Chapter 7
Inspector Safety

Safety requirements and/or guidelines for government employees involved in asbestos activities are addressed in one form or another in regulations and policies developed by several federal government agencies.

The Occupational Safety and Health Administration (OSHA) and the U.S. Environmental Protection Agency (EPA) have each promulgated regulations specifically pertaining to workers involved in the asbestos industry. The OSHA standards (29 CFR Parts 1910, 1915 and 1926) apply to general industry, shipyards, and construction workers. The EPA Worker Protection Rule (40 CFR Part 763 Subpart G) extends provisions of the OSHA asbestos standard to state and local asbestos workers not covered by the federal OSHA standards.

Applicable guidance for EPA asbestos NESHAP inspectors is provided in EPA's Health and Safety Guidelines for EPA Asbestos Inspectors. These guidelines incorporate many of the procedures and practices recommended or required by the previously mentioned regulations and policies.

Note: Many states have safety requirements that are more stringent than those described herein.

OSHA Asbestos Standards Overview


The remainder of this chapter focuses on the regulatory requirements of the Construction Standard most pertinent to asbestos NESHAP enforcement personnel. This information is provided so that inspectors at abatement sites can better assess their personal needs regarding respiratory protection and protective clothing. At the end of this section, Table 7-1 provides a summary of the OSHA Construction Standard by work class.

Construction Standard Scope and Application

The Construction Standard regulates asbestos exposure in all work as defined in 29 CFR 1910.12(b) including, but not limited to, the following activities where chrysotile, amosite, crocidolite, tremolite asbestos, anthophyllite asbestos, or actinolite asbestos is present:

- Demolition or salvage;
- Removal or encapsulation;
• Construction, alteration, repair, maintenance or renovation;
• Installation of products containing asbestos;
• Spill/emergency cleanup; and
• On-site transportation, disposal, storage, containment, and housekeeping requirements for asbestos or products containing asbestos.

Definitions

The following definitions are found in OSHA regulation 29 CFR 1926.1101(b). This is not a complete list of definitions found in the referenced regulation.

Amended water - Water to which surfactant (wetting agent) has been added to increase the ability of the liquid to penetrate ACM.

Asbestos - Includes chrysotile, amosite, crocidolite, tremolite asbestos, anthophyllite asbestos, actinolite asbestos, and any of these minerals that has been chemically treated and/or altered. For purposes of this standard, "asbestos" includes PACM, as defined below.

Asbestos-containing material (ACM) - Any material containing more than one percent asbestos.

Class I asbestos work - Activities involving the removal of thermal system insulation and surfacing ACM and PACM.

Class II asbestos work - Activities involving the removal of ACM that is not thermal system insulation or surfacing material. This includes, but is not limited to, the 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 "ACM", including thermal system insulation and surfacing ACM and PACM, may be disturbed.

Class IV asbestos work - Maintenance and custodial activities during which employees contact but do not disturb ACM or PACM and activities to clean up dust, waste and debris resulting from Class I, II, and III activities.

Clean room - An uncontaminated room having facilities for the storage of employees' street clothing and uncontaminated materials and equipment.

Competent person - One who is capable of identifying existing asbestos hazards in the workplace and selecting the appropriate control strategy for asbestos exposure, who has the authority to take prompt corrective measures to eliminate them, as specified in 29 CFR 1926.32(f): in addition, for Class I and Class II work who is specially trained in a training course which meets the criteria of EPA's Model Accreditation Plan (40 CFR part 763) for supervisor, 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 consisting of an equipment room, shower area and clean room.

**Demolition** - The wrecking or taking out of any load-supporting structural member and any related razing, removing or stripping of asbestos products.

**Disturbance** - Activities that disrupt the matrix of ACM or PACM, crumble or pulverize ACM or PACM, or generate visible debris from ACM or PACM. Disturbance includes cutting away small amounts of ACM and PACM, no greater than the amount that can be contained in one standard sized glove bag or waste bag in order to access a building component. In no event shall the amount of ACM or PACM so disturbed exceed that which can be contained in one glove bag or waste bag which shall not exceed 60 inches in length and width.

**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.

**Fiber** - A particulate form of asbestos, 5 micrometers or longer, with a length-to-diameter ratio of at least 3 to 1.

**Glove bag** - An impervious plastic bag-like enclosure affixed around not more than a 60 x 60 inch asbestos-containing material, with glove-like appendages through which material and tools may be handled.

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

**Intact** – The ACM has not been crumbled, pulverized, or otherwise deteriorated so that the asbestos is no longer likely to be bound with its matrix.

**Negative Initial Exposure Assessment** - A demonstration by the employer, which complies with the criteria in paragraph (f)(2)(iii) of this section, that employee exposure during an operation is expected to be consistently below the permissible exposure limits (PELs).

