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ASBESTOS CONTROL – CONSTRUCTION INDUSTRY	Document	TFC-ESHQ-IH-STD-05, REV A
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1.0 PURPOSE AND SCOPE

(5.1.4)

This standard establishes the requirements for the identification and control of asbestos hazards during construction activities and is based on OSHA 29 CFR 1926.1101, which establishes a maximum permissible exposure limit (PEL) of 0.1 fiber/cc of air as an 8-hour time weighted average (TWA) and an excursion limit (EL) of 1.0 f/cc averaged over a sampling period of 30 minutes.

The applicable and relevant elements of 40 CFR 763 with respect to the Environmental Protection Agency (EPA) Model Accreditation Plan training accreditation criteria are included. Other federal and local regulations are referenced as appropriate to facilitate integration of environmental and worker health and safety requirements.

This standard applies to the following construction related work:

- Demolition or salvage of asbestos-containing structures
- Cutting, grinding, abrading, or otherwise rendering asbestos-containing materials or presumed asbestos-containing materials friable
- Deactivation, decontamination, and decommissioning activities involving facilities containing asbestos-containing materials or presumed asbestos-containing materials
- Removal, encapsulation, or installation of asbestos-containing materials or presumed asbestos containing materials
- Asbestos spill/emergency cleanup
- Transportation, disposal, storage, and containment of asbestos-containing materials or presumed asbestos-containing materials
- Construction-related housekeeping activities involving asbestos-containing materials or presumed asbestos-containing materials
- Construction, repairs, alterations, maintenance, or renovations of structures or substrates that contain asbestos-containing materials or presumed asbestos-containing materials.

The OSHA Construction Standard classifies asbestos-related activities into four categories; each category requires different levels of worker training and protection. See [Table 1](#).

2.0 IMPLEMENTATION

This standard is effective on the date shown in the header.

3.0 STANDARD

3.1 Asbestos-Containing Materials

Typical asbestos-containing materials can be described in three categories:

- Surfacing materials: Spray-applied or troweled-on surfacing treatments installed for the purposes of fireproofing, acoustical insulation, or architectural finishes. Examples include structural fireproofing and various plasters.
- Thermal system insulation: Insulating materials associated with heating, ventilation, and air conditioning (HVAC) equipment with the purpose of reducing heat gain or loss. Examples include insulation on piping, boilers, tanks, and ducts.
- Miscellaneous materials: All remaining asbestos-containing materials used in construction which are not characterized as surfacing materials or thermal system insulation. Common examples include floor tile, electrical insulators, cement-asbestos board materials, and gasket material.

3.2 Presumed Asbestos-Containing Materials

(5.1.5, 5.1.6)

Presumed asbestos-containing materials are all thermal system insulation and surfacing material found in buildings constructed no later than 1980. Asphalt and vinyl flooring materials installed prior to 1980 are also be treated as asbestos-containing. Material/or product specifications, building material application/installation dates, previous inspection results, or facility condition update reports may provide information on age of materials. Designation of installed materials as presumed asbestos-containing material can only be rebutted by:

- Conducting an inspection pursuant to the requirements of EPA's Asbestos Hazard Emergency Response Act (AHERA) (40 CFR Part 763, Subpart E) which demonstrates the material is not asbestos-containing material or
- Performing tests of the PACM which demonstrate that no asbestos is present in the material. Such tests include PLM analysis of bulk samples collected by an accredited inspector in the manner described in 40 CFR 763.86.

3.3 Multi-Employer Work Sites/Subcontractor Interface

1. The line manager will ensure determination of compliance status of any subcontractors before and throughout the project to ensure the subcontractor comes into compliance, when necessary.
2. The line manager will ensure requirement for daily verification of effectiveness of control methods or integrity of enclosures to prevent migration of asbestos fibers into non-regulated areas.
3. On multi-employer work sites whose activities impact asbestos-containing materials or presumed asbestos-containing materials, the buyer's technical representative will ensure the subcontractor notifies all affected employers of work activities and planned measures to prevent asbestos exposure.

4. When activities require the establishment of a regulated area, the buyer's technical representative will ensure the subcontractor provides written notification of planned activities to the facility manager (or designated building owner) and other work site employers, which will include information on the nature of the work with asbestos-containing materials or presumed asbestos-containing materials, the requirements related to the regulated area, and the preventive measures to prevent exposure to others on the work site.
5. If asbestos hazards are created, the buyer's technical representative will ensure the subcontractor implements appropriate measures to abate the hazard and notifies the facility manager or designated building owner and managers of other employees working in the area affected by the hazard.
6. The buyer's technical representative will ensure the subcontractor implements protective measures for employees if they may be exposed to asbestos hazards created by other work forces.

3.4 Hazard Identification and Exposure Assessment

1. As part of the work planning process, line management shall identify the presence, location, and quantity of asbestos-containing material or presumed asbestos-containing material that may be disturbed or impacted by planned construction activities. One or more of the following activities will be performed.
 - a. Documentation shall be obtained which describes the presence, location, and condition of asbestos-containing material and/or presumed asbestos-containing material in the building and/or associated structures.
 - b. An inspection of suspect materials by a certified asbestos inspector shall be requested.
 - c. Presume materials are asbestos-containing until proven otherwise, and manage accordingly.
2. Activities in Section 3.2 shall be performed, as appropriate, to demonstrate that presumed asbestos-containing materials do not contain asbestos.
3. The class of work to be performed shall be determined based on Table 1. Perform the work according to the highest hazard classification if more than one class of work occurs simultaneously or the activity is not in a work class.

NOTE: Certain activities are not classified in any of the four work classes and have separate requirements to comply with the permissible exposure limit for employee exposures.

4. A trained, asbestos competent person shall be designated to supervise asbestos activities and perform assigned duties for the specific work classification.

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5. The designated competent person shall conduct an initial exposure assessment immediately before or at the initiation of any construction activity to determine expected exposures. Industrial Hygiene shall be contacted for assistance, as necessary.

