractor will also be back-charged by the Building Owner for any additional IH/project monitor site visits and/or additional analytical (and collection) fees resulting from poor work practices during removal including failed final air samples

#### 1.4 REGULATIONS

- A. All work shall conform to the requirements of the U. S. Environmental Protection Agency (EPA), U. S. Department of Labor - Occupational Safety and Health Administration (OSHA) and applicable State regulations relating to asbestos.
- B. The EPA and OSHA regulations shall be posted at the job site for the duration of the work; posting shall be in a location clearly visible to employees and others in the area.

#### 1.5 DEFINITIONS

- A. Accredited/Accreditation: When referring to a person, Contractor or laboratory, means that such person is accredited in accordance with Section 206 of Title II of the Toxic Substances Control Act (AHERA Regulations).
- B. Aerosol: A system consisting of particles, solid or liquid, suspended in air.
- C. Aggressive Sampling: High-activity level air sampling which results in all settled asbestos remaining airborne and uniformly disturbed through the use of special entrainment and mixing techniques. This makes any settled asbestos fibers accessible to the sampling filters for subsequent detection. The technique is described in 40 C.F.R. 763.90, Appendix A to Subpart E; and Guidance for Controlling ACM in Buildings, Appendix M.
- D. Air Filtration Device (AFD): Air filtration device (AFD) is part of the pressure differential system in which the air is filtered. The AFD is to be equipped with HEPA filters.
- E. Air Monitoring: The process of measuring the fiber content of a specific volume of air. NIOSH Method 7400 or TEM Method in 40 C.F.R. 763, Subpart E, Appendix A, will be used for sampling and analysis.
- F. Amended Water: Water to which a surfactant has been added.
- G. Approve: Where used in conjunction with the QP's response to submittals, requests, applications, inquiries, reports, and claims by the Contractor, "approved" will be held to limitations of QP's responsibilities and duties and does not release the Contractor from responsibilities to fulfill requirements of the Contract Documents. Approved shall also mean consent by U.S. EPA of training programs and the like.
- H. Asbestos: The asbestiform varieties of serpentinite (chrysotile), riebeckite (crocidolite), cummingtonite-grunerite (amosite), anthophyllite, and actinolite-tremolite. Both the asbestiform and non-asbestiform varieties of the above minerals and any of these materials that have been chemically treated and/or altered shall be considered to be asbestos.

- I. Asbestos-Containing Material (ACM): Any material containing more than 1% by weight of asbestos of any type or mixture of types.
- J. Asbestos-Containing Waste Material: Any material, which is or is suspected of being or any material contaminated with an asbestos-containing material, which is to be removed from a Work Area for disposal.
- K. Authorized Visitor: Personnel authorized by the Project Officer, testing lab personnel, or a representative of any Federal, State or local regulatory agency having authority over the project are considered authorized visitors.
- L. Barrier: Any surface that seals off the Work Area to inhibit the movement of fibers.
- M. Breathing Zone: A hemisphere forward of the shoulders with a radius of approximately 6 to 9 inches.
- N. Ceiling Concentration: The concentration of an airborne substance that shall not be exceeded.
- O. Certified Industrial Hygienist (C.I.H.): An industrial hygienist certified in Comprehensive Practice by the American Board of Industrial Hygiene.
- P. Critical Barrier: Two layers of 6 mil polyethylene sheeting on wall or three layers on floor, spray foam, or duct tape used to completely seal off the Work Area to prevent spread of fibers to surrounding areas.
- Q. Decontamination (Decon) Area: An enclosed area adjacent and connected to the regulated area and consisting of an equipment room, shower room and a clean room which is used for the decontamination of workers, materials and certain equipment contaminated with asbestos. This shall serve as the only entrance or exist to the Work Area.
- R. Demolition: The wrecking or taking out of any building component, system, finish or assembly of a facility together with any related handling operations.
- S. Disposal Bag: A 6-mil thick, leak-proof polyethylene bag used for transporting asbestos waste from the work area to the disposal site. Each is labeled in compliance with OSHA 1926.1101 as follows:

**DANGER  
CONTAINS ASBESTOS FIBERS  
AVOID CREATING DUST  
CANCER AND LUNG DISEASE HAZARD**

And U.S. DOT ORM-E label for Asbestos-Hazardous Material (including Asbestos Waste Manifest) and statements as required.

