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- **Part Number:** 1910
- **Part Title:** Occupational Safety and Health Standards
- **Subpart:** Z
- **Subpart Title:** Toxic and Hazardous Substances
- **Standard Number:** 1910.1001
- **Title:** Asbestos.
- **Appendix:** A, B, C, D, E, F, G, H, I, J

1910.1001(a)

Scope and application.

1910.1001(a)(1)

This section applies to all occupational exposures to asbestos in all industries covered by the Occupational Safety and Health Act, except as provided in paragraph (a)(2) and (3) of this section.

1910.1001(a)(2)

This section does not apply to construction work as defined in 29 CFR 1910.12(b). (Exposure to asbestos in construction work is covered by 29 CFR 1926.1101.)

1910.1001(a)(3)

This section does not apply to ship repairing, shipbuilding and shipbreaking employments and related employments as defined in 29 CFR 1915.4. (Exposure to asbestos in these employments is covered by 29 CFR 1915.1001).

1910.1001(b)

Definitions.

Asbestos includes chrysotile, amosite, crocidolite, tremolite asbestos, anthophyllite asbestos, actinolite asbestos, and any of these minerals that have been chemically treated and/or altered.

Asbestos-containing material (ACM) means any material containing more than 1% asbestos.

Assistant Secretary means the Assistant Secretary of Labor for Occupational Safety and Health, U.S. Department of Labor, or designee.

Authorized person means any person authorized by the employer and required by work duties to be present in regulated areas.

Building/facility owner is the legal entity, including a lessee, which exercises control over management and record keeping functions relating to a building and/or facility in which activities covered by this standard take place.

Certified Industrial Hygienist (CIH) means one certified in the practice of industrial hygiene by the American Board of Industrial Hygiene.

Director means the Director of the National Institute for Occupational Safety and Health, U.S. Department of Health and Human Services, or designee.

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

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

High-efficiency particulate air (HEPA) filter means a filter capable of trapping and retaining at least 99.97 percent of 0.3 micrometer diameter mono-disperse particles.

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

Industrial hygienist means a professional qualified by education, training, and experience to anticipate, recognize, evaluate and develop controls for occupational health hazards.

PACM means presumed asbestos containing material.

Presumed asbestos containing material means 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 (j)(8) of this section.

Regulated area means an area established by the employer to demarcate areas where airborne concentrations of asbestos exceed, or there is a reasonable possibility they may exceed, the permissible exposure limits.

Surfacing ACM means surfacing material which contains more than 1 percent asbestos.

Surfacing material means material that is sprayed, 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).

Thermal System Insulation (TSI) means ACM applied to pipes, fittings, boilers, breeching, tanks, ducts or other structural components to prevent heat loss or gain.

Thermal System Insulation ACM means thermal system insulation which contains more than 1 percent asbestos.

1910.1001(c)

Permissible exposure limit (PELS) --

1910.1001(c)(1)

Time-weighted average limit (TWA). The employer shall ensure that no employee is exposed to an airborne concentration of asbestos in excess of 0.1 fiber per cubic centimeter of air as an eight (8)-hour time-weighted average (TWA) as determined by the method prescribed in Appendix A to this section, or by an equivalent method.

1910.1001(c)(2)

Excursion limit. The employer shall ensure that no employee is exposed to an airborne concentration of asbestos in excess of 1.0 fiber per cubic centimeter of air (1 f/cc) as averaged over a sampling period of thirty (30) minutes as determined by the method prescribed in Appendix A to this section, or by an equivalent method.

1910.1001(d)

Exposure monitoring. --

1910.1001(d)(1)

General.

1910.1001(d)(1)(i)

Determinations of employee exposure shall be made from breathing zone air samples that are representative of the 8-hour TWA and 30-minute short-term exposures of each employee.

1910.1001(d)(1)(ii)

Representative 8-hour TWA employee exposures shall be determined on the basis of one or more samples representing full-shift exposures for each shift for each employee in each job classification in each work area. Representative 30-minute short-term employee exposures shall be determined on the basis of one or more samples representing 30 minute exposures associated with operations that are most likely to produce exposures above the excursion limit for each shift for each job classification in each work area.

1910.1001(d)(2)

Initial monitoring.

1910.1001(d)(2)(i)

Each employer who has a workplace or work operation covered by this standard, except as provided for in paragraphs (d)(2)(ii) and (d)(2)(iii) of this section, shall perform initial monitoring of employees who are, or may reasonably be expected to be exposed to airborne concentrations at or above the TWA permissible exposure limit and/or excursion limit.

1910.1001(d)(2)(ii)

Where the employer has monitored after March 31, 1992, for the TWA permissible exposure limit and/or the excursion limit, and the monitoring satisfies all other requirements of this section, the employer may rely on such earlier monitoring results to satisfy the requirements of paragraph (d)(2)(i) of this section.

1910.1001(d)(2)(iii)

Where the employer has relied upon objective data that demonstrate that asbestos is not capable of being released in airborne concentrations at or above the TWA permissible exposure limit and/or excursion limit under the expected conditions of processing, use, or handling, then no initial monitoring is required.

1910.1001(d)(3)

Monitoring frequency (periodic monitoring) and patterns. After the initial determinations required by paragraph (d)(2)(i) of this section, samples shall be of such frequency and pattern as to represent with reasonable accuracy the levels of exposure of the employees. In no case shall sampling be at intervals greater than six months for employees whose exposures may reasonably be foreseen to exceed the TWA permissible exposure limit and/or excursion limit.

1910.1001(d)(4)

Changes in monitoring frequency. If either the initial or the periodic monitoring required by paragraphs (d)(2) and (d)(3) of this section statistically indicates that employee exposures are below the TWA permissible exposure limit and/or excursion limit, the employer may discontinue the monitoring for those employees whose exposures are represented by such monitoring.