EXCEPTION: This does not apply to Class IV activities.

6. An initial exposure assessment shall be performed in time to comply with any regulatory requirements triggered by exposure data or the lack of a negative exposure assessment; information necessary to ensure that planned controls are appropriate shall be provided.

NOTE: An initial exposure assessment must be based on job site monitoring until a negative exposure assessment has been made.

7. When determining job engineering controls, monitoring requirements, respiratory, and protective clothing requirements, the initial exposure assessment shall be used.

8. A negative exposure assessment shall be provided, as follows, to demonstrate that the exposure of employees will be below the permissible exposure limit for a specific asbestos job:

- Objective data demonstrating that the activity and asbestos-containing materials cannot release airborne fibers in concentrations exceeding the permissible exposure limit and excursion limit under work conditions having the greatest potential for release of asbestos, or
- Monitoring data from within the past 12 months collected during a construction job under conditions closely resembling the present project, which demonstrate with a high degree of certainty that exposures for the current job will not exceed the permissible exposure limit or excursion limit, or
- Results of initial exposure monitoring (representative 8-hour and/or 30-minute air sample) from the current job.

NOTE: This assessment can be applied when data obtained resembles the work and environmental conditions, controls methods and work practices in the current operations; and representative employees have similar training and work experience.

9. For all Class I activities, employees shall be presumed to have been exposed in excess of the permissible exposure limit and excursion limit unless a negative exposure assessment is produced or until exposure data proves otherwise.
10. Results of employee exposure monitoring and any other observations or previous data which indicate potential exposures for an activity shall be included as part of this initial exposure assessment and included in the work documentation.
11. Records of any objective data shall be maintained with work control documentation, which shall include the products involved, testing protocol, source of data, and a description of how this data supports exemption from this program.
12. The following work documentation shall be maintained, as required:

- Asbestos Work Permit ([A-6003-870](#))
 - Previous facility condition reports, if available
 - Automated Job Hazard Analysis, if required
 - Inspection or bulk sample results
 - Initial or negative exposure assessment results
 - Other special instructions and associated records, as applicable.
13. The building owner/facility manager, other managers of employees who work in or adjacent to the area, and managers of employees performing asbestos work shall be notified of the presence, location, and quantity of asbestos hazards and the measures prescribed to control airborne fibers. The completed Asbestos Work Permit may be used for notification purposes.

3.5 Exposure Monitoring (51.4)

1. Daily monitoring shall be conducted by line management that is representative of the exposure of each employee assigned to work within a regulated area, performing Class I or II work, unless a negative exposure assessment has been made for the entire operation.
 - Employees required to wear supplied air respirators operated in pressure demand mode, or other positive pressure mode respirators do not require daily monitoring if using controls listed in Attachment A.
 - For Class I work using modified or if alternate controls other than those listed in Attachment A are used, daily monitoring is still required.
2. Periodic monitoring shall be performed for employees involved in Class III or IV work who are reasonably expected to be exposed above the permissible exposure limit or excursion limit at intervals sufficient to document the validity of the exposure prediction.
3. The services of an industrial hygienist and the assigned competent person shall be used, as appropriate, to determine the appropriate level of monitoring. Line management shall ensure exposure monitoring is performed by qualified industrial hygiene or industrial hygiene technicians.
4. When required, ensure exposure monitoring is performed by collecting personal breathing zone samples, representing 8-hour time weighted averages and 30-minute excursion limits in accordance with the OSHA Reference Method in Appendix A of 29 CFR 1926.1101. Exposure records must be collected, reported, and maintained as required by [TFC-ESHQ-IH-STD-04](#).
5. A representative number of employees who are performing each task comprising an operation or activity shall be monitored.
6. Employees or their representative shall be provided the opportunity to observe exposure monitoring. Employees shall adhere to work practices and personal protective equipment prescribed for the activity under observation.

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7. Written records of exposure monitoring are to be provided to the affected employees as soon as possible upon receipt of results from Industrial Hygiene. Preliminary information may be used for this purpose, when followed by a final report.
8. If monitoring results indicate employee exposures are below the excursion limit and permissible exposure limit, periodic monitoring may be discontinued for employees whose exposures are represented by the monitoring.
9. Exposure monitoring shall be re-instated whenever there is a change in process, control equipment, personnel, or work practices that may result in new or additional exposures above the permissible exposure limit/excursion limit.

3.6 Engineering Controls/Work Practices

1. As part of work planning, engineering controls and work practices shall be chosen and implemented based on the class of work and available exposure data. Attachment A provides mandatory controls for all activities and additional controls for specific work classes.
 - a. When selecting engineering control strategies, a competent person shall be selected.
 - b. Job-specific controls and work practices must be documented and maintained as part of the work package documentation.
2. If alternate control methods will be implemented:
 - a. For Class I work involving >25 linear or 10 square feet:
 - 1) A project engineer or certified industrial hygienist, qualified as a project designer, shall evaluate and provide written certification that alternate control strategies adequately reduce employee exposure to below the permissible exposure limit.
 - 2) Prior to work, a copy of the evaluation and certification of the proposed control technology shall be submitted to the OSHA Office of Technical Support for purposes of new technology advancement.
 - 3) Perimeter monitoring or clearance sampling shall be performed in accordance with EPA criteria to demonstrate that alternate controls will prevent asbestos contamination outside the regulated area.
 - b. For Class I work involving <25 linear or 10 square feet, a competent person shall be assigned to evaluate and provide written documentation that proposed controls will reduce employee exposure to below the permissible exposure limit.
 - c. For Class II work, a competent person shall be assigned to evaluate and certify that alternate controls will reduce the employee exposure below the permissible exposure limit.

