SECTION 02 82 00

ASBESTOS ABATEMENT

1.1 Introduction

A. Asbestos abatement work prior to renovation or demolition is required to follow IDPH, IEPA, NESHAP, and applicable OSHA and Cook County rules and regulations. This specification is intended to provide for the removal of friable and Category I and II non-friable asbestos-containing materials prior to a structural demolition. Abatement of these items is specified in this section. When only a portion of the structure is being demolished, related paragraphs in the Interior Abatement section may be referenced or included for barrier walls or related ACM in the areas to remain.

1.2 Definitions: In addition to the terms listed below, all definitions in the laws and regulations listed in Section 1.5 are incorporated by reference, whether or not restated herein.

A. Abatement Contractor (AC) means the entity responsible for performing the work in this section and has the training and accreditation to competently perform the work. This entity will obtain and maintain licenses required for the indoor work in this section.

B. Asbestos Abatement Supervisor, hereinafter referred to as “supervisor” means any person who supervises asbestos abatement workers. This person must be trained, accredited, and licensed as required, and must also meet OSHA “competent person” criteria for asbestos abatement.

D. United States Department of Veterans Affairs (VA) means the owner of the property and the authority ordering the work specified herein.

E. Environmental Project Manager (EPM) is the person selected by the MEC to perform environmental monitoring, acts on behalf of the owner or its agents on the project.

F. HEPA Filter means a High Efficiency Particulate Air filter capable of trapping 99.97% percent of particles greater than 0.3 micrometers in mass median aerodynamic equivalent diameter.

G. IDPH means the Illinois Department of Public Health.

H. Managing Environmental Consultant (MEC) means the entity with overall responsibility for the environmental aspects of the project, including design, organization, direction, and control as well as investigations, assessments, and supervision of project management.

I. Owners’ Representative (OR) means the entity responsibility for overall project coordination and completion.

J. Plasticize means to apply plastic sheeting over surfaces or objects to protect them from contamination or water damage.

K. PPE (Personal Protection Equipment) means the protective suits, head and foot covers, gloves, respirators and other items used to protect persons from asbestos or other hazards.

L. SDS means Safety Data Sheets, required by OSHA for any chemical in the workplace that that could be expected to cause exposure to workers during normal use or in emergency situations.

M. VA means United States Department of Veterans Affairs

N. Work Area means the area or areas where asbestos abatement is being conducted.

1.3 Scope of Work. Refer to Environmental Scope of Work drawings ENV-1 and ENV-2.

1.4 Work Included

A. The work includes all labor, equipment, materials, and supplies necessary to perform the scope of work in the documents by the procedures described herein. The contractor, by submitting a bid for the work, represents itself as knowledgeable and expert in the performance of the work, and includes all things usually and customarily necessary to provide a complete and finished job, whether specifically mentioned or not. Related work may be shown in other related documents, prepared by others, if applicable.

B. Removal of friable and non-friable asbestos-containing materials listed in the Documents, including isolating the work areas, protection of adjacent areas, cleanup, proper packaging and disposal of wastes, and all other steps necessary to complete the scope of work.

C. Repair or replacement of damaged surfaces, fixtures, or furnishings in portions of the structure that will not be demolished, if any, to restore them to their pre-existing condition to the satisfaction of the MEC.

D. Compliance with all applicable laws, regulations, standards, and these specifications. In the case of a conflict, the contractor will comply with the most stringent.

E. All licenses, accreditations, permits, fees, notifications, reports, or other documents required by law, regulation, this specification, or the Documents.

F. Provide project closeout documentation to the EPM within thirty (30) days after final clearance. This documentation shall include, but is not limited to, items listed in paragraph 1-7, Submittals.

1.5 Laws, Regulations and Standards

A. The following laws, regulations, and standards are incorporated by reference:

1. 29 CFR 1926: US OSHA Construction Standards
2. 29 CFR 1926.1101: US OSHA Asbestos Construction Standards
3. 40 CFR Part 61: US EPA National Emissions Standards for Hazardous Air Pollutants (NESHAP), 11/90 revision
4. 40 CFR 763 Subpart E, US EPA Asbestos Model Accreditation Plan (MAP): Appendix C - Interim Final Rule
5. VA Directive 7714 (Asbestos) and VA Directive 7715 (Construction Safety)

1.6 Assessment, Monitoring, Testing and Analysis

A. The MEC will perform inspection, testing and design services prior to the start of work, and monitoring during the project and upon its completion:

1. Prior to the start of the work

a. The MEC shall identify suspect materials and confirm their asbestos content through review of historical documentation or by testing.
c. The MEC will design the project and address any design changes as requested. MEC shall assign Project Manager and Air Sampling Professional to oversee daily on-site operations by the abatement contractor.
d. The MEC shall collect background air samples before conditions are disturbed. Background samples will be analyzed by PCM.

