Fact Sheet

OSU
ENVIRONMENTAL
HEALTH & SAFETY

Safety Instruction

Asbestos Awareness Training

Introduction

Asbestos awareness training should be taken on an annual basis by custodial and building maintenance staff; training is required per the OSHA code 29 CFR 1926.1001. This training module is designed to provide an overview of asbestos and its associated hazards. It is important for employees who work in building related maintenance to know where asbestos is likely to be found and how to avoid exposure.

Topics covered include:

- What is Asbestos?
- Where is Asbestos Found?
- When is Asbestos Dangerous?
- How to Avoid Asbestos Exposure

What is Asbestos?

The term Asbestos refers to a family of six naturally occurring minerals that are mined throughout the world:

- Chrysotile (white)
- Amosite (brown / off-white)
- Crocidolite (blue)
- Tremolite
- Actinolite
- Anthophyllite

Of these six, Chrysotile is the most common, but it is not unusual to encounter Amosite or Crocidolite as well.

All types of asbestos tend to break into very tiny fibers. These individual fibers are so small that many must be identified using a microscope. In fact, some individual fibers may be up to 700 times smaller than a human hair. Because asbestos fibers are so small, once released into the air, they may stay suspended for hours or even days.

Asbestos fibers are also virtually indestructible. They are resistant to chemicals and heat, and they are very stable in the environment. They do not evaporate into air or dissolve in water, and they are not broken down over time. These characteristics make Asbestos ideal for many building materials and it has been used in over 3,000 different products.

Usually asbestos is mixed with other materials during the manufacturing process. Floor tiles, for example, may contain only a small percentage of asbestos. Depending on what the product is, the amount of asbestos fibers in asbestos containing materials (ACM) may vary from 1%-100%. An ACM is any material that contains 1% or more asbestos fibers.

Where is Asbestos Found?

Asbestos may be found in many different products and locations. Examples of ACMs include:

- Wall and ceiling insulation
- Siding shingles on old residential buildings
- Putties, caulks, and cements (such as in chemical carrying cement pipes)
- Sprayed-on fire proofing and insulation in buildings
- Joint compound in older pipes and boilers insulation
- Wall and ceiling texture in older buildings and homes
- Floor tiles
- Ceiling tiles
- Roofing shingles
- Buildings and homes
- Brake linings and clutch pads
- Old fume hoods and lab benches

At OSU, asbestos is most likely to be found in:

- Insulation around pipes and boilers
- Sprayed-on insulation in locations such as various mechanical rooms, steel reinforcing beams, and some ceilings in older buildings

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- Ceiling tiles in buildings built prior to 1981
- Many 12" floor tiles in buildings built prior to 1981
- Most 9" floor tiles in buildings
- Interiors of fire doors
- Older mastic (glue) for floor tiles, baseboards.

When is Asbestos Dangerous?

The most common way for asbestos fibers to enter the body is through breathing. Asbestos containing material is not generally considered to be harmful unless it is releasing dust or fibers into the air where they can be inhaled or ingested. Many of the fibers will become trapped in the mucous membranes of the nose and throat where they can then be removed, but some may pass deep into the lungs, or, if swallowed, into the digestive tract. Once they are trapped in the body, the fibers can cause health problems.

Asbestos is most hazardous when it is **friable**. The term "friable" means that the asbestos is easily crumbled by hand, releasing fibers into the air. For example, sprayed on asbestos insulation would be considered friable, while an Asbestos floor tile would not.

Asbestos-containing ceiling tiles, floor tiles, undamaged laboratory cabinet tops, shingles, fire doors, siding shingles, etc. **will not release asbestos fibers** unless they are disturbed or damaged in some way. If an asbestos ceiling tile is drilled or broken, for example, it may release fibers into the air. If the tile is left alone and not disturbed, it will not.

Damage and deterioration will increase the friability of asbestos-containing materials. Water damage, continual vibration, aging, and physical impact such as drilling, grinding, buffing, cutting, sawing, or striking can break the materials down making fiber release more likely.

Health Effects

Because it is difficult to destroy asbestos fibers, the body cannot break them down or remove them once they are lodged in lung or body tissues, and remain in place where they may cause disease.

There are three primary diseases associated with asbestos exposure:

- Asbestosis
- Lung Cancer
- Mesothelioma

Asbestosis

Asbestosis is a serious, chronic, non-cancerous respiratory disease. Inhaled asbestos fibers aggravate lung tissues, which cause them to scar. Symptoms of asbestosis include shortness of breath and a dry crackling sound in the lungs while inhaling. In its advanced stages, the disease may cause cardiac failure.

There is no effective treatment for asbestosis; the disease is usually disabling or fatal. The risk of asbestosis is minimal for those who do not work with asbestos; the disease is rarely caused by neighborhood or family exposure. Those who renovate or demolish buildings that contain asbestos may be at significant risk, depending on the nature of the exposure and precautions taken.

Lung Cancer

Lung cancer causes the largest number of deaths related to asbestos exposure. The incidence of lung cancer in people who are directly involved in the mining, milling, manufacturing and use of asbestos and its products is much higher than in the general population. The most common symptoms of lung cancer are coughing and a change in breathing. Other symptoms include shortness of breath, persistent chest pains, hoarseness, and anemia.