1910.1001(d)(5)

Additional monitoring. Notwithstanding the provisions of paragraphs (d)(2)(ii) and (d)(4) of this section, the employer shall institute the exposure monitoring required under paragraphs (d)(2)(i) and (d)(3) of this section whenever there has been a change in the production, process, control equipment, personnel or work practices that may result in new or additional exposures above the TWA permissible exposure limit and/or excursion limit or when the employer has any reason to suspect that a change may result in new or additional exposures above the PEL and/or excursion limit.

1910.1001(d)(6)

Method of monitoring.

1910.1001(d)(6)(i)

All samples taken to satisfy the monitoring requirements of paragraph (d) of this section shall be personal samples collected following the procedures specified in Appendix A.

1910.1001(d)(6)(ii)

All samples taken to satisfy the monitoring requirements of paragraph (d) of this section shall be evaluated using the OSHA Reference Method (ORM) specified in Appendix A of this section, or an equivalent counting method.

1910.1001(d)(6)(iii)

If an equivalent method to the ORM is used, the employer shall ensure that the method meets the following criteria:

1910.1001(d)(6)(iii)(A)

Replicate exposure data used to establish equivalency are collected in side-by-side field and laboratory comparisons; and

1910.1001(d)(6)(iii)(B)

The comparison indicates that 90% of the samples collected in the range 0.5 to 2.0 times the permissible limit have an accuracy range of plus or minus 25 percent of the ORM results at a 95% confidence level as demonstrated by a statistically valid protocol; and

1910.1001(d)(6)(iii)(C)

The equivalent method is documented and the results of the comparison testing are maintained.

1910.1001(d)(6)(iv)

To satisfy the monitoring requirements of paragraph (d) of this section, employers must use the results of monitoring analysis performed by laboratories which have instituted quality assurance programs that include the elements as prescribed in Appendix A of this section.

1910.1001(d)(7)**Employee notification of monitoring results.****1910.1001(d)(7)(i)**

The employer must, within 15 working days after the receipt of the results of any monitoring performed under this sections, notify each affected employee of these results either individually in writing or by posting the results in an appropriate location that is accessible to affected employees.

1910.1001(d)(7)(ii)

The written notification required by paragraph (d)(7)(i) of this section shall contain the corrective action being taken by the employer to reduce employee exposure to or below the TWA and/or excursion limit, wherever monitoring results indicated that the TWA and/or excursion limit had been exceeded.

1910.1001(e)

Regulated Areas. --

1910.1001(e)(1)

Establishment. The employer shall establish regulated areas wherever airborne concentrations of asbestos and/or PACM are in excess of the TWA and/or excursion limit prescribed in paragraph (c) of this section.

1910.1001(e)(2)

Demarcation. Regulated areas shall be demarcated from the rest of the workplace in any manner that minimizes the number of persons who will be exposed to asbestos.

1910.1001(e)(3)

Access. Access to regulated areas shall be limited to authorized persons or to persons authorized by the Act or regulations issued pursuant thereto.

1910.1001(e)(4)

Provision of respirators. Each person entering a regulated area shall be supplied with and required to use a respirator, selected in accordance with paragraph (g)(2) of this section.

1910.1001(e)(5)

Prohibited activities. The employer shall ensure that employees do not eat, drink, smoke, chew tobacco or gum, or apply cosmetics in the regulated areas.

1910.1001(f)

Methods of compliance. --

1910.1001(f)(1)

Engineering controls and work practices.

1910.1001(f)(1)(i)

The employer shall institute engineering controls and work practices to reduce and maintain employee exposure to or below the TWA and/or excursion limit prescribed in paragraph (c) of this section, except to the extent that such controls are not feasible.

1910.1001(f)(1)(ii)

Wherever the feasible engineering controls and work practices that can be instituted are not sufficient to reduce employee exposure to or below the TWA and/or excursion limit prescribed in paragraph (c) of this section, the employer shall use them to reduce employee exposure to the lowest levels achievable by these controls and shall supplement them by the use of respiratory protection that complies with the requirements of paragraph (g) of this section.

1910.1001(f)(1)(iii)

For the following operations, wherever feasible engineering controls and work practices that can be instituted are not sufficient to reduce the employee exposure to or below the TWA and/or excursion limit prescribed in paragraph (c) of this section, the employer shall use them to reduce employee exposure to or below 0.5 fiber per cubic centimeter of air (as an eight-hour time-weighted average) or 2.5 fibers/cc for 30 minutes (short-term exposure) and shall supplement them by the use of any combination of respiratory protection that complies with the requirements of paragraph (g) of this section, work practices and feasible engineering controls that will reduce employee exposure to or below the TWA and to or below the excursion limit permissible prescribed in paragraph (c) of this section: Coupling cutoff in primary asbestos cement pipe manufacturing; sanding in primary and secondary asbestos cement sheet manufacturing; grinding in primary and secondary friction product manufacturing; carding and spinning in dry textile processes; and grinding and sanding in primary plastics manufacturing.

1910.1001(f)(1)(iv)

Local exhaust ventilation. Local exhaust ventilation and dust collection systems shall be designed, constructed, installed, and maintained in accordance with good practices such as those found in the American National Standard Fundamentals Governing the Design and Operation of Local Exhaust Systems, ANSI Z9.2-1979.

1910.1001(f)(1)(v)

Particular tools. All hand-operated and power-operated tools which would produce or release fibers of asbestos, such as, but not limited to, saws, scorers, abrasive wheels, and drills, shall be provided with local exhaust ventilation systems which comply with paragraph (f)(1)(iv) of this section.

