Asbestos in Construction

Training Outline

Meeting Objectives

After this safety training session, employees will:

- Know what asbestos is and how it is used
- Understand the health impacts of asbestos
- Recognize potential occupational exposure
- Be familiar with regulated work areas
- Know safe work practices to use around asbestos

Suggested Materials to Have on Hand

- Any policy, procedure, or form that is related to asbestos
- Sample respirators, protective clothing, and equipment used in handling asbestos
- Handout—The Hazards of Asbestos

OSHA Regulations—29 CFR 1926.1101

OSHA may also apply its “General Duty Clause” to any workers. The General Duty Clause, Section 5(a)(1) of the Occupational Safety and Health Act, requires an employer to furnish to its employees “employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to employees....”

The General Duty Clause also requires employees to comply with occupational safety and health standards and all rules, regulations, and orders issued pursuant to the OSH Act that are applicable to their own actions and conduct.
What Is Asbestos?

Asbestos is the name of a group of naturally occurring minerals that can be found throughout the world. They are long, thin, and extremely strong crystals that are usually referred to as “fibers.”

Although asbestos is a rather harmless looking substance, it can cause great harm to those who are careless when working around it. Because asbestos was widely used as a building material in years past, it becomes a significant hazard to many workers, particularly those involved in demolition or remodeling.

Typically, asbestos appears as a whitish, fibrous material that may release fibers ranging in texture from coarse to silky. Airborne fibers of asbestos that can cause health damage, however, may be too small to see with the naked eye.

Asbestos in Construction

Asbestos fibers have been used for centuries in many different construction products because of their resistance to heat and corrosive chemicals. Asbestos was used in many building materials before 1980.

• Asbestos spray coatings on steel work, concrete walls and ceilings, and asbestos-insulating boards were used for fire protection and insulation.
• Asbestos can also be found in insulation on pipework, ductwork, and boilers.
• Asbestos is contained in some cement products such as sheeting on walls and roofs, tiles, cold water tanks, gutters, pipes, and in decorative plaster finishes.
• Asbestos is still used today in many automotive brake pads, fireproof blankets and other textiles, and some gaskets and filters.

Occupational Exposure

According to the Department of Labor, an estimated 1.3 million employees in construction and general industry face significant asbestos exposure on the job. Heaviest exposures occur when removing asbestos during renovation or demolition.
Asbestos Terms to Be Familiar With

- **Asbestos aliases:** Other names for asbestos include chrysotile, amosite, crocidolite, tremolite asbestos, anthophyllite asbestos, and actinolite asbestos.

- **ACM:** “Asbestos-containing material,” any material containing more than 1% asbestos.

- **PACM:** “Presumed asbestos-containing material.”

- **Surfacing Material:** Material that is sprayed, 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.

- **Disturbance:** Activities that disrupt the matrix of ACM or PACM, crumble or pulverize ACM or PACM, or generate visible debris from ACM or PACM.

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

- **Competent Person:** Someone who is capable of identifying existing asbestos hazards in the workplace and selecting the appropriate control strategy for asbestos exposure and who has the authority to take prompt corrective action to eliminate them; and for Class I and II work (see below), a person specially trained in a training course that meets EPA requirements.

- **Friable Asbestos Materials:** Those that can be damaged and crumbled easily and can release asbestos fibers that create an inhalation hazard. Some examples of friable asbestos materials are pipe and duct insulation, insulating boards, and insulating textiles.

- **Nonfriable Materials:** Those that are not likely to release asbestos fibers because the fibers have been bound in a tight matrix. Only sanding or cutting this type of material could release asbestos fibers. Some examples of nonfriable materials are floor and ceiling tiles and caulking.

Of course, in remodeling and demolition, workers are likely to encounter both friable and nonfriable materials, and are likely to be engaging in activities that do release asbestos fibers, even from nonfriable materials.
Classes of Asbestos Work

Another set of terms that you might come across involves “classes” of asbestos work. Four classes are defined:

- **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. Examples: removal of asbestos-containing wallboard, floor tile, and roofing shingles.
- **Class III Asbestos Work**: Repair and maintenance operations where ACM and/or PACM is likely to be disturbed.
- **Class IV Asbestos Work**: Maintenance and custodial activities during which employees contact but do not disturb ACM or PACM and activities to clean up dust, waste, and debris resulting from Class I, II, and III activities.