- d. Sampling and analytical data representing employee exposure during the use of the method for employees with similar training, experience, and work conditions shall be provided.
3. If there are adequate barriers between activities, as determined by the competent person, controls from more than one class may be used.
4. Whenever feasible engineering and work practice controls do not reduce exposures to or below the permissible exposure limit/excursion limit, supplement with respiratory protection prescribed in accordance with Section 3.9.
5. Employee rotation is not to be used as a means to reduce employee exposure.
6. An asbestos competent person shall be requested to determine if roofing operations involve Class II roofing activities or incidental roofing activities involving intact asbestos containing cements, mastics, coatings and flashings. Removal of intact asbestos-containing material in the form of cements, mastics, coatings, and flashings are not subject to other control methodologies if it can be determined the material is intact prior to and throughout the job.
7. The manufacturer's certification to demonstrate that HEPA vacuums meet ANSI Z9.2 standards and are DOP-tested in accordance with MIL-STD 282 shall be requested, maintained, and labeled accordingly.
8. Asbestos waste, scrap, debris, bags, containers, equipment, and contaminated clothing shall be collected and disposed of in sealed, labeled, impermeable containers or bags.

3.7 Hygiene Facilities and Practices for Employees

1. Line management shall install and require employee use of hygiene facilities for:
 - Class I construction activities
 - Class II and III construction operations where employee exposures exceed the permissible exposure limit or excursion limit or where there is no documented negative exposure assessment available
 - Class IV operations in regulated areas or where asbestos-containing material/presumed asbestos-containing material debris is cleaned up.
2. Hygiene facilities for Class I construction operations involving over 25 linear or 10 square feet of thermal system insulation or surfacing asbestos-containing material or presumed asbestos-containing material includes:
 - Decontamination areas connected to the regulated area consisting of an equipment room, shower room, and clean room in series

- Adjacent shower facilities, if feasible, comply with 29 CFR 1910.141(d)(3).

NOTE: This does not apply to outdoor work.

3. Hygiene facilities for Class I construction work involving less than 25 linear or 10 square feet of thermal system insulation or surfacing asbestos-containing material or presumed asbestos-containing material, and for Class II and III construction work, includes an equipment room adjacent to the regulated area sufficient in size to accommodate the cleaning of equipment and removal of personal protective equipment without spreading contamination beyond the area.
4. Hygiene requirements for Class IV construction work performed in regulated areas are the same as those used by other employees within that area.
5. Class IV work not performed in regulated areas, but include the clean-up of thermal system insulation or surfacing asbestos-containing material/presumed asbestos containing material debris, shall require the same hygiene facilities listed above for Class II and III work.
6. When hygiene facilities are required:
 - a. Lunchroom facilities shall be provided for employees where airborne asbestos exposures are below the permissible exposure limit and excursion limit
 - b. Line management shall ensure employee use of hygiene facilities to prevent asbestos debris from leaving the work area.

3.8 Regulated Areas

1. Line management shall determine the need for a regulated area with the support of an asbestos competent person.
2. Regulated areas shall be established whenever:
 - Class I, II, and III construction activities are performed
 - Construction activities cause airborne concentrations of asbestos to exceed, or there is a reasonable possibility they may exceed, the permissible exposure limit or excursion limit.
3. Regulated areas shall be marked in a manner which minimizes the number of persons within the area, restricts access to authorized personnel, and protects persons outside the barrier from exposure to airborne asbestos.

4. Entrances to regulated areas where asbestos related work will be performed shall be posted with asbestos warning signs that read:

**DANGER
ASBESTOS
CANCER and LUNG DISEASE HAZARD
AUTHORIZED PERSONNEL ONLY**

5. The following shall be included when respirators and protective clothing are required:

**RESPIRATORS and PROTECTIVE CLOTHING
ARE REQUIRED IN THIS AREA**

6. The use of barrier tape, critical barriers, or negative pressure enclosures shall be included, as appropriate. The exact methods of markings for a regulated area may be determined by the engineering controls used.

NOTE: Critical barriers or negative pressure enclosures themselves may serve to mark the regulated area.

- Markings are not required for Class II and III if no other workers have access.

7. An asbestos competent person shall be assigned to supervise all activities that occur within regulated areas. This includes limiting access to authorized personnel, requiring the use of appropriate respiratory protection, establishing decontamination facilities, when required, and fulfilling duties and other requirements of regulated areas.
8. Facility managers or designated building owners shall be informed of planned work within a regulated area, the type of work, engineering controls, work practices, and other requirements of the regulated area.

3.9 Respiratory Protection

(5.1.4)

1. Selection, issuance, and control of the appropriate level of respiratory protection shall be provided in accordance with the respiratory protection program, [TFC-ESHQ-S IH-C-05](#).
2. Line management shall ensure respiratory protection is required for asbestos related activities whenever:
 - The potential exposure associated with an activity cannot be reduced below the permissible exposure limit or excursion limit by the use of engineering controls
 - During all Class I asbestos projects
 - During all Class II projects where the asbestos-containing material or presumed asbestos-containing material is not removed in a substantially intact state
 - During all Class II and III dry removal work and/or for which a documented negative exposure assessment is not available.

EXCEPTION: Roofing materials removed intact from a sloped roof where respirators are not required because of the negative exposure assessment

- During all Class III work where thermal system insulation or surfacing asbestos-containing materials or presumed asbestos-containing materials are disturbed
 - During all Class IV work performed in a regulated area where employees performing other work in the area are required to wear respirators.
3. Line management shall ensure Industrial Hygiene personnel select respiratory protection. If radiological hazards are involved, line management shall ensure any assistance from radiological control personnel.
 4. Respirator wearers shall receive a quantitative fit test for each style and type of respirator used, as specified in [Table 2](#), and in accordance with the respiratory protection program.
 - a. Asbestos workers are fit tested every six months as required by 29 CFR 1926.1101.
 - b. Fit testing is required on an annual basis (not every six months) for “non-asbestos workers” such as health physics technicians.
 - c. Daily use of respirators includes a positive and negative fit check each time an air purifying respirator (APR) is donned or adjusted.

NOTE: Qualitative fit testing is permitted only for testing of half-mask APR and requires prior approval from the respiratory protection program coordinator and an approved qualitative fit testing program.

