



Asbestos Awareness

Kim Lindgren

MIIA | Nonprofit
Locally based
Member driven
Serving Massachusetts communities since 1982

Welcome

- ♦ Introductions
- ♦ Facility
- ♦ Emergency procedures
- ♦ Knowledge check

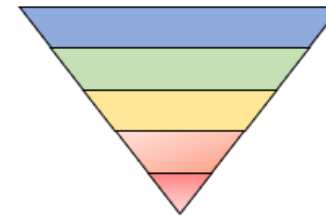
Asbestos Awareness Knowledge Check

NAME: _____

November 8, 2022

- | | | |
|--|---|---|
| 1. Asbestos is a group of six naturally occurring minerals made up of heat-resistant fibers. | T | F |
| 2. Asbestos is not banned in the United States. | T | F |
| 3. The No. 1 cause of work-related death in the world is asbestos related diseases. | T | F |
| 4. Asbestos fibers can be embedded in the digestive tract. | T | F |
| 5. Symptoms of asbestos-related diseases can take years to appear. | T | F |
| 6. Existing breathing or lung conditions can increase the risk of asbestos-related diseases. | T | F |
| 7. Asbestosis is non-cancerous. | T | F |
| 8. Mesothelioma is a form of cancer. | T | F |
| 9. The Asbestos Hazard Emergency Response Act are regulations that apply to schools. | T | F |
| 10. Schools must have an Asbestos Management Plan. | T | F |
| 11. Any activities disturbing asbestos must be performed by an accredited person. | T | F |
| 12. This training does not qualify you to perform asbestos abatement. | T | F |
| 13. List five things at work or home that may have asbestos in them. _____ | | |

14. Label the "Hierarchy of Controls"



Discussion

- ♦ Terminology
- ♦ Background – asbestos
- ♦ Health hazards
- ♦ Regulations



Discussion

- ♦ Potential and actual locations
- ♦ Recognition of hazards
- ♦ Controls and protection
- ♦ Resources



Terminology

- ♦ Asbestos
- ♦ ACM
- ♦ Authorized person
- ♦ Building/facility owner
- ♦ CIH
- ♦ Employee exposure
- ♦ Fiber
- ♦ HEPA filter
- ♦ Industrial hygienist
- ♦ PACM
- ♦ Regulated area
- ♦ Surfacing material (ACM)
- ♦ Thermal system insulation (ACM)



Asbestos is a mineral fiber that occurs in rock and soil.



Chrysotile



Amosite



Crocidolite



Tremolite



Actinolite



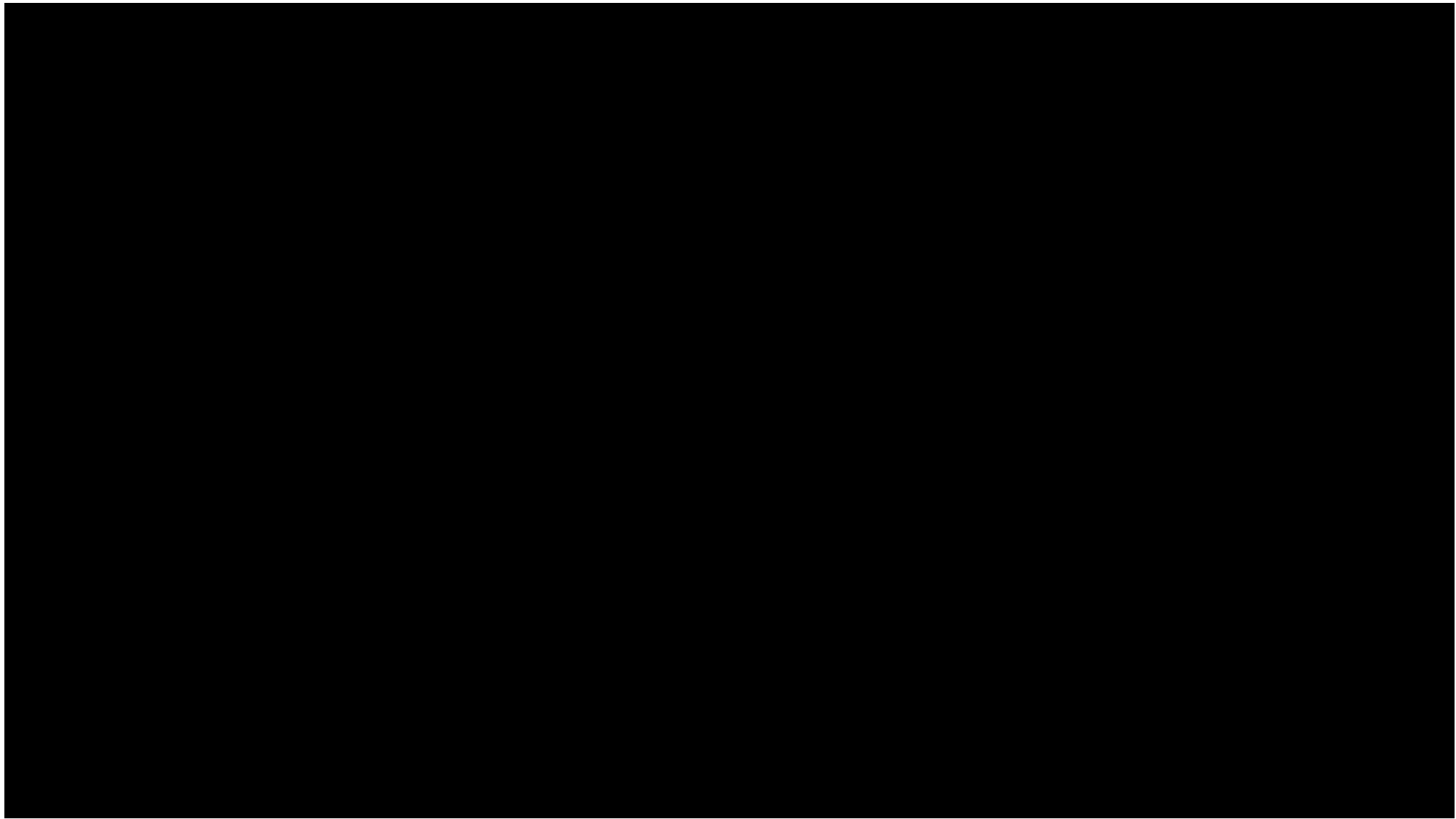
Anthophyllite

Statistics



- ♦ Asbestos has been banned in > 60 countries, but not in U.S.
- ♦ Asbestos – No. 1 cause of work-related deaths in the world
- ♦ +/- 90,000 deaths annually from asbestos-related diseases globally
- ♦ +/- 125 million workers worldwide at risk of asbestos exposure
- ♦ +/- 1.3 million U.S. workers in construction and general industry are at risk of exposure today



Background



Is Asbestos a Hazardous Material?