Understanding Asbestos Hazards

Let’s make it clear. Exposure to asbestos can cause asbestosis (scarring of the lungs resulting in loss of lung function that often progresses to disability and to death); mesothelioma (cancer affecting the membranes lining the lungs and abdomen); lung cancer; and cancers of the esophagus, stomach, colon, and rectum.

Asbestosis results in a loss of lung function that progresses to disability and death. Asbestos fibers will lodge deep inside the lungs and cut the tissue, which creates scarring. The scarred tissue cannot transfer oxygen from the lungs and into the blood, which reduces the capacity of the lungs.

Mesothelioma affects the membranes lining the lungs and abdomen. Symptoms include shortness of breath and pain in the chest cavity and abdomen.

Many people have been led to believe that all forms of asbestos materials are a health hazard. This is not true. There is no health hazard if the asbestos material is left intact.

The potential for a health hazard occurs when the asbestos-containing material is damaged and the asbestos fibers become airborne and are inhaled. Depending on the material, asbestos materials are most often damaged by sawing, cutting, or sanding operations. With a quality maintenance program, most asbestos materials are better left in place than completely removed.
Factors That Make Asbestos Especially Hazardous

Two factors combine to make people less wary of asbestos than they should be:

• The airborne asbestos fibers that can cause health damage are often too small to see with the naked eye.

• These diseases do not develop immediately following exposure to asbestos, but appear only after a number of years.

There is no cure for asbestos-related illnesses. Continued exposure causes the asbestos fibers to build up over time, damaging more and more tissue.

Operating Around Asbestos

It is clear that asbestos health hazards are severe and difficult to detect. Fortunately, the rules governing work around asbestos are designed to protect you from the hazard.

First of all, OSHA has issued regulations covering asbestos exposure in construction. The OSHA standard sets a maximum exposure limit and includes provisions for engineering controls and respirators, protective clothing, exposure monitoring, hygiene facilities and practices, warning signs, labeling, recordkeeping, and medical exams.

Each workplace will assess the hazards and put in place appropriate safeguards. For example, depending on the class of the job, there may be requirements concerning supervision by a competent person, erection of barriers, use of impermeable drop cloths, respiratory protection, ventilation systems, regulated work areas, decontamination procedures, and special training. Here are some details on these areas of concern.
Regulated Work Areas

OSHA requires that regulated work areas be established for all areas that exceed certain levels of asbestos exposure.

- The regulated area must have warning signs posted at all approaches to the area.
- Only authorized and trained personnel wearing the required respiratory protection can enter the area.
- No eating, drinking, smoking, chewing tobacco or gum, or applying cosmetics is allowed while inside the regulated area to avoid accidental ingestion of asbestos fibers.
- Personnel must enter and exit the regulated area through a decontamination area according to a prescribed route, typically equipment room to shower area to clean room.
- Workers will be provided with clean change rooms that have showers. The showers will remove asbestos fibers so the fibers are not brought home, where they might contaminate a worker’s family.
- Workers will be provided with two separate lockers, one for uncontaminated street clothing and the other for the work clothing worn under the protective clothing.
- The employee lunchroom will have positive pressure with a filtered air supply in order to keep out asbestos fibers. No one can enter the lunch area with work clothing unless the surface of the work clothing has been properly decontaminated.
- Employees may not smoke in work areas where they are occupationally exposed to asbestos.

Respiratory Protection

Respirators are required for most situations in which asbestos is encountered. The employer must provide the appropriate respirator. It may be necessary to use a tight-fitting, powered air-purifying respirator or full-facepiece supplied air respirator operated in pressure-demand mode, with HEPA egress cartridges or an auxiliary positive pressure self-contained breathing apparatus. Each employer must provide worker training in how to fit and wear the required respiratory protection.
**Protective Clothing**

In addition to the respirator, protective clothing may be required. The employer must provide and require the use of protective clothing, such as coveralls or similar full-body clothing, head coverings, gloves, and foot covering, face shields, vented goggles, or other appropriate protective equipment.

