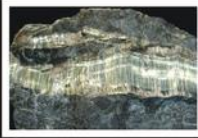


ASBESTOS



CHRYSOTILE



AMOSITE



CROCIDOLITE



TREMOLITE



ACTINOLITE



ANTHOPHYLLITE



WASBO Conference
Asbestos Awareness
Integrated Pest Management (IPM)

Introduction

▶ William A. Freeman

- ▶ President at Safety/Environmental consulting firm of Environmental Management Consulting, Inc. (EMC).
- ▶ BS & MS in Occupational Safety from the University of Wisconsin-Whitewater.
- ▶ Certified Hazardous Materials Manger (CHMM)
- ▶ Certified Indoor Air Quality Professional (CIAQP)
- ▶ Served on the Board of Directors for the Wisconsin School Safety Coordinators Association (WSSCA) in the capacity of president and currently acts as an advisor to the board.
- ▶ Served as a Board of Directors for the Wisconsin Association of School Business Officials (WASBO).



bfreeman@emc-wi.com



Asbestos is a natural occurring
mineral made of fibers



Asbestos is a natural occurring *mineral made of fibers*

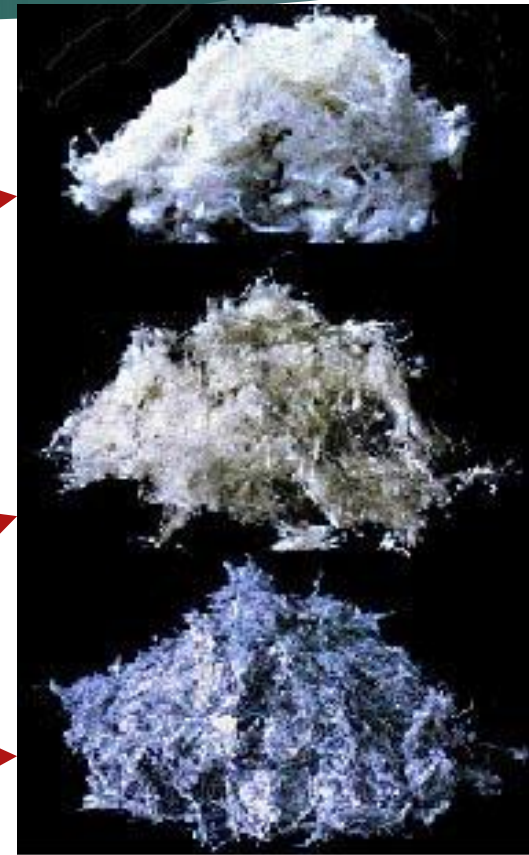


- ▶ Most asbestos mines are in Quebec, Canada and the Russian Urals, which account for 3/4 of world production of chrysotile asbestos.



What is Asbestos?

- ▶ Three main types of Asbestos:
 - ▶ **Chrysotile** - *white* asbestos, accounts for 95% of all asbestos used in building materials
 - ▶ **Amosite** - *brown* asbestos, water resistant
 - ▶ **Crocidolite** - *blue* asbestos