	Exploding bomb <i>(for explosion or reactivity hazards)</i>		Flame <i>(for fire hazards)</i>		Flame over circle <i>(for oxidizing hazards)</i>
	Gas cylinder <i>(for gases under pressure)</i>		Corrosion <i>(for corrosive damage to metals as well as skin, eyes)</i>		Skull and crossbones <i>(can cause death or toxicity with short exposure to small amounts)</i>
	Health hazard <i>(may cause or suspected of causing serious health effects)</i>		Exclamation mark <i>(may cause less serious health effects or damage the ozone layer*)</i>		Environment* <i>(may cause damage to the aquatic environment)</i>

OSHA – Globally Harmonized System (GHS)

Hazardous chemical

...any chemical which is classified as a physical hazard or a health hazard, a simple asphyxiant, combustible dust, pyrophoric gas or hazard not otherwise classified.



Is Asbestos a Health Hazard?

...a chemical which is classified as posing one of the following hazardous effects: acute toxicity (any route of exposure); skin corrosion or irritation; serious eye damage or eye irritation; respiratory or skin sensitization; germ cell mutagenicity; carcinogenicity; reproductive toxicity; specific target organ toxicity (single or repeated exposure); or aspiration hazard.





Health Hazards

Routes of Entry

Inhalation



Ingestion



Absorption



Injection



Asbestos Related Hazards

- ♦ Fibers – strong and resists heat and corrosion
- ♦ Inhalation – trapped in lungs
- ♦ Ingestion – embedded in digestive tract
- ♦ Known carcinogen
- ♦ Symptoms may take years to develop





Factors

- ◆ Amount of asbestos is in air
- ◆ How often and how long is exposure
- ◆ How much time passed since exposure began
- ◆ Existing breathing or lung conditions
- ◆ Tobacco smoker

Health Hazards

Asbestosis

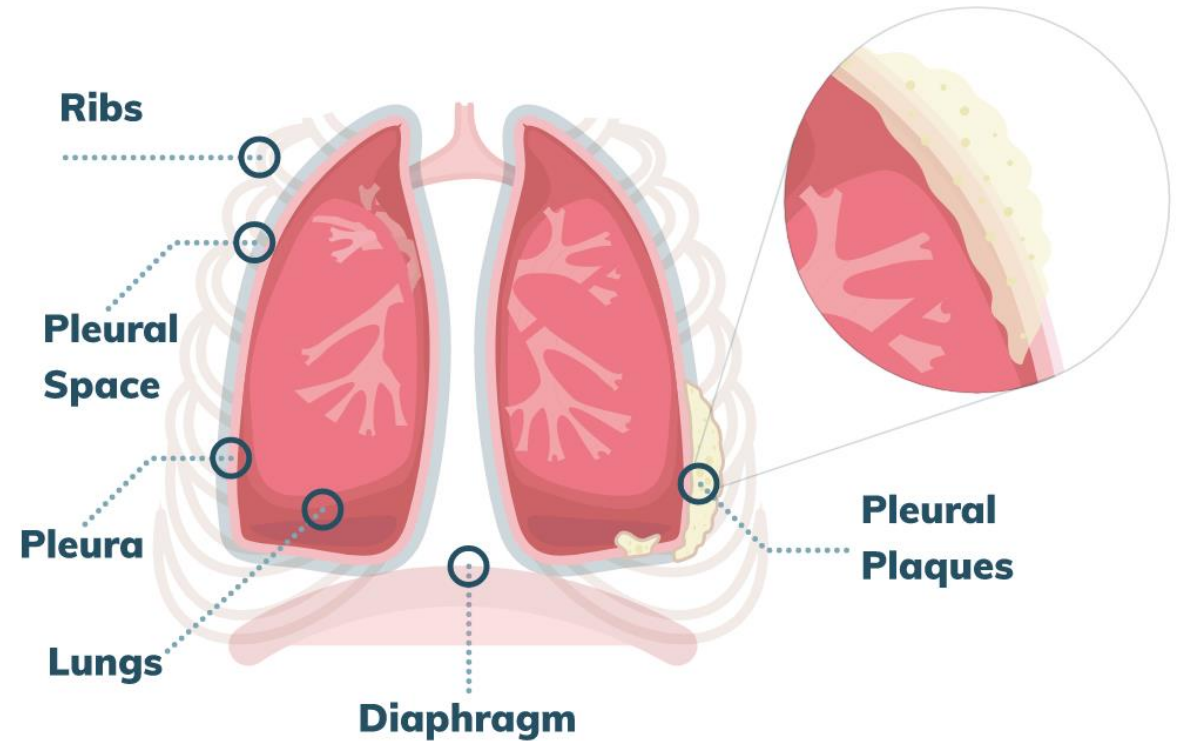
- ♦ Scarring in lungs
- ♦ O₂ and CO₂ do not pass through scarred lungs
- ♦ Difficulty breathing
- ♦ High exposures over long periods of time



Health Hazards

Pleural Disease

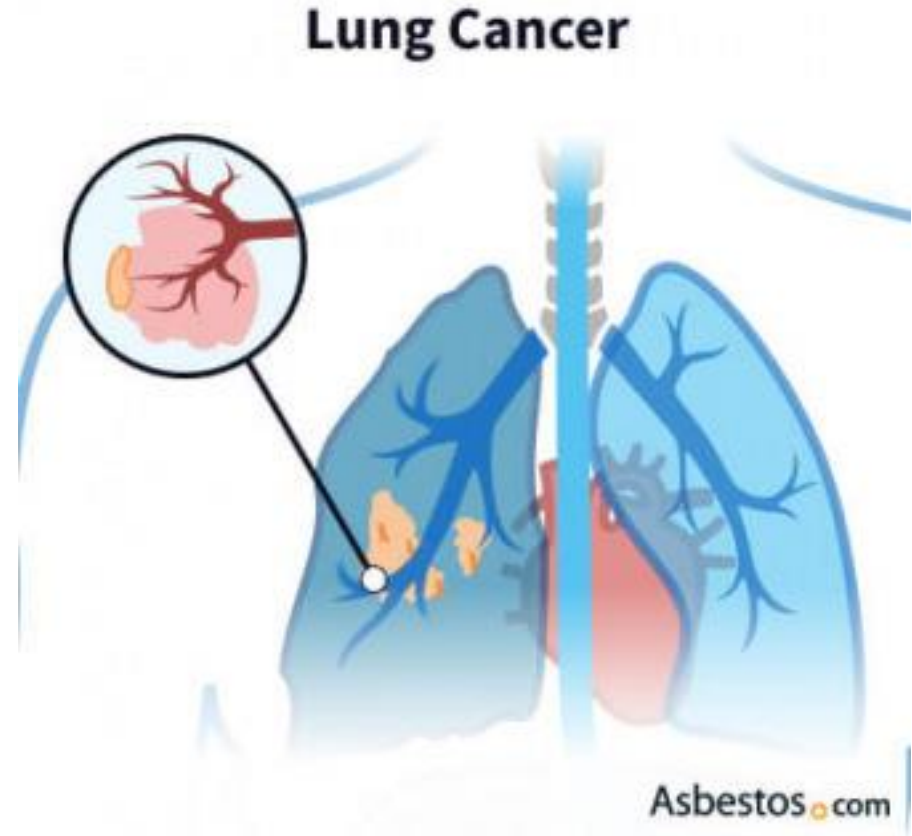
- ♦ Non-cancerous
- ♦ Changes in membrane of lungs and chest cavity
 - ♦ Thicken, isolation or fluid build-up
- ♦ Not all people will have difficulty breathing