1910.1001(f)(1)(vi)

Wet methods. Insofar as practicable, asbestos shall be handled, mixed, applied, removed, cut, scored, or otherwise worked in a wet state sufficient to prevent the emission of airborne fibers so as to expose employees to levels in excess of the TWA and/or excursion limit, prescribed in paragraph (c) of this section, unless the usefulness of the product would be diminished thereby.

1910.1001(f)(1)(vii)

[Reserved]

1910.1001(f)(1)(viii)

Particular products and operations. No asbestos cement, mortar, coating, grout, plaster, or similar material containing asbestos, shall be removed from bags, cartons, or other containers in which they are shipped, without being either wetted, or enclosed, or ventilated so as to prevent effectively the release of airborne fibers.

1910.1001(f)(1)(ix)

Compressed air. Compressed air shall not be used to remove asbestos or materials containing asbestos unless the compressed air is used in conjunction with a ventilation system which effectively captures the dust cloud created by the compressed air.

1910.1001(f)(1)(x)

Flooring. Sanding of asbestos-containing flooring material is prohibited.

1910.1001(f)(2)

Compliance program.

1910.1001(f)(2)(i)

Where the TWA and/or excursion limit is exceeded, the employer shall establish and implement a written program to reduce employee exposure to or below the TWA and to or below the excursion limit by means of engineering and work practice controls as required by paragraph (f)(1) of this section, and by the use of respiratory protection where required or permitted under this section.

1910.1001(f)(2)(ii)

Such programs shall be reviewed and updated as necessary to reflect significant changes in the status of the employer's compliance program.

1910.1001(f)(2)(iii)

Written programs shall be submitted upon request for examination and copying to the Assistant Secretary, the Director, affected employees and designated employee representatives.

1910.1001(f)(2)(iv)

The employer shall not use employee rotation as a means of compliance with the TWA and/or excursion limit.

1910.1001(f)(3)

Specific compliance methods for brake and clutch repair:

1910.1001(f)(3)(i)

Engineering controls and work practices for brake and clutch repair and service. During automotive brake and clutch inspection, disassembly, repair and assembly operations, the employer shall institute engineering controls and work practices to reduce employee exposure to materials containing asbestos using a negative pressure enclosure/HEPA vacuum system method or low pressure/wet cleaning method, which meets the detailed requirements set out in Appendix F to this section. The employer may also comply using an equivalent method which follows written procedures which the employer demonstrates can achieve results equivalent to Method A in Appendix F to this section. For facilities in which no more than 5 pair of brakes or 5 clutches are inspected, disassembled, repaired, or assembled per week, the method set forth in paragraph [D] of Appendix F to this section may be used.

1910.1001(f)(3)(ii)

The employer may also comply by using an equivalent method which follows written procedures, which the employer demonstrates can achieve equivalent exposure reductions as do the two "preferred methods." Such demonstration must include monitoring data conducted under workplace conditions closely resembling the process, type of asbestos containing materials, control method, work practices and environmental conditions which the equivalent method will be used, or objective data, which document that under all reasonably foreseeable conditions of brake and clutch repair applications, the method results in exposures which are equivalent to the methods set out in Appendix F to this section.

1910.1001(g)**Respiratory protection****1910.1001(g)(1)**

General. for employees who use respirators required by this section, the employer must provide each employee an appropriate respirator that complies with the requirements of this paragraph. Respirators must be used during:

1910.1001(g)(1)(i)

Periods necessary to install or implement feasible engineering and work-practice controls.

1910.1001(g)(1)(ii)

Work operations, such as maintenance and repair activities, for which engineering and work-practice controls are not feasible.

1910.1001(g)(1)(iii)

Work operations for which feasible engineering and work-practice controls are not yet sufficient to reduce employee exposure to or below the TWA and/or excursion limit.

1910.1001(g)(1)(iv)

Emergencies.

1910.1001(g)(2)

Respirator program.

1910.1001(g)(2)(i)

The employer must implement a respiratory protection program in accordance with 29 CFR 134 (b) through (d) (except (d)(1)(iii)), and (f) through (m), which covers each employee required by this section to use a respirator.

1910.1001(g)(2)(ii)

Employers must provide an employee with a tight-fitting, powered air-purifying respirator (PAPR) instead of a negative pressure respirator selected according to paragraph (g)(3) of this standard when the employee chooses to use a PAPR and it provides adequate protection to the employee.

1910.1001(g)(2)(iii)

No employee must be assigned to tasks requiring the use of respirators if, based on their most recent medical examination, the examining physician determines that the employee will be unable to function normally using a respirator, or that the safety or health of the employee or other employees will be impaired by the use of a respirator. Such employees must be assigned to another job or given the opportunity to transfer to a different position, the duties of which they can perform. If such a transfer position is available, the position must be with the same employer, in the same geographical area, and with the same seniority, status, and rate of pay the employee had just prior to such transfer.

1910.1001(g)(3)

Respirator selection. Employers must:

(g)(3)(i)

Select, and provide to employees, the appropriate respirators specified in paragraph (d)(3)(i)(A) of 29 CFR 1910.134; however, employers must not select or use filtering facepiece respirators for protection against asbestos fibers.

(g)(3)(ii)

Provide HEPA filters for powered and non-powered air-purifying respirators.

1910.1001(h)

Protective work clothing and equipment --

1910.1001(h)(1)

Provision and use. If an employee is exposed to asbestos above the TWA and/or excursion limit, or where the possibility of eye irritation exists, the employer shall provide at no cost to the employee and ensure that the employee uses appropriate protective work clothing and equipment such as, but not limited to:

1910.1001(h)(1)(i)

Coveralls or similar full-body work clothing;

1910.1001(h)(1)(ii)

Gloves, head coverings, and foot coverings; and

1910.1001(h)(1)(iii)

Face shields, vented goggles, or other appropriate protective equipment which complies with 1910.133 of this Part.