Workers must not take contaminated work clothing home to wash. It must be properly bagged, labeled, and sent to a specialty laundering facility.

A competent person must examine protective suits at least once each shift for rips or tears. Rips or tears must be immediately mended, or the suit replaced.

**Asbestos Labels**

OSHA’s Hazard Communication Standard requires labeling of hazardous materials, and asbestos is no exception. Products containing asbestos, containers containing such products, including waste containers, installed asbestos products, including previously installed material identified as ACM/PACM, and raw materials, mixtures, scrap, waste, debris, and other products containing asbestos fibers are all labeled.

The wording for labels is:

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

Labels must also contain a warning statement against breathing asbestos fibers.
Working with Asbestos

Here are some tips for working safely with asbestos.

• Do not attempt to remove, repair, or clean up asbestos-containing materials unless you are trained and authorized to do so.

• Report any damage to potentially asbestos-containing materials to your supervisor.

• When cleaning up asbestos dust, take extra precautions to prevent asbestos fibers from becoming airborne, like using a special vacuum cleaner with a high-efficiency filter, a damp cloth, or other wet methods.

• Never use brooms, brushes, or compressed air to clean up asbestos dust. This will cause a large portion of the asbestos fibers to become airborne.

• When dealing with asbestos waste:
  —Place the asbestos waste inside a container that can be adequately sealed to prevent the release of asbestos fibers.
  —Place the first container inside a second container or bag so that the asbestos waste is double-bagged.
  —Label the bag to warn others that it contains asbestos fibers.

Asbestos and Smoking

A person who has been exposed to asbestos and also exposed to cigarette smoke has a greater risk of developing lung cancer than someone who does not smoke and has been exposed to similar amounts of asbestos. For this reason, the employer will provide training on this subject and information about how to quit smoking.

Exposure Monitoring

The employer will engage in an ongoing measurement of asbestos exposure. A competent person must make an “initial exposure assessment” before or at the initiation of all covered operations to determine expected exposures. Thereafter, exposure monitoring will continue, so that any changes in exposure are identified and corrected.
Medical Surveillance

In addition to monitoring the air, the employer may involve certain employees in a medical surveillance program that involves medical examinations and may include a pulmonary function test. This ensures that employees with high exposure are examined to be sure that there are no bad effects from the asbestos.

Recordkeeping

Each employer must keep an accurate record of all measurements taken to monitor employee exposure to asbestos. These include the date of measurement, operation involving exposure, sampling and analytical methods used, and evidence of their accuracy; number, duration, and results of samples taken; type of respiratory protective devices worn; name, Social Security number; and the results of all employee exposure measurements. These records are kept for 30 years. Workers have a right to access records related to their employment and potential exposure to asbestos.

Wrap-Up

If a person does not take proper precautions and follow prescribed procedures and practices, asbestos can be very dangerous. Remember, there will likely be no symptoms at the time of exposure to asbestos particles—it may only be years later that the effects become apparent. Following all the rules every day is the only way to stay safe.

Outside Resources

Handout
The Hazards of Asbestos
Remember these safety rules for working around asbestos:

- Always check for asbestos warning labels and signs and take the necessary precautions.
- If you’re not sure if something contains asbestos, ASK!
- Never cut, hammer, or otherwise damage asbestos-containing materials unless authorized to do so and with appropriate controls and respirator.
- Use ventilation systems, enclosures, wet processes, and other protections to prevent release of asbestos fibers.
- Wear respirators and other required PPE.
- Never wear your contaminated clothing outside the work area.
- Make sure you don’t contaminate clean areas or street clothing with asbestos.
- Treat any dust or waste that could contain asbestos carefully.
- Wet it when possible and use a HEPA vacuum to clean it up.
- Dispose of asbestos-contaminated clothing and waste in properly labeled, sealed containers.
- Don’t smoke if you work around asbestos—better yet, don’t smoke at all!
- Cooperate with air monitoring and medical surveillance programs. They’re designed to protect you.