



2 Hour Asbestos General Awareness Training— Study Guide

Important Terms for All Modules:

- **FRIABLE** - material can be crumbled, pulverized or reduced to powder by hand pressure.
**Materials are only friable when they are dry.*
- **NON-FRIABLE** - materials cannot be crumbled, pulverized or reduced to powder by hand pressure.
- **FRIABLE ASBESTOS-CONTAINING MATERIAL (ACM)** is any material that contains more than 1% asbestos.
- **FRIABLE ASBESTOS-CONTAINING BUILDING MATERIAL (ACBM)** is any friable asbestos containing material that is in or on interior structural members or other parts of a school or public and commercial building.

MODULE 1: All About Asbestos

UNDERSTANDING ASBESTOS



COMMERCIAL USE



NOTES

Types:

- **Serpentines** - divide into curly, wavy fibers that show little resistance to being bent or spiraled
- **Chrysotile** - white asbestos
- **Amphibole - fibers are needlelike shards that show great resistance to being bent or curled**
 - ⇒ Amosite - brown asbestos, used in heat insulation materials
 - ⇒ Crocidolite - blue asbestos
 - ⇒ Anthophyllite, Tremolite, Actinolite (rare, little commercial use)

Properties of Asbestos:

- Fire resistant
- Can be woven
- Durability
- Insulation
- Has tensile strength
- Resistant to rot, mold and corrosion

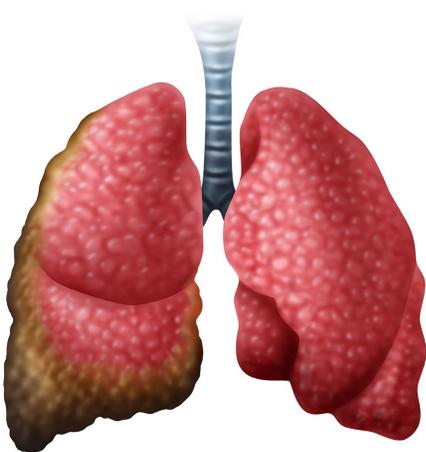
- History 1950-1970 peak years of use. By 1980 - most commercial use stopped due to discovery of harm from exposure.
- Asbestos Products:
 - ⇒ Fireproofing
 - ⇒ Pipe insulation
 - ⇒ Insulation and decorative products
 - ⇒ Cement pipes and sheets, Boilers and hot-water tanks
 - ⇒ Friction products
 - ⇒ Plastic products
- Asbestos Products in Schools:
 - ⇒ **Building materials (concrete, concrete tile products and plaster),**
 - ⇒ Paper and textile products

MODULE 1: All About Asbestos

ASBESTOS EXPOSURE



ASBESTOS RELATED DISEASES



NOTES

- Health Concerns
 - Occupations at Risk
 - Routes of Exposure
 - ⇒ Intact and undisturbed ACM generally does not pose a health risk.
 - ⇒ **The risk of developing an asbestos-related disease increases when the body's defenses fail to control or remove asbestos fibers that enter the lungs.**
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- **Mesothelioma – Cancer of the lining of lungs.** Latency period: 10-60years
 - **Asbestosis - lung scarring, (not cancerous),** no cure or treatment, latency period 15-30 years
 - Lung Cancer - Risk of contracting lung cancer as a result of exposure to asbestos increases with cigarette smoking.
 - Smoking & Asbestos Exposure - 10x more likely to develop lung cancer if exposed to asbestos and a smoker
 - **Symptoms**
 - ⇒ Shortness of breath
 - ⇒ Pain in the chest or abdomen
 - ⇒ Difficulty in swallowing or prolonged hoarseness
 - ⇒ Significant weight loss

MODULE 1: All About Asbestos

ASBESTOS RELATED DISEASES, cont.

REGULATIONS



NOTES

- Three things that seem to determine the likelihood of a person developing asbestos related disease.
 - ⇒ 1) Amount and duration of exposure; 2) Smoking; 3) Age
- EPA Facts
 - ⇒ The risk of developing an asbestos-related disease depends upon a person's exposure to airborne asbestos.
 - ⇒ **Airborne asbestos levels in buildings seem to be very low.**
 - ⇒ The removal of ACBM is often not the best course of action to reduce asbestos exposure.
 - ⇒ EPA only requires removal of ACBM in order to prevent exposure during building demolition or renovation projects.
 - ⇒ EPA and OSHA recommend a proactive, in-place management program whenever ACBM is discovered.