1910.1001(h)(2)

Removal and storage.

1910.1001(h)(2)(i)

The employer shall ensure that employees remove work clothing contaminated with asbestos only in change rooms provided in accordance with paragraph (i) (1) of this section.

1910.1001(h)(2)(ii)

The employer shall ensure that no employee takes contaminated work clothing out of the change room, except those employees authorized to do so for the purpose of laundering, maintenance, or disposal.

1910.1001(h)(2)(iii)

Contaminated work clothing shall be placed and stored in closed containers which prevent dispersion of the asbestos outside the container.

1910.1001(h)(2)(iv)

The employer shall ensure that containers of contaminated protective devices or work clothing, which are to be taken out of change rooms or the workplace for cleaning, maintenance or disposal, bear labels in accordance with paragraph (j) of this section.

1910.1001(h)(3)

Cleaning and replacement.

1910.1001(h)(3)(i)

The employer shall clean, launder, repair, or replace protective clothing and equipment required by this paragraph to maintain their effectiveness. The employer shall provide clean protective clothing and equipment at least weekly to each affected employee.

1910.1001(h)(3)(ii)

The employer shall prohibit the removal of asbestos from protective clothing and equipment by blowing or shaking.

1910.1001(h)(3)(iii)

Laundering of contaminated clothing shall be done so as to prevent the release of airborne fibers of asbestos in excess of the permissible exposure limits prescribed in paragraph (c) of this section.

1910.1001(h)(3)(iv)

The employer shall ensure that contaminated clothing is transported in sealed impermeable bags, or other closed, impermeable containers, and labeled in accordance with paragraph (j) of this section.

1910.1001(h)(3)(v)

The employer shall inform any person who launders or cleans protective clothing or equipment contaminated with asbestos of the potentially harmful effects of exposure to asbestos.

1910.1001(h)(3)(vi)

Contaminated clothing shall be transported in sealed impermeable bags, or other closed, impermeable containers, and labeled in accordance with paragraph (j) of this section.

1910.1001(i)

Hygiene facilities and practices --

1910.1001(i)(1)

Change rooms.

1910.1001(i)(1)(i)

The employer shall provide clean change rooms for employees who work in areas where their airborne exposure to asbestos is above the TWA and/or excursion limit.

1910.1001(i)(1)(ii)

The employer shall ensure that change rooms are in accordance with 1910.141(e) of this part, and are equipped with two separate lockers or storage facilities, so separated as to prevent contamination of the employee's street clothes from his protective work clothing and equipment.

1910.1001(i)(2)

Showers.

1910.1001(i)(2)(i)

The employer shall ensure that employees who work in areas where their airborne exposure is above the TWA and/or excursion limit, shower at the end of the work shift.

1910.1001(i)(2)(ii)

The employer shall provide shower facilities which comply with 1910.141(d)(3) of this part.

1910.1001(i)(2)(iii)

The employer shall ensure that employees who are required to shower pursuant to paragraph (i)(2)(i) of this section do not leave the workplace wearing any clothing or equipment worn during the work shift.

1910.1001(i)(3)

Lunchrooms.

1910.1001(i)(3)(i)

The employer shall provide lunchroom facilities for employees who work in areas where their airborne exposure is above the TWA and/or excursion limit.

1910.1001(i)(3)(ii)

The employer shall ensure that lunchroom facilities have a positive pressure, filtered air supply, and are readily accessible to employees.

1910.1001(i)(3)(iii)

The employer shall ensure that employees who work in areas where their airborne exposure is above the PEL and/or excursion limit wash their hands and faces prior to eating, drinking or smoking.

1910.1001(i)(3)(iv)

The employer shall ensure that employees do not enter lunchroom facilities with protective work clothing or equipment unless surface asbestos fibers have been removed from the clothing or equipment by vacuuming or other method that removes dust without causing the asbestos to become airborne.

1910.1001(i)(4)

Smoking in work areas. The employer shall ensure that employees do not smoke in work areas where they are occupationally exposed to asbestos because of activities in that work area.

1910.1001(j)

Communication of hazards to employees -- Introduction. This section applies to the communication of information concerning asbestos hazards in general industry to facilitate compliance with this standard. Asbestos exposure in general industry occurs in a wide variety of industrial and commercial settings. Employees who manufacture asbestos-containing products may be exposed to asbestos fibers. Employees who repair and replace automotive brakes and clutches may be exposed to asbestos fibers. In addition, employees engaged in housekeeping activities in industrial facilities with asbestos product manufacturing operations, and in public and commercial buildings with installed asbestos containing materials may be exposed to asbestos fibers. Most of these workers are covered by this general industry standard, with the exception of state or local governmental employees in non-state plan states. It should be noted that employees who perform housekeeping activities during and after construction activities are covered by the asbestos construction standard, 29 CFR 1926.1101, formerly 1926.58. However, housekeeping employees, regardless of industry designation, should know whether building components they maintain may expose them to asbestos. The same hazard communication provisions will protect employees who perform housekeeping operations in all three asbestos standards; general industry, construction, and shipyard employment. As noted in the construction standard, building owners are often the only and/or best source of information concerning the presence of previously installed asbestos containing building materials. Therefore they, along with employers of potentially exposed employees, are assigned specific information conveying and retention duties under this section.

1910.1001(j)(1)

Hazard communication—general.

1910.1001(j)(1)(i)

Chemical manufacturers, importers, distributors and employers shall comply with all requirements of the Hazard Communication Standard (HCS) (§ 1910.1200) for asbestos.

1910.1001(j)(1)(ii)

In classifying the hazards of asbestos at least the following hazards are to be addressed: Cancer and lung effects.