**Presumed Asbestos Containing Material (PACM)** - Thermal system insulation and surfacing material found in buildings constructed no later than 1980. The designation of a material as "PACM" may be rebutted pursuant to paragraph (k)(5) of this section.
**Regulated area** - An area established by the employer to demarcate areas where Class I, II, and III asbestos work is conducted, and any adjoining area where debris and waste from such asbestos work accumulate; and a work area within which airborne concentrations of asbestos exceed, or there is a reasonable possibility they may exceed, the permissible exposure limit.

**Removal** - All operations where ACM and/or PACM is taken out or stripped from structures or substrates, and includes demolition operations.

**Renovation** - The modifying of an existing structure, or portion thereof.

**Repair** - Overhauling, rebuilding, reconstructing, or reconditioning of structures or substrates, including encapsulation or other repair of ACM or PACM attached to structures or substrates.

**Surfacing ACM** - Surfacing material which contains more than 1% asbestos.

**Surfacing material** – Material that is sprayed, troweled-on or otherwise applied to surfaces...for acoustical, fireproofing, and other purposes.

**Thermal system insulation (TSI)** - ACM applied to pipes, fittings, boilers, breeching, tanks, ducts or other structural components to prevent heat loss or gain.

**Thermal system insulation ACM** - Thermal system insulation which contains more than 1% asbestos.

**Permissible Exposure Limits (PELs)**

**Time-weighted average limit (TWA)**

No employee may be exposed to an airborne concentration of asbestos in excess of 0.1 fibers per cubic centimeter (f/cc) of air as an 8-hour, time-weighted average (TWA).

**Excursion limit**

No employee may be exposed to an airborne concentration of asbestos in excess of 1.0 f/cc of air as averaged over a sampling period of thirty (30) minutes.

**Multi-employer Worksites**

On multi-employer worksites, an employer performing work requiring the establishment of a regulated area must inform other employers on the site of the nature of the employer’s work with asbestos and/or PACM, of the existence of and requirements pertaining to regulated areas, and the measures that are being taken to ensure that employees of such other employers are not exposed to asbestos.

Abatement of asbestos hazards at a multi-employer worksite is the responsibility of the contractor who created or controls the source of asbestos contamination.
Employers of employees exposed to asbestos hazards must protect their employees and, on a daily basis, ascertain the integrity of the enclosure and/or the effectiveness of the control methods in use.

**Regulated Areas**

Special restrictions apply to areas where exposure to asbestos may reach levels of concern. The criteria applicable to such areas, commonly referred to as regulated areas, include:

- A regulated area must be established where the PEL may be exceeded.
- Conduct all Class I, II and III asbestos work within regulated areas.
- Demarcate the regulated area to minimize the number of people in the area and protect persons outside from exposure to airborne asbestos. Use critical barriers, negative pressure enclosures, or signs in accordance with OSHA regulation 29 CFR 1926.1101(k)(7) to demarcate the area.
- Limit access, allowing only authorized persons to enter a regulated area.
- Supply respirators to all persons entering a regulated area.
- Do not allow employees to eat, drink, smoke, chew tobacco or gum, or apply cosmetics in the regulated area.
- Have a competent person supervise all asbestos work performed in a regulated area.

**Exposure Monitoring**

**General Monitoring Criteria**

Each employer who has a workplace or work operation where exposure monitoring is required must perform monitoring to determine accurately the airborne concentrations of the asbestos to which employees may be exposed. Such determinations must be made from breathing zone air samples that are representative of the 8-hour TWA and 30-minute short-term exposure limits for employees.

**Initial Exposure Assessment**

A competent person must conduct an exposure assessment immediately before, or at the initiation of, the operation to ascertain expected exposures during that operation or at that workplace. Unless a negative exposure assessment (NEA) has been made, the initial exposure assessment must, if feasible, be based on representative 8-hour TWA and 30-minute short-term exposure monitoring conducted in each work area at the site.

A negative exposure assessment (which demonstrates that employee exposures will be below the PELs) must be based on at least one of the following criteria:
• Objective data demonstrating that the product or material containing asbestos minerals or the activity involving such product or material cannot release airborne fibers exceeding the TWA and excursion limit;

• An analysis of monitoring data collected within the past 12 months at other jobs which closely resemble the current job; or

• Initial exposure monitoring at the current job.

**Periodic Monitoring**

For Class I and II operations, daily representative monitoring is required unless a negative exposure assessment for the entire operation has been made.

For other than Class I and II operations, periodic monitoring must be performed of all work where exposures are expected to exceed a PEL, at intervals sufficient to document the validity of the exposure prediction.

