
N.C. Department of Labor OSH Division

- ***Asbestos Standards***
 - ***29 CFR 1926.1101***
 - ***29 CFR 1910.1001***



For Public Official's Use Only

Asbestos in Construction

29 CFR 1926.1101

- **Scope and application**
- **Definitions**
- **Permissible exposure limits**
- **Multi-employer worksites**
- **Regulated areas**
- **Exposure assessments and monitoring**
- **Methods of compliance**
- **Respiratory protection**
- **Protective clothing**
- **Hygiene facilities**
- **Communication**
- **Housekeeping**
- **Medical surveillance**
- **Recordkeeping**
- **Competent person**
- **Appendices**





Scope and Application

29 CFR 1926.1101(a)

- Covers asbestos exposure in all work as defined in 1910.12(b) **1926.10(a)**, regardless of the type of worksite or location
 - “Construction work” means work for construction, alteration, and/or repair, including painting and decorating.
 - » Definition’s Source: 29 CFR 1910.12(b) 1926.10(a), and/or OSHA Dictionary





Scope and Application

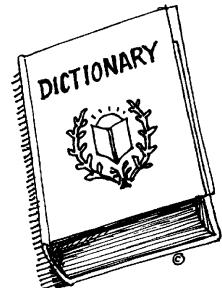
29 CFR 1926.1101(a)

- Includes but is not limited to:
 - Demolition or salvage of structures
 - Removal or encapsulation of materials
 - Construction, alteration, repair, maintenance, or renovation
 - Installation of products containing asbestos
 - Spill/emergency clean-up
 - Transportation, disposal, storage, containment and housekeeping activities on the site where construction activities are performed
- Does not apply to asbestos-containing asphalt roof coatings, cements and mastics

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- **Asbestos**

- Chrysotile, amosite, crocidolite, tremolite asbestos, anthophyllite asbestos, actinolite asbestos, and any of these minerals that have been chemically altered; includes PACM

- **ACM**

- “Asbestos-containing material,” any material containing >1% asbestos

- **PACM**

- “Presumed asbestos-containing material”



Additional Definitions

- **Friable**
 - Any materials that contain more than 1% asbestos and can be crumbled, pulverized, or reduced to powder by hand pressure when dry.
- **Nonfriable**
 - Any materials that contain more than 1% asbestos and that can not be crumbled, pulverized, or reduced to powder by hand pressure when dry.

Examples





Examples



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Examples



Examples





Examples



- **Critical Barrier**

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

- **Surfacing Material**

- Material that is sprayed-on, troweled-on, or otherwise applied to surfaces

- **Thermal System Insulation (TSI)**

- ACM applied to pipes, fittings, boilers, breeching, tanks, ducts or other structural components to prevent heat loss or gain



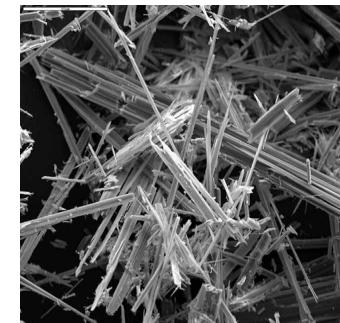
Definitions

29 CFR 1926.1101(b)

● Disturbance

— Activities that:

- » Disrupt the matrix of ACM or PACM,
- » Crumble or pulverize ACM or PACM, or
- » Generate visible debris from ACM or PACM
- » Includes cutting away small amounts of ACM and PACM, \leq amount contained in one standard-sized glove bag or waste bag in order to access a building component



- **Class I Asbestos Work**

- Activities involving the removal of **TSI** or **surfacing ACM** and **PACM**

- **Class II Asbestos Work**

- Activities involving the **removal of ACM which is not TSI or surfacing material** (also known as Miscellaneous ACM)
 - » **Examples:** removal of asbestos-containing wallboard, floor tile, and roofing shingles





Definitions

29 CFR 1926.1101(b)

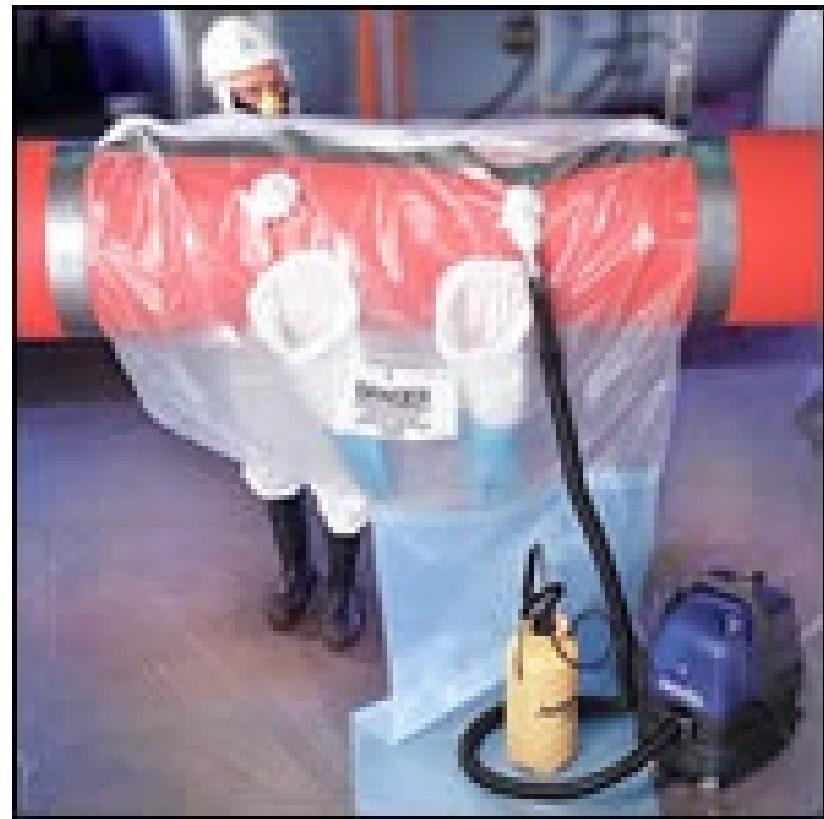
- **Class III Asbestos Work** (also known as **O&M**)
 - Repair and maintenance operations where ACM and/or PACM is likely to be **disturbed**
 - **Where is this work?**

Definitions

29 CFR 1926.1101(b)



vs.