- T. Encapsulant: A material that surrounds or embeds asbestos fibers in an adhesive matrix to prevent release of fibers.
- U. Bridging Encapsulant: An encapsulant that forms a discrete layer on the surface of an in situ asbestos matrix.
- V. Penetrating Encapsulant: An encapsulant that is absorbed by the in situ asbestos matrix without leaving a discrete surface layer.
- W. Removal Encapsulant: A penetrating encapsulant specifically designed for removal of asbestos-containing materials rather than for in situ encapsulation.
- X. Encapsulation: Treatment of ACM with an encapsulant.
- Y. Enclosure: The construction of an airtight, impermeable, permanent barrier around asbestos-containing material to control the release of asbestos fibers into the air.
- Z. Filter: A media component used in respirators to remove solid or liquid particles from the respired air.
- AA. Friable Asbestos Material: Material that contains more than 1.0% asbestos by Polarized Light Microscopy (PLM), and that can be crumbled, pulverized, or reduced to powder by hand pressure when dry. This includes previously non-friable material which becomes damaged to the extent that, when dry, may be crumbled, pulverized or reduced to powder by hand pressure.
- BB. Furnish: Except as otherwise defined in greater detail, the term "furnish" is used to mean supply and deliver to project site, ready for unloading, unpacking, assembly, installation, etc., as applicable in each instance.
- CC. General Supervisor: Site Superintendent, Foreman: is the Contractor's representative at the work site. This person can be the Competent Person required by OSHA, 29 C.F.R. 1926.1101.
- DD. Glovebag: A sack (typically constructed to 6 mil transparent polyethylene) with two inward projecting long sleeve gloves, which are designed to enclose an object from which an asbestos-containing material is to be removed.
- EE. HEPA Filter: A high efficiency particular air (HEPA) filter that removes from air 99.97% or more of monodispersed dioctylphthalate (DOP) or

dioctylsebacate (DOS) particles having a mean particle diameter of 0.3 microns.

- FF. HEPA Filter Vacuum Collection Equipment (or vacuum cleaner): HEPA filtered vacuum collection equipment with a filter system capable of collecting and retaining asbestos fibers. Filters shall be 99.97% efficiency for retaining fibers of 0.3 microns or larger.
- GG. Indicated: The term "Indicated" is a cross-reference for Notes or Schedules on Drawings, to other paragraphs or Schedules in the Specifications, and to similar means of recording requirements in Contract Documents.
- HH. Install: Unless defined in greater detail, "install" is used to describe operations at the project site including unloading, unpacking, assembly, erection, placing, anchoring, applying, working on dimension, finishing, curing, protecting, cleaning and similar operations, as applicable in each instance.
- II. Installer: The "installer" is defined as the entity (person or firm) engaged by the Contractor or Sub-Contractor to perform a particular trade at the work site, including installation, erection, application and similar required operations. Such entities (installers) shall be expert in operations they perform.
- JJ. Landfill Receipt: Document signed by a landfill operator acknowledging the receipt of ACM waste.
- KK. Manifest: A document detailing chain of custody for ACM waste hauled.
- LL. Negative Pressure Glovebag: A glovebag that is composed of flexible plastic that can be subjected to negative pressure without collapsing.
- MM. Negative Pressure Respirator: A respirator in which the air pressure inside the respiratory-inlet covering is positive during exhalation in relation to the air pressure of the outside atmosphere and negative during inhalation in relation to the air pressure of the outside atmosphere.
- NN. Permissible Exposure Limit (PEL): The Contractor shall ensure that no employee is exposed to an airborne fiber concentration of asbestos in excess of the PEL expressed as an 8-hour TWA as determined by the OSHA Reference Method of 29 C.F.R. 1926.1101 (Current PEL for asbestos is 0.1 fiber/cc).
- OO. Personal Sampling Monitoring: Air samples taken in the breathing zone of workers as required by OSHA 29 C.F.R. 1926.1101.
- PP. Pressure Differential: Air pressure lower than surrounding areas, caused by exhausting air from a sealed space (Work Area).



