

Asbestos NESHAP

Uses, Health Effects and Regulations Governing Commercial Buildings and Structures



IowaDNR

The Iowa Department of Natural Resources



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Background Information on Asbestos

- Become familiar with history of asbestos use
- Recognize the characteristics and various types of asbestos
- Become acquainted with various types of asbestos containing building materials (ACBM) found in building applications

History of Asbestos

- Asbestos is a word derived from the Greek word “inextinguishable” and was used by the ancient Greeks as a spun or woven cloth used for lamp wicks.
- The Romans used asbestos table clothes because they could put them into a fire to clean them after dinner.

History of Asbestos

- The ancient uses of asbestos were limited and the material itself was scarce.
- This changed in the late 1800s when major asbestos deposits were discovered in Canada and new usages were developed.
- Because of its resistance to heat and flame, asbestos was widely used in thermal system insulation applications.

Characteristics of Asbestos

- Asbestos is a naturally occurring mineral found mainly in Canada, China and South Africa.
- Asbestos is divided into two groups:
 - Serpentine
 - Amphibole

Asbestos Types and Usage

- Chrysotile is the only type of asbestos in the Serpentine group and is the commonly found in the United States
- Chrysotile accounts for up to 95% of all asbestos in U.S. buildings
- Amosite belongs in the Amphibole group and is the second most common type of asbestos and is also more dangerous than chrysotile.

Unique Properties of Asbestos

- Asbestos has unique properties which make it valuable for many construction applications:
 - High Heat Resistance
 - High Tensile Strength
 - Very Low Heat Conductivity
 - Very Low Electrical Conductivity
 - High Resistance to Chemicals

Asbestos is used in thousands of products in the US

- Asbestos is found in such materials as cement, asphalt, blackjacket, tar, vinyl, siding, roofing, roofing-shingles, wallboard, corrugated-roofing, roofing-felts, pipe-insulation, joint-compounds, adhesives, floor-tile and much more.

Type of ACBM is important

- There are many different types of “asbestos containing building material” (ACBM).
- Solid durable materials such as cement, mortar, asphalt, “Transite,” and vinyl often will contain asbestos but are physically strong materials that do not release asbestos fibers unless they are mechanically disturbed by such processes as sanding, abrading, grinding, drilling and (in the case of Transite and other cementitious asbestos products) weathering.
- Some materials, such as asphalt and vinyl are also susceptible to releasing fibers in a fire.

Asbestos and Thermal System Insulation

- Other types of usages such as fireproofing and insulation will use asbestos in much softer material and/or more brittle material.
- Material that can be crushed by hand is called “Friable” ACBM.
- Examples of materials containing friable asbestos are: sprayed-on sound proofing, sprayed-on fire proofing of building frames, plaster, pipe and boiler insulation

In fact, most asbestos used in the US is found in Thermal System Insulation applications

- Examples are:
 - Pipe insulation
 - Boiler insulation
 - Sprayed on insulation/sound proofing
 - Duct insulation
 - Ceiling Tiles
 - Electrical insulation for cable
 - Incandescent recessed fixtures

Health Effects

Asbestos is a Class A Carcinogen
This Means it is known to cause Cancer

- Asbestos Exposure can cause the following diseases:
 - Lung Cancer
 - Mesothelioma (a cancer of the membrane lining of the abdomen or chest)
 - Asbestosis (a disease caused by extensive scarring of the lungs by asbestos fibers)

Lung Cancer

- Asbestos can cause lung cancer
- The dose required to cause lung cancer is not known but the degree of exposure and the length of time exposed is considered a rough predictor of the degree of cancer risk
- The latency period for lung cancer is usually around twenty years.

Asbestos and Tobacco: a Synergistic Relationship

- Asbestos exposure may increase lung cancer risk as much as five fold
- A pack-a-day usage of cigarettes may increase lung cancer risk by as much a factor of twenty fold
- Whereas daily exposure to both asbestos and cigarettes does not equal a twenty five fold increase in risk but rather a 50 fold increase.
- Thus the relationship is greater than the sum of their individual risks, hence a synergistic effect

Mesothelioma

- Mesothelioma is a cancer that attacks the lining of the lungs or stomach
- Mesothelioma is almost exclusively related to asbestos exposure
- Mesothelioma is virtually 100% fatal
- Latency period for the development of this disease is between 20 and 40 years

Asbestosis

- Asbestosis is a condition in which the lungs have been scarred by asbestos fibers
- Asbestos fibers migrate through lung tissue and leave a virtual trail of scarring as this occurs.
- Asbestosis occurs when scarring is severe and ability of lungs to exchange oxygen is impaired and breathing is difficult

Avoiding Asbestos Exposure, Disease
and Liability go hand-in-hand with
Regulatory Understanding and
Compliance



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Asbestos and Asbestos Containing Materials are Highly Regulated

- Federal Regulations, such as the Asbestos NESHAP, govern the usage, maintenance and removal of asbestos containing building materials (ACBM) for commercial use
- The methods for renovation and demolition are specifically prescribed in federal and state regulations
- The health and safety requirements for workers and asbestos workers are prescribed in federal and state regulations
- (Iowa OSHA)
- These regulations are highly enforced

Asbestos NESHAP

- The EPA has promulgated a body of law called the National Emission Standards for Hazardous Air Pollutants. Asbestos NESHAP is one of several regulations governing hazardous air pollutants
- Asbestos NESHAP is a federal regulation that is administered by the Iowa Department of Natural Resources

Asbestos NESHAP and Definitions

- **Category 1 nonfriable ACM:**
 - Asbestos containing packings, gaskets, resilient floor covering and asphalt roofing products containing more than 1% asbestos
- **Category 2 nonfriable ACM:**
 - Any material, excluding category 1 nonfriable ACM, containing more than 1% asbestos that, when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure.
- **Friable asbestos material:**
 - any material containing more than 1% asbestos that, when dry, can be crumbled, pulverized, or reduced to powder by hand pressure.