Health Hazards

Lung Cancer

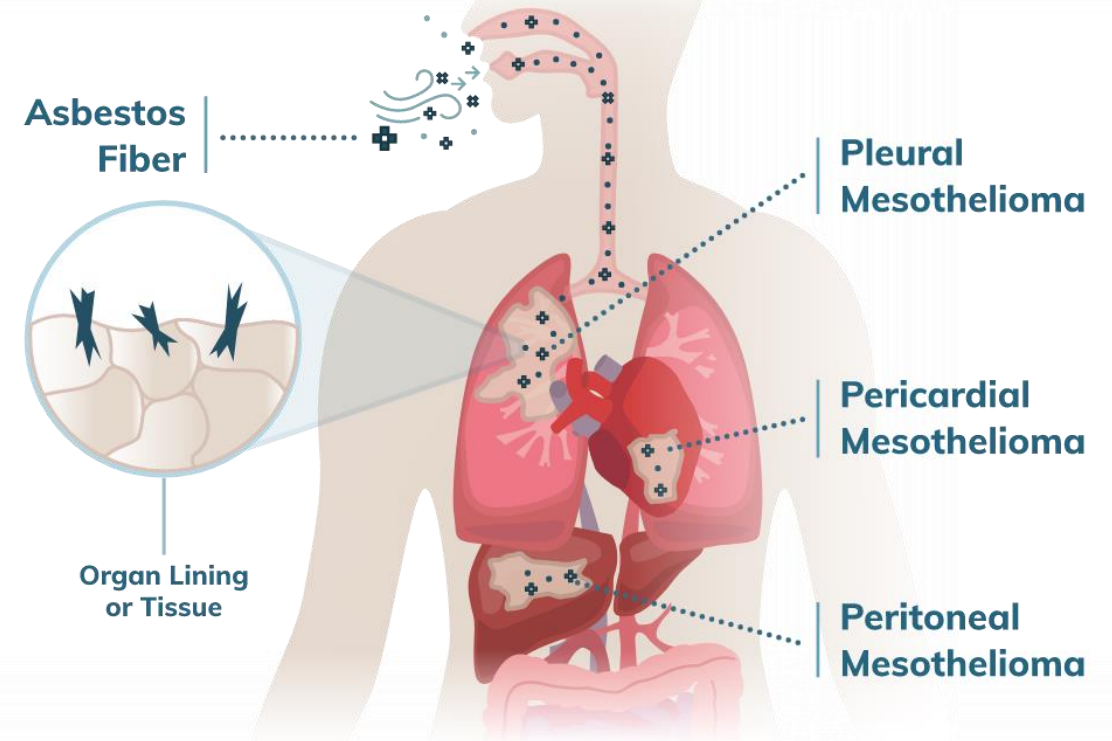
- ♦ Malignant tumor
- ♦ Invades and blocks lung's air passages
- ♦ Increased risk – smokers
- ♦ Also – other internal organs may be succumb to cancer

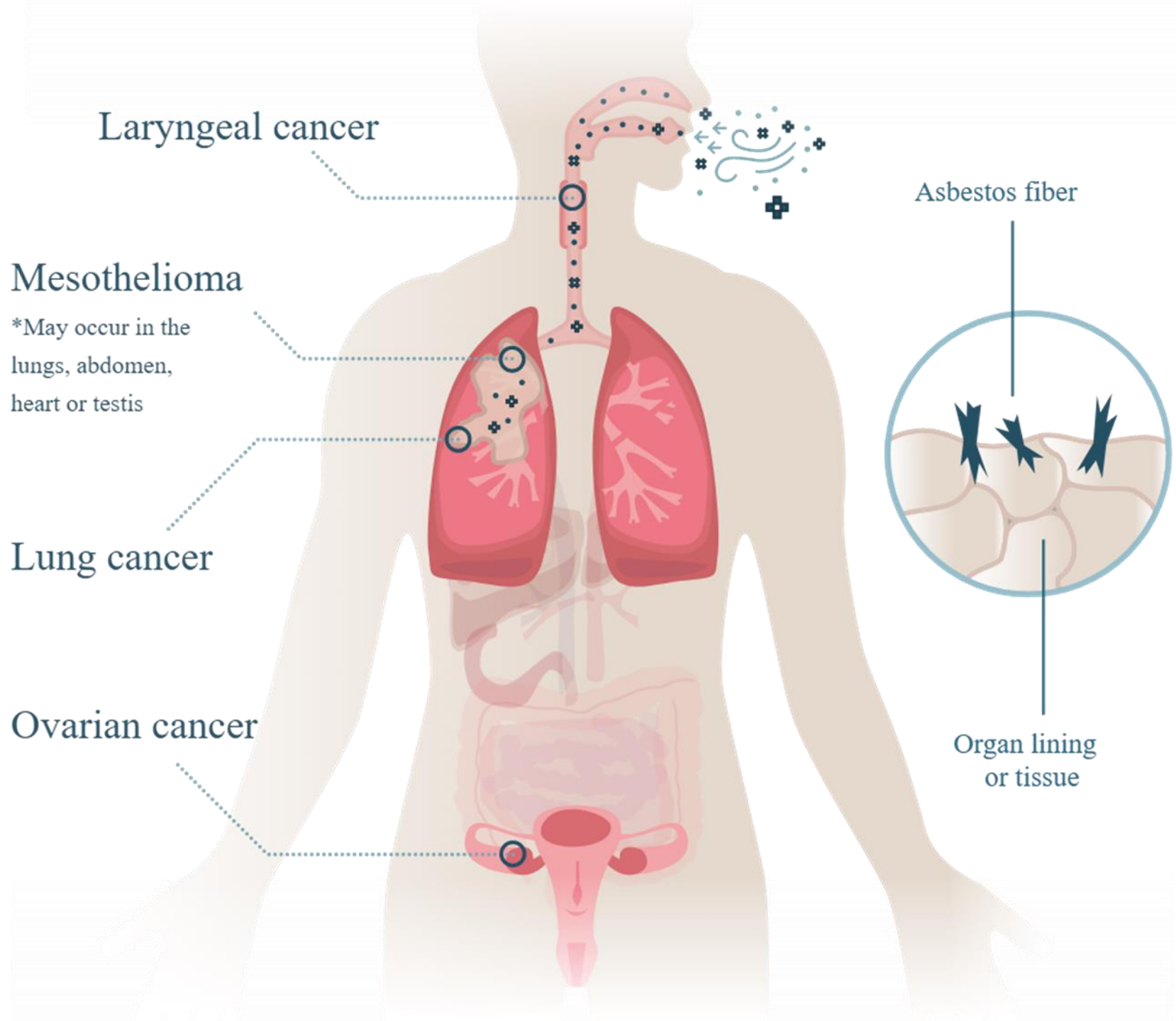


Health Hazards

Mesothelioma

- ♦ Rare cancer of membrane of lungs and chest cavity or other internal organs
- ♦ Symptoms may arise 30 – 40 years after exposure