● 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



Definitions

29 CFR 1926.1101(b)

- **Building/Facility Owner**
- **Intact**
 - **ACM that has not crumbled, been pulverized, or otherwise deteriorated**



Definitions

29 CFR 1926.1101(b)

- **Competent Person**

- Big definition



Asbestos in Construction

29 CFR 1926.1101(c)

- Scope and application
- Definitions
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Permissible Exposure Limits

29 CFR 1926.1101(c)

- **Time-Weighted Average Limit**
 - 0.1 fiber/cubic centimeter as an 8-hour TWA (0.1 f/cc)
- **Excursion Limit**
 - 1.0 fiber/cubic centimeter as averaged over 30 minutes

Asbestos in Construction

29 CFR 1926.1101(d)

- Scope and application
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Multi-Employer Worksites

29 CFR 1926.1101(d)

- Employer whose work requires a regulated area shall inform other employers of:
 - Nature of such work
 - Existence /of and requirements for regulated areas
 - Other employers are not exposed
 - Abatement shall be by contractor who creates or controls source of contamination
-

Multi-Employer Worksites

29 CFR 1926.1101(d)

- D1
- D4 ????? You want me to do what?
- D5



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Asbestos in Construction

29 CFR 1926.1101(e)

- Scope and application
- Definitions
- Permissible exposure limits
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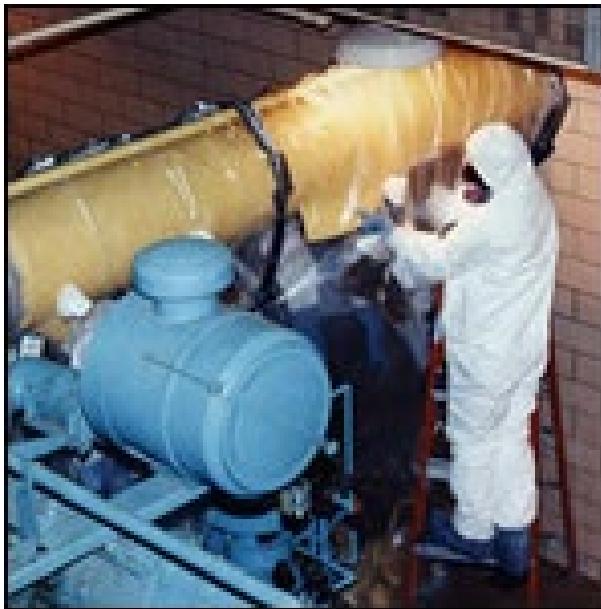




Regulated Areas

29 CFR 1926.1101(e)

- Class I, II, and III asbestos work
- All other operations where PEL is or may reasonably be exceeded





Regulated Areas

29 CFR 1926.1101(e)

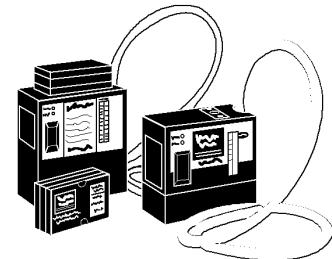
- Demarcated in any effective manner
 - Critical barriers or negative pressure enclosures may be used
 - Signs must be provided
- Limited access
- Respirators to be provided
- Supervised by competent person

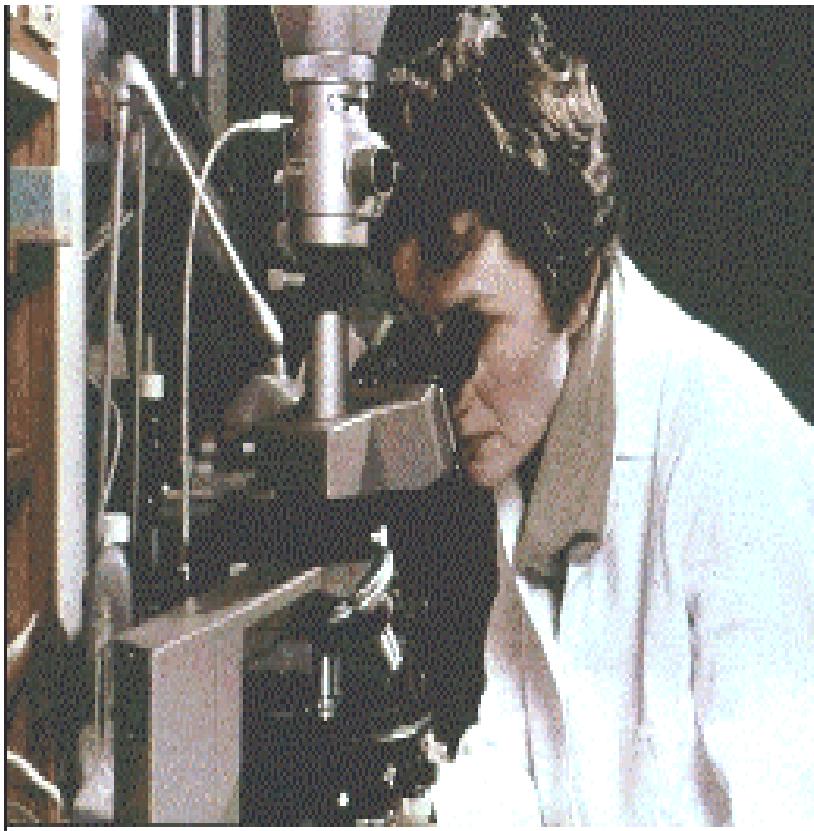


Asbestos in Construction

29 CFR 1926.1101(f)

- Scope and application
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REALLY???!!!