2. During the work, the MEC shall:

a. Observe the work with sufficient frequency to ensure contractor compliance with the specifications.
b. Assure that all personnel and visitors have the proper current medical screening, respirator fit test, and training for their respective duties prior to entering a regulated area.
c. Collect air samples in and around the work area, as needed, to verify exposure conditions.
d. The MEC may stop the work if airborne asbestos concentrations at the work area perimeter exceed 0.01 f/cc. The Contractor will be responsible for taking corrective action to reduce exposure levels and prevent recurrence and clean adjacent areas that become contaminated by the asbestos abatement activities.

3. Upon completion of the work, the MEC shall:

a. Visually inspect each work area for visible debris. The Contractor shall be required to re-clean the area or potions of areas until no visible debris remains.

b. Conduct final clearance testing as required.
c. Prepare the project record keeping final report.

B. The Contractor shall provide OSHA compliance air monitoring to determine exposures to its employees in accordance with OSHA 29 CFR 1926.1101. Frequency of testing will comply with OSHA requirements for the anticipated and actual exposure levels.

1. A written Exposure Assessment may be provided prior to the start of the work to determine the requirements for respiratory protection and frequency of OSHA monitoring for each type of activity. The contractor should note that a Negative Exposure Assessment (NEA) may be possible for many tasks.
2. Analysis may be performed on site.

C. Credentials required for testing and analysis of PCM air samples:

1. Accreditation by AIHA or AAR; or
2. Participation in the Proficiency Analytical Testing (PAT) program.
3. Certification of individual qualification to read samples on site when on site analysis is conducted.

1.7 Submittals by the Contractor:

The following shall be submitted to the MEC no less than 10 days prior to the start of the asbestos abatement work activities.

A. Ten (10) day NESHAP notification to the Illinois EPA when the asbestos quantities reach or exceed 260 linear feet or 160 square feet. Two (2) day IDPH notification for asbestos abatement quantities less than 260 linear feet or 160 square feet.

1. Ten (10) day IEPA Asbestos Notification on revised form, including inspector license number and landfill permit number.
2. Evidence that all contractor employees in the work areas are trained and accredited in accordance with OSHA, NESHAP, and EPA MAP requirements:

a. Current Annual refresher training certificate.
b. Current IDPH asbestos license (optional, in lieu of initial training certificate).
c. Current physicians written opinion
d. Current respirator fit test for negative pressure respirators when respirators are used.

3. Copy of OSHA exposure assessment, if available.
4. OSHA compliance air monitoring records generated during the project.
5. Waste shipment records.
6. Worker license and certification log.
7. Safety Data Sheets (SDS) for chemicals used on site.
8. Work plan and schedule.

B. Prior to beginning work, the AC shall submit required notifications to applicable regulatory agencies and receive an Owners Authorization or Notice to Proceed from

the building owner for buildings where asbestos abatement will take place. The AC will provide copies of all regulatory notices to the owner and the MEC within 24 hours of sending such notices to the regulatory authority. The AC shall not begin a project until such notices are provided to the owner and the MEC.

PART 2 - Products

2.1 Tools and Equipment: All tools and equipment shall at least conform to minimum industry standards and regulations.

A. Equipment:

1. Negative Air Machines shall provide HEPA filtration and conform to ANSI Z9.2 fabrication criteria.
2. Respirators shall be NIOSH approved for use with lead, asbestos, or other contaminants anticipated in the work.
3. Contractor is fully responsible for complying with OSHA rules for other safety equipment, such as hard hats, safety harnesses, eye protection, gloves, footwear, and any other safety devices used on the site.
4. Pressure differential manometer with readable tape shall be provided by the contractor including calibration documentation.

B. Tools:

1. Shovels and scoops shall be rubber or plastic, suitable for use in plasticized containment. Metal shovels are not permitted.
2. Scrapers, brushes, utility knives and other hand tools shall be of good quality and suitable for the intended uses. The contractor shall keep an ample supply on hand for the completion of the work.
3. Power tools such as, but not limited to saws, pneumatic chisels, brushes, sanders, and needle guns shall be equipped with shrouds and HEPA-filtered local exhaust systems to capture released particles.