- QQ. Pressure Differential System: A local exhaust system, utilizing HEPA filtration, capable of maintaining a pressure differential inside the Work Area and a constant airflow from adjacent areas into the Work Area and exhausting that filtered air outside the Work Area.
- RR. Project Manager (Contractor): The asbestos Contractor's employee responsible for the total oversight of the project.
- SS. Project Officer: The State employee responsible for overall contract administration.
- TT. Plasticize: Means to cover floors and walls with polyethylene sheeting as herein specified and in accordance with the temporary Enclosure Section.
- UU. Protection Factor: The ratio of the ambient concentration of an airborne substance to the concentration of the substance inside the respirator at the breathing zone of the wearer. The protection factor is a measure of the degree of protection provided by a respirator to the wearer.
- VV. Provide: Except as otherwise defined in greater detail, the term "provide" means furnish and install, complete and ready for intended use, as applicable in each instance.
- WW. Qualified Person (QP): A Registered Architect, Professional Engineer, or Certified Industrial Hygienist who has successfully completed training and is therefore accredited under a legitimate State Model Accreditation Plan as described in 40 CFR 763 as a Building Inspector, Management Planner, Project Monitor, and Asbestos Project Designer. The QP must be qualified to perform visual inspections as indicated in ASTM E 1368. The QP shall be appropriately licensed in the State of Virginia as a Project Monitor and Project Designer. **For this project, the QP shall be Mr. Christopher Chapman, CIH of ECS in Richmond, Virginia. If the Owner chooses a different firm to monitor this project, that firm shall be designated as the QP.**
- XX. Regulated ACM: Means friable ACM, non-friable ACM that has become friable, non-friable ACM that will be or has been subjected to sanding, grinding, cutting or abrading or non-friable ACM that has a high probability of becoming or has become crumbled, pulverized or reduced to powder by the forces expected to act on the ACM during renovation or demolition.
- YY. Regulated Area: An area where asbestos removal operations are performed which is isolated by physical boundaries to prevent entry of unauthorized persons or the spread of asbestos dust, fibers or debris. Within this area, the airborne concentration of asbestos could reasonably be expected to exceed the PEL.
- ZZ. Removal: The taking out or stripping of all ACM from a damaged area or associated area or space.

- AAA. Respirator: A device designed to protect the wearer from the inhalation of harmful atmospheres.
- BBB. Short-Term Exposure Limit (STEL): A "ceiling" concentration, identified in OSHA regulations, of an airborne substance that shall not be exceeded for a duration of any 30-minute period (Current STEL for asbestos is 1.0 fiber/cc.).
- CCC. Submittal: Items that is required to be presented to the Project Officer and/or the QP for review, consideration or decision.
- DDD. Surfacing Material: Material in a building that is sprayed-on, trowelled-on or otherwise applied to surfaces or structural members for acoustical, fireproofing or other purposes.
- EEE. Surfactant: A chemical wetting agent added to water to improve penetration, thus reducing the quantity of water required for a given operation or area.
- FFF. Testing Laboratory: The "testing laboratory" is an independent entity to perform specific air sampling and analysis at the work site and associated areas, to report and (if required) interpret results. Analysis shall be performed by a laboratory accredited by the American Industrial Hygiene Association (AIHA) and having demonstrated a proficient rating in AIHA's Proficiency Analytical Testing (PAT) Program. The laboratory shall be licensed by the Virginia Department of Commerce as an Asbestos Analytical Laboratory. The laboratory shall also be accredited by the National Institute of Standards and Technology (NIST) through the National Voluntary Laboratory Accreditation Program (NVLAP) for bulk sample analysis and air sample analysis by TEM (TEM Method of 40 C.F.R. 763, Subpart E, Appendix A).
- GGG. Time Weighted Average (TWA): The average concentration of a contaminant in air during a specific time period.
- HHH. Visible Emissions: Any emissions containing particulate asbestos material that are visually detectable without the aid of instruments. This does not include condensed water vapor.
- III. Waste Shipment Record: Means the original shipping document, originated and signed by the waste generator (Abatement Contractor) used to track and substantiate the disposal of ACM waste as described in 40 C.F.R. Part 61.
- JJJ. Waste Generator: Means the licensed Asbestos Abatement Contractor removing ACM waste from the property.
- KKK. Wet Cleaning: The process of eliminating asbestos contamination from building surfaces and objects by using cloths, mops, or other cleaning utensils that have been dampened with amended water or diluted removal encapsulant and afterwards thoroughly decontaminated or disposed of as asbestos-containing waste.