More like what I used!





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Exposure Assessments and Monitoring

29 CFR 1926.1101(f)(1)

- General Requirements
 - For each workplace/operation where monitoring is required under this section:

1. Must be a **representative** 8-hr TWA

2. 30-min EL samples (1.0f/cc) highest exposure tasks

- Competent person must conduct the exposure assessment



Exposure Assessments and Monitoring

29 CFR 1926.1101(f)(2)

- Initial Exposure Assessment
 - Must conduct assessment before or at the initiation of the operation to ascertain expected exposures
 - Triggered by exposure data or lack of a “negative exposure assessment”

Exposure Assessments and Monitoring

- Basis of Initial Monitoring
 - » Monitoring shall be conducted as per 1926.1101(f)(1)(iii)
- 1101(f)(2)(i)

Exposure Assessments and Monitoring

29 CFR 1926.1101(f)(2)

- For Class I Work the employer shall presume that employees are exposed in excess of the TWA and EL unless
 - Documented initial exposure monitoring demonstrates employees will not be exposed in excess of the PELs, or
 - The employer completes a negative exposure assessment as per 1926.1101(f)(2)(iii)

Negative Exposure Assessment

29 CFR 1926.1101(f)(2)

- “**Negative Exposure Assessment**” required to conclude that exposures are likely to be consistently less than PELs



Negative Exposure Assessment

29 CFR 1926.1101(f)

- **Objective data** that product, mineral, or activity cannot release airborne fibers in concentrations > PELs under the most severe conditions
- **Monitoring data** obtained w/in prior 12 months for work operations/conditions “closely resembling” current operations and were conducted by employees no more trained/experienced than current employees
- Results of **initial exposure monitoring** of the current job



Periodic Monitoring

29 CFR 1926.1101(f)

- Class I and II work in a regulated area: **daily representative monitoring** unless employer has NEA for the entire operation
- All other operations: **periodic monitoring** sufficient to document the exposure



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Termination of Monitoring

29 CFR 1926.1101(f)

- May discontinue monitoring if exposures < **PELs**
- **Additional monitoring** is required when change may produce exposures > **PELs**
 - Process
 - Control equipment
 - Personnel
 - Work practice

Termination of Monitoring

- Observation of monitoring by employees and their designated representatives
- Affected employees notified of the monitoring results, **in writing or by posting**

Asbestos in Construction

29 CFR 1926.1101(g)

- Scope and application
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Methods of Compliance

29 CFR 1926.1101(g)

- **All asbestos work:** Regardless of level of exposure
 - **Vacuum cleaners** with HEPA filters
 - **Wet methods or wetting agents** during handling, mixing, removal, cutting, application, and cleanup
 - **Prompt cleanup and disposal of wastes** and debris in leak-tight containers



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Methods of Compliance

29 CFR 1926.1101(g)

- **Engineering controls and work practices to achieve PELs**
 - **LEV with HEPA filter** dust collection system
 - **Enclosing/isolating** processes producing asbestos dust

Methods of Compliance

29 CFR 1926.1101(g)

- **PROHIBITIONS**

- **High-speed abrasive disc saws**
- **Compressed air**
- **Dry sweeping, shoveling, or other cleanup**
- **Employee rotation**



Methods of Compliance

29 CFR 1926.1101(g)

- **Class I Jobs**

- Critical barriers to prevent the migration of airborne asbestos from the regulated area
- Containment



Methods of Compliance

29 CFR 1926.1101(g)

- **Class I Jobs** - Specific control methods required:
 - **>25 linear or 10 square feet** of TSI or surfacing material
 - For all other Class I jobs where there is **no negative exposure assessment**
 - For Class I jobs where employees are **working in areas adjacent to the regulated area**



Methods of Compliance

29 CFR 1926.1101(g)

● Class I Jobs

- Isolation of HVAC systems (double layer of 6 mil plastic or equivalent)
- Impermeable dropcloths beneath removal activity

Methods of Compliance

- Cover all objects within regulated area with impermeable materials
- Where no NEA, or > PEL, ventilation of the regulated area to move air from the employee's breathing zone toward HEPA-filtered collection device



Methods of Compliance

29 CFR 1926.1101(g)

● Class I Jobs

- One or more of the following specific control methods shall be used:
 - » Negative Pressure Enclosure (NPE) Systems
 - » Glove Bag Systems
 - » Negative Pressure Glove Bag Systems
 - » Negative Pressure Glove Box Systems
 - » Water Spray Process System
 - » Small walk-in enclosure accommodating 1 - 2 persons, if the project can be completely contained in the enclosure





Methods of Compliance

29 CFR 1926.1101(g)

- **Class II Jobs**

- Supervision by **competent person**, and when:
 - » No **NEA**; or
 - » May be **> PELs**; or
 - » ACM not removed in **substantially intact state**
- **Critical barriers**
- **Impermeable drop-cloths**



Methods of Compliance

29 CFR 1926.1101(g)

- Removal of **vinyl and asphalt flooring materials** which contain ACM or for which in buildings constructed **≤ 1980**, the employer has not verified the absence of ACM
- Removal of **roofing material**
- Removal of **cementitious asbestos-containing siding** and **shingles or transite panels**
- Removal of **gaskets**
- Performing any **other Class II removal**
- Installation, removal, or repair of intact bituminous/resinous encapsulated roofing materials (mastics, flashings, etc.) and asphaltic pipeline wraps



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Methods of Compliance

29 CFR 1926.1101(g)

- Class I methods may also be used for Class II work, except that glove bags and glove boxes are allowed if they fully enclose the Class II material to be removed
 - Alternative controls may be used if they comply with the following:
 - Data representing exposure will not exceed the PELs
 - A competent person evaluates and certifies such controls
-