Regulations

Regulations

- ♦ DLS – Department of Labor Standards (MA)
- ♦ OSHA – Occupational Safety and Health Administration
- ♦ EPA – Environmental Protection Agency
 - ♦ AHERA – The Asbestos Hazard Emergency Response Act
- ♦ NESHAP – National Emission Standard for Hazardous Air Pollutants (pre-renovation)
- ♦ Others?





...protect the health and safety of the general public and persons engaged in, or associated with, removal, enclosure, encapsulation or disturbance of asbestos or asbestos-containing material and prevent occupational diseases

...includes: construction, demolition, alteration, repair and maintenance

AHERA – Schools

- ♦ EPA regulations
- ♦ Asbestos hazards in building materials
- ♦ Public and private non-profit schools
- ♦ Kindergarten to 12th grade



DLS Inspections – Triggers

- ♦ News/media
- ♦ Complaint – parent or teacher
- ♦ Referral from another agency
- ♦ Asbestos abatement notifications
- ♦ Failure to respond to records requests, written warnings or civil citations
- ♦ Most are routine – random selection



Asbestos in Schools – Fails the Grade

- ♦ AHERA (1986) – 36 years
- ♦ Not identifying ACM-flawed re-inspections
- ♦ Not monitoring ACM routinely
- ♦ Not updating management plans
- ♦ Not required to remove ACM
- ♦ Not required to report ACM statistics to State



What's New in AHERA?

- ♦ Reporting requirements – standard forms
- ♦ No abatement in occupied buildings
- ♦ Consulting firms licensed
- ♦ Consultant accountability
- ♦ Product brought into school after architect's letter – information sheet
- ♦ Contractor coming into school – notifications



Department of Labor Standards (DLS)



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Contact us ▼

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back

<https://www.mass.gov/orgs/department-of-labor-standards>

A Asbestos

H Hazard

E Emergency

R Response

A Act

Key Federal Requirements:

- School inspections for any building materials that may contain asbestos.
- In the presence of asbestos, districts must prepare asbestos management plans.
- Maintain an updated copy of each school's asbestos management plan at the school.
- Conduct all necessary asbestos-related work safely.
- All asbestos related workers in schools must be trained and accredited.
- Provide asbestos awareness training for all custodial and building services staff.

Asbestos Management Plan

Name and address of each school building and whether the building has asbestos-containing building material, and the type of asbestos-containing material

Date of the original school inspection

Plan for re-inspections

Blueprint that clearly identifies the location of asbestos-containing building materials that remains in the school

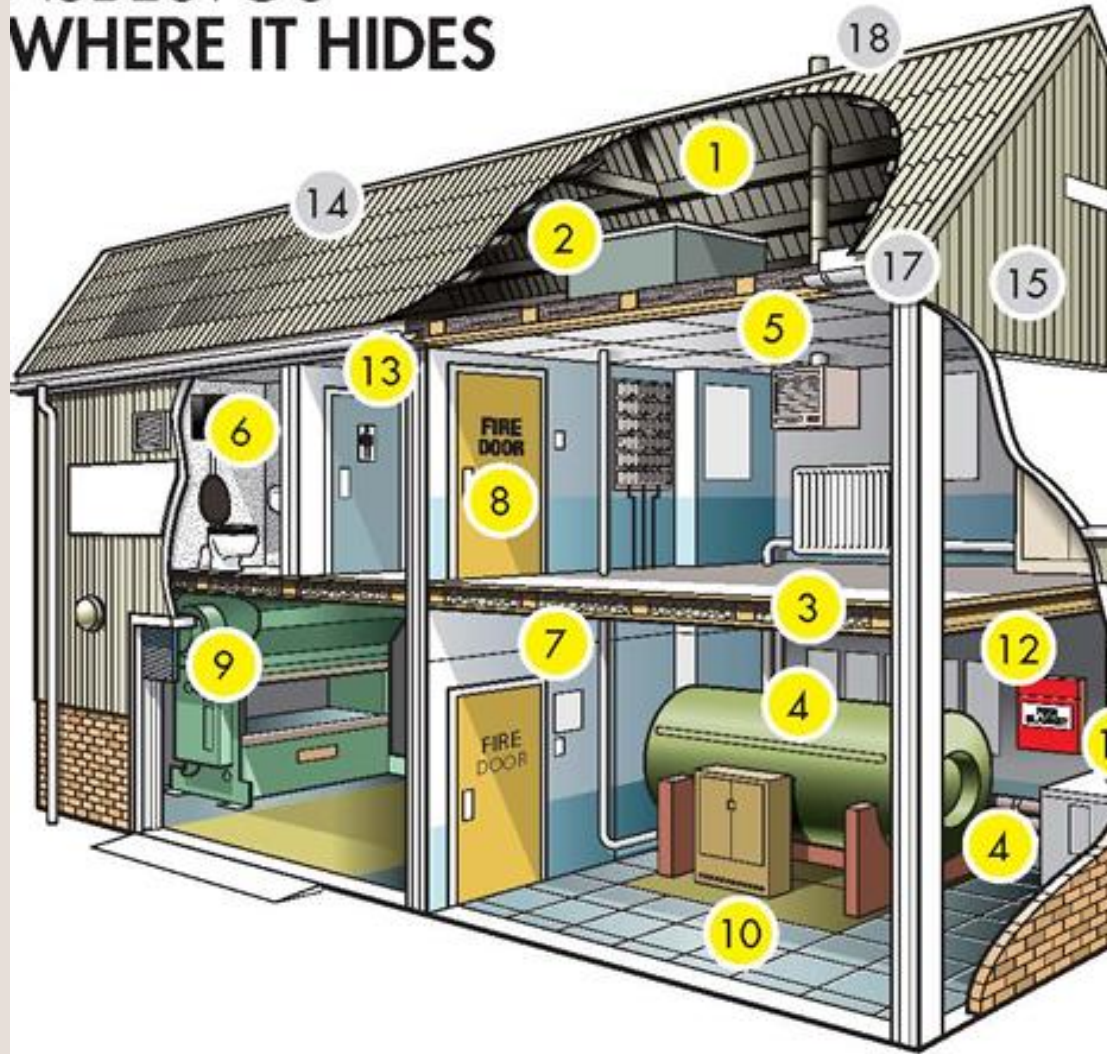
Description of any response action or preventive measures taken to reduce asbestos exposure