- LLL. Work Area: The area where asbestos-related work or removal operations are performed; the Work Area is defined and/or isolated to prevent the spread of asbestos dust, fibers, or debris, and entry by unauthorized personnel. The Work Area is a Regulated Area as defined by 29 C.F.R. 1926.1101.
- MMM. Work Site: The term "work site" is defined as the space available to the Contractor for performance of the work either exclusively or in conjunction with others performing other work as part of the project. The extent of project site is shown on the Drawings, and may or may not be identical with the description of land upon which the project is to be built.
- NNN. Negative Pressure Enclosure: Pressure differential of a minimum of -0.02 column inches of water as related to outside pressure. Utilization of a manometer shall be use as evidence.

#### ABBREVIATIONS AND NAMES:

The following acronyms or abbreviations referenced in Contract Documents are defined to mean the associated names. Both names and addresses are subject to change and are believed to be, but are not assured to be, accurate and up-to-date as of the date of the Contract Documents:

ACM	Asbestos Containing Material
AIA	American Institute of Architects 1735 New York Avenue, N.W. Washington, DC. 20006 (202) 626-7474
ANSI	American National Standards Institute 1430 Broadway New York, NY 10018 (212) 354-3300
ASTM	American Society for Testing and Materials 1916 Race Street Philadelphia, PA 19103 (215) 299-5400
CFR	Code of Federal Regulations Available from Government Printing Office Washington, DC. 20402 (Usually first Published in Federal Register)
EPA	Environmental Protection Agency 401 M Street, SW Washington, DC. 20460 (202) 382-3949

f/cc	fibers per cubic centimeter
MSHA	Mine Safety and Health Administration
NIOSH	National Institute for Occupational Safety and Health
NIST	National Institute of Standards and Technology (U.S. Department of Commerce) Gaithersburg, MD 20234 (301) 921-1000
OSHA	Occupational Safety and Health Administration (U.S. Department of Labor) Government Printing Office Washington, DC. 20402
TEM	Transmission Electron Microscopy
VA DPOR	Virginia Department of Professional and Occupational Regulation 3600 West Broad Street Richmond, Virginia 23230-4917 (804) 367-8500
UL	Underwriters Laboratories 333 Pfinningsten Road Northbrook, IL 60062

#### 1.6 Pre-Work Submittals

- A. Immediately upon award of the Contract, and before a notice to proceed is issued, Contractor shall submit for information of the Owner and Engineer the data listed below, and shall be in quantity to allow the Owner to retain two copies and the Engineer to retain one copy. The data shall show compliance with the requirements of the Contract Documents and governing regulations.
- 1) Method and means of removal and encapsulation of asbestos-containing materials.
  - 2) Containment and shrouding procedures, including any unusual conditions.
  - 3) Air sampling plan.
  - 4) Name of laboratory to be used in air sample analysis and copy of American Industrial Hygiene Association (AIHA) Accreditation.
  - 5) Location of change and decontamination area.

- 6) Location of landfill for disposal of asbestos waste that has been approved by EPA.
- 7) Manufacturer's technical data sheets on proposed surfactant, encapsulant, mastic removers, etc.
- 8) Certificate of Insurance with notarized statement thereon that all requirements stated in paragraphs 13 (a) through 13 (d) are covered.
- 9) Copies of Asbestos Contractor, Worker's License and Asbestos Supervisors License.
- 10) Notifications to all appropriate state and federal agencies and local fire and police departments.

#### 1.7 SCOPE OF WORK

- A. The Scope of Work includes, but is not necessarily limited, to the following:
  - 1) The Abatement Contractor shall be responsible for removal of all asbestos-containing materials impacted by this project. These materials include floor tiles and associated mastic, transite roof shingles and associated felts, transite siding and associated caulking/felts, black sink sealant from the D2/3 style housing units, built up roof (underneath asphalt roof) on Type B housing units, and pipe insulation (within wall cavities) throughout all of the structures.
  - 2) The Abatement Contractor has the responsibility for determining actual quantities of materials to be removed and reviewing the scope of work. The Contractor should allow under their base bid for the removal of all materials as described in the survey report and/or referenced in this specification. The Contractor shall remove all asbestos containing materials as a LUMP Sum, no change orders will be allowed.
  - 3) All mobilizations and permit notifications shall be the Abatement Contractors responsibility.
  - 4) This section includes all work necessary to reduce air concentrations of asbestos to the specified level and maintain the specified asbestos control limits during the life of the contract. It also contains removal, containment, and disposal of asbestos-containing materials. The work specified in this document consists of the provision of services for the removal and disposal of asbestos-containing building materials (ACBMs). Asbestos materials have been identified in the areas where work will be performed.