Methods of Compliance

29 CFR 1926.1101(g)

- **Class III Jobs**

- Wet methods
- LEV, to the extent feasible



Methods of Compliance

29 CFR 1926.1101(g)

- **Drilling, cutting, abrading, sanding, chipping, breaking, or sawing TSI or surfacing material**
 - Impermeable dropcloths and mini-enclosures **or**
 - Glove bag systems or another isolation method
- **No NEA or > PELs**
 - Impermeable dropcloths and plastic barriers **or**
 - Isolation using a control system specified for Class I jobs
- **Where**
 - TSI or surfacing material involved **or**
 - No NEA, or > PELs
 - Respiratory protection required according to paragraph (h)

Methods of Compliance

29 CFR 1926.1101(g)

● Class IV Jobs

- Trained per paragraph (k)(9)
- respirators are required / then they shall wear **respirators**
- Waste and debris in areas where friable TSI or surfacing material is accessible assumed to contain asbestos



Asbestos in Construction

29 CFR 1926.1101(h)

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Respiratory Protection

29 CFR 1926.1101(h)

- Must be provided and used for:
 - Class I jobs
 - Class II jobs **where ACM is not removed substantially intact**
 - Class II and III jobs **not performed using wet methods;**
exception: sloped roofs
 - Class II and III jobs where **no NEA**
 - Class III jobs where **TSI or surfacing material ACM or PACM is disturbed**
 - Class IV work in regulated areas **where employees performing other work are required to wear respirators**
 - **> PELs**
 - Emergencies





Respirator Selection

29 CFR 1926.1101(h)

- Employers shall provide respirators per **Table 1**
- NIOSH approved
- Tight-fitting, PAPR shall be provided in lieu of any negative-pressure respirator whenever
 - Employee chooses to use this type of respirator **and**
 - Respirator will provide adequate protection



Table 1

Respiratory Protection for Asbestos Fibers

Airborne concentration of asbestos or conditions of use	Required respirator
Not in excess of 1 f/cc (10 x PEL) or otherwise as required independent of exposure pursuant to paragraph (h)(2)(iv) of this section.	Half-mask air purifying respirator other than a disposable respirator, equipped with high-efficiency filters.
Not in excess of 5 f/cc (50 x PEL).	Full facepiece air-purifying respirator equipped with high efficiency filters.
Not in excess of 10 f/cc (100 x PEL).	Any powered air-purifying respirator equipped with high efficiency filters or any supplied air respirator operated in continuous flow mode.
Not in excess of 100 f/cc (1,000 x PEL) or unknown concentration.	Full facepiece supplied air respirator operated in pressure demand mode.
Greater than 100 f/cc (1,000 x PEL) or unknown concentration.	Full facepiece supplied air respirator operated in pressure demand mode, equipped with an auxiliary positive pressure self-contained breathing apparatus.

Respirator Selection

29 CFR 1926.1101(h)

- **Half-mask APR** (not disposable!) with HEPA filters
 - Class II and III jobs where no NEA
 - Class III jobs where TSI or SM being disturbed
- **Tight fitting PAPRs** with HEPA filters or **full-facepiece supplied air respirators** operated in pressure-demand mode, with HEPA egress cartridges or an auxiliary positive pressure SCBA, required for Class I work where:
 - NEA has not been produced, **and**
 - Exposure assessment levels are \leq 1 fiber/cc (8-hour TWA)



Respirator Selection

29 CFR 1926.1101(h)

- Full-facepiece SAR operated in PD mode equipped with an aux. positive pressure SCBA, required for Class I work where
 - NEA has not been produced, **and**
 - Exposure assessment levels are > 1f/cc for an 8-hour TWA





Respirator Selection

29 CFR 1926.1101(h)

- Comply with 1910.134(b)-(d) (not (d)(1)(iii)), (f), and (m)
- Permitted to change filters whenever an increase in breathing resistance is detected
- Permitted to leave work areas to wash their faces and respirator facepieces whenever necessary to prevent skin irritation



Respirator Selection

29 CFR 1926.1101(h)

- No employee will be assigned to tasks requiring respirators if an examining physician finds:
 - Employee cannot function normally wearing a respirator **or**
 - Will endanger him/herself or others
- Employees not approved for respirator use may transfer to another job if available



Respirator Fit Testing

29 CFR 1926.1101(h)

- Fit tests for negative pressure respirators
 - Initial fitting **and**
 - At least **annually** thereafter
- QLFT may be used **only** for:
 - Half-mask respirators **or**
 - Full-facepiece air-purifying respirators worn in lieu of half-facepiece APR
- QLFT and QNFT conducted per Appendix C



Asbestos in Construction

29 CFR 1926.1101(i)

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Protective Clothing

29 CFR 1926.1101(i)

- Coveralls, head coverings, gloves, and foot coverings are required for:
 - Employee exposure > PELs
 - Employees doing work for which required NEA not produced
 - Employees performing Class I work involving removal of > 25 linear or 10 sq. ft. of TSI or surfacing ACM or PACM
- Laundering of contaminated clothing must be done so as to prevent exposures > PELs
- Employers must inform launderers of the requirement to prevent release of airborne asbestos > PELs

Protective Clothing

29 CFR 1926.1101(i)

- Contaminated clothing must be transported in labeled, sealed impermeable bags or containers
- Competent person must examine worksuits at least 1x per workshift for rips or tears
- Rips/tears must be immediately mended, or the worksuit replaced



Asbestos in Construction

29 CFR 1926.1101(j)

- Scope and application
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Hygiene Facilities

29 CFR 1926.1101(j)

- **Class I Jobs > 25 Lin. Ft. or 10 Sq. Ft. of TSI or Surfacing ACM and PACM**
 - Decontamination area adjacent and connected to the regulated area
 - » Equipment room
 - » Shower area (adjacent to equipment room and clean room)
 - » Clean change room
 - Employees must **enter** the regulated area through the decon area
 - » **Clean room → Shower area → Equipment room**
 - Employees must **exit** the regulated area through the decon area
 - » **Equipment room → Shower area → Clean room**
 - For all Class I work: **Lunch areas** must be provided in areas in which airborne asbestos concentration is < PELs