1910.1001(j)(1)(iii)

Employers shall include asbestos in the hazard communication program established to comply with the HCS (§ 1910.1200). Employers shall ensure that each employee has access to labels on containers of asbestos and to safety data sheets, and is trained in accordance with the requirements of HCS and paragraph (j)(7) of this section.

1910.1001(j)(2)

Installed Asbestos Containing Material. Employers and building owners are required to treat installed TSI and sprayed on and troweled-on surfacing materials as ACM in buildings constructed no later than 1980 for purposes of this standard. These materials are designated "presumed ACM or PACM", and are defined in paragraph (b) of this section. Asphalt and vinyl flooring material installed no later than 1980 also must be treated as asbestos-containing. The employer or building owner may demonstrate that PACM and flooring material do not contain asbestos by complying with paragraph (j)(8)(iii) of this section.

1910.1001(j)(3)

Duties of employers and building and facility owners.

1910.1001(j)(3)(i)

Building and facility owners shall determine the presence, location, and quantity of ACM and/or PACM at the work site. Employers and building and facility owners shall exercise due diligence in complying with these requirements to inform employers and employees about the presence and location of ACM and PACM.

1910.1001(j)(3)(ii)

Building and facility owners shall maintain records of all information required to be provided pursuant to this section and/or otherwise known to the building owner concerning the presence, location and quantity of ACM and PACM in the building/facility. Such records shall be kept for the duration of ownership and shall be transferred to successive owners.

1910.1001(j)(3)(iii)

Building and facility owners shall inform employers of employees, and employers shall inform employees who will perform housekeeping activities in areas which contain ACM and/or PACM of the presence and location of ACM and/or PACM in such areas which may be contacted during such activities.

1910.1001(j)(4)

Warning signs—

1910.1001(j)(4)(i)

Posting. Warning signs shall be provided and displayed at each regulated area. In addition, warning signs shall be posted at all approaches to regulated areas so that an employee may read the signs and take necessary protective steps before entering the area.

1910.1001(j)(4)(ii)

Sign specifications:

1910.1001(j)(4)(ii)(A)

The warning signs required by paragraph (j)(4)(i) of this section shall bear the following legend:

DANGER
ASBESTOS
MAY CAUSE CANCER
CAUSES DAMAGE TO LUNGS
AUTHORIZED PERSONNEL ONLY

1910.1001(j)(4)(ii)(B)

In addition, where the use of respirators and protective clothing is required in the regulated area under this section, the warning signs shall include the following:

WEAR RESPIRATORY PROTECTION AND PROTECTIVE CLOTHING IN THIS AREA

1910.1001(j)(4)(ii)(C)

Prior to June 1, 2016, employers may use the following legend in lieu of that specified in paragraph (j)(4)(ii)(A) of this section:

DANGER
ASBESTOS
CANCER AND LUNG DISEASE
HAZARD
AUTHORIZED PERSONNEL ONLY

1910.1001(j)(4)(ii)(D)

Prior to June 1, 2016, employers may use the following legend in lieu of that specified in paragraph (j)(4)(ii)(B) of this section:

RESPIRATORS AND PROTECTIVE CLOTHING ARE REQUIRED IN THIS AREA

1910.1001(j)(4)(iii)

The employer shall ensure that employees working in and contiguous to regulated areas comprehend the warning signs required to be posted by paragraph (j)(4)(i) of this section. Means to ensure employee comprehension may include the use of foreign languages, pictographs and graphics.

1910.1001(j)(4)(iv)

At the entrance to mechanical rooms/areas in which employees reasonably can be expected to enter and which contain ACM and/or PACM, the building owner shall post signs which identify the material which is present, its location, and appropriate work practices which, if followed, will ensure that ACM and/or PACM will not be disturbed. The employer shall ensure, to the extent feasible, that employees who come in contact with these signs can comprehend them. Means to ensure employee comprehension may include the use of foreign languages, pictographs, graphics, and awareness training.

1910.1001(j)(5)

Warning labels—

1910.1001(j)(5)(i)

Labeling. Labels shall be affixed to all raw materials, mixtures, scrap, waste, debris, and other products containing asbestos fibers, or to their containers. When a building owner or employer identifies previously installed ACM and/or PACM, labels or signs shall be affixed or posted so that employees will be notified of what materials contain ACM and/or PACM. The employer shall attach such labels in areas where they will clearly be noticed by employees who are likely to be exposed, such as at the entrance to mechanical room/areas. Signs required by paragraph (j) of this section may be posted in lieu of labels so long as they contain the information required for labeling.

1910.1001(j)(5)(ii)

Label specifications. In addition to the requirements of paragraph (j)(1), the employer shall ensure that labels of bags or containers of protective clothing and equipment, scrap, waste, and debris containing asbestos fibers include the following information:

DANGER
CONTAINS ASBESTOS FIBERS
MAY CAUSE CANCER
CAUSES DAMAGE TO LUNGS
DO NOT BREATHE DUST
AVOID CREATING DUST

1910.1001(j)(5)(iii)

Prior to June 1, 2015, employers may include the following information on raw materials, mixtures or labels of bags or containers of protective clothing and equipment, scrap, waste, and debris containing asbestos fibers in lieu of the labeling requirements in paragraphs (j)(1)(i) and (j)(5)(ii) of this section:

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

1910.1001(j)(6)

The provisions for labels and for safety data sheets required by paragraph (j) of this section do not apply where:

1910.1001(j)(6)(i)

Asbestos fibers have been modified by a bonding agent, coating, binder, or other material provided that the manufacturer can demonstrate that during any reasonably foreseeable use, handling, storage, disposal, processing, or transportation, no airborne concentrations of fibers of asbestos in excess of the TWA permissible exposure level and/or excursion limit will be released or

1910.1001(j)(6)(ii)

Asbestos is present in a product in concentrations less than 1.0%.