Federal Regulations that school custodian and maintenance workers should be aware of:

- OSHA – **regulations should be minimum standards, always good to go beyond the minimum for protection**
- **NESHAP – National Emission Standards for Hazardous Air Pollutants**
- **(controls measures and work practices to reduce the release of asbestos into the environment)**
- EPA - Worker-Protection Rule
- AHERA – Asbestos Hazards Emergency Response Act. The asbestos containing material in schools (14 regulations listed)
 - ⇒ **Local Education Agency (LEA) must appoint a “designated person” to ensure proper implementation of AHERA requirements.**
- Department of Transportation Regulations (DOT)

MODULE 2: Safe & Effective Work Practices

HOW TO AVOID ASBESTOS EXPOSURE



IDENTIFYING ASBESTOS IN SCHOOLS



NOTES

- Exposure depends on degree of friability, wear, age, and location of ACBM, safe and compliant work practices
- Know where ACBM is located
- **Overview of safe and effective practices**
 - ⇒ Do not drill, saw or use nails on ACBM.
 - ⇒ Floor tiles, ceiling tiles and adhesives that contain asbestos should never be sanded.
 - ⇒ Use care not to damage ACBM when moving furniture, ladders, or other objects.
 - ⇒ Know where ACBM is located in your work area.
 - ⇒ All ACBM should be checked periodically for damage or deterioration.
 - ⇒ All removal or repair work involving ACBM must be completed by specially trained personnel.
 - ⇒ ACM should always be dampened before handling to prevent fiber release.
 - ⇒ A dust mask is not a safe alternative to wearing a respirator.
 - ⇒ A standard vacuum cleaner does not adequately capture asbestos fibers.
 - ⇒ **Use a HEPA filter vacuum. Never shake the filter.**
 - ⇒ When not using a HEPA vacuum to clean asbestos dust, you must clean with a wet cloth or mop.
 - ⇒ Double bag asbestos waste (including all clean up materials) in a sealed 6 mil asbestos disposal bag.
- Environmental Protection Agency Categories
 - ⇒ **Surfacing materials** - interior building materials for acoustical, decorative, fireproofing; acoustical plaster, hard plasters, fireproofing insulation
 - ⇒ **Thermal system insulation** - insulation used to control heat transfer or prevent condensation; pipe lagging, pipe wrap, HVAC duct insulation
 - ⇒ **Miscellaneous materials** - include mostly non-friable products; floor and ceiling tiles, sheet flooring, wallboard
- Material Presumed to Contain Asbestos
 - ⇒ **Before 1980 – assume asbestos (ACBM).** Asphalt, vinyl flooring, sprayed on troweled surface material, thermal system insulation, surfacing materials – main use for fireproofing, plaster, acoustical spray
- Plasterboard – rarely ABCM. Spackling, joint compound – may have asbestos, but not considered ACBM
- **Resilient Flooring – Asphalt, rubber, and vinyl asbestos tile, latex backing, asphaltic cutback adhesive, rubber and vinyl on felt backing**
- Ceiling Tiles – not assumed ACBM

MODULE 2: Safe & Effective Work Practices

HOW TO IDENTIFY HAZARDOUS CONDITIONS



FIBER-RELEASE EPISODE



NOTES

- **Fallout** – result of aging and degradation of the bonding agent that hold ACM together
- **Impact** – contact of ACM through actions such as striking, cutting or penetration
- **Re-entrainment** – disturbance of settled fibers, causing them to become airborne again
- It should be assumed that dust and debris are from ACM when the following signs of damage are present:
 - ⇒ **Surface is crumbled, cracked, peeling, or blistered**
 - ⇒ **Material is delaminated or showing adhesive failure**
 - ⇒ **Surface is gouged, crushed, punctured, marred, or abraded**
 - ⇒ **Material is water stained**
- **Types of fiber-release episodes**
 - ⇒ **Minor fiber release episode** – falling or dislodging of less than 3 square or linear feet of ACM
 - ⇒ **Major fiber release episode** – falling or dislodging of more than 3 square or linear feet of ACM
- **Immediate Response to Release of Fibers (any release)**
 - ⇒ Prevent access
 - ⇒ Shut and lock doors
 - ⇒ Report the damaged ACM to designated person or supervisor
 - ⇒ Direct asbestos personnel to site
 - ⇒ For Major Release – Restrict entry, turn off air handling system