2.2 Materials: All materials shall at least conform to minimum industry standards and regulations.

B. Abatement materials

1. Fire-retardant, poly sheeting for all applications shall be 6 mil nominal thickness for critical seals, floors, ceilings and drop cloths.
2. Tape shall be 2” or 3” duct tape or other waterproof tape suitable for joining poly seams and attaching poly sheeting to surfaces.
3. Spray adhesives shall be non-flammable and free of methylene chloride solvents.
4. Disposal bags shall be 6 mil.
5. Disposable suits, hoods, and foot coverings shall be TYVEK or similar.
6. Solvents shall be compatible with any primers, mastics, adhesives, paints, coatings, or other surfacing materials to be installed following their use.

PART 3 - EXECUTION

3.1 Employee Training, Qualification and Medical Screening

A. Supervisors and Workers shall be trained, accredited, and licensed in accordance with IDPH rules.

1. Contractor shall keep copies of licenses, initial training course certificate, and most recent annual refresher training certificate at the jobsite at all times for all contractor personnel.
2. A supervisor (competent person) shall be present at the worksite at all times when work under this section is being conducted.

B. Medical Screening. All contractor personnel shall have a current medical examination in accordance with OSHA requirements. Copies of the Physician's Written Opinions shall be kept on site.

3.2 Permissible Exposure Limits

A. The OSHA permissible exposure limit (PEL) for worker exposure to airborne asbestos is 0.1 f/cc as an 8-hour time-weighted average (TWA).

B. The OSHA short-term excursion limit for worker exposure to airborne asbestos is 1.0 f/cc for a 30-minute sample.

3.3 Exposure Assessment and Monitoring

A. Reserved.

3.4 Respiratory Protection

A. Respiratory protection shall be worn in accordance with all applicable regulations noted in section 1.5.

3.5 Hygiene Practices

A. Eating, drinking, smoking, chewing gum or tobacco, and applying cosmetics are not allowed in the work area.

B. All persons entering the work area are required to wear appropriate PPE and follow the entry and exit procedures posted in the Personnel Decontamination Enclosure System.

C. Personal Protection Equipment (PPE) is required when airborne exposures are, or

are expected to be above the PEL, or as needed to protect the safety of personnel and visitors. PPE may include:

1. Full body disposable suits, headgear, and footwear.
2. Gloves.
3. Hardhats.
4. Non-disposable footwear and clothing shall remain in the work area and shall be disposed of as contaminated waste when the job is completed.
5. Authorized visitors shall be provided with suitable PPE when PPE is required in the work area. The MEC shall ensure that visitors have proper and current medical screening and fit test, and awareness training or other appropriate training.

D. A Personnel Decontamination Facility is required when worker exposures are expected to exceed the PEL. The decontamination unit may be remotely located if it is not feasible to locate adjacent to the work area.

1. When a remote decon unit is used, personnel shall use a double-suiting procedure
for traveling between the work area and the decon. Persons shall HEPA-vacuum the exterior of their disposable suits at the entry to the work area, put on a clean suit over the existing suit, and proceed to the decon unit for shower decontamination and change into street clothes.

E. When exposures are below the PEL, protective disposable suits are recommended, but not required. To exit, persons shall HEPA-vacuum down clothing at the work area entry and leave the work area. When disposable suits are used, they shall be HEPA-vacuumed, stripped off, and deposited in an asbestos disposal bag. Personnel may then leave the work area.

3.6 Prohibited Activities

A. Dry removal or dry sweeping, except:

1. During freezing weather. In this case, temperature and weather conditions must be
recorded at the start, during, and at the end of the shift.
2. On roofs with 3:1 slope or greater. In this case, roofing shall be removed in an intact
condition, as much as possible.
3. For roofing areas of less than 25 square feet.
4. When equipment damage or other hazard exists. In this case, written permission from IEPA is required prior to performing dry removal.