1910.1001(j)(7)

Employee information and training.

1910.1001(j)(7)(i)

The employer shall train each employee who is exposed to airborne concentrations of asbestos at or above the PEL and/or excursion limit in accordance with the requirements of this section. The employer shall institute a training program and ensure employee participation in the program.

1910.1001(j)(7)(ii)

Training shall be provided prior to or at the time of initial assignment and at least annually thereafter.

1910.1001(j)(7)(iii)

The training program shall be conducted in a manner which the employee is able to understand. The employer shall ensure that each employee is informed of the following:

1910.1001(j)(7)(iii)(A)

The health effects associated with asbestos exposure;

1910.1001(j)(7)(iii)(B)

The relationship between smoking and exposure to asbestos producing lung cancer:

1910.1001(j)(7)(iii)(C)

The quantity, location, manner of use, release, and storage of asbestos, and the specific nature of operations which could result in exposure to asbestos;

1910.1001(j)(7)(iii)(D)

The engineering controls and work practices associated with the employee's job assignment;

1910.1001(j)(7)(iii)(E)

The specific procedures implemented to protect employees from exposure to asbestos, such as appropriate work practices, emergency and clean-up procedures, and personal protective equipment to be used;

1910.1001(j)(7)(iii)(F)

The purpose, proper use, and limitations of respirators and protective clothing, if appropriate;

1910.1001(j)(7)(iii)(G)

The purpose and a description of the medical surveillance program required by paragraph (l) of this section;

1910.1001(j)(7)(iii)(H)

The content of this standard, including appendices.

1910.1001(j)(7)(iii)(I)

The names, addresses and phone numbers of public health organizations which provide information, materials, and/or conduct programs concerning smoking cessation. The employer may distribute the list of such organizations contained in Appendix I to this section, to comply with this requirement.

1910.1001(j)(7)(iii)(J)

The requirements for posting signs and affixing labels and the meaning of the required legends for such signs and labels.

1910.1001(j)(7)(iv)

The employer shall also provide, at no cost to employees who perform housekeeping operations in an area which contains ACM or PACM, an asbestos awareness training course, which shall at a minimum contain the following elements: health effects of asbestos, locations of ACM and PACM in the building/facility, recognition of ACM and PACM damage and deterioration, requirements in this standard relating to housekeeping, and proper response to fiber release episodes, to all employees who perform housekeeping work in areas where ACM and/or PACM is present. Each such employee shall be so trained at least once a year.

1910.1001(j)(7)(v)

Access to information and training materials.

1910.1001(j)(7)(v)(A)

The employer shall make a copy of this standard and its appendices readily available without cost to all affected employees.

1910.1001(j)(7)(v)(B)

The employer shall provide, upon request, all materials relating to the employee information and training program to the Assistant Secretary and the training program to the Assistant Secretary and the Director.

1910.1001(j)(7)(v)(C)

The employer shall inform all employees concerning the availability of self-help smoking cessation program material. Upon employee request, the employer shall distribute such material, consisting of NIH Publication No. 89-1647, or equivalent self-help material, which is approved or published by a public health organization listed in Appendix I to this section.

1910.1001(j)(8)

Criteria to rebut the designation of installed material as PACM.

1910.1001(j)(8)(i)

At any time, an employer and/or building owner may demonstrate, for purposes of this standard, that PACM does not contain asbestos. Building owners and/or employers are not required to communicate information about the presence of building material for which such a demonstration pursuant to the requirements of paragraph (j)(8)(ii) of this section has been made. However, in all such cases, the information, data and analysis supporting the determination that PACM does not contain asbestos, shall be retained pursuant to paragraph (m) of this section.

1910.1001(j)(8)(ii)

An employer or owner may demonstrate that PACM does not contain asbestos by the following:

1910.1001(j)(8)(ii)(A)

Having a completed inspection conducted pursuant to the requirements of AHERA (40 CFR 763, Subpart E) which demonstrates that no ACM is present in the material; or

1910.1001(j)(8)(ii)(B)

Performing tests of the material containing PACM which demonstrate that no ACM is present in the material. Such tests shall include analysis of bulk samples collected in the manner described in 40 CFR 763.86. The tests, evaluation and sample collection shall be conducted by an accredited inspector or by a CIH. Analysis of samples shall be performed by persons or laboratories with proficiency demonstrated by current successful participation in a nationally recognized testing program such as the National Voluntary Laboratory Accreditation Program (NVLAP) or the National Institute for Standards and Technology (NIST) or the Round Robin for bulk samples administered by the American Industrial Hygiene Association (AIHA) or an equivalent nationally-recognized round robin testing program.

1910.1001(j)(8)(iii)

The employer and/or building owner may demonstrate that flooring material including associated mastic and backing does not contain asbestos, by a determination of an industrial hygienist based upon recognized analytical techniques showing that the material is not ACM.

1910.1001(k)

Housekeeping.

1910.1001(k)(1)

All surfaces shall be maintained as free as practicable of ACM waste and debris and accompanying dust.

1910.1001(k)(2)

All spills and sudden releases of material containing asbestos shall be cleaned up as soon as possible.

1910.1001(k)(3)

Surfaces contaminated with asbestos may not be cleaned by the use of compressed air.

1910.1001(k)(4)

Vacuuming. HEPA-filtered vacuuming equipment shall be used for vacuuming asbestos containing waste and debris. The equipment shall be used and emptied in a manner which minimizes the reentry of asbestos into the workplace.

1910.1001(k)(5)

Shoveling, dry sweeping and dry clean-up of asbestos may be used only where vacuuming and/or wet cleaning are not feasible.

1910.1001(k)(6)

Waste disposal. Waste, scrap, debris, bags, containers, equipment, and clothing contaminated with asbestos consigned for disposal, shall be collected, recycled and disposed of in sealed impermeable bags, or other closed, impermeable containers.