People who have been exposed to asbestos and are also exposed to some other carcinogen -- such as cigarette smoke -- have a significantly greater risk of developing lung cancer than people who have only been exposed to asbestos. One study found that asbestos workers who smoke are about 90 times more likely to develop lung cancer than people who neither smoke nor have been exposed to asbestos.

Mesothelioma

Mesothelioma is a rare form of cancer that most often occurs in the thin membrane lining of the lungs, chest, abdomen, and (rarely) heart. About 200 cases are diagnosed each year in the United States. Virtually all cases of mesothelioma are linked with asbestos exposure. Approximately 2 percent of all miners and textile workers who work with asbestos, and 10 percent of all workers who were involved in the manufacture of asbestos-containing gas masks, contract mesothelioma.

People who work in asbestos mines, mills and factories, manufacture and install asbestos insulation, or work in other high-exposure industries such as shipyards, have an increased risk of mesothelioma. So do people who live with asbestos workers, near asbestos mining areas, near asbestos product factories or near shipyards where use of asbestos has produced large quantities of airborne asbestos fibers.

Other Cancers

Evidence suggests that cancers in the esophagus, larynx, oral cavity, stomach, colon and kidney may be caused by ingesting asbestos. For more information on asbestos-related cancers, contact your local chapter of the American Cancer Society.

Determining Factors

Three things seem to determine your likelihood of developing one of these asbestos related diseases:

1. **The amount and duration of exposure** – the more you are exposed to asbestos and the more fibers that enter your body, the more likely you are to develop asbestos related problems. While there is no "safe level" of asbestos exposure, people who are exposed more frequently over a long period of time are more at risk.
2. **Whether or not you smoke** – If you smoke and you have been exposed to asbestos, you are far more likely to develop lung cancer than someone who does not smoke and who has not been exposed to asbestos. If you work with asbestos or have been exposed to it, the first thing you should do to reduce your chances of developing cancer is to stop smoking.
3. **Age** – cases of mesothelioma have occurred in the children of asbestos workers whose only exposures were from the dust brought home on the clothing of family members who worked with asbestos. The younger people are when they inhale asbestos, the more likely they are to develop mesothelioma. This is why enormous efforts are being made to prevent school children from being exposed.

How to Avoid Asbestos Exposure

In order to avoid being exposed to asbestos, you must be aware of the locations it is likely to be found. **If you do not know whether something is asbestos or not, assume that it is** until it is verified otherwise. Remember that you cannot tell if floor or ceiling tiles contain asbestos just by looking at them.

OSU Facilities Services have licensed asbestos abatement staff who can take samples from materials in order to determine whether or not they contain asbestos. If you need to have materials analyzed or tested for asbestos, please contact Facilities Services. **Never try to take a sample yourself** unless you are licensed to do so.

If you have reason to suspect that something is asbestos, either because it is labeled as such, or because it something that is likely to contain asbestos (9" floor tile, for example) ------ Please, **DO NOT DISTURB IT**.

Never...

- Drill
- Hammer
- Cut
- Saw
- Break
- Damage
- Move
- Disturb

...any asbestos-containing materials or suspected materials.

Facilities Services has surveyed most locations in OSU buildings for the presence of asbestos. If you need to do work that might involve asbestos (lifting ceiling tiles, repairing insulated pipelines, etc.), check to find out what can be done safely.

For example, before moving any ceiling tiles to perform maintenance work, it will be necessary to ensure they do not contain asbestos. If they do contain asbestos, they will need to be removed by licensed asbestos abatement workers before the work may be performed.

Housekeeping

Housekeepers and custodians should never sand or dry buff asbestos containing floor tiles, and only wet stripping methods may be used during stripping operations. Low abrasion pads should be used at speeds below 300 rpm.

Broken and fallen ceiling tiles should be left in place until identified. Only after they have been identified as safe may they be removed. Asbestos tiles will be removed by asbestos abatement workers.

Broken and damaged asbestos floor tiles must also be removed by asbestos abatement workers. Report any suspect broken tiles to Facilities Services.

Dislodged Material

It is important to report any damaged asbestos-containing materials to Facilities Services immediately. If, for example, you discover some sprayed-on asbestos insulation has been knocked off of a ceiling or wall, this would need to be cleaned up immediately by asbestos abatement workers.

Do not attempt to clean up potential asbestos material yourself! Disturb the material as little as possible. Also report damaged pipe insulation, ceiling tile, 9" floor tile, fallen clumps of sprayed-on insulation, etc as soon as possible to Facilities Services. Take measures to prevent others from disturbing the spill until Facilities Services arrives.

By knowing where asbestos is likely to be located and then taking measures not to disturb it, you will protect yourself and others from exposure to this hazardous substance.

Asbestos Awareness training is available on the SciShield platform, oregonstate.scishield.com

Note that completion of asbestos awareness training is not adequate to repair or remove ACM or ACM debris, or conduct activity related to asbestos abatement activities involving direct, intentional contact with ACM. Extensive asbestos abatement training would be required prior to conducting those activities; Consult with EHS or Facilities Services for a list of external vendors who can provide this training or abatement service.