Copy of the analysis of any building, and the name and address of any laboratory that sampled the material

Name, address, and telephone number of the “designated person” or contact to ensure the duties of the school district or non-profit private school are carried out

Description of steps taken to inform workers, teachers, and students or their legal guardians about inspections, re-inspections, response actions, and periodic surveillance

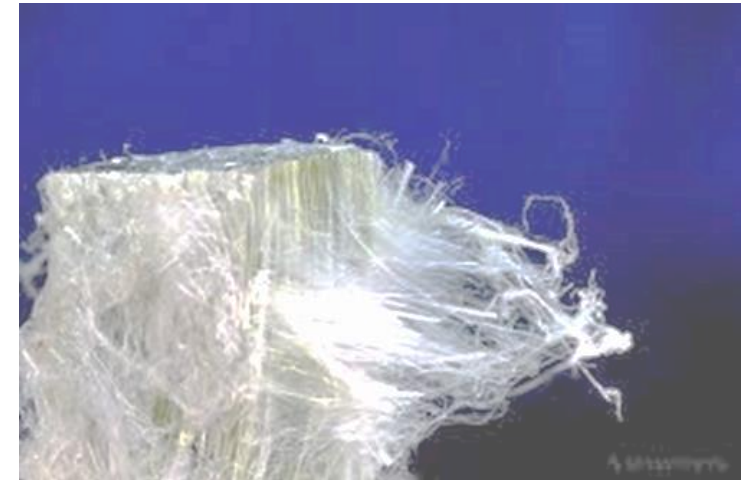
ASBESTOS WHERE IT HIDES



Locations

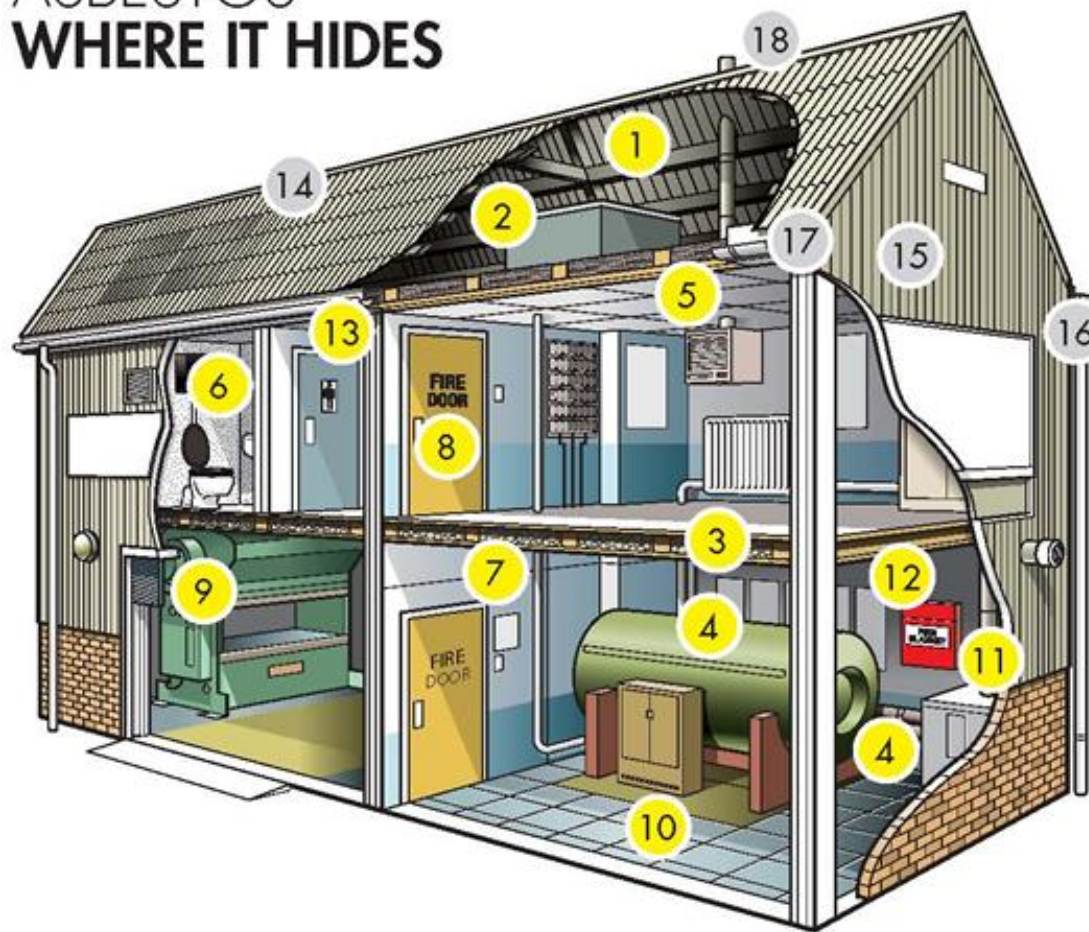
Asbestos

- ♦ Naturally occurring fibrous mineral
- ♦ ACM >1% asbestos
- ♦ Can be friable or non-friable
- ♦ Hazardous when airborne
- ♦ Asbestos is not banned in U.S.
- ♦ Assume materials have asbestos – unless tested



Industrial

ASBESTOS WHERE IT HIDES



Industrial – Interior

1. Sprayed coatings on ceilings, walls, beams and columns
2. Asbestos cement water tank
3. Loose fill insulation
4. Lagging on boilers and pipes
5. AIB ceiling tiles
6. Toilet seat and cistern
7. AIB partition walls
8. AIB panels in fire doors
9. Rope seals, gaskets and paper
10. Vinyl floor tiles
11. AIB around boilers
12. Textiles (e.g. fire blankets)
13. Textured decorative coatings on walls and ceilings