5. Line management shall ensure the appropriate levels of respiratory protection for emergency response/clean-up are provided, based upon the exposure potential.
6. When respiratory protection is required:
 - a. Employees who are issued respiratory protection shall be medically qualified, fit tested, and properly trained in respirator use and maintenance as required by the respiratory protection program.
 - b. Appropriate doffing and field decontamination practices during respirator removal shall be maintained
 - c. Asbestos-contaminated respirators shall be placed into sealed bags and labeled with asbestos hazard warning labels before turning into the respirator maintenance facility for decontamination and cleaning.

3.10 Protective Clothing

1. Employees are required to use at least the minimum levels of personal protective equipment required by the class of work performed.
2. The use of protective clothing shall be required whenever:

- The potential exposure to airborne asbestos cannot be reduced to below the permissible exposure limit or excursion limit by the use of engineering controls
 - The required negative exposure assessment is not produced or available
 - Class I operations involving removal of over 25 linear or 10 square feet of thermal system insulation or surfacing asbestos-containing material or presumed asbestos-containing material are performed.
3. Line management shall consider activity characteristics and available exposure data; the Industrial Hygiene/Industrial Safety shall be consulted when selecting personal protective equipment.
 4. Line management shall ensure that recommendations for personal protective equipment are prescribed with consideration of additional hazards that the control itself may introduce (such as heat stress hazards).
 5. The protective clothing requirements shall be specified on the Asbestos Work Permit, or equivalent work planning documentation.
 6. The wearing of contaminated protective clothing to the work area and designated change areas shall be restricted.
 - a. Contaminated work clothing shall be stored in closed containers and shall be labeled as specified in Section 3.6.
 - b. Prohibit shaking or removal as a means to remove asbestos fibers from work clothing and other surfaces.
 7. Contaminated clothing or protective equipment shall be sealed and transported to prevent airborne release of asbestos fibers. The hazards associated with the contents shall be labeled or otherwise effectively communicated to anyone who handles or may come in contact with the clothing.
 8. Non-disposable asbestos-contaminated work clothing must be cleaned with HEPA vacuums before it is removed.
 9. If work clothing or reusable (non-disposable) protective clothing becomes contaminated with asbestos, prior arrangements need to be made with a vendor providing this type of laundry service.

3.11 Medical Surveillance

(5.1.1, 5.1.4)

1. An Employee Job Task Analysis must be completed to enroll employees in the appropriate medical monitoring.
2. If the employee was examined within the last twelve months, and the exam meets the criteria of this standard, another medical exam for the purpose of this standard is not required.

3. Requirements for medical qualifications of respirator users are defined in the respiratory protection program.
4. A copy of the physician's opinion shall be provided to the employee within 30 days of receipt from the medical provider.
5. When an employee is no longer performing asbestos related work or will be terminating employment, the Employee Job Task Analysis shall be revised so that the appropriate follow-up and/or medical exam can be scheduled.
6. The occupational medical contractor shall provide a medical surveillance program in compliance with 29 CFR 1910.1020 and 29 CFR 1926.1101.
7. An accurate record for each employee subject to medical surveillance under this program shall be established and maintained by the occupational medical contractor in accordance with the requirements of 29 CFR 1910.1020.
8. Results of medical examinations shall be provided to the employee or the employee's designated representative upon request.
9. A copy of the physician's written opinion shall be provided to the employee and the employee's supervisor.

3.12 Hazard Communication (5.1.2, 5.1.8)

The communication of asbestos hazards shall be communicated during construction activities to all affected employees, including those on multi-employer work sites, contractor/subcontractor, facility/building owner, and building occupants, as appropriate. Certain provisions for hazard communication are applicable before, during, and after asbestos-related construction activities. The facility manager/building owner requirements are specified in [TFC-ESHQ-IH-STD-04](#).

1. Documentation that describes the presence, location, and condition of the asbestos-containing material or presumed asbestos-containing material for the work site shall be requested from the facility manager by line management.
2. Before construction activities, the facility manager (or designated building owner) and any other managers of employees in the work area shall be notified of planned activities that may disturb asbestos-containing material or presumed asbestos-containing material and the measures taken to prevent asbestos exposure.

NOTE: A completed Asbestos Work Permit serves this purpose.

EXCEPTION: This notification does not apply to materials that have been proven to be asbestos-free by using the determination specified in Section 1.0.

3. The use of asbestos-free products shall be promoted for new or replacement applications. If new asbestos containing products are installed, such as in some roofing materials, hazard communication information or material safety data sheets shall be obtained from the manufacturer. Prior to purchase, approval must be obtained from Industrial Hygiene.

4. If any new asbestos-containing products are installed (i.e., certain liquid roofing mastics and cements), information shall be provided on the location, quantity, and product specifications to the facility manager/building owner to ensure the facility assessment of asbestos is updated. Employees shall be provided with the appropriate hazard communication.
5. During the course of work, if asbestos-containing material or presumed asbestos containing material is newly discovered, the quantity and material type shall be identified. Line management shall ensure the affected employees and building occupants have been provided appropriate protective measures. The facility manager or designated building owner shall be notified within 24 hours.
6. Within ten days of project completion, documentation of quantities and location of remaining asbestos and results of final monitoring (if performed) shall be provided to the facility manager or designated building owner.

GUIDANCE: The project closeout section of the completed Asbestos Work Permit can be provided to the facility manager/building owner to meet this requirement.

7. Labels are to be affixed to products and containers of asbestos, including waste containers and installed asbestos products, when feasible. Labels should contain the following information in accordance with 29 CFR 1910.1200:

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

8. Signs may be posted instead of the use of labels, if the appropriate hazard communication information is available to employees.
9. Labels are not required when:
 - Asbestos fibers have been modified by a bonding agent, coating, or other material, and the manufacturer can demonstrate that during reasonable use and handling, the airborne concentration of airborne fibers will not exceed the permissible exposure limit or excursion limit
 - Asbestos is present in concentrations less than 1.0% by weight.