1910.1001(k)(7)

Care of asbestos-containing flooring material.

1910.1001(k)(7)(i)

Sanding of asbestos-containing floor material is prohibited.

1910.1001(k)(7)(ii)

Stripping of finishes shall be conducted using low abrasion pads at speeds lower than 300 rpm and wet methods.

1910.1001(k)(7)(iii)

Burnishing or dry buffing may be performed only on asbestos-containing flooring which has sufficient finish so that the pad cannot contact the asbestos-containing material.

1910.1001(k)(8)

Waste and debris and accompanying dust in an areas containing accessible ACM and/or PACM or visibly deteriorated ACM, shall not be dusted or swept dry, or vacuumed without using a HEPA filter.

1910.1001(l)

Medical surveillance --

1910.1001(l)(1)

General --

1910.1001(l)(1)(i)

Employees covered. The employer shall institute a medical surveillance program for all employees who are or will be exposed to airborne concentrations of fibers of asbestos at or above the TWA and/or excursion limit.

1910.1001(l)(1)(ii)

Examination by a physician.

1910.1001(l)(1)(ii)(A)

The employer shall ensure that all medical examinations and procedures are performed by or under the supervision of a licensed physician, and shall be provided without cost to the employee and at a reasonable time and place.

1910.1001(l)(1)(ii)(B)

Persons other than licensed physicians, who administer the pulmonary function testing required by this section, shall complete a training course in spirometry sponsored by an appropriate academic or professional institution.

1910.1001(l)(2)

Pre-placement examinations.

1910.1001(l)(2)(i)

Before an employee is assigned to an occupation exposed to airborne concentrations of asbestos fibers at or above the TWA and/or excursion limit, a pre-placement medical examination shall be provided or made available by the employer.

1910.1001(l)(2)(ii)

Such examination shall include, as a minimum, a medical and work history; a complete physical examination of all systems with emphasis on the respiratory system, the cardiovascular system and digestive tract; completion of the respiratory disease standardized questionnaire in Appendix D to this section, Part 1; a chest roentgenogram (posterior-anterior 14 x 17 inches); pulmonary function tests to include forced vital capacity (FVC) and forced expiratory volume at 1 second (FEV(1.0)); and any additional tests deemed appropriate by the examining physician. Interpretation and classification of chest roentgenogram shall be conducted in accordance with Appendix E to this section.

1910.1001(l)(3)

Periodic examinations.

1910.1001(l)(3)(i)

Periodic medical examinations shall be made available annually.

1910.1001(l)(3)(ii)

The scope of the medical examination shall be in conformance with the protocol established in paragraph (l)(2)(ii) of this section, except that the frequency of chest roentgenogram shall be conducted in accordance with Table 1, and the abbreviated standardized questionnaire contained in, Part 2 of Appendix D to this section shall be administered to the employee.

Table 1. -- Frequency of Chest Roentgenogram

Years since first exposure	Age of employee		
	15 to 35	35+ to 45	45+
0 to 10.....	Every 5 years.....	Every 5 years...	Every 5 years.
10+.....	Every 5 years.....	Every 2 years...	Every 1 year.

1910.1001(l)(4)

Termination of employment examinations.

1910.1001(l)(4)(i)

The employer shall provide, or make available, a termination of employment medical examination for any employee who has been exposed to airborne concentrations of fibers of asbestos at or above the TWA and/or excursion limit.

1910.1001(l)(4)(ii)

The medical examination shall be in accordance with the requirements of the periodic examinations stipulated in paragraph (l)(3) of this section, and shall be given within 30 calendar days before or after the date of termination of employment.

1910.1001(l)(5)

Recent examinations. No medical examination is required of any employee, if adequate records show that the employee has been examined in accordance with any of paragraphs ((l)(2) through (l)(4)) of this section within the past 1 year period. A pre-employment medical examination which was required as a condition of employment by the employer, may not be used by that employer to meet the requirements of this paragraph, unless the cost of such examination is borne by the employer.

1910.1001(l)(6)

Information provided to the physician. The employer shall provide the following information to the examining physician:

1910.1001(l)(6)(i)

A copy of this standard and Appendices D and E.

1910.1001(l)(6)(ii)

A description of the affected employee's duties as they relate to the employee's exposure.

1910.1001(l)(6)(iii)

The employee's representative exposure level or anticipated exposure level.

1910.1001(l)(6)(iv)

A description of any personal protective and respiratory equipment used or to be used.

1910.1001(l)(6)(v)

Information from previous medical examinations of the affected employee that is not otherwise available to the examining physician.

1910.1001(l)(7)

Physician's written opinion.

1910.1001(l)(7)(i)

The employer shall obtain a written signed opinion from the examining physician. This written opinion shall contain the results of the medical examination and shall include:

1910.1001(l)(7)(i)(A)

The physician's opinion as to whether the employee has any detected medical conditions that would place the employee at an increased risk of material health impairment from exposure to asbestos;

1910.1001(l)(7)(i)(B)

Any recommended limitations on the employee or upon the use of personal protective equipment such as clothing or respirators;

1910.1001(l)(7)(i)(C)

A statement that the employee has been informed by the physician of the results of the medical examination and of any medical conditions resulting from asbestos exposure that require further explanation or treatment; and

1910.1001(l)(7)(i)(D)

A statement that the employee has been informed by the physician of the increased risk of lung cancer attributable to the combined effect of smoking and asbestos exposure.

1910.1001(l)(7)(ii)

The employer shall instruct the physician not to reveal in the written opinion given to the employer specific findings or diagnoses unrelated to occupational exposure to asbestos.

