ASBESTOS AWARENESS TRAINING

Substance: Asbestos

CAS Registry Number: 1332-21-4

Synonyms: chrysotile, amosite (cummingtonite-grunerite), actinolite, actinolite Asbestos, anthrophylite, brown Asbestos, mysorite, avibest C, cassiar AK, calidria RG 144, calidria RGG600, serpentine, white Asbestos, blue Asbestos, crocidolite, tremolite, tremolite Asbestos.

Description: Asbestos is a term used to describe a group of 6 naturally occurring minerals with needle like structures that are greater than or equal to 5 microns in length and have a length to width ratio greater than or equal to 3. Asbestos looks fibrous in form, is often white and has no smell or immediate health effects. Asbestos fibers are resistant to most chemicals, are fire proof and very strong. These same qualities that make Asbestos useful for industry make it a severe health hazard. Asbestos is an airborne hazard. It can enter the body through inhalation. Asbestos fibers can penetrate deep into the lungs' air sacks where its needle-like structure, combined with its physical and chemical resistance, can cause scarring of the lung tissue and various forms of cancer. Asbestos has been used in many products and is currently in use today. It has been used in products such as brake lining, laboratory bench tops, pipe insulation, floor tiles, and mastic. Asbestos has a long history in civilization. People have used Asbestos since Roman times, but during the 19th Century, production increased exponentially. By the late 1960s, Asbestos was used in various building materials for most construction.

Asbestos is non-flammable and non-reactive. Acute exposure to Asbestos, which is a large exposure for a short period of time, can, in some very rare cases, lead to mesothelioma, but has no other effects. Chronic exposure, which is low exposure for prolonged periods, can result in a variety of diseases including Asbestosis, lung cancer, mesothelioma, pleural scarring and cancer of various organs in the digestive track.

In addition, smoking and Asbestos exposure can increase the risk of developing lung cancer by up to 90 times. Although most of the diseases associated with Asbestos exposure show a dose response relationship, mesothelioma can be contracted after even a very short exposure. There is a latency period for lung cancer and mesothelioma of up to 30 years. The latency period is the time between exposure and the onsite of the disease.

Employee exposure to Asbestos must be below the Permissible Exposure Limit set by the Occupational Safety and Health Administration (OSHA) of 0.1 fiber per cubic centimeter of air (0.1 f/cc) over an 8-hour time weighted average (TWA). Asbestos workers may also not exceed a short-term excursion limit of 1 f/cc over a 30-minute TWA.

Asbestos is regulated by many different agencies at all levels of government. The OSHA Construction Standard, 29 CFR 1926.1101, is the primary standard that is

applied to employees. OSHA, the New York State Department of Labor (NYS DOL), the New York City Department of Environmental Protection (NYC DEP), and the New York City Department of Buildings (NYC DOB) govern the work area at Yeshiva University with respect to Asbestos. The EPA regulates disposal and some work practices. The Environmental Protection Agency (EPA) also regulates Asbestos management in public schools.

Key provisions of the Asbestos regulations:

How much Asbestos can you safely be exposed?

- A limit on work place exposure of 0.1 fiber per cubic centimeter of air (0.1 f/cc) averaged over an eight hour day (8-hour TWA)
- An excursion limit of one fiber per cubic centimeter 1 f/cc) averaged over a sampling period of 30 minutes.

Required work practices for Asbestos removal:

Within the work area of an Asbestos project, employees must:

- Use engineering controls and work practices to reduce exposure, including negative filtered air pressure and wet methods. The negative filtered air machine filters the air leaving the work area free of released fibers. Wet methods keep fibers from entering the air.
- Monitor the use of personal protective equipment including respirators.
- Take air samples for employees and work areas.
- Place signs at all entrances to work areas.
- Label all Asbestos-containing material.
- Dispose of Asbestos waste properly.

Use of respirators:

Respirators shall be used to control exposure only in the following circumstances:

- While feasible engineering and work practice controls are being installed.
- During maintenance, repair, and other operations for which engineering controls are not feasible.
- In work situations where there is a potential for exposure at or above the Permissible Exposure Limit (PEL)
- During construction and remediation work with friable Asbestos. Friable Asbestos is Asbestos-containing material, which is easily disturbed by hand pressure.
- In emergencies.

A respirator is required whenever working with friable Asbestos. The level of respiratory protection is dependent upon the concentration of fibers in the air. If an air-purifying respirator (i.e. a respirator with a filter) is used, NIOSH approved P100 HEPA filters should be used. Before a respirator is assigned to an employee, a medical evaluation and fit test must be given to the worker.

Workplace Requirements for Exceeding Action Levels:

Action Level (8 hour 1TWA: 0.1 f/cc; 30 minute TWA:1.0f/cc) – If the eight-hour concentration of Asbestos is equal to or exceeds either action level, employers must establish and implement a written program to reduce employee exposure to or below the TWA and to or below the excursion limit.

Requirements for Negative Exposure Assessment:

Employers who perform a Negative Exposure Assessment for non-friable Asbestos, demonstrating that the work they will be doing is below the action level, need not comply with many parts of the various regulations. However, this demonstration must be based on previous jobs with the same material, objective manufacturer data, or an initial exposure assessment. A Negative Assessment is also used to determine what level of respirator protection is needed.