3.13 Employee Information and Training

(5.1.4)

1. Line management shall ensure initial training prior to job assignment, and annual refresher thereafter, is provided for employees exposed or potentially exposed in excess of the permissible exposure limit or excursion limit and for employees performing Class I - IV work (see Table 3). Industrial Hygiene shall be consulted to determine training requirements for specific activities.
2. If the category of work is unclear, or there is a combination of activities, line management must assume the higher, more restrictive category applies, and provide this level of training.
3. The training provider shall provide proof of an employee's successful completion of training to the employee and employee's manager, as required.
4. Training courses are to be in compliance with 29 CFR 1926.1101.
5. The training provider shall ensure all employee records of training required by this program are maintained for at least one year beyond the length of employment.

3.14 Support Roles

1. Prior to authorizing or allowing the start of construction, renovation, remodeling, maintenance, repair, or demolition work, the asbestos certified inspector must perform facility assessments and collect bulk samples of suspect material to determine whether materials to be worked on or removed contain asbestos (unless treating it as asbestos-containing material).
2. Bulk samples shall be collected, as necessary, of each homogeneous area of presumed asbestos-containing material to determine its asbestos content; the asbestos certified inspector shall submit a written report of analysis.
3. Alternate control methods for Class I work >25 linear or 10 square feet shall be determined, evaluated, and certified by the asbestos project designer.
4. Ensure the performance of perimeter monitoring to demonstrate clearance levels of ≤ 0.01 f/cc or no more than background level before work, or as requested.
5. The asbestos competent person shall identify asbestos hazards in the work place, select appropriate control strategies for asbestos exposure, and take prompt corrective actions to eliminate asbestos hazards, as necessary.
6. The asbestos competent person shall participate in training as required by the classification of work being supervised.
7. An initial exposure assessment shall be conducted by the asbestos competent person with assistance from Industrial Hygiene.

8. Work within regulated areas shall be supervised:
 - a. Regulated area, enclosure, or containment shall be set up and controlled.
 - b. Inspect job site, materials, and equipment shall be inspected.
 - For Class I jobs, at least once during each work shift and as requested
 - For Class II, III, and IV jobs, often enough to assess changing conditions
 - Upon employee request.
 - c. Personal protective equipment to be worn shall be examined at least once per work shift.
 - d. Employee exposure monitoring shall be supervised.
 - e. Appropriate respiratory and dermal protective clothing shall be worn by the employees.
 - f. Prescribed engineering controls, work practices, hygiene facilities, and decontamination procedures shall be implemented.
9. The asbestos competent person shall determine, by inspection, if certain roofing operations are Class II work or are considered incidental (non-Class II roofing operations) such as work consisting of roofing cements, mastics, coatings, and flashings that are intact prior to and during removal.

3.15 Industrial Hygiene Interface

1. Determine the applicability of either the Construction or General Industry Standard to a given activity.
2. As part of the work planning process, job hazard analyses and work packages shall be reviewed.
3. Assist competent person with exposure assessment and monitoring strategies.
4. Both personal and area exposure monitoring shall be performed in accordance with OSHA and company-approved procedures.
5. Support the review of employee exposure monitoring data and notification.
6. As requested, the risks associated with asbestos exposure shall be communicated to managers, workers, and building occupants.
7. Appropriate respiratory protection shall be selected based on the class of work, results of the exposure assessment, available exposure monitoring data; and in accordance with the respiratory protection program.

NOTE: Industrial hygienists supporting asbestos projects in any of the roles in Section 3.14 must meet the training and qualifications of those functions.

3.16 Notification to Regulatory Agencies

Project notification of certain asbestos renovation or demolition activities is required by NESHAP and enforced by the agreement with the Benton County Clean Air Authority as specified by the agreement between DOE-RL and the Benton County Clean Air Authority. This agreement stipulates annual or individual project notification for the reporting and disposal of asbestos materials.

- Requirements for filing a “Notice of Intent to Remove Asbestos” with the Benton County Clean Air Authority, reporting releases, transportation, and disposal are identified in [TFC-ESHQ-ENV_FS-C-01](#), [TFC-ESHQ-ENV-STD-03](#), and [TFC-ESHQ-IH-STD-04](#).

4.0 DEFINITIONS

(5.1.3, 5.1.7, 5.1.8)

Asbestos-containing material. Any material containing more than one percent asbestos.

Asbestos. Includes chrysotile, amosite, crocidolite, tremolite, anthophyllite, actinolite, and any of these minerals that has been chemically treated and/or altered. For purposes of this procedure “asbestos” includes presumed asbestos-containing material.

Authorized person. Any person required by work duties to be present in regulated areas.

Competent person (asbestos). One who is capable of identifying existing asbestos hazards in the work place, selecting the appropriate control strategy, and has the authority to take prompt corrective measures, as specified in 29 CFR 1926.32(f). In addition, for Class I and Class II work, one who is specially trained in a course that meets the criteria of EPA’s Model Accreditation Plan (40 CFR part 763) for supervisors, or its equivalent, and, for Class III and Class IV work, who is trained in a manner consistent with EPA requirements for training of local education agency maintenance and custodial staff as set forth at 40 CFR 763.92(a)(2).

Critical barrier. One or more layers of plastic sealed over all openings into a work area or any other similarly placed physical barrier sufficient to prevent airborne asbestos in a work area from migrating to an adjacent area.

Decontamination area. An enclosed area adjacent and connected to the regulated area and consisting of an equipment room, shower area, and clean room which is used for the decontamination of workers, materials, and equipment that are contaminated with asbestos.

Disturbance. Activities that disrupt the matrix of asbestos-containing material or presumed asbestos-containing material, crumble or pulverize asbestos-containing material or presumed asbestos-containing material, or generate visible dust from asbestos-containing material or presumed asbestos-containing material. The amount of asbestos-containing material/presumed asbestos-containing material does not exceed that which can be contained in one glove bag or waste bag 60” in length and width.

Employee exposure. That exposure to airborne asbestos that would occur if the employee was not using respiratory protective equipment.