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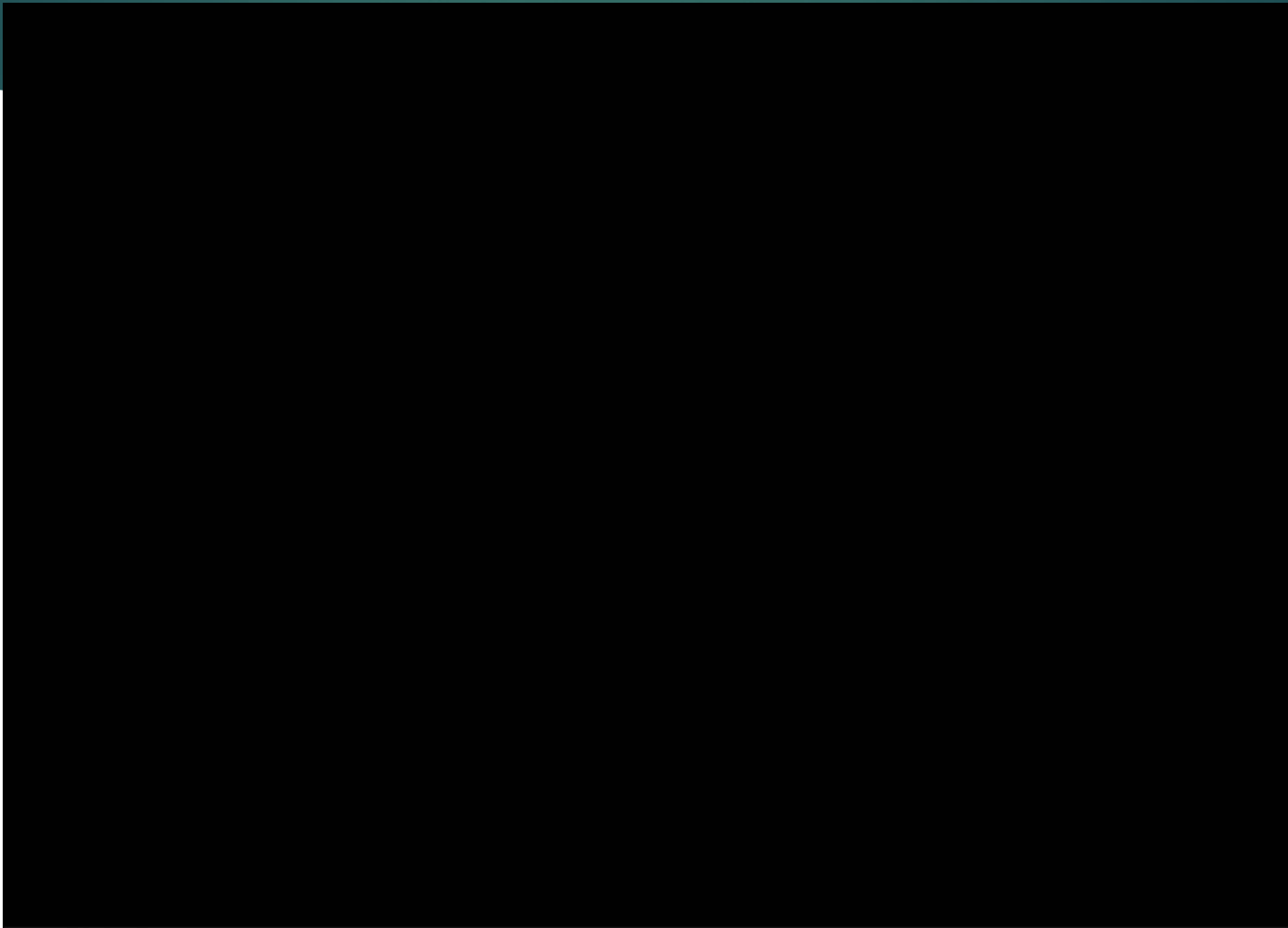
Why Was Asbestos Used?

Asbestos Properties:

- ▶ Tensile/mechanical strength
- ▶ Incombustible - will not burn
- ▶ Corrosion/chemical resistance
- ▶ Electrical, heat, sound insulator
- ▶ Friction resistance
- ▶ Bacteria resistance
- ▶ Drying characteristics



Asbestos Eh



buffering...



Where is Asbestos Used?

Thermal System Insulation Products

▶ *Pipe, boiler and duct insulation*

- ▶ Pipe lagging or 'mag'
- ▶ Cements and 'muds' for pipe elbows
- ▶ Block, batt and blanket insulation
- ▶ Aircell pipe wrap
- ▶ Paper duct wrap
- ▶ Gaskets and ropes





Thermal System Insulation Products



**CORRUGATED (ABOVE)
AND FLAT (RIGHT) ASBESTOS
PAPER ON FURNACE DUCTS**



**TROWELED-ON
INSULATION ON
KITCHEN HOOD
EXHAUST DUCT**



Where is Asbestos Used?