B. Use of compressed air for cleaning.

C. Use of high-speed power tools not equipped with a HEPA-filtered local exhaust or water spray system.

D. Eating, drinking, smoking, chewing gum, or applying cosmetics in the work area.

E. Removing respirators or other PPE in the work area.

F. Contractor shall not salvage or recycle building materials unrelated to abatement scope of work.

3.7 Work Area Isolation and Preparation

A. General Preparation. Contractor shall:

1. Post:

a. Caution signs meeting the specifications of OSHA 29 CFR 1926.1101 (k)(6) at any location and approaches a location where airborne concentrations of asbestos may exceed ambient background levels.
b. Decontamination and work procedures in equipment rooms and clean rooms.
c. EPA NESHAP asbestos rules (40 CFR Part 61, subparts A & M) in the clean room.
d. OSHA Asbestos Construction Standards (29 CFR 1926.1101) in the clean room.
e. List of telephone numbers in the clean room for:

1) local hospital and/or local emergency squad.
2) school security office (if applicable).
3) owner representative reachable 24 hours per day.
4) contractor's headquarters.
5) architects or consultants directly involved in the project.

2. Perform all asbestos abatement within a negative pressure work enclosure with attached worker decontamination enclosure system and separate waste decontamination enclosure system.
3. Secure the work area from entry by unauthorized persons.

B. Exterior Preparation

1. 6 mil plastic sheeting shall be placed over the ground, foundation, or other surfaces below the abatement area.
2. Unauthorized entry shall be prevented by using appropriate barriers, such as warning tape, fencing, or other suitable barriers.
3. Nearby air intakes, grilles, and other openings into the building interior areas not being demolished above, below, or besides the work area that could be exposed to airborne dust shall be closed or sealed off with poly and tape.
4. All electric power in the work area shall be protected with ground-fault circuit interrupters.

3.8 Abatement Procedures

A. General Removal Requirements

1. Asbestos materials shall be wetted and kept wet during removal.
2. ACM shall be promptly bagged or containerized as it is removed. Wastes shall not be dropped or thrown to the ground. Unless the material is carried or passed to the ground by hand, it shall be lowered via covered, dust-tight chute, crane, hoist, or other means that prevent the wastes from being dropped or thrown.
3. Appropriate OSHA fall protection shall be provided when appropriate:

   a. Scaffolding more than one section high shall be equipped with handrails and midrails designed to provide fall protection, or full-body safety harnesses shall be worn and tied off to a secure anchor point.
   b. Workers in manlifts shall wear full body harnesses and tie to the tie-off point provided on the manlift basket whenever the basket is elevated from ground level.
   c. Personal fall protection consisting of full body harnesses, lanyards, and OSHA-compliant lifelines, anchorage, and deceleration devices shall be provided whenever personnel are within 6 feet of an opening, hole, or edge where there is a risk of falling 6 feet or more.

B. Roofing

1. General: Remove in an intact state to the extent feasible. ACM roof mastics, cements, underlayments, and flashings. Asbestos-containing shingles may occasionally break even when removed carefully. The fact that otherwise intact roofing materials become separated or broken does not by itself render them non-intact. However, if they become pulverized, reduced to powder or dust, they have become non-intact.

   a. The contractor shall take care to minimize the amount of roofing material damage.
   b. If the materials are rendered non-intact, the AC shall employ methods to contain
      the dust and debris and utilize hygiene practices appropriate for friable (OSHA Class I) ACM, including PPE, decontamination units, and monitoring. Monitoring may include area samples at the work area perimeter to determine that airborne asbestos fibers are not being released in concentrations above the PEL.
2. Built-up roofing and asphalt shingles:

   a. Power cutting machines shall be equipped with a HEPA-filtered dust collection
      system or shall be misted during use.
   b. Dust generated by the cutting operation shall be collected with HEPA vacuums or wet cleaning methods.
3. Rigid roofing materials, such as cement asbestos shingles: remove intact and minimize breakage.

C. Transite, Galbestos sheeting (galvanized metal with a baked-on asbestos paint),

Asbestos/Cement pipe, or other rigid panels shall be removed using wet methods.

D. Other

1. Coatings, electric cable insulation or joint coverings, and other miscellaneous materials that are to be removed with the substrate or that can be removed without becoming friable may be removed as intact (OSHA Class II, EPA NESHAP Category I or II non-friable) in accordance with procedures described in the “General” and “Roofing” Sections 3.8 A. and C.
2. Coatings, and other miscellaneous materials that must be removed from the substrate or that otherwise will become friable must be removed as non-intact (OSHA Class I, EPA NESHAP friable) in accordance with procedures described in “General” and “Roofing” Sections herein.

3.9 Cleaning and Decontamination

A. All visible accumulations of ACM, debris, tools, and unnecessary equipment shall be removed from the work area.

B. Protective poly shall be folded in on itself, rolled up, placed in asbestos disposal bags, and disposed as asbestos waste.