- **Other Class I Jobs, Class II Jobs, and Class III Jobs**
 - Must establish an **equipment room** or area adjacent to the regulated area for the decontamination of employees and equipment
 - Employees must enter and exit the regulated area through the equipment room or area



● Class IV Jobs

- Hygiene facilities and practices must match those of employees performing higher classification work within the same regulated area, or
- Decontamination facilities specified for “*Other Class I Jobs, Class II Jobs, and Class III Jobs*” must be provided for employees cleaning up debris and material identified as TSI or surfacing ACM or PACM
- **For all jobs covered under this standard: smoking is not permitted where there is exposure to asbestos**



Asbestos in Construction

29 CFR 1926.1101(k)

- Scope and application
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Communication of Hazards

29 CFR 1926.1101(k)

● Duties of Building and Facility Owners

- Identify presence, location, and quantity of ACM/PACM, including:
 - » TSI and sprayed on/troweled-on surfacing materials in buildings or substrates constructed **≤ 1980**
 - » Resilient flooring material installed **≤ 1980**



Communication of Hazards

29 CFR 1926.1101(k)

● Duties of Building and Facility Owners

- **Notification of:**
 - » Presence, location, and quantity of ACM/PACM
- **To:**
 - » **Prospective employers** applying for/bidding for work
 - » **Employees of owner** who will work in or adjacent to areas containing such materials
 - » All **employers on multi-employer worksites** whose employees will be performing work within or adjacent to areas containing such materials
 - » **Tenants** who will occupy areas containing such materials

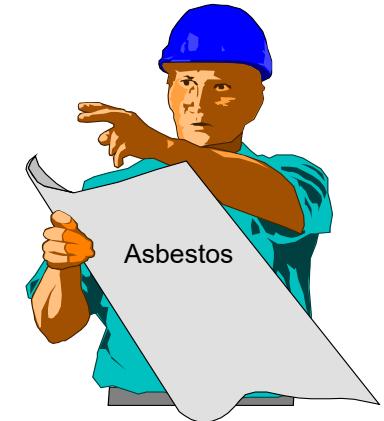


Communication of Hazards

29 CFR 1926.1101(k)

- **Duties of Building and Facility Owners**

- **Post signs** at entrance to mechanical rooms/areas which contain ACM and/or PACM
- **Identify** material present, its location, work practices to avoid disturbance
- **Post signs or labels** on previously installed ACM/PACM to inform employees of which materials are affected



Communication of Hazards

29 CFR 1926.1101(k)

● Duties of Employers

- Before work, **identify** presence, location, and quantity of ACM/PACM
- Before work, **inform** following persons of the location and quantity of ACM/PACM and the precautions to be taken to confine airborne asbestos
 - Owners of building/facility
 - Employees who will perform work and employers of employees who work and/or will be working in adjacent areas



Communication of Hazards

29 CFR 1926.1101(k)

- **Duties of Employers**
 - **Within 10 days of completion**, inform building/facility owner and employers of employees who will be working in the area
 - Current location and quantity of ACM/PACM remaining
 - Final monitoring results
- **Within 24 hrs of discovering ACM/PACM on a worksite, must convey presence, location, and quantity of such newly-discovered materials to:**
 - Owner
 - Other employers of employees working at worksite
- **Post signs or labels** on previously installed ACM/PACM to inform employees of which materials are affected

Communication of Hazards

29 CFR 1926.1101(k)

- **Criteria to Rebut the Designation of PACM**
 - Having an AHERA inspection
- **Performing tests that demonstrate that the material is not ACM**
 - Collection of bulk samples following requirements of 40 CFR 763.86
 - Performed by an accredited inspector or CIH
 - Analysis of samples by persons/laboratories participating in nationally-recognized testing programs or round robin testing program
 - For flooring materials, a determination by an IH based on recognized analytical techniques

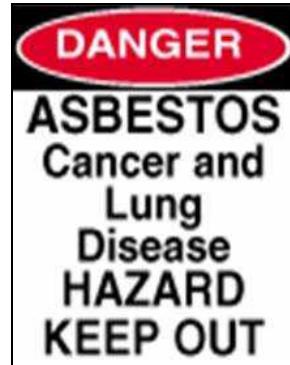
Communication of Hazards

29 CFR 1926.1101(k)

- **Signs**

- Warning signs must be used to demarcate regulated areas

- **Wording for signs:**



- **Additional wording where applicable:**

“RESPIRATORS AND PROTECTIVE CLOTHING ARE REQUIRED IN THIS AREA”

Communication of Hazards

29 CFR 1926.1101(k)

- **Labels required on:**

- Products containing asbestos
- Containers containing such products, including waste containers
- Installed asbestos products, where feasible, including previously installed material identified as ACM/PACM



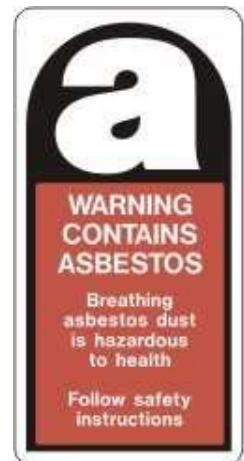
Communication of Hazards

Labels

29 CFR 1926.1101(k)

- **Exemptions from labeling include:**

- Products where asbestos fibers have been **modified by a bonding agent, coating, binder, or other material**, if no concentration of fibers PELs will be produced during any reasonably foreseeable use, handling, etc.
- Products where asbestos is **< 1.0% by weight**
- Installed materials where signs providing same information are posted