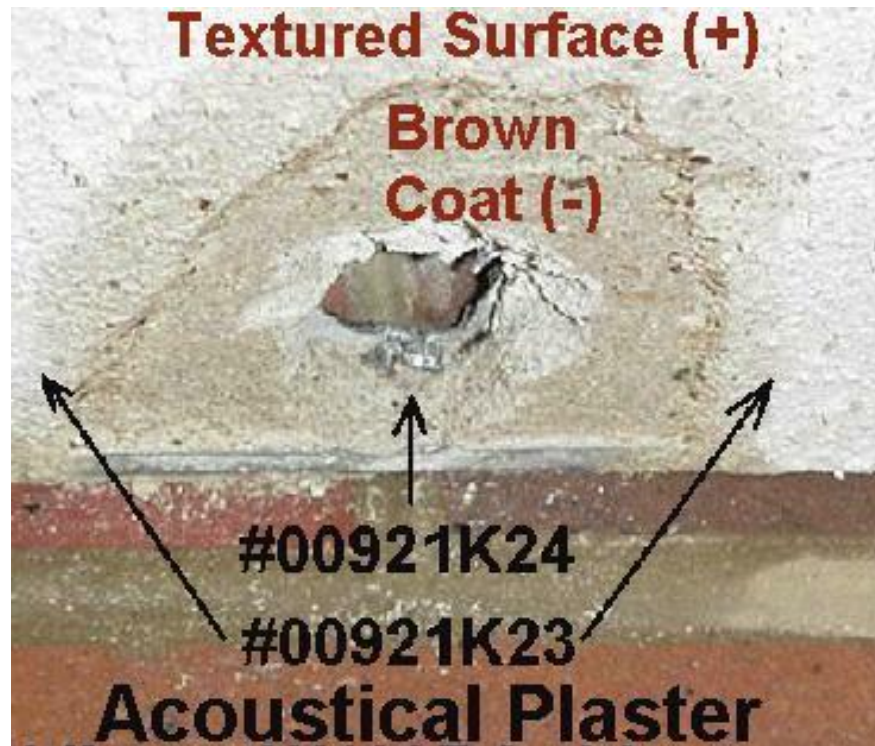
Surfacing Materials

- ▶ *Sprayed-on* applications
 - ▶ Fireproofing
 - ▶ Architectural decoration
- ▶ *Troweled-on* applications
 - ▶ Acoustical plasters



Surfacing Materials

Acoustical plaster -- In most cases, the asbestos layer is the thin (1/8") textured surface layer; the base coat (brown-coat) pressed into wire lathe must also be tested for asbestos content.



Surfacing Materials



Surfacing Materials



Here is an example of friable asbestos sprayed-on ceiling beams as fireproofing. Notice where the asbestos is hanging loose.



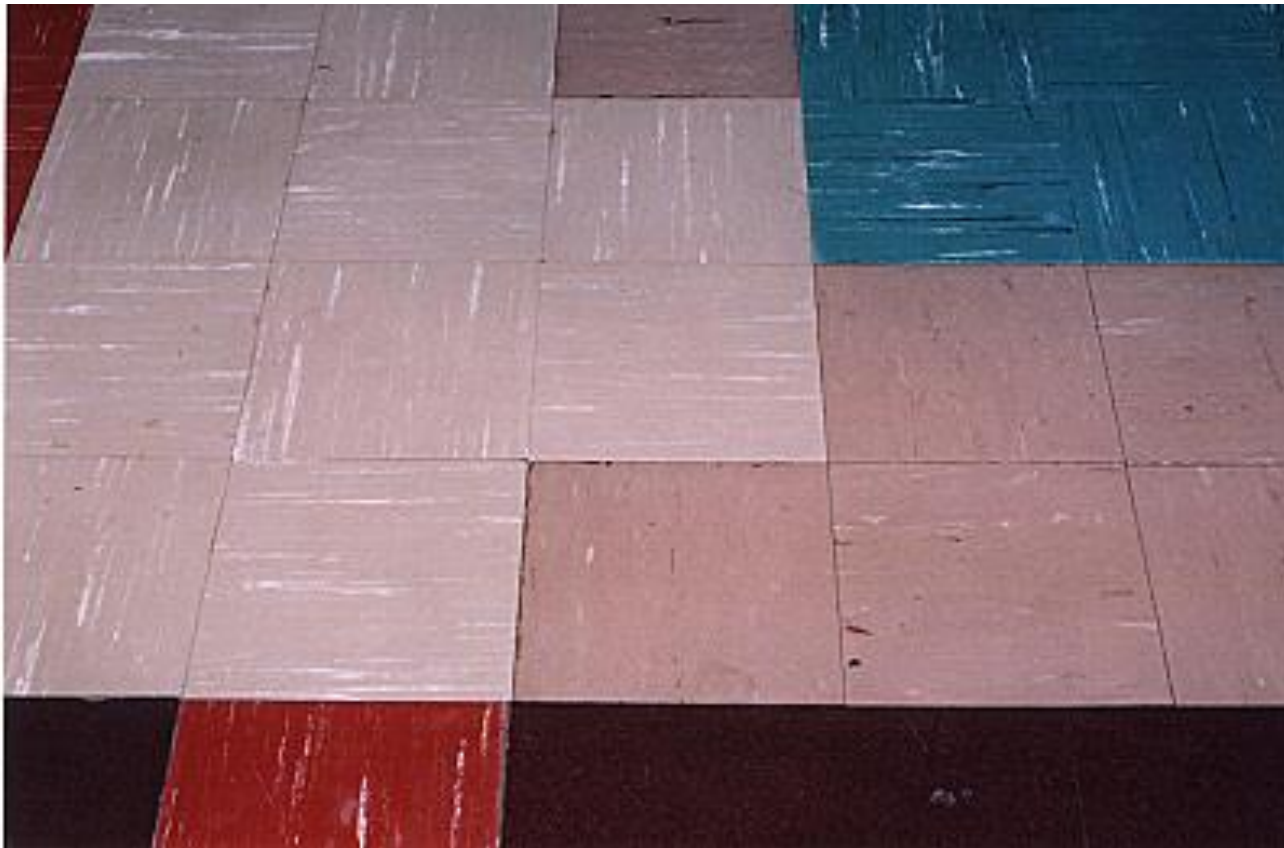
Where is Asbestos Used?