**Exception:** Except when unlisted or modifications of listed control methods are being used, employers are not required to conduct daily monitoring of employees who are equipped with supplied-air respirators operated in the pressure demand mode or another positive pressure mode respirator.

**Employee Notification**

Employers must notify affected employees, in writing, of the monitoring results as soon as possible.

*Note:* Asbestos NESHAP inspectors should examine monitoring results at the worksite, but keep in mind that historical data may not reflect current conditions.

**Methods of Compliance**

**Engineering Controls and Work Practices**

The employer must use the following controls and work practices regardless of the levels of exposure:

• Vacuum cleaners equipped with HEPA filters to collect all debris and dust containing ACM and PACM (except roofing);

• Wet methods or wetting agents (except where infeasible); and

• Prompt cleanup and disposal of asbestos-contaminated wastes and debris in leak-tight containers (except in roofing operations).
In addition, the employer also must use the following to achieve compliance with the TWA permissible exposure limit and excursion limit:

- Local exhaust ventilation equipped with HEPA filter dust collection systems;
- Enclosure or isolation of processes producing asbestos dust;
- Ventilation of the regulated area to move contaminated air away from the employee and toward a HEPA filtration or collection device;
- Work practices or other engineering controls that can be shown to be feasible; and
- Supplemental respiratory protection (only when the feasible engineering and work practice controls described above have proven insufficient at reducing employee exposure to or below the PEL).

**Prohibitions**

The following work practices and engineering controls may not be used for any work related to asbestos or for work which disturbs ACM or PACM including:

- High-speed abrasive disc saws (unless equipped with necessary engineering controls);
- Compressed air (unless used in conjunction with an enclosed ventilation system designed to capture the dust cloud);
- Dry sweeping, shoveling or other dry clean-up of dust and debris containing ACM or PACM; and
- Employee rotation as a means of reducing employee exposure to asbestos.

**Class I Requirements**

Additional requirements for all Class I work (TSI and surfacing ACM and PACM) include:

- A competent person must supervise the activity;
- Where more than 25 linear feet (LF) or 10 square feet (SF) of TSI or surfacing material are to be removed, where a negative exposure assessment cannot be produced, or where employees are working in areas adjacent to the regulated area while Class I work is being performed:
  - critical barriers must be used (except outdoors); or
  - another effective barrier or isolation method must be used (surveillance and monitoring required);
- HVAC systems must be isolated in the regulated area by sealing with a double layer of 6 mil plastic or equivalent;

- Impermeable drop cloths must be placed on surfaces beneath all removal activity;

- All objects within the regulated area must be covered with securely fastened impermeable drop cloths or plastic sheeting;

- Where a negative exposure assessment cannot be produced, or where exposure monitoring shows that a PEL is exceeded, the employer must ventilate the regulated area to move contaminated air away from the breathing zone of the employees toward a HEPA filtration or collection device;

- One or more of the following control methods must be used:
  - negative pressure enclosure system;
  - glove-bag system (2 persons required);
  - negative pressure glove bag or glove box system;
  - water spray process system (40-hour training required); and/or
  - mini-enclosure;

- Alternative controls may be used as specified in OSHA regulation 29 CFR 1926.1101(g)(6).


**Class II Requirements**

For all Class II work (not TSI or surfacing):

- a competent person must supervise the activity;

- if conducted indoors where an NEA cannot be produced; where changed conditions indicate there may be an exposure > PEL; or where the ACM is not removed substantially intact:
  - critical barriers must be used;
  - another barrier or isolation method must be used; or
  - impermeable drop cloths must be placed beneath;

- include use of HEPA filtered vacuum cleaners; wet methods or wetting agents; and prompt clean-up and disposal of asbestos-contaminated wastes and debris in leak-tight containers;

- use specified work practices for the removal of vinyl and asphalt flooring materials; roofing materials; cementitious asbestos-containing siding and shingles or Transite® panels containing ACM on building exteriors (other than roofs); or gaskets; and
• use alternative work practices and controls as specified.

Some states require negative pressure enclosures for some Class II work; (e.g., floor tile removal.)

**Class III Requirements**

For all Class III work (repair and maintenance operations where ACM, including TSI and surfacing ACM and PACM, is likely to be disturbed):

• use wet methods;

• use local exhaust ventilation if feasible;

• use impermeable drop cloths and mini-enclosures or glove bag systems when drilling, cutting, abrading, sanding, chipping, breaking, or sawing TSI or surfacing material;

• use drop cloths and plastic barriers or another control method where an NEA cannot be produced; and

• use respirators where TSI or surfacing material is disturbed, or where an NEA cannot be produced, or where the permissible exposure limits (PEL), as defined in OSHA regulation 29 CFR 1926.1101(c), has been exceeded.