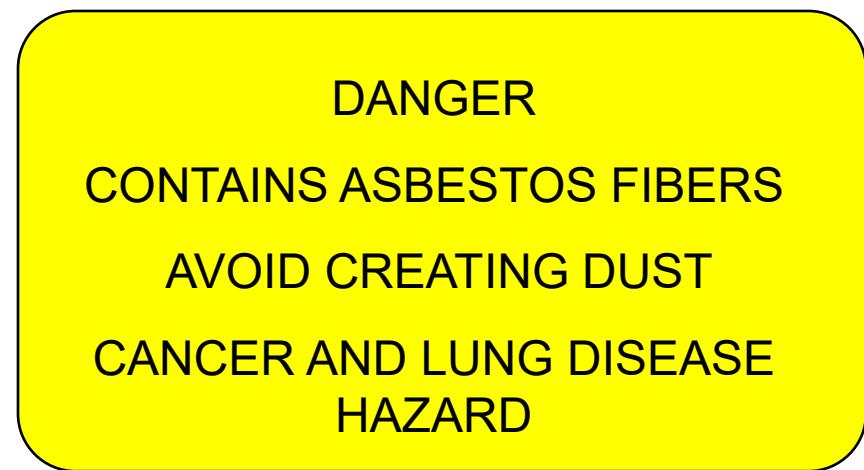


Communication of Hazards

Labels

29 CFR 1926.1101(k)

- Wording on labels
- Labels must also contain a warning statement against breathing asbestos fibers



Employee Information and Training

General Requirements

29 CFR 1926.1101(k)

- Provided prior to or at time of **initial assignment**
- **Annually**
- Manner comprehensible to employee



Employee Information and Training

Basic Information

29 CFR 1926.1101(k)

- How to **recognize asbestos**, including PACM
- **Health** effects
- Relationship between **smoking and asbestos** in producing lung cancer
- **Operations** that could result in exposure and protective measures and their use, as applicable
- For **Class III and IV** work, information equivalent to the contents of EPA 20T-2003, “Managing Asbestos In-Place”
- Purpose, proper use, fitting instructions, and limitations of **respirators**



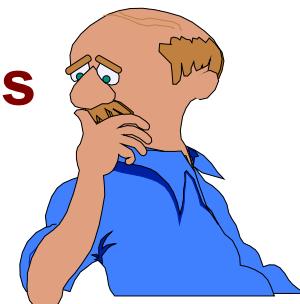
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Employee Information and Training

Basic Information

29 CFR 1926.1101(k)

- Appropriate **work practices** for the job
- **Medical surveillance** program requirements
- Content of **standard**, including appendices
- Names, addresses, and phone numbers of public health organizations providing information/materials/programs for **smoking cessation**
- Requirements concerning **signs and labels**



Employee Information and Training

Class I and Class II

29 CFR 1926.1101(k)

- **Class I Jobs**

- Equivalent to EPA MAP asbestos abatement worker training

- **Class II Work**

- Must include “hands-on” training and specific work practices and engineering controls for the category of materials as well as basic information required for all employees

- **Class II Work**

- With asbestos-containing roofing materials, flooring materials, siding materials, ceiling tiles, or transite panels must be at least **8** hours



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Employee Information and Training

Class III

29 CFR 1926.1101(k)

- Consistent with the EPA training course for local education agency maintenance and custodial workers who will **disturb** ACM or PACM (40 CFR 763.92(a)(2))
- Must include **“hands-on”** training and take at least **16** hours
- **Exception:** If a competent person determines the EPA curriculum is not adequate, training must include the basic information as well as specific applicable work practices and controls and “hands-on “ training



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Employee Information and Training

Class IV

29 CFR 1926.1101(k)

- Consistent with EPA requirements for training local education agency maintenance and custodial workers who **contact but do not disturb** ACM or PACM
- At least **2** hours
- **Include:**
 - Location of ACM/PACM, asbestos-containing flooring material, or flooring material where absence of asbestos has not been certified
 - Instruction in recognition of damage, deterioration, and delamination of asbestos-containing building materials

Employee Information and Training Access

29 CFR 1926.1101(k)

- Make available to employees without cost
 - Written materials relating to training program
 - Copy of the Standard
 - NIH Publication No. 89-1647 or equivalent self-help smoking cessation program material
- Provide to OSHA and NIOSH upon request all information and training materials



Asbestos in Construction

29 CFR 1926.1101(I)

- Scope and application
- Definitions
- Permissible exposure limits
- Multi-employer worksites
- Regulated areas
- Exposure assessments and monitoring
- Methods of compliance
- Respiratory protection
- Protective clothing
- Hygiene facilities
- Communication
- **Housekeeping**
- Medical surveillance
- Recordkeeping
- Competent person
- Appendices





Housekeeping

29 CFR 1926.1101(I)

- **Vacuuming**
 - HEPA-filtered equipment
 - Used and emptied so minimizes reentry of asbestos into workplace
- **Asbestos waste and contaminated articles consigned for disposal**
 - Collected and disposed of in sealed, labeled, impermeable bags or other containers
- **Dust and debris in areas containing accessible TSI or surfacing ACM/PACM or visibly deteriorated ACM**
 - No dry sweeping or vacuuming without HEPA filters
 - Prompt cleanup and disposal in leak-tight containers

Housekeeping

29 CFR 1926.1101(I)

- **Care of asbestos-containing flooring material**

- No sanding
- Strip finish only with low abrasion pads, speed < 300 rpm, and wet methods
- Burning or dry buffering only on flooring with sufficient finish so pad cannot contact flooring material



- Scope and application
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Medical Surveillance

Employees Covered

29 CFR 1926.1101(m)(1)

- Class I, II and III work for a **combined total of 30 or more days/year**
- Exposed **≥ PELs for total of 30 days/year**
 - Days of Class II or III work where the work is 1 hour or less and other work practices are required by the standard are complied with, do not count in the total Employees
- Otherwise required to wear negative pressure respirators by this standard must have this use approved by a physician