Miscellaneous Products

- ▶ Floor tile
- ▶ Ceiling tile
- ▶ Transite siding and slate shingles
- ▶ Roofing felts
- ▶ Wallboard
- ▶ Mastics, tars, joint compounds



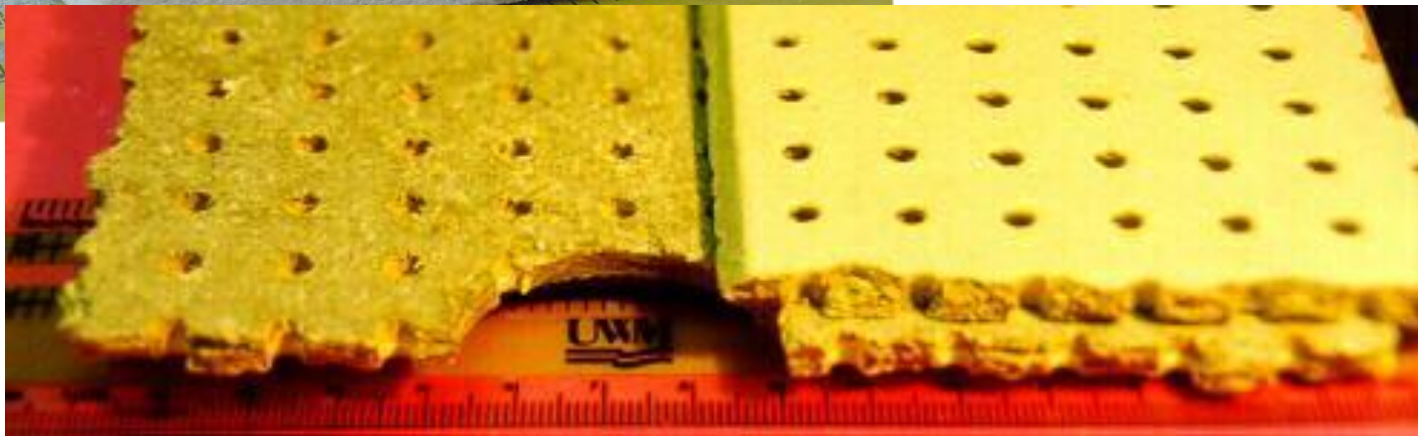
Miscellaneous Products



9" x 9" Floor Tile



Miscellaneous Products



Miscellaneous Products



**LAY-IN
ACOUSTIC
CEILING TILE**

**GLUE-ON
ACOUSTIC
CEILING TILE
& EXPOSED
BROWN MASTIC**



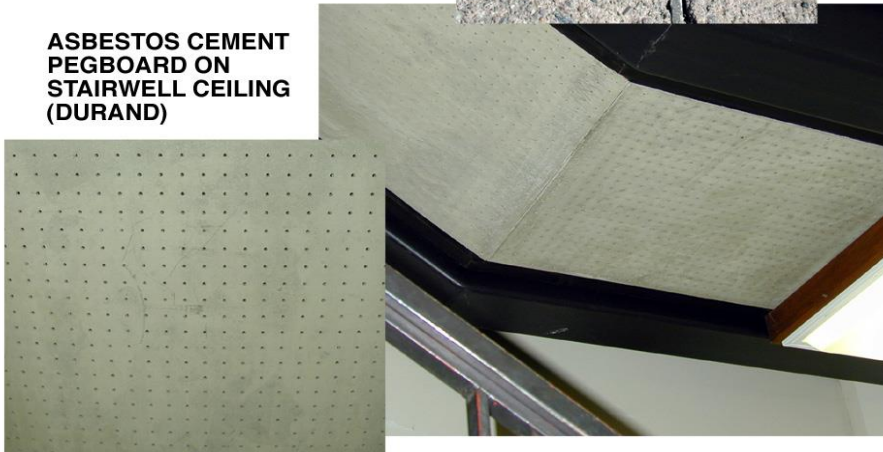
Miscellaneous Products



**BENDERBOARD
BETWEEN CONCRETE
PAVERS
(TRESIDDER STUDENT
UNION)**



**ASBESTOS CEMENT
PEGBOARD ON
STAIRWELL CEILING
(DURAND)**



Miscellaneous Products



Category II ACM -- lab bench top (transite).



Miscellaneous Products



Unpainted Drywall showing Taping Compound:
when drywall is painted it is impossible to determine the extent of the taping compound.





Asbestos
contamination in
vermiculite



Asbestos in Other Places

- ▶ Athletic Tracks
- ▶ Window caulks and glazes, ext. caulk
- ▶ Terrazzo and slip sheets
- ▶ Foundation water-proofing
- ▶ Vermiculite in block walls
- ▶ Sink coatings
- ▶ Electrical components



If asbestos is so good...

▶ Then why is it so bad?