Asbestos NESHAP and Definitions Continued

- Regulated building or structure:
 - Except for residential, and apartments of four units or less, any commercial building containing regulated asbestos (1% and above) in amounts equal to or exceeding 160 square feet, 260 linear feet, or 35 cubic feet, is subject to the Asbestos NESHAP regulations.

Asbestos NESHAP Requirements and Definitions Cont.

- Regulated asbestos containing material (RACM):
 - A) friable asbestos material, B) Category 1 nonfriable ACM that will be or has been subjected to sanding, grinding, cutting or abrading, or C) Category II nonfriable ACM that has a high probability of becoming or has become crumbled, pulverized or reduced to powder by the forces expected to act on the material in the course of demolition or renovation operations regulated by subpart 61.141 of 40 CFR Part 61 (NESHAP Revision; Final Rule).

Asbestos NESHAP Inspection Requirements

- Asbestos NESHAP requires a thorough inspection for friable and nonfriable ACM within a building or facility prior to any demolition activity.
- Prior to any renovation activity, a thorough inspection for friable and nonfriable ACM must be conducted within that portion of the building or facility being renovated.
- All inspections and asbestos abatements must be done by a licensed contractor

Demolishing or Renovating a Building Cont.

- The Notification of Demolition or Renovation needs to be completed and sent the DNR Air Quality Bureau at **least 10 working days** prior to the **commencement of any demolition or renovation activities!!!**
- **This is federal law and cannot be changed by DNR.**

Demolishing or Renovating a Building Cont.

- The “Notification of Demolition and Renovation” should be sent a least 14 days in advance of any activity to ensure that DNR is in receipt 10 working days prior to demolition or renovation.
- Its best to send the Notification by certified mail in order to confirm that the Notification has been received 10 working days prior to the start date
- Monday through Friday are “working days,” (even if they fall on holidays) whereas Saturdays and Sundays are not.

Demolishing or Renovating a Building Cont.

“Notifications of Demolition and Renovation”
are to be sent to the:

**Iowa Department of Natural Resources,
Air Quality Bureau**

7900 Hickman Rd, Suite 1

Windsor Heights, Iowa 50324

Demolishing or Renovating a Building Cont.

- If your facility is a Title V facility and you have questions regarding the “Notification,” or any other asbestos related questions please call:
 - Tom Wuehr (515) 281-7212 or
 - Dennis Thielen (515) 281-4899
 - Reid Bermel (515) (515)281-4918

Completing the Notice of Demolition and Renovation

- Common mistakes to avoid when completing this form:
 - Circle or print one of these categories (O-Original, R-Revised or C-Cancelled)
- Under item III.circle operation type,
Either (D-Demoliton, O-Odered Demo or E-Emergency Renovation)

Completing the Notice of Demolition and Renovation

- Item VII requires a reasonable estimate of the amount of asbestos to be removed by the certified asbestos abatement contractor. Remember to enter for linear feet or surface area
- Item XVI is sometimes confusing. A trained individual is required to be on site only if a building is demolished with asbestos still in it.

This can only be done when a governmental entity condemns a building as unsafe for asbestos removal

Demolishing or Renovating a Building

- Determine NESHAP eligibility
 - The first order of business is to have the building inspected by a licensed asbestos inspector
 - If the amount of asbestos is greater than or equal to 160 square feet or 260 linear feet or 35 cubic feet, the asbestos containing material (ACM) will have to be abated by a licensed asbestos abatement contractor.

If Asbestos NESHAP eligible, then:

- Ensure that the work is done by a permitted asbestos abatement contractor.
- Permits and Licenses are issued by Iowa OSHA, Labor Services Division.
- Failure to hire a properly licensed contractor can result in civil and criminal penalties

Inform Contractors of Asbestos locations

- Be sure to protect the health and safety of workers by explaining where asbestos is located.
- A signed contractor acknowledgement that he or she has been shown where the asbestos is can protect the owner from potential liability issues.

Find the proper notification form

- The following are step by step instructions to find the “Notification of Demolition and Renovation” form.
- This is an EPA form and lists all the requirements for a proper notification.

Demolishing or Renovating a Building Cont.

- The “Notification of Demolition and Renovation”- along with asbestos regulations and other useful information - can be found at:

www.iowacleanair.com

Demolishing or Renovating a Building Cont.

- Once you are in the “IowaCleanAir.com” webpage, you will find a list of entities on the left. Under “Professional Sites,” click on “Asbestos” (this is the second listing from the top of Professional Sites).
- Once you click on the “Asbestos” site you will scroll down to “Forms, Guidance and Technical Information” and you will find the “Notice of Demolition and Renovation”