*Note: The requirements for an asbestos NEHAP inspector’s bulk sampling activities are similar to those for OSHA’s Class III operations.*

**Class IV Requirements**

For all Class IV work (maintenance and custodial activities involving contact with, but not disturbance of, ACM or PACM and cleanup of dust, waste, and debris resulting from Class I, II, and III activities):

• employees must have asbestos awareness training;

• use of HEPA vacuums, wet methods, and prompt cleanup is required; and

• consider maintenance and custodial waste and debris to be asbestos-containing when conducted in areas where friable TSI or surfacing material is accessible.
Alternative Methods of Compliance for Certain Roofing and Pipeline Coating Materials

When installing, removing, repairing, or maintaining intact pipeline asphaltic wrap, or roof cements, mastics, coatings or flashings which contain asbestos encapsulated or coated by bituminous or resinous compounds:

- a competent person must inspect and determine the roofing material is intact and will remain so;
- workers must have been properly trained;
- the material must not be sanded, abraded, or ground, but instead, manual methods must be used;
- removed material must not be dropped or thrown to the ground (a covered, dust-tight chute, crane or hoist is required) and must be removed from the roof no later than the end of the work shift;
- the building owner must be informed of the presence and location of asbestos-containing products installed on non-residential roofs no later than the end of the job; and
- all removal or disturbance of pipeline asphaltic wrap must be done using wet methods.

Respiratory Protection

The employer must implement a respiratory protection program in accordance with 29 CFR 1910.134, OSHA’s Respiratory Protection Standard. Additional information regarding this standard can be found in the Respiratory Protection section of this manual.

The employer must:

- provide respirators and ensure that they are used when required during all:
  - Class I asbestos jobs. (Note: At a minimum, a powered air purifying respirator (PAPR) must be provided for Class I work where an NEA is not available and the exposure level is expected to be at or below 1.0 f/cc);
  - Class II work where the ACM is not removed in a substantially intact state;
  - Class II and III work not performed using wet methods (exception: sloped roof, NEA, intact removal);
  - Class II and III work where an NEA is not produced;
  - Class III jobs where TSI and surfacing material are being disturbed;
  - Class IV work performed within regulated areas where employees performing other work are required to wear respirators;
  - work where employees are exposed above the TWA or excursion limit; and
  - emergencies;
• select the appropriate NIOSH-approved respirator and provide to the employee at no cost;

• if appropriate, advise the employee of the option that a tight fitting PAPR may be used in lieu of a negative pressure respirator and provide a PAPR when requested, if allowed;

• institute a respiratory protection program when necessary; and

• ensure the proper fit of employee respirators.

Note: Filtering facepiece respirators (dust masks) are prohibited for asbestos work.

Protective Clothing

The employer must provide and require the use of protective clothing by employees exposed to airborne concentrations of asbestos that exceed the TWA and/or excursion limit or when a NEA cannot be produced, or for any employee performing Class I work involving the removal of > 25 LF or 10 SF of TSI or surfacing ACM and PACM. Protective clothing must be periodically examined and repaired or replaced as needed. Contaminated clothing designed for reuse must be packaged, transported and laundered appropriately.

Hygiene Facilities and Practices

Class I work > 25 LF or 10 SF of TSI or Surfacing ACM and PACM

The employer must:

• establish a decontamination area consisting of a properly designed and equipped equipment room, shower area, and clean room (in series) adjacent and connected to the regulated area;

• provide described alternatives when the above is not feasible;

• ensure that employees use proper entry, use, and exit procedures; and

• provide appropriate lunch areas.

Class I work < 25 LF or 10 SF of TSI or Surfacing ACM and PACM, and Class II and Class III work (Exposures > PEL or No NEA)

The employer must:

• establish an appropriately-sized equipment room or area adjacent to the regulated area for the decontamination of employees and equipment; and

• ensure proper cleaning of work clothing, equipment, and containers as well as proper entry and exit from the regulated area.
**Class IV Work**

Employees conducting Class IV work in regulated areas must comply with hygiene practices of higher classification work. Otherwise, modified decontamination facilities described may be used.

**Communication of Hazards**

Building and facility owners must:

- determine the presence, location and quantity of ACM and/or PACM at the worksite before asbestos work begins; and

- make notification in writing or via personal communication to individuals who may occupy or work in or adjacent to worksites containing ACM or PACM.

Employers whose employees perform work subject to the Construction Standard must:

- identify the presence, location, and quantity of ACM and/or PACM; and

- inform owners, employees who will perform the asbestos work, and adjacent personnel of this information and precautions to be taken.

**Signs**

The building owner must post comprehensible signs at the entrances to mechanical rooms/areas containing ACM and/or PACM. The signs must identify the ACM, its location, and required work practices.