HEALTH EFFECTS



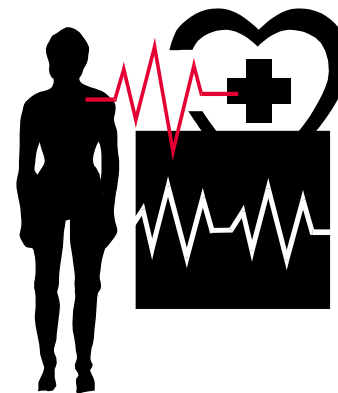
HEALTH EFFECTS

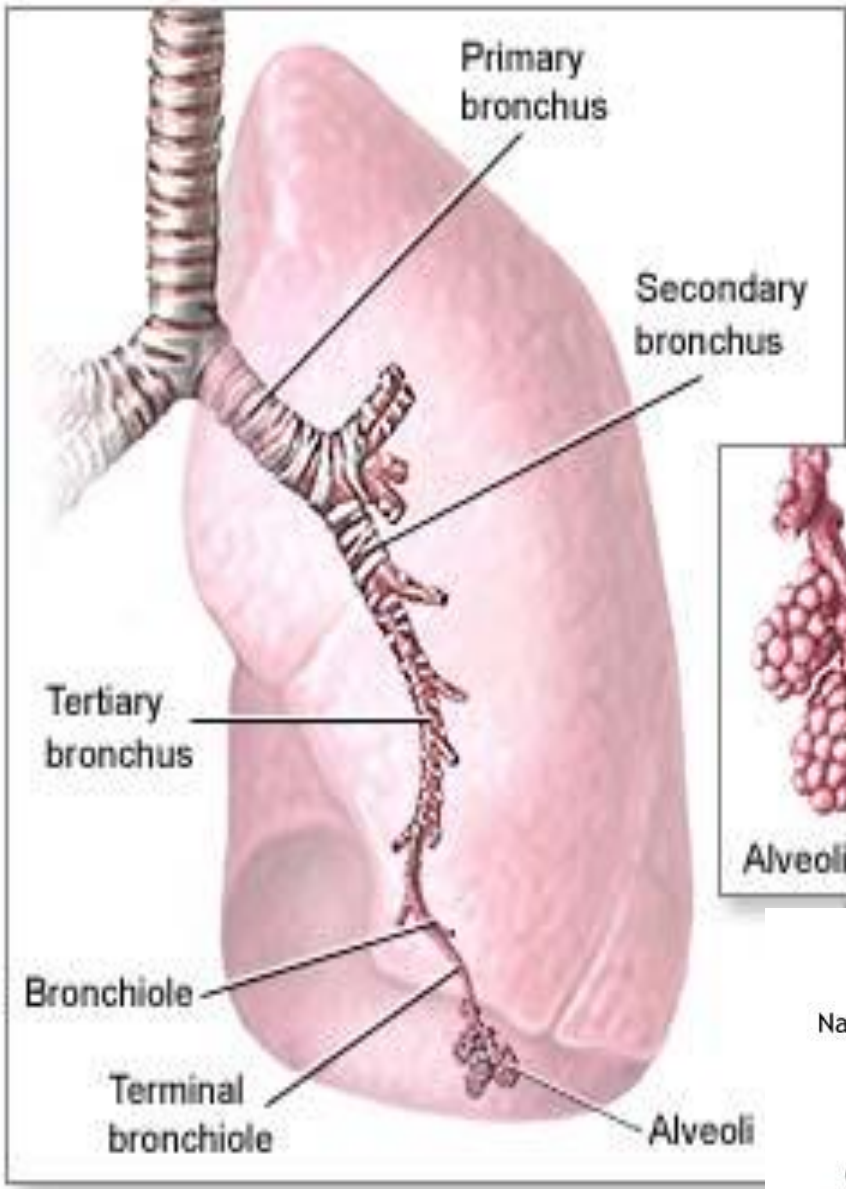
- ▶ WHERE IS CURRENT DATA FROM?
 - ▶ Animal Studies
 - ▶ Miners and Insulators
 - ▶ More Likely to Acquire Asbestos Related Diseases
 - ▶ DOSE-RESPONSE
 - ▶ Autopsies Show Asbestos in most Urban Residents