Equipment room (change room). A contaminated room located within the decontamination area that is supplied with impermeable bags or containers for the disposal of contaminated protective clothing and equipment.

Excursion limit. The maximum level of airborne asbestos fibers an employee may be exposed to when measured as a 30-minute peak exposure. The excursion limit is 1.0 f/cc of air, averaged over a 30-minute sampling period.

Facility. Any building, structure, or area where activities and/or materials governed by this standard are found.

Facility manager. The building owner or facility owner who exercises control over management and recordkeeping functions relating to a building and/or facility in which activities impacted by this standard take place.

Fiber. A particulate form of asbestos, five micrometers or longer, with a length-to-diameter ratio of at least 3 to 1.

Friable. The ability to, when dry, be crumbled, pulverized, or reduced to a powder by hand pressure.

High-efficiency particulate air filter. A filter capable of trapping and retaining at least 99.97 percent of all mono-dispersed particles of at least 0.3 micrometers in diameter.

Homogeneous area. An area of surfacing material or thermal system insulation that is uniform in color and texture.

Intact. An asbestos-containing material that has not been crumbled, pulverized, or otherwise deteriorated so that the asbestos is no longer likely to be bound with its matrix.

Line manager. For this standard, the individual directly responsible for operations and/or employees whose activities are covered by this standard.

Negative exposure assessment. A demonstration which complies with the criteria in Section 3.4 of this standard, that employee exposure during an operation is expected to be consistently below the permissible exposure limits.

Permissible exposure limit. The maximum level of airborne asbestos fibers an employee may be exposed to when measured as an eight-hour time weighted average. The permissible exposure limit is 0.1 f/cc. (Also see excursion limit.)

Presumed asbestos-containing material. Thermal system insulation and surfacing material found in buildings constructed no later than 1980. The designation of a material as “presumed asbestos-containing material” may be rebutted pursuant to Section 1.0 of this standard.

Project designer. A person who has successfully completed the training requirements for an abatement project designer specified by 40 CFR 763.90(g). A project engineer or certified industrially hygienist serving in this role must also participate in the AHERA training course.

Regulated area. An area established to mark areas where Class I, II, and III asbestos work is conducted, and any adjoining area where debris and waste from such asbestos work accumulates. Also, a work area within which airborne concentrations of asbestos exceed, or there is a reasonable possibility they may exceed, the permissible exposure limit.

Removal. All operations where asbestos-containing material and/or presumed asbestos-containing material is taken out or stripped from structures or substrates, including demolition operations.

Renovation. The modifying of any existing structure or portion thereof.

Repair. Overhauling, rebuilding, reconstructing, or reconditioning of structures or substrates, including encapsulation or other repair of asbestos-containing material or presumed asbestos-containing material attached to structures or substrates.

Surfacing material. Material that is sprayed-on, troweled-on, or otherwise applied to surfaces (such as acoustical plaster on ceilings and fireproofing materials on structural members, or other materials on surfaces for acoustical, fireproofing, and other purposes).

Surfacing asbestos-containing material. Surfacing material that contains more than one percent asbestos.

Thermal system insulation. Asbestos-containing material applied to pipes, fittings, boilers, breeching, tanks, ducts, or other structural components to prevent heat loss or gain.

Thermal system insulation asbestos-containing material. Thermal system insulation that contains more than one percent asbestos.

5.0 SOURCES

5.1 Requirements

1. 29 CFR 1910.1020, "Access to Employee Exposure and Medical Records."
2. 29 CFR 1910.1200, "Hazard Communication."
3. 29 CFR 1926.32(f), "Definitions."
4. 29 CFR 1926.1101, "Asbestos (Construction)," Subpart Z, Section 1101. (S/RID)
5. 40 CFR 763, Subpart E, "Asbestos-Containing Materials in Schools," Appendix C.
6. 40 CFR 763.86, "Sampling."
7. 40 CFR 763.90, "Response Actions," (g).
8. 40 CFR 763.92, "Training and Periodic Surveillance," (a)(1) and (a)(2).

5.2 References

1. [TFC-ESHQ-ENV_FS-C-01](#), "Environmental Notification."

2. [TFC-ESHQ-ENV-STD-03](#), “Air Quality-Radioactive Emissions.”
3. [TFC-ESHQ-IH-STD-04](#), “Asbestos Control – Facility Management/General Industry.”

Table 1. Construction Standard Work Classifications.

Category	Description
Class I Asbestos Work	Activities involving removal of thermal system insulation and surfacing asbestos-containing materials or presumed asbestos-containing materials.
Class II Asbestos Work ¹	Activities involving removal of asbestos-containing materials or presumed asbestos-containing materials which are not thermal system insulation or surfacing material (i.e., removal of asbestos containing wallboard, floor tile and sheeting, roofing and siding shingles, and construction mastics).
Class III Asbestos Work	Repair and maintenance operations where asbestos-containing material, including thermal system insulation and surfacing asbestos-containing material and presumed asbestos-containing material are likely to be disturbed and the disturbed material fits into a 60-inch glove bag.
Class IV Asbestos Work	Maintenance and custodial activities during which employees contact but do not disturb asbestos-containing material or presumed asbestos-containing material, and activities to clean up dust, waste, and debris resulting from Class I, II, and III activities.
<p>¹ Class II activities include installation or removal of roofing materials whose primary composition is asbestos and the installation or removal of asbestos-containing mastics, cements, flashings that are not intact.</p> <p>Incidental roofing work is not considered within any of the above classes and includes the installation or removal of intact asbestos-containing roof coatings, mastics, cements, flashings, or similar roofing materials used for other purposes (i.e., asphaltic wrap used for underground pipes). Requirements for work practices, controls, medical surveillance, personal protective equipment for incidental roof work is defined in Attachment A.</p>	

Table 2. Respiratory Protection – Construction.