Medical Surveillance Examination

29 CFR 1926.1101(m)(1)

- By or under the supervision of a licensed physician
- No cost to the employee
- Reasonable time and place
- PFTs administered by:
 - Licensed physician **or**
 - Person who has completed a training course in spirometry sponsored by an appropriate academic or professional institution



Medical Surveillance

Examinations and Consultations

29 CFR 1926.1101(m)(1)

- **Prior to assignment** to an area where negative-pressure respirators are worn
- **Within 10 working days** of the 30th day of exposure, within one year, for employees
 - Engaged in Class I, II, and/or III work
- **Annually** thereafter
- More frequently when recommended by the physician
- **Exception:**
 - No examination required if examined within past 1-year period





Medical Surveillance

Content

29 CFR 1926.1101(m)(1)

- Medical and work history (special emphasis to pulmonary, cardiovascular, and gastrointestinal systems)
- Standardized questionnaires
 - Initial examination: Appendix D, Part 1
 - Annual examinations: Appendix D, Part 2
- Physical examination directed to pulmonary and gastrointestinal systems
 - Chest X-ray (physician's discretion)
 - Pulmonary
 - > FVC
 - > FEV(1)
 - Other examinations/tests as ordered by physician



Medical Surveillance

Information Provided to Physician

29 CFR 1926.1101(m)(1)

- Copy of the standard and Appendices D, E, and I
- Description of employee's duties relative to exposure
- Representative exposure level or anticipated exposure level
- Description of PPE and respirators used
- Information from previous medical examinations



Medical Surveillance

Physician's Written Opinion

29 CFR 1926.1101(m)(1)

- **Content**

- Results of medical examination
- Whether employee has any medical conditions that would increase risk of impairment from exposure to asbestos
- Recommended limitations on employee or on use of PPE (e.g., respirators)
- Statement that physician has informed employee of exam results and of any medical conditions that may result from asbestos exposure
- Statement that employee has been informed of increased risk of lung cancer due to smoking **and** asbestos exposure

Medical Surveillance

Physician's Written Opinion

29 CFR 1926.1101(m)(1)

- May not include findings or diagnoses unrelated to occupational exposure to asbestos
- Must be provided by employer to employee **within 30 days** of receipt



- Scope and application
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- Competent person
- Appendices



Recordkeeping Exposure Measurements

29 CFR 1926.1101(n)

- Record must include:
 - Date of measurement
 - Operation being monitored
 - Sampling and analytical methods used and evidence of their accuracy
 - Number, duration, and results of samples
 - Type of protective devices worn
 - Name, social security number, and exposure of employees whose exposures are represented
- Record must be maintained for **at least 30 years**
- Employer may have records maintained by industry trade and employee associations

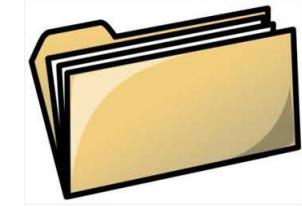


Recordkeeping

Objective Data

29 CFR 1926.1101(n)

- Record must include:
 - Product qualifying for exemption
 - Source of the objective data
 - Testing protocol, results of testing, and/or analysis of material for the release of asbestos
 - Description of operation exempted and how data support exemption
 - Other data relevant to operations, materials, processing, or employee exposures covered by exemption
- Record must be maintained for duration of reliance upon the objective data



Recordkeeping Medical Surveillance

29 CFR 1926.1101(n)

- **Record must include:**
 - Employee's name and SSN
 - Copy of employee's medical exam results
 - Physician's written opinions
 - Employee medical complaints related to exposure to asbestos
 - Copy of information provided to physician
- **Maintained for employment + 30 years**

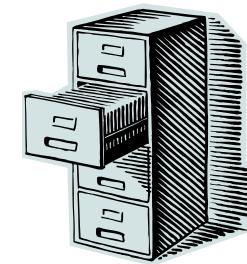


Recordkeeping

Other Records

29 CFR 1926.1101(n)

- **Training records**
 - Must be maintained for **1 year beyond last date** of employment by that employer
- **Data to rebut PACM**
 - Kept for duration used to rebut presumption
- **Records of required notifications**
 - Must be maintained by building owner for duration of ownership and must be transferred to successive owners



Recordkeeping

Records Availability and Transfer

29 CFR 1926.1101(n)

- Upon written request, all records are available to OSHA and NIOSH for examination and copying
- Upon request, exposure records are available to employees, former employees, designated representatives, and OSHA for examination and copying
- Upon request, employee medical records are available to the subject employee, anyone having the employee's written consent, and OSHA for examination and copying
- 29 CFR 1910.1020(h) governs transfer of records
- When an employer ceases business without a successor employer, the employer must notify NIOSH 90 days before disposal of records and transmit them to NIOSH if requested



For Public Official's Use Only

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Competent Person

General

29 CFR 1926.1101(o)

- “On all construction worksites covered by this standard, the employer shall designate a competent person, having the qualifications and authorities for ensuring worker safety and health required by Subpart C, General Safety and Health Provisions for Construction (29 CFR 1926.20 through 1926.32).”