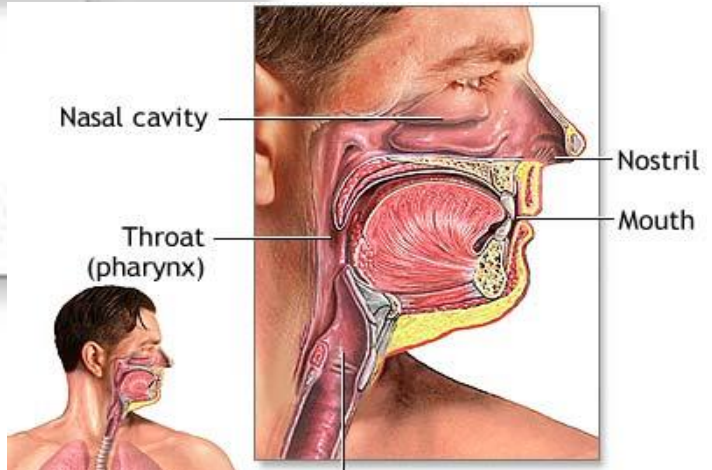
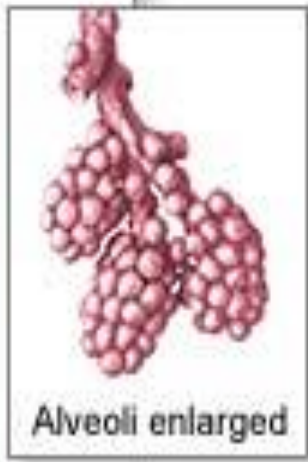
HEALTH EFFECTS

- ▶ HARMFUL PROPERTIES
 - ▶ Size of Fiber
 - ▶ 5 microns or less
 - ▶ Durability
 - ▶ BODIES ABILITY TO BREAK DOWN
 - ▶ Fiberglass 2-3 Years
 - ▶ Asbestos >100 Years
 - ▶ Shape of Fiber
 - ▶ Barbed
 - ▶ No Proof of Different Toxicity





Nose
Trachea - humidified
Bronchi
bronchioles
alveoli



Respiratory Tract

HEALTH EFFECTS

- ▶ THE RESPIRATORY SYSTEM
- ▶ EXCHANGE OF GASES
 - ▶ CO₂/O₂
 - ▶ Oxygenate the blood



HEALTH EFFECTS

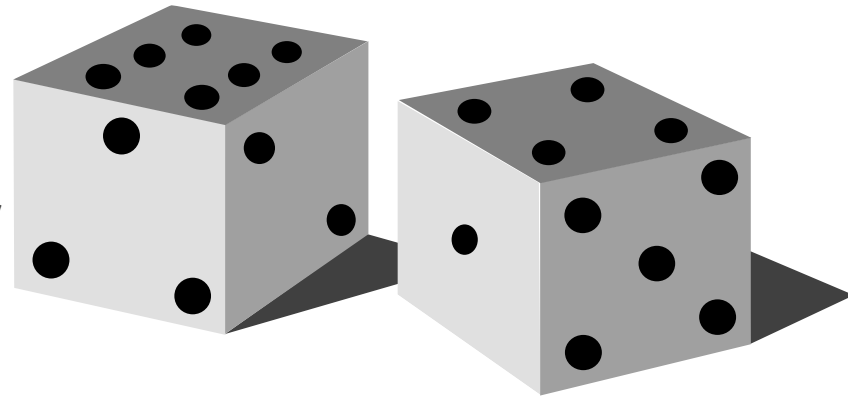
- ▶ DISEASES
ASSOCIATED WITH
ASBESTOS

- ▶ *Asbestosis*
- ▶ *Lung Cancer*
- ▶ *Mesothelioma*



HEALTH EFFECTS

- ▶ Synergistic Relationship Between **ASBESTOS AND SMOKING**
 - ▶ 20 Cigarettes/Day
 - ▶ **10X Normal Risk for Lung Cancer**
 - ▶ Asbestos Exposure Only
 - ▶ **5X Normal Risk for Lung Cancer**
- ▶ CIGARETTES + ASBESTOS
 - ▶ **50-90 X Normal Risk for Lung Cancer**



Regulatory and Designated Person Requirements

- ▶ The main Players:
 - ▶ DHS-159
 - ▶ Worker Certification
 - ▶ EPA-AHERA-Asbestos Emergency Response Act
 - ▶ Asbestos in Schools Rule
 - ▶ WDNR
 - ▶ Environment-Renovation/Demolition
 - ▶ OSHA-DSPS
 - ▶ Worker Safety



DHS 159

- ▶ Register Designated Asbestos Coordinator by October 1st each year



AHERA-Asbestos Emergency Response Act



▶ 40 CFR Part 763



DESIGNATED PERSON

- ▶ The LEA (Local Education Agency) shall designate a person to oversee the asbestos program
- ▶ Must Sign statement to that effect
- ▶ The Designated Person shall be responsible for the following:

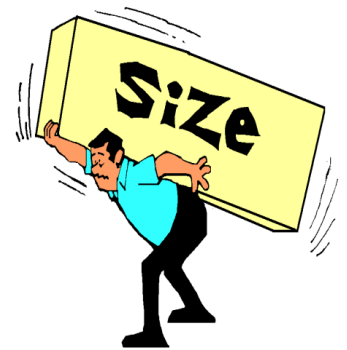


DESIGNATED PERSON RESPONSIBILITIES

Ensure the following are carried out:

▶ Inspection

- ▶ Initial Inspections at all school buildings
 - ▶ Maintenance buildings
 - ▶ pools, fieldhouses, concessions
 - ▶ charter schools
 - ▶ 4k programs
 - ▶ Newly constructed buildings



DESIGNATED PERSON RESPONSIBILITIES

▶ Inspection

- ▶ New Building Management Plans
- ▶ Architect Sign-off, drawings
- ▶ Submit to Governor's Office
 - ▶ Currently via DHS...