Airborne Asbestos/Conditions of Use	Required Respirator
<ul style="list-style-type: none"> • Not in excess of 1 f/cc (10 X PEL) • Class II and III jobs where no negative assessment is produced • Class III jobs where TSI or surfacing ACM or PACM is disturbed 	Half-mask APR, equipped with HEPA filter
<ul style="list-style-type: none"> • Not in excess of 5 f/cc (50 X PEL) 	Full-face APR, equipped with HEPA filter
<ul style="list-style-type: none"> • Not in excess of 10 f/cc (100 X PEL) • All employees within the regulated area when Class I work is being performed and a negative exposure assessment has NOT been produced 	<ul style="list-style-type: none"> a. PAPR, equipped with HEPA filter, or b. Supplied air respirator, operated in continuous flow mode
<ul style="list-style-type: none"> • Not over 100 f/cc (1000 X PEL) 	Full-face supplied air respirator, operated in pressure demand mode
<ul style="list-style-type: none"> • Greater than 100 f/cc (>1000 X PEL or unknown concentration) 	Full-face supplied air respirator, operated in pressure demand mode, equipped with auxiliary positive pressure self-contained breathing apparatus (SCBA)
<p>NOTE: A tight-fitting PAPR may be used in lieu of any APR whenever: (1) the employee chooses; (2) the respirator provides adequate protection.</p>	
<p>¹ PAPRs are appropriate for Class I operations if the exposure assessment and monitoring demonstrate that exposure levels do not exceed 1 f/cc for an 8-hour time-weighted average.</p>	

Table 3. Training Requirements
(5.1.5, 5.1.7, 5.1.8)

Role	Activity/Operation	Type of Training/Course
Asbestos Worker	Class I	Asbestos Abatement Worker ¹
	Class II	Asbestos Abatement Worker
	Other Class II	OSHA-specific (see below)
	Class III	Operations and Maintenance ²
	Class IV	Asbestos Awareness ³
Asbestos Competent Person	Class I and II	Asbestos Supervisor ⁴
	Class III and IV	Operations and Maintenance ²
Asbestos Inspector	Required for all persons who determine the presence/location or assess the condition of ACM/PACM by visual, physical exam or bulk sampling	Asbestos Inspector ⁵
Asbestos Project Designer	Employees who design alternate control methods for Class I work	Asbestos Project Designer ⁶
Industrial Hygienist	(Recommended) training for industrial hygienists performing general support of asbestos projects	Asbestos Worker ¹
	Industrial hygienist designated as asbestos project designer, asbestos inspector, asbestos competent person	Training for specific roles ^{4,5,6}
Radiological Control Technician	Radiological control technicians provide radiological control as primary support and are not considered asbestos workers	Asbestos Awareness (recommended)
“Non- Asbestos” Workers	Workers performing incidental roof work Employees exposed at or above the PEL	Asbestos Awareness or <u>OSHA-Specific Training</u> (k)(9)(viii) elements & additional training on specific controls + hands-on

¹ Course equivalent in curriculum, training method, and length as EPA Model Accreditation Plan Asbestos Abatement Workers training (40 CFR 763, Subpart E, Appendix C).

² Course consistent with EPA requirements for training of local education agency maintenance and custodial staff, as set forth in 40 CFR 763.92 (a)(2).

³ Course consistent with EPA requirements for training of local education agency maintenance and custodial staff, as set forth in 40 CFR 763.92 (a)(1).

⁴ Course meets criteria of EPA (Model Accreditation Plan) for supervisors, 40 CFR 763, Subpart E.

⁵ Course meets criteria of EPA (Model Accreditation Plan) for supervisors, 40 CFR 763, Subpart E.

⁶ Abatement project designer qualifications specified by 40 CFR 763.90(g).

ATTACHMENT A - CONTROLS BY WORK CLASSIFICATION

(5.1.4, 5.1.5)

Required Work Practices and Engineering Controls for all Asbestos-Related Work

1. Regardless of the levels of exposure:

- Vacuum cleaners equipped with HEPA filters.
- Wet methods or wetting agents during asbestos handling, mixing, removal, cutting, application and cleanup (except where not feasible due to other hazards, i.e., electrical).
- Prompt cleanup and disposal of wastes and debris contaminated with asbestos in leak-tight containers.

EXCEPTIONS: Roofing materials (see roofing section)

2. To maintain exposures below the permissible exposure limit or excursion limit:

- Local exhaust ventilation equipped with HEPA filtered dust collection systems
- Enclosures or isolation of processes producing asbestos dust
- Ventilation of the regulated area to ensure movement of contaminated air away from the employee and towards a dust filtration or collection device equipped with HEPA filter
- Use of other controls/work practices, as feasible.

NOTE: Whenever feasible engineering and work practices above are not sufficient to reduce exposures below the permissible exposure limit or excursion limit, the use of respiratory protection is required.

3. Prohibited practices:

- Use of high speed abrasive disc saws without point of cut ventilator or HEPA filtered enclosures
- Use of compressed air, not in an enclosed system
- Dry sweeping, shoveling or cleanup of dust and debris
- Employee rotation as a means to reduce employee exposure.

ATTACHMENT A - CONTROLS BY WORK CLASSIFICATION (cont.)**Class I Asbestos Work**

Supervised by competent person (see Section 4.0 of this standard)

1. Critical barriers/isolation methods required if:
 - >25 linear or 10 square feet of thermal system insulation or surfacing material removal
 - <25 linear or 10 square feet of thermal system insulation or surfacing material removal only if no “negative exposure assessment” where employees are working adjacent to the regulated area, while Class I work is being performed
2. If isolation methods or other than critical barriers are used, perform perimeter area surveillance during each work shift at boundaries of the regulated area and conduct perimeter area monitoring to ensure clearance levels specified in 40 CFR 763, Subpart E, have been met or are no more than background level, representing the same area before asbestos work began.
3. HVAC isolation required.
4. Drop cloths required.
5. Directed ventilation if no negative exposure assessment or greater than permissible exposure limit.
6. One or more of the following controls must be used as listed in OSHA 1926.1101(g)(5):
 - Negative pressure enclosure
 - Glove bag for straight runs of pipe
 - Negative-pressure glove bag for pipe runs
 - Glove bag for connecting configurations designed for this purpose
 - Water spray process
 - Mini-enclosures.
7. For outdoor work:
 - Perimeter monitoring or critical barriers not required if using listed controls and there are no other employees working in the area adjacent to the regulated area
 - Negative pressure enclosures and mini-enclosures are not required if other workforces not in the area

ATTACHMENT A - CONTROLS BY WORK CLASSIFICATION (cont.)