C. Surfaces which have been exposed to friable ACM or its dust shall be HEPA vacuumed.

D. Dry sweeping of surfaces that have been exposed to friable ACM or its dust is not permitted.

3.10 Final Clearance

A. Cleaning may be discontinued when there is no visible debris and area air monitoring results verify that exposures are below the PEL.

B. Final (aggressive) clearance sampling will be conducted by the MEC for each work area and/or dwelling unit. Each sample result, as determined by Phase Contract Microscopy, shall be less than or equal to 0.01 f/cc. If the sampling results indicate a concentration of airborne fibers in excess of this clearance criteria, the contractor shall re-clean the contained and/or regulated area. The contractor shall not be released until the contained and/or regulated work area meets the clearance criteria.

3.11 Special Procedures: Less stringent requirements may apply in a number of cases.

A. Resilient Floor Covering. Removal of resilient floor covering may only be performed when Gross Removal is not specifically required by the Project Designer or Project Documents. Intact removal of resilient vinyl floor coverings shall be by IDPH Licensed Asbestos Workers supervised by an IDPH licensed Supervisor using heat guns, infrared heat machines or other methods that remove the floor covering in

whole pieces. Buffing/grinding machines may not be used for removal of mastic. The contractor shall insure that no damage is caused to the area or equipment below the floor. Abatement procedures are as follows:

1. Submit the Floor Tile Project Notice at least 10 working days prior to the beginning of all asbestos resilient floor covering abatement projects.
2. Post signs so that the work area cannot be entered from any direction without observing a sign.
3. Isolate the work area from areas to remain occupied.
4. Install barriers of six mil plastic sheeting sealed with duct tape at all openings in the work area. Openings larger than 4' x 8' may include wood constriction barriers.
5. Install a curtained doorway at the entry to the work area, lock out electrical power to the room and supply required power with ground fault interruption protected circuits.
6. Wear, as a minimum, half-faced dual cartridge NIOSH-approved respirators and double disposable suits.
7. Remove floor covering without causing breakage. Work will stop if breakage occurs and removal will be completed by gross removal at the contractor's cost.
8. Dispose of floor covering and debris as asbestos waste.
9. HEPA vacuum the work area thoroughly following completion of the removal.
10. HEPA vacuum surface of protective clothing and dispose of clothing as asbestos waste.
11. Personal air monitoring will be performed by the contractor in accordance with OSHA during ALL intact floor tile/mastic removal operations.

3.12 Waste Disposal and Equipment Load-out

A. Category I and II non-friable waste may be adequately wetted and loaded in bulk into lined receptacles, such as dumpsters or trailers. Receptacles shall be closeable and lockable to provide security and to prevent air emissions. It is the abatement contractor's responsibility to determine and provide for more stringent manifesting or packaging requirements that may be imposed by transporters or landfills.

B. Packaged friable asbestos wastes:

1. Asbestos-containing waste, including removed ACM and debris, poly, critical barrier materials, suits, respirator filters, vacuum HEPA filters, water filters, and other asbestos-containing items shall be properly packaged for disposal.
2. Use 6 mil plastic bags with a gooseneck seal, drums, or other type of sealed container.
3. Wrap large or irregular items in 6 mil poly sheeting and seal with tape.
4. Sharp, jagged, or other items that may puncture poly shall be packaged in rigid impermeable containers such as drums or boxes or wrapped in burlap or other protective covering before sealing in bags or poly sheeting.
5. Label containers for friable ACM waste:

a. OSHA warning label.
b. DOT performance-oriented hazardous material label.
c. Name and address of generator and abatement location.

C. Removing items from the work area:

1. Packaged asbestos waste shall be HEPA-vacuumed before removing from the work area.

D. Storage of packaged asbestos wastes shall be in a completely enclosed dumpster (six (6) sided), or other suitable container that can be locked and secured. The secured area shall be kept locked at all times to prevent unauthorized access.

E. Shipment of items from the project.

1. Decontaminated tools and equipment may be shipped by normal carrier to warehouse, another jobsite, or other destination.
2. For asbestos wastes:

a. Line shipping container with 6 mil poly prior to loading packaged asbestos wastes.
b. Post NESHAP placards during loading of asbestos wastes.
c. Execute the NESHAP-required Waste Shipment Record (WSR) to be signed by the generator, transporter, and landfill. All WSRs shall be returned to the MEC within 30 days of shipment.
d. Asbestos waste shall be transported from the project site directly to the landfill.
d. Only landfills approved and permitted by Illinois for accepting asbestos waste may be used for disposal.

END OF SECTION