ORIGINAL INSPECTIONS LIMITATIONS

- ▶ Original inspections were done in 1988 with “new” inspectors
- ▶ Laboratories were also new at analyzing samples
- ▶ “Occupied” building inspections
 - ▶ Are not invasive (hidden materials),
 - ▶ Missed numerous building materials (caulks, mastics , terrazzo, joint compound
 - ▶ Assumed materials such as ceramic, gaskets, adhesives, mortars
 - ▶ Did not address exterior materials



DESIGNATED PERSON RESPONSIBILITIES

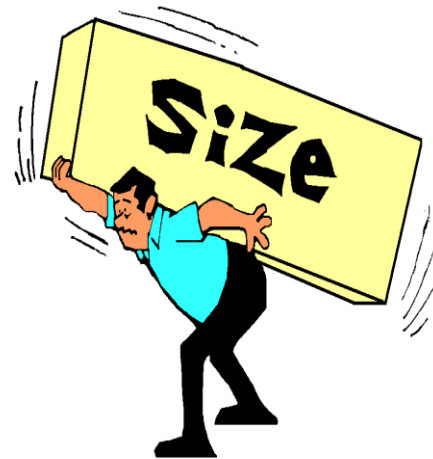
Ensure the following are carried out:

- ▶ Re-inspections

- ▶ Every 3 years by certified inspector
- ▶ Reinspection of last document, not a new inspection

- ▶ Periodic surveillance

- ▶ Every 6 months
 - ▶ Is there a change in condition??
 - ▶ Reflection of abatement



DESIGNATED PERSON RESPONSIBILITIES

- ▶ Training of Individuals
 - ▶ Designated person (no length specified)
 - ▶ One time training
 - ▶ Sign –off responsibilities
 - ▶ 2 Hour Initial Training (+ annual refresher)...
 - ▶ For ALL C/M employees who work in a building that contains asbestos
 - ▶ ONLINE OK
 - ▶ Within 60 days of hire, Web-based OK
 - ▶ Needs to include “what’s in my building
 - ▶ 14 Hour (one time course + refresher)
 - ▶ Evaluate need or Contract out
 - ▶ Substantial investment required...see next slide



OPERATIONS & MAINTENANCE PROGRAM

▶ Suggested O & M Equipment

- ▶ Large garbage pail
- ▶ Respirator w/ HEPA
- ▶ HEPA vacuum
- ▶ Suits
- ▶ Glovebags
- ▶ Lawn sprayer
- ▶ Surfactant
- ▶ Encapsulant

▶ Medical Evaluation, physical, fit test

- ▶ Duct tape
- ▶ Barrier tape
- ▶ Warning signs
- ▶ Disposal bags
- ▶ Generator labels
- ▶ GFI cords
- ▶ Tools utility knife
- ▶ Brushes
- ▶ Poly drop cloth



DESIGNATED PERSON RESPONSIBILITIES

▶ Notification

▶ Building Occupants - Annually

- ▶ Ensure that workers and building occupants or their legal guardians....
- ▶ Electronic communication acceptable?
- ▶ Gather copies for records

▶ Contractors working in buildings

- ▶ Need to be informed of locations of asbestos and availability of management plan
- ▶ Consider electronic sign-off



DESIGNATED PERSON

▶ **Asbestos Warning labels**

▶ To be prominently displayed in Routine Maintenance Areas (mechanical rooms, pipe chases, tunnels, etc....)

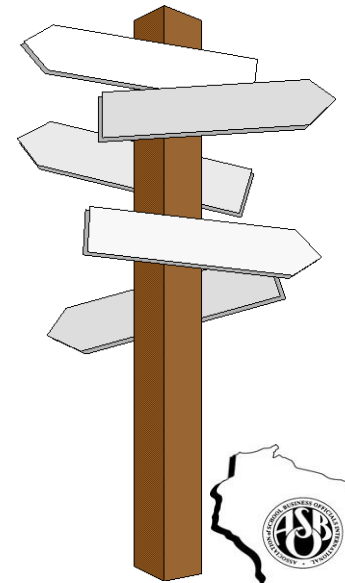
▶ **NOT REQUIRED** in public areas

▶ OSHA requirement for posting at entrance to mechanical rooms



DESIGNATED PERSON RESPONSIBILITIES

- ▶ **Maintain documents**
 - ▶ in centralized location
 - ▶ **And in the office of each building**
 - ▶ **Review HOW?**
- ▶ **Evaluate potential ACM prior to renovation or demolition work**
 - ▶ WDNR Requirement
 - ▶ there is no magic date when materials are considered to be asbestos free