- Decontamination facilities required.

Class I Alternate Controls

1. For <25 linear or 10 square feet:
 - Competent person evaluates work area, work practices, and engineering controls to ensure exposure is less than permissible exposure limit
 - Enclose, contain, or isolate, or capture, or redirect away from employee's breathing zone
 - Worst case exposure monitoring
 - May omit perimeter or clearance monitoring for work completed outdoors where employees are not working in areas adjacent to regulated areas.
2. For >25 linear or 10 square feet:
 - Enclose, contain, or isolate, or capture, or redirect away from employee's breathing zone
 - Certified industrial hygienist or project engineer qualified and certified as a "project designer" evaluates work area, work practices, and engineering controls, and certifies in writing that the control method is adequate to reduce direct and indirect exposures to below the permissible exposure limit
 - Use worst case exposure monitoring
 - Perimeter monitoring showing clearance levels of ≤ 0.01 f/cc or no more than background level before work began
 - OSHA notification.

Class II Asbestos Work

Activities supervised by a competent person (see Section 4.0 of this standard)

1. For indoor work only:
 - a. Critical barriers/isolation methods required if:
 - No negative exposure assessment
 - Exposures are likely to exceed the permissible exposure limit
 - Non-intact removal.

ATTACHMENT A - CONTROLS BY WORK CLASSIFICATION (cont.)

- b. Perimeter monitoring/clearance sampling required if isolation methods or other types of barriers are required as in 1.a.
 - c. Drop cloths required.
2. If greater than permissible exposure limit, must use:
 - Local HEPA exhaust
 - Process isolation/enclosure
 - Directed ventilation
 - Additional feasible controls supplemented with respirators.
3. For removal of vinyl and asphalt flooring materials:
 - No sanding
 - HEPA vacuum
 - Wet methods
 - No dry sweeping/scraping, ripping of material
 - Chipping done in negative-pressure enclosure.
 - Intact removal, if possible
 - Dry heat removal of tiles allowed and may omit wetting
 - Assume flooring material, mastic and backing contains asbestos unless analysis proves otherwise.
4. For removal of built-up roofing materials or asbestos-cement shingles (asbestos is present as primary roofing material), see exceptions for “incidental roofing work.”
 - Intact removal, if possible
 - Wet methods required for NON-INTACT materials, unless a competent person determines wetting methods are not feasible because of additional safety hazards (not required for removal of INTACT materials)

ATTACHMENT A - CONTROLS BY WORK CLASSIFICATION (cont.)

- Wet methods or respirators not required on sloped roof, based on negative exposure assessment and ACM removed is INTACT
 - Wet methods and HEPA vacuum not required for removal of intact sections of asbestos-containing material <25 square feet in one day if manual methods of removal will keep material intact
 - Continuous misting of cutting machine, unless a competent person determines the use will result in additional hazards
 - HEPA vacuum dust and debris associated with non-intact sources of asbestos-containing material
 - Asbestos-containing material from the roof is removed as soon as practical or at day's end
 - Dropping material to ground from roof is prohibited; carry by hand or by use of covered, dust-tight crane or hoist
 - Non-intact material, once removed, must be wet, bagged or wrapped, or lowered to the ground as soon as practical
 - Bag, containerize, and label asbestos-containing material, dust, and debris
 - Roof vent system is protected
 - Use of power roof cutters to remove aggregate base built-up roofing requires HEPA; smooth base can be HEPA or wet-sweep.
5. For removal of cementitious asbestos-containing siding, shingles, or transite panels on building exteriors (other than roofs):
- Intact removal, if possible
 - Wet methods
 - Lower via dust-tight chute or bag and lower by day's end
 - Cut nail heads.

ATTACHMENT A - CONTROLS BY WORK CLASSIFICATION (cont.)

6. For removal of gaskets:
 - Intact removal, if possible
 - Use glove bags if not intact
 - Wet removal, if not intact
 - Prompt disposal
 - Wet scraping.

Class II Alternate Controls

1. Competent person evaluates work area, work practices, and engineering controls, and certifies in writing that the control method is adequate to reduce direct and indirect exposures to below the permissible exposure limit.
2. Worst case exposure monitoring under similar work conditions, employee training and experience to demonstrate exposures less than permissible exposure limit
3. No perimeter monitoring is required.

Asbestos-Related Work with Roofing Materials - Not Class II

Incidental roofing work: Removal of intact cements, coatings, mastics, and flashings. If the material does not remain intact, the job becomes a Class II activity.

1. Prior to job, competent person must inspect work site to determine if material is intact and will remain intact.
2. Sanding, abrading, grinding prohibited.
3. Manual methods of removal only, material remaining intact.
4. Dropping material to the ground from the roof is prohibited; carry by hand or by use of covered, dust-tight crane or hoist.
5. Material must be removed from roof by end of work shift.

ATTACHMENT A - CONTROLS BY WORK CLASSIFICATION (cont.)**Class III Asbestos Work**

Competent person (see Section 4.0 of this standard)

- Critical barriers required if:
 - No negative exposure assessment
 - Greater than permissible exposure limit via monitoring results.
- Drop cloths required.
- Local HEPA exhaust required, where feasible.
- Enclosure or isolation of operation required if thermal system insulation or surfacing material is drilled, cut, abraded, sanded, sawed, chipped.

Wet methods.

Class IV Asbestos Work

Competent person (see Section 4.0 of this standard) required if greater than permissible exposure limit

- Wet methods
- HEPA vacuum
- Prompt cleanup/disposal.