Warning signs which state the following must be provided to demarcate a regulated area:

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

Where respirators and protective clothing are required, the following must also appear on the sign:

**RESPIRATORS AND**
**PROTECTIVE CLOTHING**
**ARE REQUIRED IN THIS AREA**
**Labels**

Labels must be affixed to all products and containers of asbestos. The labels must be printed in large, bold letters on a contrasting background and must state the following:

**DANGER**
**CONTAINS ASBESTOS FIBERS**
**AVOID CREATING DUST**
**CANCER AND LUNG DISEASE HAZARD**
**DO NOT BREATHE ASBESTOS FIBERS**

Labels are not required where the asbestos fibers have been modified and will not foreseeably release airborne concentrations exceeding the PEL and/or excursion limit, or asbestos is present in concentrations less than 1.0 percent.

**Employee Information and Training**

Employers must provide and ensure participation in free, comprehensible training for all employees who are likely to be exposed in excess of a PEL and for all employees who perform Class I through IV asbestos operations. The training:

- Must be provided prior to or at the time of initial assignment and at least annually thereafter;
- For Class I (and certain Class II) operations, must be equivalent to EPA's Model Accreditation Plan (MAP) asbestos abatement workers training (hands-on, minimum 32 hours);
- For other Class II operations involving asbestos-containing roofing, flooring or siding materials, ceiling tiles or Transite® panels, must conform to the requirements of the Construction Standard (hands-on, minimum 8 hours);
- For Class III employees, must be consistent with EPA requirements in 40 CFR 763.92(a)(2) for training of local education agency (LEA) maintenance and custodial staff. This regulation requires 2 hours of awareness training and 14 hours of additional training including handling of asbestos, use of respiratory protection, and regulatory requirements plus hands-on training regarding the use of respiratory protection, other personal protection measures, and good work practices; and
- For Class IV operations, must be consistent with EPA requirements in 40 CFR 763.92(a)(1) for training of local educational agency (LEA) maintenance and custodial staff. This regulation requires 2 hours of awareness training whether or not they are required to work with asbestos.

**Note:** *OSHA has reduced training for roofers and maintenance custodial personnel in specific circumstances. See 61 FR 43456, 8-23-96.*
**Housekeeping**

The following housekeeping requirements apply:

- HEPA vacuums are required where vacuuming methods are selected;

- Asbestos waste consigned for disposal must be collected and disposed of in sealed, labeled, impermeable bags or other closed, labeled, impermeable containers (except in roofing operations);

- Asbestos-containing flooring material must be cared for as specified; and

- Waste, debris and dust in an area containing accessible TSI or surfacing ACM/PACM or visibly deteriorated ACM must be cleaned and disposed of as specified.

**Medical Surveillance**

Employees are covered by this part of the standard if engaged in Class I, II or III work or exposed at or above a PEL for a total of 30 or more days per year or if required to wear a negative-pressure respirator.

Medical examinations must be free and performed by appropriate medical personnel. The exam must include a medical and work history, a standardized questionnaire, a physical examination directed to the pulmonary, cardiovascular and gastrointestinal systems, a chest x-ray (physician's discretion), and pulmonary function tests (FVC and FEV(1)), and must be repeated annually.

**Recordkeeping**

The following objective data and exposure measurements must be maintained, made available for review, and transferred as specified:

- Information that products and activities cannot release asbestos fibers at or above the PEL and/or excursion limit (for the duration of the employer's reliance upon this data);

- Employee exposure monitoring (30 years);

- Employee medical surveillance (for the duration of employment plus 30 years);

- Employee training records (one year beyond last date of employment);

- Data to rebut PACM (as long as they are relied upon); and

- Required notifications (duration of ownership and transfer to successive owners).
**Competent Person**

The competent person must:

- Have qualifications and authorization as required;
- Provide frequent and regular inspection of the job sites;
- Inspect Class I jobs at least once per work shift;
- Inspect Class II, III and IV jobs as needed;
- Receive 40 hours of training meeting the criteria of an EPA MAP supervisor for Class I and II work; and
- Be trained consistent with the requirements of 40 CFR 763.92(a)(2) for LEA maintenance and custodial staff for Class III and IV work.

**Appendices**

The OSHA Construction Standard also incorporates several appendices. Some of the provisions are mandatory and others are provided for information:

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**EPA Worker Protection Rule (WPR)**

EPA published the Worker Protection Rule (WPR) in 1987 and amended it in 2000. It is found in 40 CFR 763, Subpart G. This rule extends the asbestos standards of OSHA (29 CFR 1926.1001 and 29 CFR 1926.1101) to state and local government employees who perform construction work, custodial work, and automotive brake and clutch repair work. The WPR cross-references the
OSHA asbestos standards so that future amendments to these standards are directly and equally effective for employees covered by the WPR.