- 5) All asbestos abatement work will be performed by competent, licensed (by the Virginia Department of Professional and Occupational Regulation) persons trained, qualified, and knowledgeable in the techniques of abatement, handling, and disposal of ACBMs and materials contaminated by asbestos, in accordance with pertinent local, state, and federal regulations.
- 6) The Abatement Contractor shall remove the following materials:
  - a) All 12" x 12" floor tiles and associated mastics - approximately 260 square feet located in the bathrooms of the D2/D3 style structures underneath new flooring. Note 1: The Contractor shall remove floor tile intact with Armstrong method (or similar) and use rags to clean and remove the associated mastic. The Abatement contractor shall remove these materials within containment and following the completion of the removal a visual inspection shall be conducted as clearance. The contractor shall be required to remove all layers of flooring material under the base bid. Where tile is under finishes, walls, cabinets, etc, under the base bid the contractor shall be required to remove any asbestos floor tile/mastic under these items.
  - b) All asbestos-containing transite shingles and associated felt paper underneath (if present). The Contractor shall place two layer 6 mil poly around the perimeter of the building where shingles are to be removed as drop cloths. Poly shall extend out from the building approximately 10 feet. The Abatement Contractor shall remove these materials intact without a negative pressure containment as described in Part 3 – Execution of this document.
  - c) All asbestos-containing transite siding and associated caulking and associated felt paper underneath (if present) approximately 600 square feet located on the D2 style structures. Note: As part of the base bid, the Abatement Contractor shall perform exploratory demolition so that transite siding and caulking materials concealed behind wood panels can be removed
  - d) All asbestos-containing black sink undercoating approximately 6 sinks located in the D2/D3 style structures. The Abatement Contractor shall remove these materials intact without a negative pressure containment as described in Part 3 – Execution of this document.
  - e) All asbestos-containing roof material (flashings and penetration flashings) approximately 800 linear feet located underneath the asphalt roofing of Type B structural buildings. The Contractor shall place two layer 6 mil poly around the

perimeter of the building where roofing materials are to be removed as drop cloths. Poly shall extend out from the building approximately 10 feet. The Abatement Contractor shall remove these materials intact without a negative pressure containment as described in Part 3 – Execution of this document.

- f) All asbestos-containing pipe insulation (various diameters) approximately 400 linear feet located throughout the structures within the wall cavities in the kitchen and bathroom areas in each unit. Note 1: The Abatement contractor shall remove these materials within negative pressure containments where feasible or glove bags (if not) as described in Part 3 – Execution of this document. Note 2: If the contractor elects to perform glove bag removal, the Abatement contractor shall place a micro-trap near glove bag removal. As part of the base bid the contractor shall clean any loose debris around areas of damage underneath or adjacent to pipe runs as described in Part 3 – Execution of this document.

As part of the base bid, the Abatement Contractor shall perform all exploratory demolition as part of this project so that TSI insulation and other suspect materials concealed behind solid walls and ceilings, within doors, within metal jacked lines, and inside boilers, furnaces, ovens, etc. can be evaluated, tested and removed as needed.

Additional abatement notes:

The contractor shall provide units costs for the removal of the following materials:

1. Flooring material and associated black mastic (per square foot)
2. Transite shingles and associated felt paper (per square foot)
3. Transite siding and associated caulk (per square foot)
4. Black Sink Undercoating (per sink)
5. Roofing Material (per square foot)
6. Pipe insulation (per linear foot – glove bag)
7. Pipe insulation (per linear foot – removal within existing containment)

Note 1: For unit cost pricing the contractor shall assume that all mobilization, insurance, notification, profit etc. are to be included in the unit cost estimate. The contractor shall assume that the work will be performed during the scope of the contracted asbestos abatement work.