MODULE 2: Safe & Effective Work Practices

SAFE & EFFECTIVE CLEANING PRACTICES



SAFE & EFFECTIVE FLOOR CARE



NOTES

- Overview of cleaning practices that limit exposure
 - ⇒ Wet cleaning methods, except for electrical hazards, equipment that can't tolerate moisture, slipping during contour roofing operation
 - ⇒ Wet wiping/wet mopping – do not let cover or mophead become dry or fibers can be released back into air
 - ⇒ Dispose of wet cloth/mophead
 - ⇒ Using a HEPA Vacuum – changing filter and bag
 - ⇒ Steam cleaning carpets

- Stripping of vinyl asbestos floor coverings
 - ⇒ Training
 - ⇒ Frequency of stripping
 - ⇒ Prior to stripping
 - ⇒ Stripping conditions – high speed = higher rate of release of fibers
 - ⇒ Finishing of vinyl asbestos floor coverings

- Floor Maintenance
 - ⇒ Buffing and burnishing floors, 3-5 layer of finish
 - ⇒ Spray buffing floors, **need low speed** 175-300 rpm
 - ⇒ Burnishing floors, 1200-1750 rpms – less abrasive brush
 - ⇒ Routine cleaning
 - ⇒ Wet scrubbing

- Water Maintenance – **more frequent wet mopping needed due to salt in winter or sand in drying/hot climates, less abrasive brush**

MODULE 2: Safe & Effective Work Practices

SAFE & EFFECTIVE WASTE DISPOSAL



NOTES

7 Steps—

Steps for safe and effective disposal of asbestos waste:

1. Mist the waste with water (if not wet) before placing it into the waste containers.
2. Fill a bag only to the point where it can be sealed effectively.
3. After bagging asbestos waste, promptly collapse the bags by evacuating air from the bag with HEPA vacuum.
4. Twist bag to form a neck and wrap tightly with duct tape.
5. Fold the neck of the bag over to form a loop, then again wrap duct tape around the neck and loop.
6. Wrap waste that does not fit into a disposal bag or drums in one or two layers of 6 mil poly. Tightly seal with duct tape.
7. Asbestos waste must be disposed of at sites meeting federal, state and local requirements.

MODULE 3: Operations & Maintenance Programs

IN PLACE MANAGEMENT



TRAINING



NOTES

- Teach employees how to recognize ACM and create and implement a plan to maintain. One of the most important components of in-place management is having an operations and management program.
- **Employers must provide notification to employees about the location of all ACM.**
- O & M – Operations and Management Program
 - ⇒ Clean up existing contamination
 - ⇒ Prevent or minimize fiber release
 - ⇒ Properly maintain ACM until removal
- O & M Objectives
 - ⇒ Training, monitoring, job site controls for work involving ACM
 - ⇒ Safe & compliant work practices, record keeping, and worker protection
- Designated Person Training. AHERA requires each local education agency (LEA) to appoint a designated person who is responsible for ensuring the proper implementation of AHERA requirements. This person must be adequately trained, though there is not a specific course or time requirement set by AHERA.
- All maintenance and custodial staff who work in a building that contains ACM MUST complete a minimum of two hours of asbestos-awareness training, whether or not they are required to work with ACM.
- New employees must be trained within 60 days after employment.
- Although not specifically required by AHERA, annual refresher and update training is recommended. Annual training is required by OSHA for custodial and maintenance personnel.

MODULE 3: Operations & Maintenance Programs

MONITORING



NOTIFICATION



NOTES

- Inspections: ACBM by accredited inspector, re-inspected every 3 years.
- Periodic Inspection: Surveillance of ACBM every 6 months by maintenance and/or designated person.
- Management Plan - **An asbestos management plan is a site specific guidance document that creates guidelines for the management of ACBM in a school building.**
- **Response Actions (Identified by AHERA)**
 - ⇒ **Operations and Management (O & M) Programs – prevent further release of asbestos fibers by minimizing and controlling the disturbance or damage of ACBM**
 - ⇒ **Repair – involves returning damaged material to an undamaged condition or intact state**
 - ⇒ **Encapsulation – treating ACBM with an adhesive matrix to prevent release of fibers**
 - **Bridging – create membrane over surface**
 - **Penetrating encapsulants – penetrate the material and binds its components together**
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 - ⇒ **Enclosure – airtight barrier**
 - ⇒ **Removal – taking out ACBM**
- Annual notification (newsletter, website...to stakeholders)
- Employee notification (new employees need to know where ACBM are located, training needed for new maintenance and housekeeping)
- Warning labels
 - ⇒ ACBM that was not removed
 - ⇒ ACBM for which no response action was carried out
- Routine = employee frequents an area as part of a regular schedule. Most employees are not prohibited from entry to routine maintenance areas