State and local program employees should determine if they are covered by a state OSHA Program. If so, so the Worker Protection Rule will not apply.

**EPA Health and Safety Guidelines**

EPA’s *Health and Safety Guidelines for EPA Asbestos Inspectors*, much of which was derived from OSHA’s Construction Standard, was published in March, 1991. Although OSHA has revised its regulations, EPA has never modified its guidelines. As a result, many elements do not reflect current OSHA regulations. EPA’s health and safety guidelines were intended for use by EPA compliance staff but state and local inspectors and contractors are encouraged to use them as well. The guidelines are designed to:

- Provide for the health and safety of asbestos inspectors based on the best currently available information; and

- Reduce the likelihood of significant asbestos exposures to the public through enhanced inspector guidance.

The following subsections outline the general requirements detailed in the EPA health and safety guidelines. Specific recommendations pertaining to respirator selection, entry and exit procedures, and protective clothing requirements are addressed in other sections of this course manual.

**Health and Safety Plan**

A general asbestos inspector health and safety plan must be prepared by each agency/group involved in conducting asbestos inspections. The plan should, at a minimum, include information on the following:

- **Emergency Procedures** - Procedures to follow in case of: (1) a medical emergency; (2) accidental release of asbestos; and (3) other emergency situations;

- **Personal Protective Equipment** - Protective equipment required including respiratory equipment and protective clothing available and the types of inspections during which they should be used; and

- **Operational Practices** - The operational practices for each type of inspection likely to be performed.

**Evaluation**

The senior management official should assure that the health and safety plans are reviewed and revised as necessary at least annually.
**Incident Reporting and Response**

The appropriate program manager must coordinate the reporting of, and response to, any incidents involving injury or illness of EPA's asbestos inspectors due to asbestos exposure.

**Training**

All employees engaged in asbestos-related field inspection activities must receive a minimum of 24 hours of approved basic occupational health and safety training, accompany an experienced asbestos inspector for at least three days of directly supervised field activities, and receive eight hours of approved, formal refresher training annually.

All EPA employees required to wear respirators must receive six hours of respiratory protection training, be fit-tested at least semi-annually, and receive approved refresher training annually. All EPA employees requested to enter hazardous waste sites or Superfund sites must receive training required under OSHA regulation 29 CFR 1910.120.

**Medical Monitoring**

Employees who are routinely engaged in field activities which are likely to result in exposure to toxic substances, or which require the use of respiratory protection, must be included in the Agency's Occupational Medical Monitoring Program. In addition, employees who wear respiratory protection must be deemed medically fit to wear such equipment.

**Protective Clothing**

Protective clothing selection and use are based on the type of inspection being done. The need for proper disposal of contaminated protective clothing is emphasized.

**Respiratory Protective Equipment**

Respiratory protection selection information specific to the following activities is provided:

- Removal, demolition, and renovation inspections;
- Asbestos manufacturing and fabricating inspections;
- Bulk sample collection;
- Waste disposal and storage site inspections;
- Emergency removal operations at Superfund site inspections; and
- Abandoned building inspections.
EPA’s health and safety guidelines also mandate the establishment of a written respiratory protection program in accordance with OSHA regulation 29 CFR 1910.134 and other OSHA and EPA documents.

29 CFR Part 1910.134 requires the respiratory protection program to contain worksite-specific procedures and to be updated as necessary to reflect those changes in workplace conditions that affect respirator use. The program must include the following provisions as applicable:

- Procedures for selecting respirators for use in the workplace;
- Medical evaluations of employees required to use respirators;
- Fit testing procedures for tight-fitting respirators;
- Procedures for proper use of respirators in routine and reasonably foreseeable emergency situations;
- Procedures and schedules for cleaning, disinfecting, storing, inspecting, repairing, discarding, and otherwise maintaining respirators;
- Procedures to ensure adequate air quality, quantity, and flow of breathing air for atmosphere-supplying respirators;
- Training of employees in the respiratory hazards to which they are potentially exposed during routine and emergency situations;
- Training of employees in the proper use of respirators including putting them on and removing them, any limitations on their use, and their maintenance; and
- Procedures for regularly evaluating the effectiveness of the program.

**Other Personal Protection Equipment**

The guidance recommends that eye protection be worn in eye hazard areas and that safety shoes and hard hats be worn where head and foot injuries might occur.