Note 2: The quantities indicated are for informational purposes only. The contractor is responsible for verifying all quantities to be removed to complete the scope of work. Due to the unknown nature of some of the scope items (specifically panel boxes, transformers, piping, wire insulation, vessel insulation, wall plaster, grout, ovens, and oven flue stack insulation), the Contractor's base bid may be adjusted accordingly

pending the observations/testing of the OIH during this project. The OIH will track quantities abated over the course of the project. Depending on the actual quantity removed, the Contractor's final bid price/cost for a specific scope item may be adjusted (up or down) based upon the quantities used for the original base bid estimate and compared with the final amount of materials actually abated as documented by the OIH and the Contractor's supervisor.

Note 3: During the performance of the project, the contractor will be subject to inspection by the owner's representative. If the contractor is found not in compliance with the project specifications, the contractor will stop all work immediately to resolve the violation. Standby time shall be at the contractor's expense.

Note 4: Following completion of work, the owner's representative shall visually verify that all ACMs scheduled for removal have been removed and that the containments are clean and ready for final aggressive air sampling. District of Columbia and US EPA AHERA protocols will be followed for clearance criteria. Contractor will re-clean the containment areas at their own expense until containment passes both visual and aggressive air sampling.

Note 5: The Abatement Contractor shall coordinate with the Mechanical, Electrical, Plumbing, and General Contractors to ensure that all appropriate systems that will be impacted by demolition have been properly decommissioned prior to the start of any work.

Note 6: The Abatement Contractor shall coordinate with the General Contractor selected for this project to verify that the structure will support the planned activities and comply with local building codes and OSHA requirements.

Note 7: During demolition, no visible emissions of dust are allowed. The Contractor must use dust control measures (i.e., water) during demolition.

## 1.8 QUALITY CONTROLS

- A. The asbestos removal Contractor's superintendent shall be on the job each day during removal and he shall be knowledgeable, experienced and competent in this type of work.
- B. The asbestos removal Contractor shall be responsible for any damage to the building and its contents resulting from leakage or spillage of water.
- C. Authorities of the Commonwealth of Virginia shall be notified of the starting date of the asbestos removal project by the asbestos removal Contractor.
- D. The Owner reserves the right to halt the project work until hazardous or potentially hazardous conditions are corrected.
- E. The Owner reserves the right to independently perform such analysis and tests at any time as he deems necessary to ensure and protect safety of the project.



1.9 WORKER PROTECTION - ASBESTOS REMOVAL PROCEDURES & EQUIPMENT

- F. Comply with all EPA and OSHA Regulations, and follow EPA workplace guidelines.
- G. Provide and maintain negative air systems for all work areas, for the duration of asbestos removal work.
- H. Submit certificates signed by each employee indicating that the employee has received Virginia DPOR-approved training and is currently licensed in the Commonwealth of Virginia in the proper handling of materials that contain asbestos.
- I. All workers shall be instructed in and be knowledgeable of the following:
  - 1) The hazards of asbestos exposure.
  - 2) Use of respirators and protective clothing.
  - 3) Use of personal air monitoring equipment.
  - 4) Use of decontamination facilities and designated showers.
- J. Respiratory Equipment and Air Sampling Requirements
  - 1) Provide workers with respiratory equipment in accordance with OSHA 1910.134, as suitable for the asbestos exposure in the work area.
  - 2) Provide sufficient filters for replacement of disposable type filters.
- K. Provide a copy of written respirator program on the job site at all times.
- L. Personnel breathing zone samples shall be made by the asbestos removal Contractor on a daily basis for determination of both 8-hour time weighted average (TWA) and ceiling concentrations of employee exposures.
- M. The sampling schedule shall be posted outside of the containment area showing sample frequency, duration of the sample, and pump flow rates.
- N. Results of all samples shall be posted within 24 hours of sampling outside of the containment area, and maintained there until the job has been concluded. This data shall include both the results of individual samples and the results of 8-hour TWA determinations. Posted results should include a synopsis of work activities of which the results are representative.