MODULE 3: Operations & Maintenance Programs

WORK PRACTICES & CONTROLS



NOTES

- Suggested Categories (for labels and notification)
 - ⇒ Contact with ACBM unlikely
 - ⇒ Accidental Disturbance or ACBM possible
 - ⇒ Disturbance of ACBM intended or likely
 - ⇒ Large amounts of ACBM will be disturbed

- **Work Permit Programs has 3 parts**
 - ⇒ **Request forms for maintenance**
 - ⇒ **Maintenance work authorization forms**
 - ⇒ **Evaluation of work affecting ACBM**

- Cleaning
 - ⇒ HEPA vacuuming or steam – cleaning all carpets
 - ⇒ HEPA vacuuming or wet cleaning – all other floors and all other horizontal surfaces
 - ⇒ Disposing of all debris, filters, mop heads, cloths – into sealed leak-tight containers

- Emergency Response Procedures
 - ⇒ Indications of fiber release
 - ⇒ Debris found on floor or other horizontal surface
 - ⇒ Water or physical damage to ACBM
 - ⇒ Any evidence that may indicate a possible fiber release

- **A building's asbestos work control and permit system should also cover work conducted by outside contractors.**

MODULE 3: Operations & Maintenance Programs

RECORD KEEPING



WORKER PROTECTION



NOTES

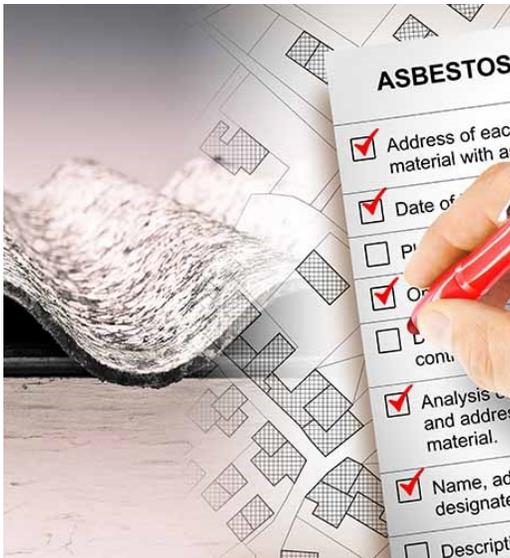
- Records involving the inspection of and response to ACBM must be kept in a centralized location in the school.
 - For any area where all ACBM has been removed, the records of events must be kept for three years after the next re-inspection.
 - The designated person is responsible to ensure that complete and up-to-date records are maintained, including management plans.
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- **Permissible Exposure Limits (PEL) = 0.1f/cc** over 8-hour period
 - Short Term Exposure Limit (STEL) = 1.0 f/cc of air averaged over 30 minutes
 - Protective Clothes
 - Care of Protective Clothing
 - Respiratory Protection
 - Medial Surveillance – 2 purposes
 - ⇒ Determine whether or not an employee is healthy enough to wear respirator
 - ⇒ Detect any health changes resulting from working in areas contaminated with asbestos

MODULE 4: Building Specific Information

LOCATION OF ASBESTOS MANAGEMENT PLAN

LOCATION OF CONSTRUCTION MATERIALS THAT CONTAIN ASBESTOS

NAME & TELEPHONE NUMBER OF THE PERSON RESPONSIBLE FOR THE DISTRICTS (SCHOOLS) ASBESTOS MANAGEMENT PROGRAM



NOTES

- Identify the location of the school's Asbestos Management Plan. If you are not sure, ask the Designated Person at the school.
- Identify the location of any construction materials in the building that contain asbestos. Check with the head of school maintenance department and verify that both materials and locations are notated in the AMP.
- Know the school's Designated Person (Principal, Business Manager, Head of Maintenance) as well as Diocese of Cleveland asbestos contacts: Sue Biggs and Amy Scallon.