Requirements for Exposure Monitoring During Asbestos Removal:

Two types of exposure monitoring are conducted on a routine basis during Asbestos remediation jobs. The first type is called area sampling. Area sampling is air monitoring that is conducted in and around the work area. Area monitoring is conducted during all phases of the remediation and is subject to different limits depending on what phase the remediation is in. Air monitoring is an important control for Asbestos work to ensure that no one is unexpectedly exposed to Asbestos fibers in the surrounding area. A third party contractor unaffiliated with the owner or Asbestos removal contractor is required to take these samples. The second type of monitoring is called OSHA personal monitoring. A representative number of the workers performing each task during remediation is monitored using a personal air monitor attached to them so that their breathing air is monitored.

Requirements for Medical Surveillance:

The OSHA Construction Standard requires a comprehensive medical surveillance program to be conducted by or under the supervision of a licensed physician. Employers must provide medical surveillance annually to:

- Employees who are exposed to Asbestos levels greater than the PEL for over 30 days per year,
- Employees who perform class I, II, or III work for 30 days or more per year,
- And to employees who are required to wear a respirator.

Medical surveillance consists of a questionnaire, a chest X-ray and pulmonary function tests.

Requirements for Regulated Areas:

Employers must post signs wherever there is friable Asbestos. Damaged friable Asbestos must be cordoned off and repaired, encapsulated or removed immediately.

Asbestos remediation jobs must be closed off to the general public and only authorized personnel allowed. Never enter an area that has been posted "Asbestos Hazard", unless you are a trained and certified Asbestos worker. "Asbestos Hazard" areas are required to have signs at all entry points.

Requirements to Communicate Asbestos Hazards to Employees:

Employees who come in contact with Asbestos, or who handle Asbestos-containing materials, must receive initial training and then annual training. This includes housekeeping staff and maintenance staff who may come into contact with Asbestos during their routine duties.

Activities such as cleaning and building maintenance may bring an employee in contact with Asbestos-containing material. These employees must be alert to their work area, know how to recognize possible Asbestos-containing material, and know what to do (Call Environmental Health and Safety at X4150 for AECOM and X081 for YU). In addition, areas where there is a potential for exposure to Asbestos must be marked through signs and labels. Known Asbestos-containing materials must be labeled and areas where there is Asbestos work being performed must be clearly marked with signs at all entrances, and at the entrance to the building. The signs are designed to keep untrained and uncertified workers out of the area.

Requirements for Record Keeping:

All medical records associated with Asbestos must be retained for the duration of the employees' work with the employer plus 30 years. Fit test records must be kept until the next fit test (one year).

Where do the Regulations Apply?

The regulations regarding Asbestos apply to workplaces where Asbestos is handled, removed, or repaired. Asbestos regulations also apply to Asbestos disposal. Working in an area that contains Asbestos material in good condition (i.e. not in disrepair), is not a health hazard. If Asbestos-containing material is observed with breaches, or in bad conditions such as visible powder released, the area should be evacuated. Only Asbestos licensed professionals should remove any Asbestos hazards before re-occupancy.

To protect Asbestos workers against exposure, follow these safety precautions:

- Be aware of your surroundings.
- Report suspicious situations such as white powder on the floor near a pipe to Environmental Health and Safety.
- Have only trained and certified Asbestos workers handle, manipulate, encapsulate, enclose, remove or repair Asbestos-containing materials.
- Always wear proper personal protective equipment while in the work area. This protective equipment includes a tyvek suit, gloves, and a proper respirator designed to keep Asbestos fibers out of the body.

- Always follow proper decontamination techniques when leaving an Asbestos-contaminated area. This includes removal of protective equipment in equipment room, shower, and then removal of respirator.
- Do not smoke. Smoking and Asbestos exposure have a synergistic (additive) effect. If you smoke and are exposed to Asbestos fibers, you can have a 90 times greater chance of developing lung cancer. The employer is required to have a smoking cessation program available to all Asbestos workers.
- Do not eat in the Asbestos work area. Likewise, smoking is prohibited and removal or application of contact lenses or make-up is prohibited.
- Avoid anything that may result in fiber entering the body.

Emergency Procedures:

Medical emergencies – call 911 and X4111 at AECOM and X221 at YU
To report suspicious Asbestos conditions call EH&S X4150 at AECOM and X081 at YU.

- **Inhalation Emergencies** – Remove person to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen.
- **Skin Contact** – There is no significant health risk from Asbestos due to skin contact. Asbestos cannot be absorbed through the skin, but prolonged contact will produce scarring called an Asbestos wart. Also, Asbestos fibers may be ingested if in contact with the skin.
- **Ingestion Effects** – Ingestion is a secondary route of entry into the body for Asbestos. This can occur when Asbestos fibers are coughed up in mucous slurry and swallowed or when Asbestos fibers are not washed off hands before eating. In the event of ingestion, wash out mouth with copious amounts of water.
- **Material Safety Data Sheets (MSDS)** – Read the attached Material Safety Data Sheet for additional information on Asbestos and its hazards.