#### 1.10 AIR MONITORING

- O. Provide air monitoring in the work areas throughout all asbestos stripping, removal and cleaning operations to ensure that the workers are adequately protected at all times. All personal air monitoring for OSHA compliance shall be the responsibility of the Contractor.
- P. Samples for air monitoring shall be collected by a competent person in accordance with methods prescribed in Chapter X of the Federal OSHA Industrial Hygiene Field Operations Manual or by equivalent procedures.
- Q. Air monitoring shall be in compliance with 1910.1001 (f) of the OSHA standards.
- R. Air samples must be analyzed by NIOSH method 7400 by a laboratory accredited by AIHA.
- S. Air monitoring (protection of the Contractor's employees) shall be provided throughout the removal and cleaning operations. Air monitoring shall be conducted and evaluated by a testing laboratory employed by the asbestos removal Contractor to ensure that the Contractor is complying with applicable EPA and OSHA regulations.
- T. Environmental samples outside of containment and clearance sampling shall be performed by the QP (ECS Mid-Atlantic, LLC).
- U. Area samples shall be collected outside the containment in areas of highest risk of contamination.
- V. Samples shall be made on a daily basis outside the containment.
- W. All analytical results shall be presented as signed "Certificates of Analysis". Form shall state:
  - Date and time sampling began.
  - Flow rate of samples.
  - Sampling time elapsed.
  - Concentration of fibers.
  - Site/individual sampled.
  - Signature of Analyst.
- X. Two copies of analytical results shall be delivered in writing to the job site within 24 hours of sample collection (excluding non-working days).
- Y. Sampling schedules for area samples shall be posted outside the containment area showing sampling frequency, sample duration, and pump flow rates.
- Z. Results of area samples made outside the containment shall be posted within 24 hours and maintained in the area showing the fiber

concentrations. Posted results should include a synopsis of the day's activities of which the samples are representative.

- AA. The Owner shall be informed immediately of any area samples outside the containment with results in excess of 0.01 fibers/cc.
- BB. Copies of the results of all samples made in areas where Owner's employees are or may be exposed shall be given to the Owner to assure maintenance of records in compliance with OSHA standard 1910.1001 (i) (1).
- CC. Operations shall be discontinued immediately at any time visible emissions are observed emanating from the containment.

## **PART 2 – PRODUCTS**

### **2.1 PRODUCTS AND EQUIPMENT**

- A. Protective plastic (polyethylene) sheeting of minimum 6-mil thickness and size to provide protection to all equipment, floors, walls, piping, ductwork, and all other exposed areas, with minimum frequency of joints.
- B. Seal tape shall be glass fiber or other type capable of sealing joints of adequate sheets of plastic for the attachment of plastic sheeting to finished or unfinished surfaces of dissimilar materials under either dry or wet conditions, including use of amended water.
- C. Disposal Containers: Bags and drums to be used for disposal of asbestos waste shall be suitable to receive and retain any asbestos-containing or contaminated materials until disposal at an EPA approved and certified waste disposal site. Bags shall be 6 mil thickness.
- D. Warning Labels: As required by OSHA Regulation 29 CFR 1910.1001 (g) (2).
- E. Surfactant (wetting agent for amended water): Acceptable surfactant.
- F. Encapsulant: Acceptable encapsulant

## **PART 3 – EXECUTION**

### **3.1 INSTALLATION**

- A. Isolate the work areas for the duration of the work by completely sealing off all openings and fixtures in the work area with plastic sheeting taped and glued securely.
- B. Maintain enclosures in tidy conditions. Ensure that barriers and plastic linings are effectively sealed and taped. Repair damaged barriers and remedy defects immediately upon discovery. Visually inspect enclosures

at the beginning and end of each work period. Use smoke methods to test effectiveness of barriers.

- C. Post the EPA and OSHA regulations or any applicable state and local government regulations at the job site in locations clearly visible to employees and others. Attention is directed to all requirements of the Contract Documents concerning precautionary procedures mandated thereby and by OSHA and EPA for the protection of personnel, the public, and the environment from exposure to or possible contamination by asbestos fibers.
- D. In addition to requirements for asbestos protection, comply with all other applicable requirements of 29 CFR 1910 and 1926.
- E. Provide hard hats, eye protection, and foot protection in those areas where such protective measures are required by OSHA regulations.
- F. Workers shall always wear a respirator properly fitted on the face while in the work area. Instruct and train workers to use respirators properly in accordance with the requirements of the American National Standards Practices for Respiratory Protection (ANSI Z88.2-1969). Ensure that workers wear the appropriate respirator at all times while in the work area. Each employee shall be tested for respirator fit in accordance with the cited ANSI standard.
- G. Workers shall wear disposable full body coveralls and disposable head and foot coverings in the work area. If non-disposable footwear such as protective shoes are required and disposal foot coverings are not suitable, the non-disposable protective footwear shall be left in the work area at all times until disposal at job completion, then disposed of as asbestos contaminated waste.