1910.1001(l)(7)(iii)

The employer shall provide a copy of the physician's written opinion to the affected employee within 30 days from its receipt.

1910.1001(m)

Recordkeeping. --

1910.1001(m)(1)

Exposure measurements. NOTE: The employer may utilize the services of competent organizations such as industry trade associations and employee associations to maintain the records required by this section.

1910.1001(m)(1)(i)

The employer shall keep an accurate record of all measurements taken to monitor employee exposure to asbestos as prescribed in paragraph (d) of this section.

1910.1001(m)(1)(ii)

This record shall include at least the following information:

1910.1001(m)(1)(ii)(A)

The date of measurement;

1910.1001(m)(1)(ii)(B)

The operation involving exposure to asbestos which is being monitored;

1910.1001(m)(1)(ii)(C)

Sampling and analytical methods used and evidence of their accuracy;

1910.1001(m)(1)(ii)(D)

Number, duration, and results of samples taken;

1910.1001(m)(1)(ii)(E)

Type of respiratory protective devices worn, if any; and

1910.1001(m)(1)(ii)(F)

Name, social security number and exposure of the employees whose exposure are represented.

1910.1001(m)(1)(iii)

The employer shall maintain this record for at least thirty (30) years, in accordance with 29 CFR 1910.1020.

1910.1001(m)(2)

Objective data for exempted operations.

1910.1001(m)(2)(i)

Where the processing, use, or handling of products made from or containing asbestos is exempted from other requirements of this section under paragraph (d)(2)(iii) of this section, the employer shall establish and maintain an accurate record of objective data reasonably relied upon in support of the exemption.

1910.1001(m)(2)(ii)

The record shall include at least the following:

1910.1001(m)(2)(ii)(A)

The product qualifying for exemption;

1910.1001(m)(2)(ii)(B)

The source of the objective data;

1910.1001(m)(2)(ii)(C)

The testing protocol, results of testing, and/or analysis of the material for the release of asbestos;

1910.1001(m)(2)(ii)(D)

A description of the operation exempted and how the data support the exemption; and

1910.1001(m)(2)(ii)(E)

Other data relevant to the operations, materials, processing, or employee exposures covered by the exemption.

1910.1001(m)(2)(iii)

The employer shall maintain this record for the duration of the employer's reliance upon such objective data.

1910.1001(m)(3)

Medical surveillance.

1910.1001(m)(3)(i)

The employer shall establish and maintain an accurate record for each employee subject to medical surveillance by paragraph (l)(1)(i) of this section, in accordance with 29 CFR 1910.1020.

1910.1001(m)(3)(ii)

The record shall include at least the following information:

1910.1001(m)(3)(ii)(A)

The name and social security number of the employee;

1910.1001(m)(3)(ii)(B)

Physician's written opinions;

1910.1001(m)(3)(ii)(C)

Any employee medical complaints related to exposure to asbestos; and

1910.1001(m)(3)(ii)(D)

A copy of the information provided to the physician as required by paragraph (l)(6) of this section.

1910.1001(m)(3)(iii)

The employer shall ensure that this record is maintained for the duration of employment plus thirty (30) years, in accordance with 29 CFR 1910.1020.

1910.1001(m)(4)

Training. The employer shall maintain all employee training records for one (1) year beyond the last date of employment of that employee.

1910.1001(m)(5)

Availability.

1910.1001(m)(5)(i)

The employer, upon written request, shall make all records required to be maintained by this section available to the Assistant Secretary and the Director for examination and copying.

1910.1001(m)(5)(ii)

The employer, upon request shall make any exposure records required by paragraph (m)(1) of this section available for examination and copying to affected employees, former employees, designated representatives and the Assistant Secretary, in accordance with 29 CFR 1910.1020(a) through (e) and (g) through (i).

1910.1001(m)(5)(iii)

The employer, upon request, shall make employee medical records required by paragraph (m)(3) of this section available for examination and copying to the subject employee, to anyone having the specific written consent of the subject employee, and the Assistant Secretary, in accordance with 29 CFR 1910.1020.

1910.1001(m)(6)

The employer shall comply with the requirements concerning transfer of records set forth in 29 CFR 1910.1020(h).

1910.1001(n)

Observation of monitoring --

1910.1001(n)(1)

Employee observation. The employer shall provide affected employees or their designated representatives an opportunity to observe any monitoring of employee exposure to asbestos conducted in accordance with paragraph (d) of this section.

1910.1001(n)(2)

Observation procedures. When observation of the monitoring of employee exposure to asbestos requires entry into an area where the use of protective clothing or equipment is required, the observer shall be provided with and be required to use such clothing and equipment and shall comply with all other applicable safety and health procedures.

1910.1001(o)

Appendices.

1910.1001(o)(1)

Appendices A, C, D, E, and F to this section are incorporated as part of this section and the contents of these Appendices are mandatory.

1910.1001(o)(2)

Appendices B, G, H, I, and J to this section are informational and are not intended to create any additional obligations not otherwise imposed or to detract from any existing obligations.

[55 FR 50687, Dec. 10, 1990; 56 FR 43700, Sept. 4, 1991; 57 FR 24330, June 8, 1992; 59 FR 40964, Aug. 10, 1994; 60 FR 9624, Feb. 21, 1995; 60 FR 33343, June 28, 1995; 60 FR 33973, June 29, 1995; 61 FR 5507, Feb. 13, 1996; 61 FR 43454, August 23, 1996; 63 FR 1152, Jan. 8, 1998; 70 FR 1141, Jan. 5, 2005; 71 FR 16672 and 16673, April 3, 2006; 71 FR 50188, August 24, 2006; 73 FR 75584, Dec. 12, 2008; 76 FR 33608, June 8, 2011; 77 FR 17778, March 26, 2012]

➡ Next Standard (1910.1001 App A)

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