Asbestos Awareness Presentation

Asbestos Awareness

Asbestos is a serious health hazard commonly found in our environment today. This module is designed to provide an overview of asbestos and it's associated hazards.

It is important for employees who may work in buildings that contain asbestos to know where it is likely to be found and how to avoid exposure.

Proposed Agenda

- Introductions
- Asbestos Characteristics & History
- Asbestos Health Effects
- Identifying Asbestos-Containing Material and where to find them
- Applicable Regulations
- Questions & Answers
- When is it dangerous

What is Asbestos?

And why should I care?

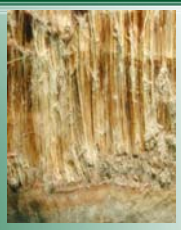
What is Asbestos?

A naturally occurring mineral

Principally mined in Canada and S. Africa

Added to building materials because of its good insulating, strength, sound-proofing, fireproofing and corrosion-resistance properties

What is Asbestos?



What is Asbestos?

- Two major classes– serpentine and amphibole
- Chrysotile (white asbestos) – the only member of the serpentine class
- Amosite (brown asbestos), crocidolite (blue asbestos), anthophylite, tremolite, and actinolite -- amphiboles

What is Asbestos?

All types of asbestos tend to break into very tiny fibers.

These individual fibers are so small they must be identified using a microscope.

Some fibers may be up to 700 times smaller than a human hair.

Can remain suspended in the air for up to three days.

What is Asbestos?

A microscopic view

What is Asbestos?

Usually asbestos is mixed with other materials to actually form the products. Floor tiles, for example, may contain only a small percentage of asbestos.

Depending on what the product is, the amount of asbestos in asbestos-containing materials (ACM) may vary from 1%-100%.

The History of Asbestos

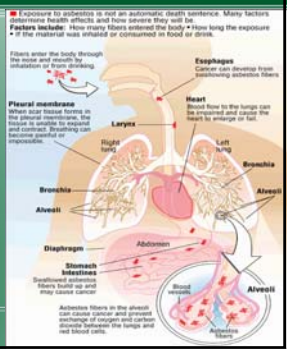
- Ancient Greeks named it - "indestructible" and made into cloth
- 1st century AD – Romans were aware that slaves who weaved asbestos into cloth often developed respiratory disease
- 1879 - first commercial production of asbestos-containing insulating material.
- 1899 – first documented case of lung scarring due to asbestos

History of Asbestos

- 1930's – More than 150 articles on asbestos related disease published in medical literature
- 1960-70's – Use of asbestos peaked
- 1989 – EPA banned most ACM
- 1991 – Ban overturned by courts
- 2005 – criminal charges against W. R. Grace for Libby, MT asbestos deaths

Asbestos Health Effects

- Inhalation is most common and damaging pathway into the body
- Asbestos-related diseases show dose-response relationship
- Diseases are treatable but not curable



Asbestos Health Effects

ASBESTOSIS – fibrotic scarring of the lungs, not a cancer

- Symptoms – shortness of breath, rales, clubbing of fingers, chest pain, loss of appetite
- Prognosis – can be fatal, increases susceptibility to other heart/lung problems
- Long latency – 15 to 30 years
- Common to workers with high exposure over many years

Asbestos Health Effects

- Microscopic view of lung tissue with asbestos fibers embedded

Asbestos Health Effects – clubbing of fingers

Asbestos Health Effects

Lung Cancer – many causes

- Symptoms: persistent cough, chest pain, wheezing, labored breathing
- Prognosis: slow, painful death
- Smoking increases risk 50 to 90-fold
- Long Latency: 20 to 30 years
- High levels & long term increase risk but there's no "safe level" of exposure

Asbestos Health Effects

Mesothelioma – rare cancer of chest lining

- Symptoms: shortness of breath, chest pain, fluid in chest cavity
- Prognosis: generally quick (1 year after diagnosis), painful death
- Long latency: 30 years or more
- Dose-response not as clear, but asbestos is the only cause

Asbestos Containing Building Material (ACBM)

Only ACBM if greater than 1% asbestos

There are three main types:

- **Thermal System Insulation (TSI)**
- **Surfacing Material**
- **Miscellaneous**

And two classes:

- **Friable**
- **Non-friable**

Asbestos Containing Building Materials (ACBM)

Thermal System Insulation (TSI)

- **Pipes**
- **Boilers**
- **Ducts**
- **Includes elbow and joint mudding**
- **Can be subject to significant damage unless protected**

Where are ACBM's found?

Asbestos may be found in many different products and many different places. Examples of products that might contain asbestos are:

- Sprayed-on fire proofing and insulation in buildings
- Insulation for pipes and boilers
- Wall and ceiling insulation
- Ceiling tiles
- Floor tiles
- Putties, caulks, and cements (such as in chemical carrying cement pipes)

Where are ACBM's found?

Asbestos may be found in many different products and many different places. Examples of products that might contain asbestos are:

- Roofing shingles
- Siding shingles on old residential buildings
- Wall and ceiling texture in older buildings and homes
- Joint compound in older buildings and homes
- Brake linings and clutch pads

Where are ACBM's found?

In Schools, Asbestos is most likely to be found in:

- Sprayed-on insulation in locations such as various mechanical rooms, steel reinforcing beams, and some ceilings in older buildings
- Ceiling tiles in buildings built prior to 1981

Where are ACBM's found?