### 3.2 METHOD OF REMOVAL FOR ENCLOSED WORK AREAS

- A. A low-pressure fine spray of amended water shall be applied to reduce fiber release preceding removal. The asbestos shall be saturated sufficiently to retard emission of airborne fibers. If the asbestos is thick and detaches in chunks having dry bottoms, amended water shall be sprayed over the material as it is loosened and removed.
- B. Following removal of asbestos-containing material, plastic sheeting, tape, cleaning material, clothing and all other disposal materials or items used in the work area shall be packed into sealable plastic bags (6 mil minimum), sealed and placed into metal or fiber containers or skips for transport. The containers or skips shall be labeled as prescribed by OSHA Specifications 29 CFR 1910.1001 (g).
- C. Containers shall be cleaned and thoroughly decontaminated before leaving the work area by being passed through the shower, or through the airlock and container cleaning assembly, as follows:

- 1) Containers shall first be gross-cleaned by vacuuming and then damp-wiped, before being placed into shower container or cleaning airlock.
  - 2) If a container being transferred from the work area via a shower has dried, it shall be wet-wiped again before being transferred past the shower.
- D. Transport the sealed container or skips to an EPA approved and certified waste disposal site. The Contractor shall provide the Owner with a signed certificate listing the quantity of materials delivered to the disposal site, a description of the location of the site, and a statement attesting to the fact that the site is an EPA and State approved disposal location. The signatures of the asbestos removal Contractor, transporter, and site operator must appear on the certificate. The Contractor shall ensure that the operator leaves damaged bags in the delivery containers and that the entire contaminated container is buried, however, sealed plastic bags may be dumped from the containers into the burial site and uncontaminated containers may be reused. The Contractor shall certify that any reused containers have not contained damaged or broken bags of asbestos or other asbestos-contaminated material.
- E. Disposal of all asbestos waste shall be at a prearranged disposal site in accordance with regulations of the Virginia Department of Environmental Quality-Waste Division and OSHA Regulation 29 C.F.R. 1910.1001.

### 3.3 DECONTAMINATION OF WORK AREA

- A. Perform a complete visual inspection of Work Area surfaces and contents. If any debris or residue is found, repeat the first cleaning and continue decontamination procedure from that point.
- B. The QP shall conduct a visual inspection of the Work Area when the abatement and decontamination is complete and when the Contractor's supervisor requests such inspection.
- C. After the visual inspection, an approved lock down encapsulant shall be applied to the surfaces in the Work Area. The encapsulant used shall not impede re-insulation.
- D. Additional cleaning required after the first final cleaning will be performed at the expense of the contractor. Additional hours required by the QP will also be an expense paid for by the Contractor.

### 3.4 FINAL INSPECTION AND TESTING.

- A. After cleaning and decontamination of the workspace has been conducted, and if a high degree of cleanliness has been achieved, notify the QP that the workspace is ready for inspection. The QP will visually inspect each Work Area where such activity was conducted to determine whether the clean up has been properly completed and to detect any visible asbestos dust or contamination. The QP shall conduct a visual

inspection of the Work Area when the abatement and decontamination is complete and when the Contractor's supervisor requests such inspection. The visual inspection will be conducted in general accordance with ASTM E 1368-90, Standard Practice for Visual Inspection of Asbestos Abatement Projects.

- B. If the visual inspection does not reveal any dust or other signs of contamination, the final air monitoring will take place under the discretion of the project monitor and the QP based upon the material type, removal, and quantity. Should air samples be taken, PCM analysis will be performed in general accordance with 40 CFR 763 using aggressive sampling. If elevated airborne fiber counts are detected on clearance samples, the Contractor will be responsible for re-cleaning of the sampled area(s) at no additional cost or schedule impact to Owner. Additional testing will be performed following the re-cleaning to document that acceptable levels have been achieved. The Contractor will be responsible for fees and expenses related to retesting the area after re-cleaning.

-- End of Section --