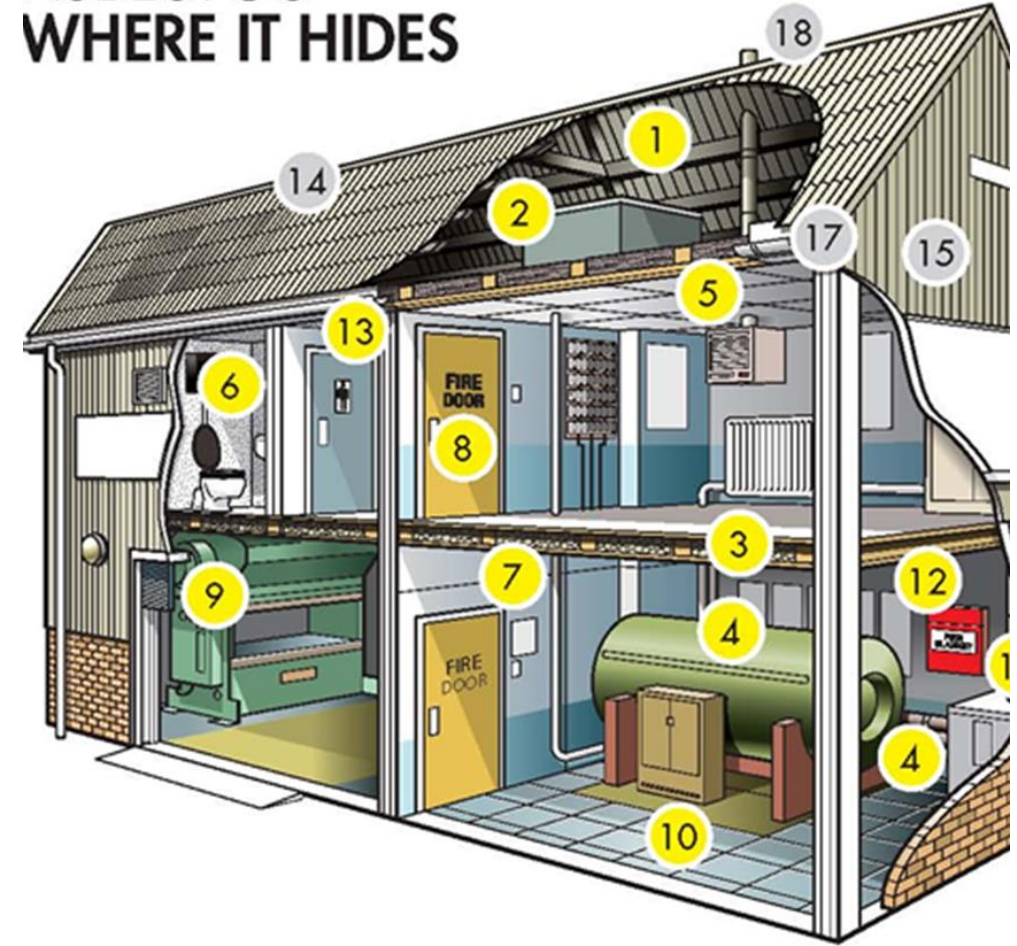




Industrial – Exterior

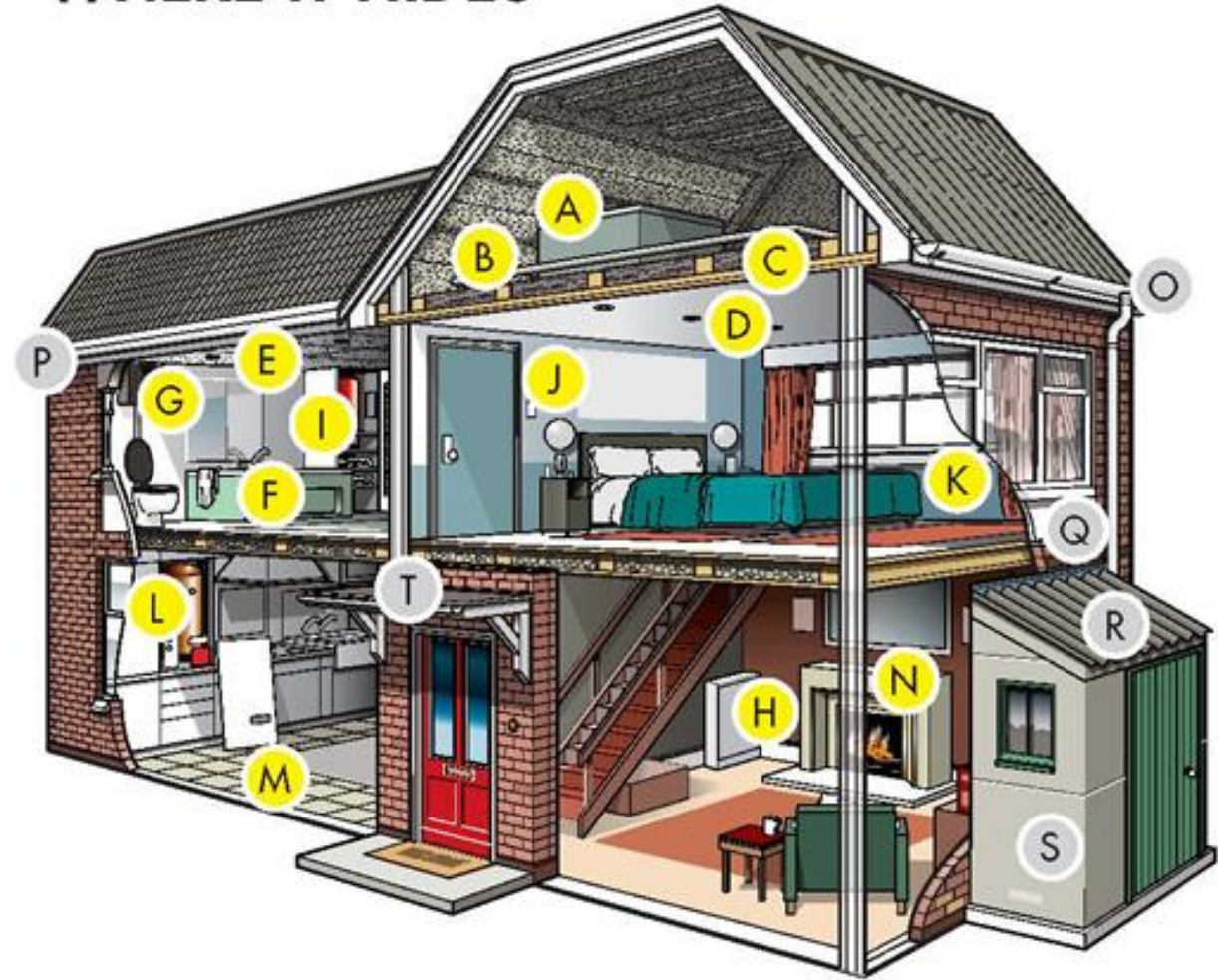
- 14. Asbestos cement roof
- 15. Asbestos cement panels
- 16. Asbestos cement gutters and downpipes
- 17. Soffits – AIB or asbestos cement
- 18. Asbestos cement flue