**Prohibited Practices**

Prohibited practices include smoking, eating, drinking, chewing gum or tobacco, and applying makeup in asbestos-contaminated areas.
**Personal Hygiene**

All persons who have been in asbestos-contaminated areas must remove contaminated clothing and other articles, dispose of waste material properly, and decontaminate thoroughly.
### Table 7-1. Quick Reference of Provisions by Work Class

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<th>Definition</th>
<th>Class 1</th>
<th>Class 2</th>
<th>Class 3</th>
<th>Class 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Removal of thermal system insulation (TSI) and surfacing materials (SM)</td>
<td>Removal of all other asbestos not TSI OR SM</td>
<td>Maintenance and repair operations disturbing asbestos-containing materials</td>
<td>Housekeeping and custodial operations (including construction site cleanup)</td>
<td></td>
</tr>
<tr>
<td>Regulated Areas</td>
<td>Required (signs required)</td>
<td>Required (signs required)</td>
<td>Required (signs required)</td>
<td>Required (signs required)</td>
</tr>
<tr>
<td>&quot;Competent Person&quot;</td>
<td>Required onsite • inspect each work shift • contractors and supervisors training required</td>
<td>Required onsite • inspect often • contractors and supervisors training required</td>
<td>Required onsite • inspect often • operations and maintenance training required</td>
<td>Required onsite • inspect often • operations and maintenance training required</td>
</tr>
<tr>
<td>Air Monitoring</td>
<td>• Initial if no negative exposure assessment (NEA) • Daily if no NEA • Terminate if &lt; permissible exposure limit (PEL) • Additional if conditions change</td>
<td>• Initial if no NEA • Daily if no NEA •Terminate if &lt; PEL • Additional if conditions change</td>
<td>• Initial if no NEA • Periodic to accurately predict if &gt; PEL • Terminate if &lt; PEL • Additional if conditions change</td>
<td></td>
</tr>
<tr>
<td>Medical Surveillance</td>
<td>Required if • wearing negative-pressure respirator • &gt; PEL • &gt;30 days exposure/year</td>
<td>Required if • wearing negative-pressure respirator • &gt; PEL • &gt;30 days exposure/year</td>
<td>Required if • wearing negative-pressure respirator • &gt; PEL • &gt;30 days exposure/year</td>
<td>Required if • wearing negative-pressure respirator • &gt; PEL</td>
</tr>
<tr>
<td>Respirators</td>
<td>Mandatory for all Class 1 Jobs</td>
<td>Mandatory if • non-intact removal • no NEA • &gt; PEL • dry removal (except for roofing) • in emergencies</td>
<td>Half-mask air-purifying respirator minimum if • no NEA • TSI or SM disturbed • &gt; PEL Mandatory if • dry removal (except for roofing) • in emergencies</td>
<td>Mandatory • in regulated area where required • if &gt; PEL • in emergencies</td>
</tr>
<tr>
<td>Protective Clothing and Equipment</td>
<td>Required for all jobs if • &gt;25 linear or 10 square feet of TSI or SM removal • no NEA • &gt; PEL</td>
<td>Required for all jobs if • no NEA • &gt; PEL</td>
<td>Required for all jobs if • no NEA • &gt; PEL</td>
<td>Required for all jobs if • no NEA • &gt; PEL</td>
</tr>
</tbody>
</table>
Table 7-1. Quick Reference of Provisions by Work Class (Continued)

<table>
<thead>
<tr>
<th>Training</th>
<th>Class 1</th>
<th>Class 2</th>
<th>Class 3</th>
<th>Class 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equivalent to Asbestos Hazard Emergency Response Act (AHERA) worker course</td>
<td>Equivalent to AHERA worker course or specific work practices if removing one ACM only</td>
<td>Equivalent to AHERA operations and maintenance course</td>
<td>Equivalent to AHERA Awareness Training</td>
<td></td>
</tr>
<tr>
<td>Decontamination Procedures</td>
<td>Mobile decon unit required if &gt;25 linear or 10 square feet TSI or SM removal • connected shower/clean room required • vacuum, change, shower elsewhere • detailed procedures</td>
<td>If &gt;PEL or no NEA • equipment room/area required • dropcloths required • area must accommodate cleanup • must decontaminate all personal protective equipment • must enter regulated area through equipment room/decon area No smoking in work area</td>
<td>If &gt;PEL or no NEA • equipment room/area required • dropcloths required • area must accommodate cleanup • must decontaminate all personal protective equipment • must enter regulated area through equipment room/decon area If NEA, must vacuum No smoking in work area</td>
<td>If &gt;PEL or no NEA • equipment room/area required • dropcloths required • area must accommodate cleanup • must decontaminate all personal protective equipment • must enter regulated area through equipment room/decon area No smoking in work area</td>
</tr>
<tr>
<td>Lunch areas required If &lt;25 linear or 10 square feet TSI or SM removal or &gt;PEL or no NEA • equipment room/area required • dropcloths required • area must accommodate cleanup • must decontaminate all personal protective equipment • must enter regulated area through equipment room/decon area No smoking in work area</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Required Work Practices and Engineering Controls</td>
<td>• wet methods • HEPA vacuum • prompt cleanup/disposal</td>
<td>• wet methods • HEPA vacuum • prompt cleanup/disposal</td>
<td>• wet methods • HEPA vacuum • prompt cleanup/disposal</td>
<td>• wet methods • HEPA vacuum • prompt cleanup/disposal</td>
</tr>
<tr>
<td>Required Work Practices and Engineering Controls to Comply with Permissible Exposure Limit (PEL)</td>
<td>• HEPA local exhaust • enclosures • directed ventilation • other work practices • supplement with respirators</td>
<td>• HEPA local exhaust • enclosures • directed ventilation • other work practices • supplement with respirators</td>
<td>• HEPA local exhaust • enclosures • directed ventilation • other work practices • supplement with respirators</td>
<td>• HEPA local exhaust • enclosures • directed ventilation • other work practices • supplement with respirators</td>
</tr>
</tbody>
</table>
Table 7-1. Quick Reference of Provisions by Work Class (Continued)