In Schools, Asbestos is most likely to be found in:

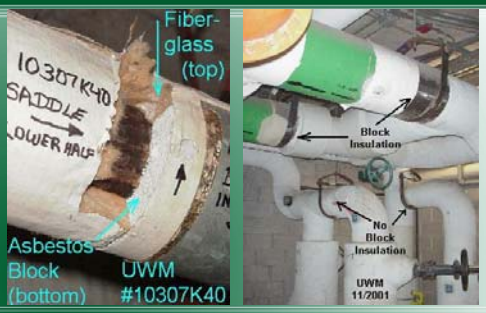
- Most 9" floor tiles in buildings built prior to 1981
- A few 12" floor tiles in buildings built prior to 1981
- Insulation around pipes and boilers, and Interiors of fire doors

ACBM – TSI – severely damaged

ACBM – TSI – "Aircell" cross-section

ACBM – TSI – damaged pipe insulation

ACBM – TSI - block



ACBM – TSI – asbestos rope

Asbestos Containing Building Material (ACBM)

Surfacing Material

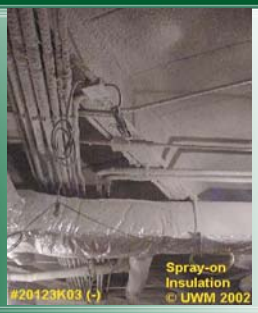
- Condensation control
- Acoustical insulation
- Decoration
- Fireproofing
- Sprayed-on or troweled-on

ACBM – Surfacing

Popcorn ceiling

Structural steel & deck coating

ACBM – Surfacing



Asbestos Containing Building Materials (ACBM)

Miscellaneous

- Floor and ceiling tiles
- Gaskets, mastic, plaster, wallboard
- Asbestos/cement products
- Fabrics such as stage curtains are not ACBM
- Roofing felt, mastic & siding are not covered under AHERA

ACBM - Miscellaneous


ACBM - Miscellaneous


ACBM - Miscellaneous


ACBM Classes

Friable

A material that, when dry, may be crumbled, pulverized or reduced to powder by hand pressure, and includes previously non-friable material after it has been damaged to the extent that it has now become friable.

ACBM Classes

Non-Friable

- Category I – packings, gaskets, resilient floor covering and asphalt roofing products
- Category II – everything else, eg: asbestos/cement products in good condition

Recognizing Damage to ACBM

- Look for holes, rips, water stains, abrasion
- Contact the AHERA Designated Person
- Remember the asbestos fibers are invisible without microscope
- Need to know where the asbestos is and always respond to any visible damage as though there has been a release

Asbestos Regulations

- Asbestos Hazard Emergency Response Act (AHERA)
  - Congress passed October 1986
  - EPA rules effective Dec 14, 1987
  - Applies to all public and private schools or *Local Education Agencies* (LEA)
  - Requires inspection, management plan, training, notifications, labels, and a Designated Person

Where is Asbestos?

Buildings that have "identified" asbestos-containing materials in them will have notices posted near the main entrances, frequently near the fire alarm panel.

Where is Asbestos?

Pipe and boiler insulation that contains asbestos should be labeled with identifying stickers and placards.

Where is Asbestos?

Asbestos-containing ceiling tiles will not be labeled or marked. These tiles cannot be differentiated from other tile by visual means - they must be analyzed by a laboratory test.

Asbestos Regulations

- **Asbestos School Hazard Abatement Reauthorization Act (ASHARA)**
  - **Extends some of the AHERA requirements to public and commercial buildings**
    - **Doesn't require inspections**
    - **Does require use of accredited personnel**
  - **Increased training requirements for workers and supervisors**

Asbestos Regulations

- National Emission Standards for Hazardous Air Pollutants (NESHAP)
  - Requires inspection and abatement prior to renovation or demolition
  - Established definitions for Category I & II non-friable ACM
  - Established the "no visible emissions" standard
  - Requires notification to the State when over certain threshold quantities

Asbestos Regulations

- OSHA Asbestos Regulations
  - General industry standards cover building occupants
  - Construction standards apply when working on ACBM e.g.: abatement, renovation or repair
  - Mandates air sampling, medical monitoring, protective equipment including respirators, safe work practices, etc. in certain circumstances

Asbestos Regulations

- EPA Worker Protection Rule
  - Extends the OSHA standards to state and local employees who might not otherwise be covered

When is Asbestos Dangerous?

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. Sprayed on asbestos insulation is highly friable. Asbestos floor tile is not.

When is Asbestos Dangerous?

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 it is left alone and not disturbed, it will not.

When is Asbestos Dangerous?

Asbestos pipe and boiler insulation does not present a hazard unless the protective canvas covering is cut or damaged in such a way that the asbestos underneath is actually exposed to the air.

When is Asbestos Dangerous?

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.

ACM's transport and burial

Handling of asbestos containing materials is regulated by several agencies.

These agencies may include but are not limited to; sanitary landfill, city, county, state, region, national and international and private or public.

The controlling regulatory agency changes several times from the beginning to the end of an asbestos removal, depending on the location and condition of the situation.

Whether it is transported or buried, regulated or unregulated, a fully licensed asbestos professional will know which rules and agencies apply to your project.

ACM's and MOLD

The handling of asbestos-containing materials by unlicensed persons while removing mold, is often a violation of the asbestos regulations. It is unbelievable that this is still a common practice for some remediation companies today.

If you are instructed, as an employee, to proceed with a renovation or demolition due to mold damage and the responsible professional does not require asbestos testing be done first, it is your personal responsibility to inform them of the liabilities, hopefully, before OSHA is informed.

ACM's and MOLD

Customers, friends, neighbors, patients, tenants, employees and contractors alike, are all put at risk by poor professional practices. Mold and asbestos are not in the same league.

A mold inspector or a home inspector are generally not licensed and accredited in this highly regulated specialty field.

QUESTIONS:

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Consultation

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Containments

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Disposal

Disposal

Disposal

Disposal

Engineering controls

Engineering controls

Sampling

Attic Before Removal

Attic After Removal

Sample Location Drawing