ASBESTOS
WHERE IT HIDES



ASBESTOS WHERE IT HIDES

Residential



Residential – Interior

A. Asbestos cement water tank

B. Pipe lagging

C. Loose fill insulation

D. Textured decorative coating

E. AIB ceiling tiles

F. AIB bath panel

G. Toilet seat and cistern

H. AIB behind fuse box

I. AIB airing cupboard and/or sprayed insulation coating boiler

J. AIB partition wall

K. AIB interior window panel

L. AIB around boiler

M. Vinyl floor tiles

N. AIB behind fire

Residential – Exterior

O. Gutters and asbestos cement downpipes

P. Soffits – AIB or asbestos cement

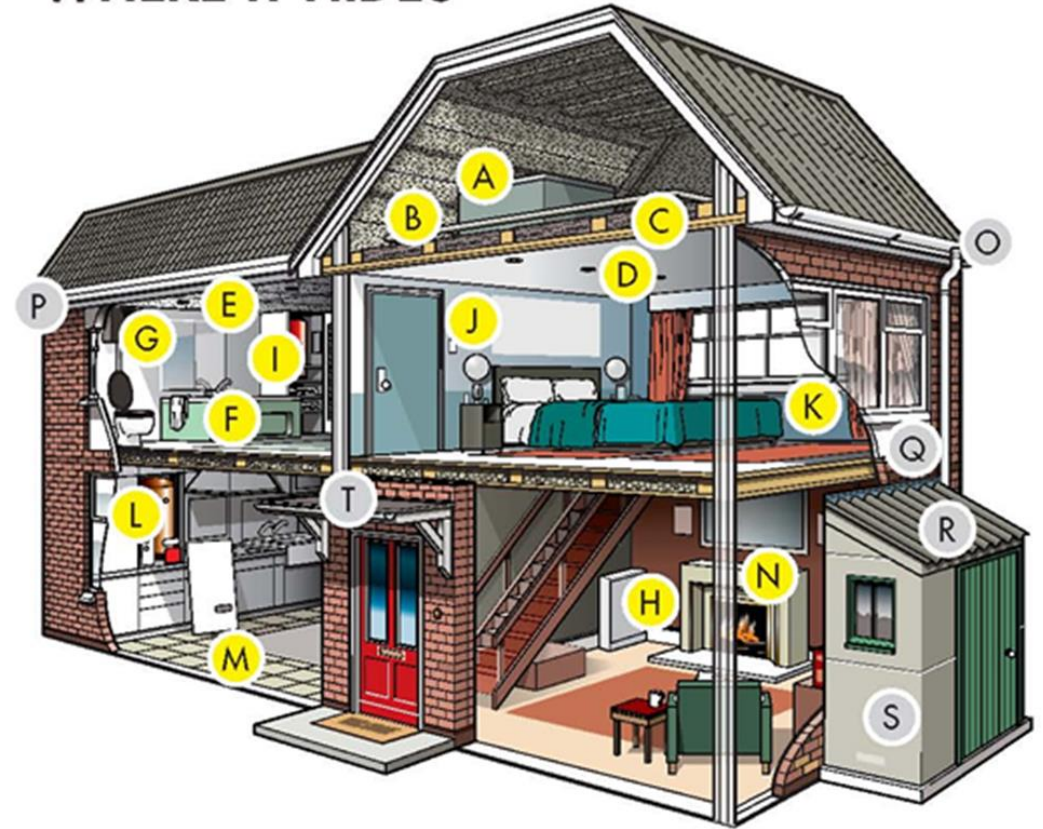
Q. AIB exterior window panel

R. Asbestos cement roof

S. Asbestos cement panels

T. Roofing felt

ASBESTOS WHERE IT HIDES



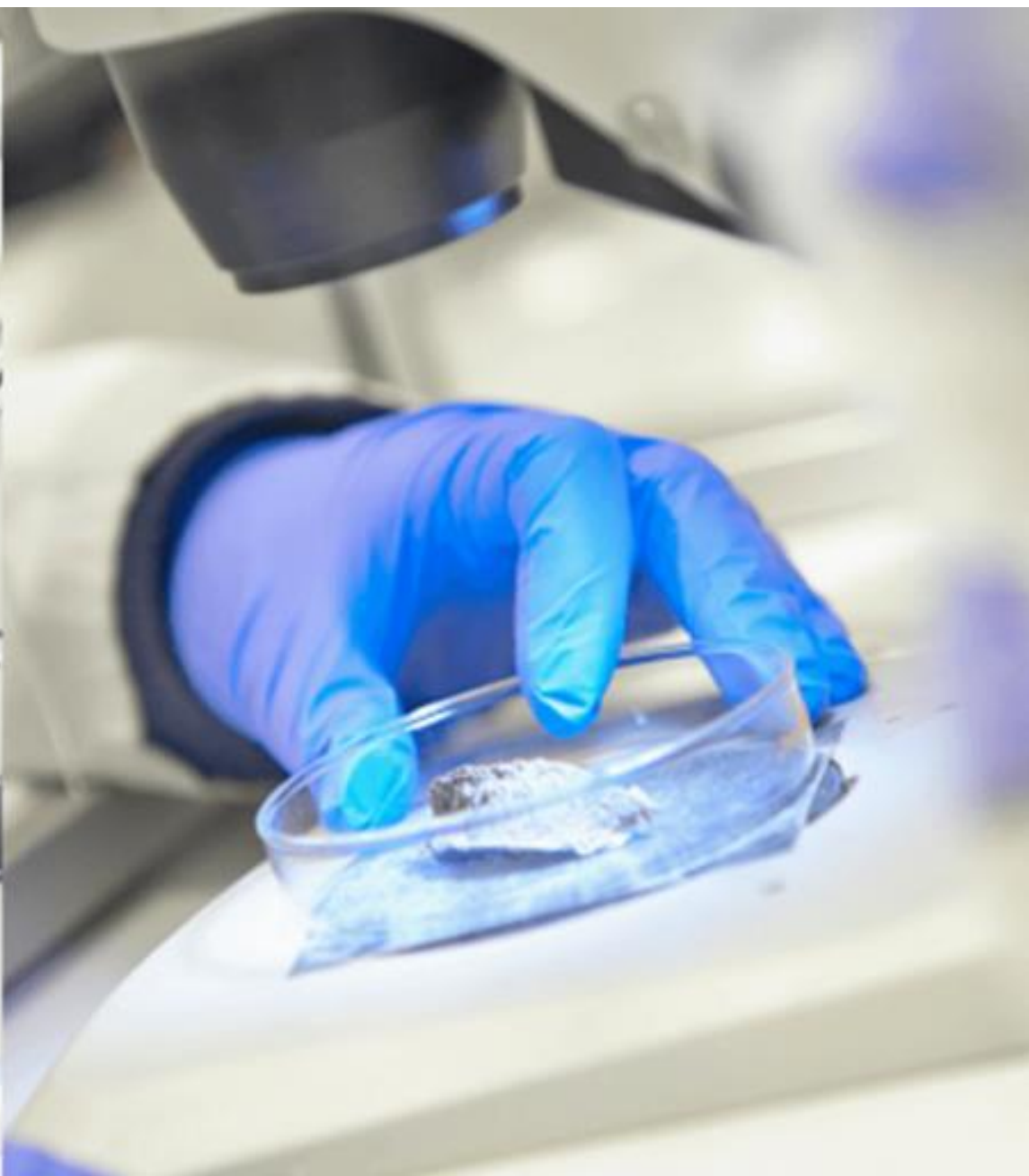


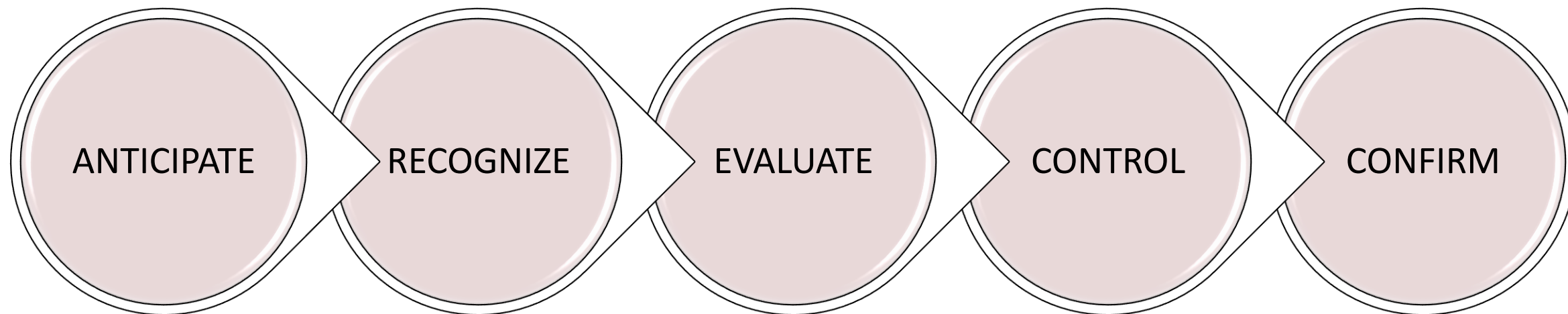




**DANGER
ASBESTOS**

Recognition of Hazards





ASBESTOS
MAY CAUSE CANCER
CAUSES DAMAGE TO LUNGS
AUTHORIZED PERSONNEL ONLY
WEAR RESPIRATORY PROTECTION AND
PROTECTIVE CLOTHING IN THIS AREA

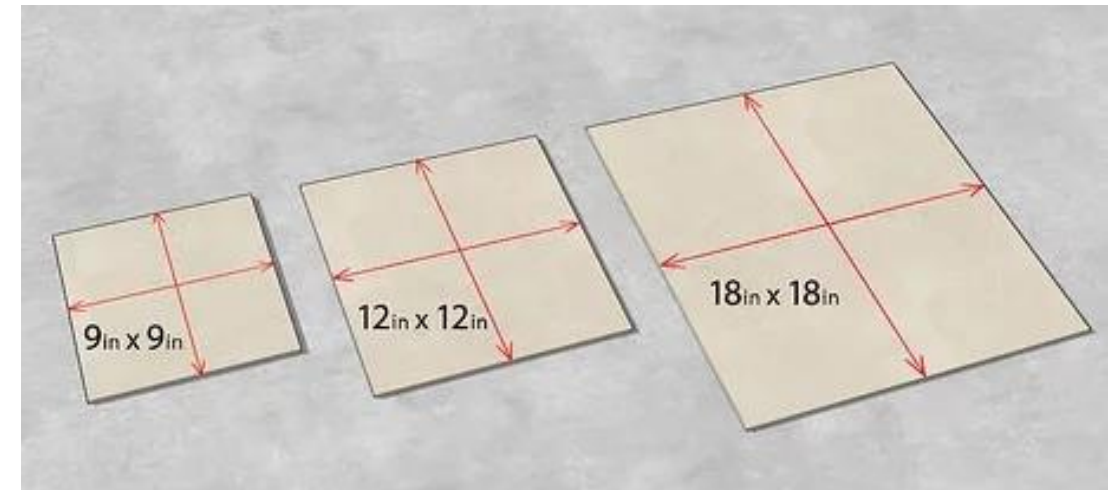


Anticipate

- ♦ Asbestos is labeled?
- ♦ Age of the building – before 1981
 - ♦ Insulation
 - ♦ Flooring
 - ♦ Roofing
 - ♦ Walls
 - ♦ Others?