Competent Person

Frequency of Inspections

29 CFR 1926.1101(o)

- Required inspections - frequent and regular inspections of job sites, materials, and equipment
- Additional inspections
 - **Class I jobs**
 - » At least **once** during each work shift
 - » At any time at employee request
 - **Class II, III, and IV jobs**
 - » At **intervals sufficient** to assess whether conditions have changed
 - » At any reasonable time at employee request



Competent Person Duties

29 CFR 1926.1101(o)

- **Class I or II jobs, perform or supervise**
 - Set up of regulated area, enclosure, or other containment
 - Ensuring integrity of enclosure or containment
 - Set up of procedures to control entry to and exit from the enclosure and/or area
 - Supervision of employee exposure monitoring
 - Ensuring that employees working within enclosure and/or using glove bags wear required protective clothing and respirators



Competent Person Duties

29 CFR 1926.1101(o)

- Ensure employees set up remove/engineering controls, and use work practices and PPE as required
- Ensure employees use hygiene facilities and decontamination procedures as required
- Ensure engineering controls are functioning properly and employees are using proper work practices
- Ensure notification requirements are met



Competent Person Training Class I and II

29 CFR 1926.1101(o)

- Comprehensive course for supervisors meeting criteria of EPA MAP (40 CFR 763, subpart E, Appendix C) for stringency, content, and length
- **Contents - all aspects of asbestos removal and handling**
 - Abatement, installation, removal, and handling
 - Contents of the standard
 - Identification of asbestos
 - Removal procedures
 - Other practices for reducing the hazard



Competent Person Training Class III and IV

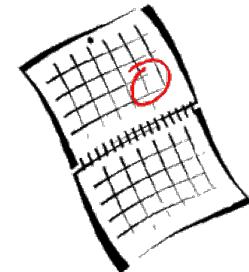
29 CFR 1926.1101(o)

- **Contents - aspects of asbestos handling appropriate to the work**
 - Procedures for setting up glove bags and mini-enclosures
 - Practices for reducing asbestos exposures
 - Use of wet methods
 - Contents of the standard
 - Identification of asbestos
- Equivalent in stringency, content, and length to EPA requirements for training local education agency maintenance and custodial workers (40 CFR 763.92(a)(2))



For Public Official's Use Only

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Appendices

29 CFR 1926.1101(p)

● **Mandatory**

- A** - OSHA Reference Method
- C** - Qualitative and Quantitative Fit Testing Procedures
- D** - Medical Questionnaires
- E** - Interpretation and Classification of Chest Roentgenograms

● **Non-Mandatory**

- B** - Sampling and Analysis
- F** - Work Practices and Engineering Controls for Class I Asbestos Operations
- H** - Substance Technical Information for Asbestos
- I** - Medical Surveillance Guidelines for Asbestos
- J** - Smoking Cessation Program Information for Asbestos
- K** - Polarized Light Microscopy of Asbestos



● **Reserved**

G

Asbestos in General Industry

29 CFR 1910.1001

- Scope and application
- Definitions
- Permissible exposure limits
- Exposure monitoring
- Regulated areas
- Methods of compliance
- Respiratory protection
- Protective work clothing and equipment
- Hygiene facilities and practices
- Communication of hazards
- Housekeeping
- Medical surveillance
- Recordkeeping
- Observations of monitoring
- Dates
- Appendices





Methods of Compliance

Engineering and Work Practice Controls

- Implemented to reduce < PEL
- Particular operations
 - Coupling cut-off in 1° asbestos cement pipe mfg.
 - Sanding in 1° and 2° asbestos cement sheet mfg.
 - Grinding in 1° and 2° friction product mfg.
 - Carding and spinning in dry textile products
 - Grinding and sanding in 1° plastics mfg.





Methods of Compliance

Particular Tools

- All hand-operated and power-operated tools which would produce or release fibers of asbestos equipped with LEV
- **Examples:**
 - Saws
 - Scorers
 - Abrasive wheels
 - Drills



Methods of Compliance

Engineering and Work Practice Controls

- Wet methods
- Particular products and operations
- Compressed air
- Flooring
- Written compliance plan
- Brake and clutch repair



Communication of Hazards

- Installed ACM (< 1980)
 - Examples:
 - » TSI, SM
 - » Asphalt/vinyl flooring
- Employers
- Building and facility owners
- Warning labels



Communication of Hazards

- Warning signs
- MSDS
- Employee information and training
 - Initial
 - Annual
- Criteria to rebut PACM



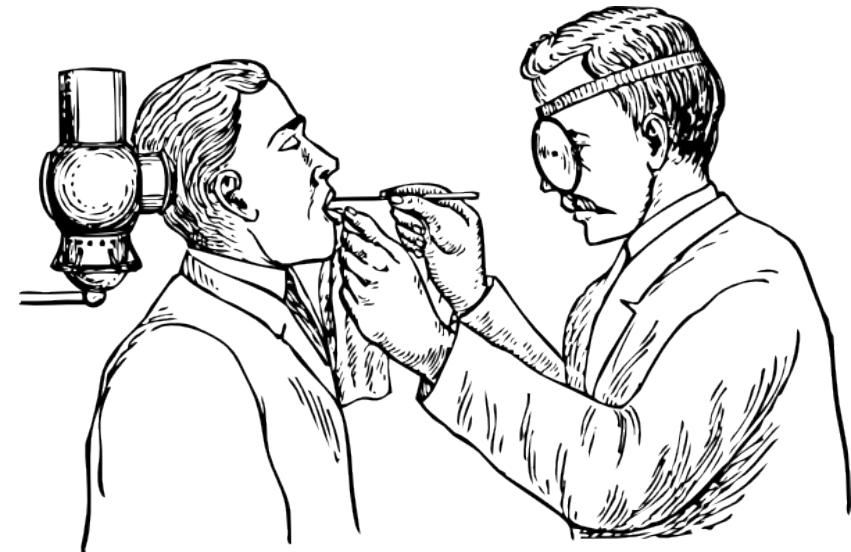
Housekeeping

- **Care and maintenance of asbestos flooring**
 - Sanding of ACM flooring prohibited
 - Stripping of finishes
 - » Low abrasion pads
 - » < 300 rpm
 - » Wet methods
 - Burnishing or dry buffering only on floors with sufficient finish



Medical Surveillance

- Pre-placement examination
- Periodic (annual) examination
- Termination of employment examination



Recordkeeping

- **Exposure measurements**
 - 30 yrs
- **Objective data**
 - Period of reliance
- **Medical surveillance**
 - Employment + 30 yrs
- **Training records**
 - 1 yr beyond last employment date



Appendices

- A, D, E and F – **Mandatory**
- B, G, H, I and J – **Informational**



Thank You For Attending!

Final Questions?

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