<table>
<thead>
<tr>
<th>Prohibited Work Practices and Engineering Controls</th>
<th>Class 1</th>
<th>Class 2</th>
<th>Class 3</th>
<th>Class 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>• high speed abrasive disc saws without HEPA</td>
<td>• high speed abrasive disc saws without HEPA</td>
<td>• high speed abrasive disc saws without HEPA</td>
<td>• high speed abrasive disc saws without HEPA</td>
<td></td>
</tr>
<tr>
<td>• compressed air without capture device</td>
<td>• compressed air without capture device</td>
<td>• compressed air without capture device</td>
<td>• compressed air without capture device</td>
<td></td>
</tr>
<tr>
<td>• dry sweeping/shoveling</td>
<td>• dry sweeping/shoveling</td>
<td>• dry sweeping/shoveling</td>
<td>• dry sweeping/shoveling</td>
<td></td>
</tr>
<tr>
<td>• employee rotation</td>
<td>• employee rotation</td>
<td>• employee rotation</td>
<td>• employee rotation</td>
<td></td>
</tr>
</tbody>
</table>

**Controls and Work Practices**

<table>
<thead>
<tr>
<th>Prohibited Work Practices and Engineering Controls</th>
<th>Class 1</th>
<th>Class 2</th>
<th>Class 3</th>
<th>Class 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>• critical barriers/isolation methods required if</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• &gt;25 linear or 10 square feet of TSI or SM removal</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• &lt; 25 linear or 10 square feet of TSI or SM removal</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• HVAC isolation required</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• dropcloths required</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• directed ventilation required if no NEA or &gt; PEL</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Also, one or more of the following controls must be used:

- negative-pressure enclosure
- glove bag for straight runs of pipe
- negative-pressure glove bag for pipe runs
- negative-pressure glove box for pipe runs
- water spray process
- mini-enclosure

**For indoor work only:**

- critical barriers/isolation methods required if
- no NEA
- likely > PEL
- non-intact removal
- dropcloths required
- if > PEL, must use:
- local HEPA exhaust
- process isolation
- directed ventilation
- additional feasible controls supplemented with respirators

**For removal of vinyl and asphalt flooring materials:**

- no sanding
- HEPA vacuum
- wet methods
- no dry sweeping
- chipping done in negative-pressure enclosure
- intact removal, if possible
- dry heat removal allowed
- assume contains asbestos without an analysis

- critical barriers required
- if no NEA
- > PEL via monitoring
- dropcloths required
- local HEPA exhaust required

Enclosure or isolation of operation required if TSI or SM is drilled, cut, abraded, sanded, sawed, or chipped

- See Required Work Practices and Engineering Controls
Table 7-1. Quick Reference of Provisions by Work Class (Continued)

<table>
<thead>
<tr>
<th>Class 1</th>
<th>Class 2</th>
<th>Class 3</th>
<th>Class 4</th>
</tr>
</thead>
</table>
| Controls and Work Practices (cont'd) | For removal of built-up roofing materials or asbestos-cement shingles:  
  - intact removal, if possible  
  - wet methods, if feasible  
  - cutting machine misting  
  - HEPA-vacuum debris  
  - lower by day’s end  
  - control dust of unbagged material  
  - roof vent system protected  
  For removal of cementitious siding, shingles, or transite panels:  
  - intact removal, if possible  
  - wet methods  
  - lower via dust-tight chute by day’s end  
  - cut nail heads  
  For removal of gaskets:  
  - use glove bags if not intact  
  - wet removal  
  - prompt disposal  
  - wet scraping  
  Additional requirements:  
  - wet methods  
  - intact removal, if possible  
  - cutting, abrading, or breaking prohibited |