SCHEDULED RESPONSE ACTIONS-Documentation

- Activities related to all asbestos abatement and repair work should be documented and maintained as part of the on going Operations and Maintenance Plan

- Location of Work
- Dates of Work
- Contractors involved
- Project Design document
- Daily logs
- Disposal manifests (**SIGNED**)
- Air monitoring records (**INDEPENDENT**)



QUESTIONS????

- ▶ The only bad question, is the one that was not asked.



Breakout Session #1

- A portion of your building built in 1959 is being demolished during the Spring. Substantial abatement of accessible materials has been completed and your surveillance shows no asbestos remaining:
 - Is a pre-demolition inspection required and what does it entail?
 - Do all ACM materials need to be removed prior to demolition?
 - Where does the waste go?
 - Materials below grade?
 - Any other environmental concerns?
 - Other comments.....



Integrated Pest Management (IPM)

“Minimizing pest problems by making environment unfavorable to pest inhabitation.”



School IPM

- August 2001, new State law pertaining to pesticide use in schools and/or school grounds.
- Law requires a certified applicator to apply all pesticides and post notices after each application.



What Is A Pesticide?

- **Weed killers, fertilizers**
- **Ant, Bee, Fly sprays**
- **Chemical bait traps**
- **Round-Up**
- **Herbicides**
- **Anti-microbials**
- **Registered pesticides**



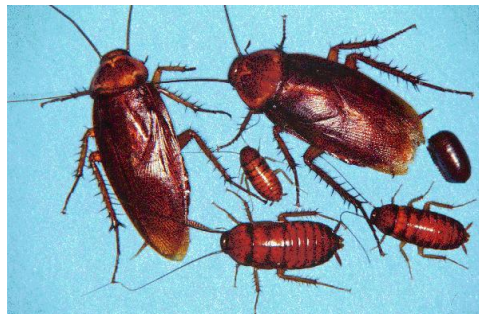
What IPM Means For Schools

- **Integrated approach to pest management including Board policies on preventive measures and a non-chemical approach to pest control where feasible.**
- **Administrative, Buildings & Grounds and Staff Responsibilities.**
- **Certified Applicator for (related to schools):**
 - **3 - Turf and Landscape**
 - **7.1 - General Industrial, Institutional, Structural & Health Related**



Goals of IPM

- Suppress pests that carry disease.
- Reduce human (especially children) exposure to dangerous chemicals.
- Reduce pest damage (and therefore money for repairs).
- Reduce environmental pollution.



Administrative

- **Adopt Board policy that stresses prevention.**
- **Assign a School IPM Manager.**
- **Enforce policies that minimize pest habitat sources, including open food and water sources, limited food and beverage consumption areas and install surfaces that do not harbor food sources.**



Buildings & Grounds

- **Inspection of physical barriers to prevent pest entry.**
- **Prompt clean up of spills/trash.**
- **Maintenance to eliminate water sources.**
- **Maintain good lawn care practices to encourage thick turf and minimize chemical usage.**
- **Routine inspection for pests.**
- **Stress prevention with contract pest services.**



Building Staff

- **Minimize open food and water sources.**
- **Prompt spill clean up.**
- **Adherence to Board policies.**
- **Prompt reporting of pest sightings.**
- **School building is not home, ten times greater population, ten times greater potential for problems.**



Chemical Usage Policies

- IPM requires prevention over routine chemical application.
- Use physical pest control next (fly swatters, weed whackers, physical trap).
- Use least aggressive chemical and only when necessary.
- Apply chemical at least obtrusive times.
- Notification for 72 hours after any application.

**PESTICIDE
APPLICATION**



**PLEASE
KEEP
OFF**

DO NOT REMOVE UNTIL SUNSET ON _____.

FOR ADDITIONAL INFORMATION ON THIS APPLICATION OR ANY FUTURE APPLICATIONS CALL (INSERT NAME AND TELEPHONE NUMBER OF COMMERCIAL APPLICATOR'S BUSINESS OR EMPLOYER.)

THIS SIGN REQUIRED BY THE DEPARTMENT OF AGRICULTURE, TRADE & CONSUMER PROTECTION (608)224-LAWN.



Questions Regarding IPM

- Mosquito repellent with regard to:
- 1. After-school activities (games, practices, etc...)
- 2. Field Trip activities
- Other questions: DATCP
- UW Madison Integrated Pest & Crop Mgmt. Dept.



Questions?