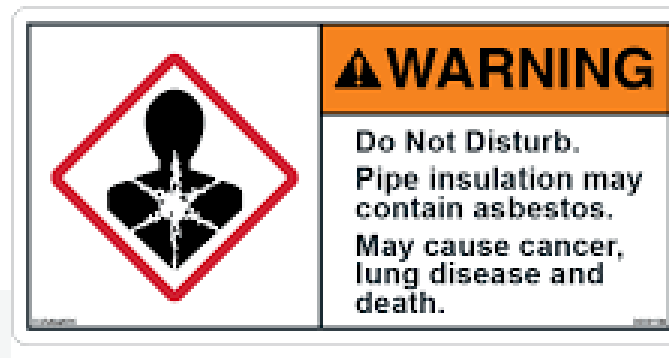


ASBESTOS
MAY CAUSE CANCER
CAUSES DAMAGE TO LUNGS
AUTHORIZED PERSONNEL ONLY
WEAR RESPIRATORY PROTECTION AND
PROTECTIVE CLOTHING IN THIS AREA



Recognize

- ♦ Potential building materials
- ♦ If not damaged – do not touch or disturb it!
- ♦ If disturbed, damaged, cut, torn, sanded, sawed, drilled, scraped or show signs of wear or damage...limit access to the area and contact the “designated person” immediately





WARNING - TO AVOID
HAZARD DO NOT immerse
BATHING 120 VOLTS AC
50/60 HZ
SUPPLY AND CORD



















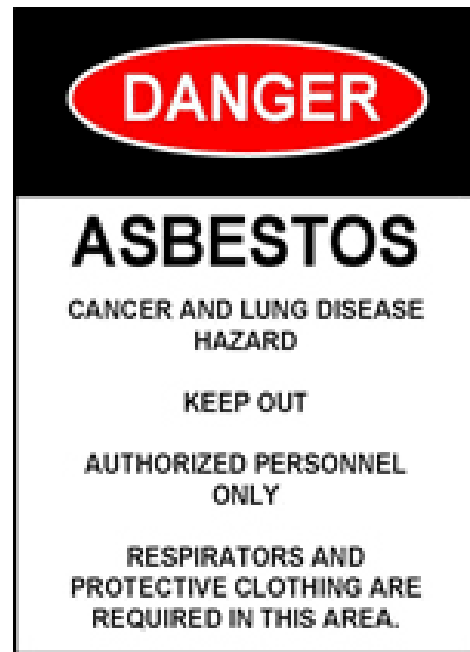
Evaluate

Safe Work Procedures

- ♦ Based on likelihood of disturbing ACM
- ♦ Basic operations and maintenance procedures
- ♦ Special operations and maintenance procedures
- ♦ Procedures for asbestos fibers release
- ♦ Personal protective equipment



Activities beyond maintenance activities must be performed by trained and accredited asbestos professional ONLY





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Safe Work Procedures

- ♦ Pre-work approval
- ♦ Special scheduling
- ♦ Supervision
- ♦ HVAC system modification
- ♦ Area containment
- ♦ Mini-enclosures
- ♦ Special tools
- ♦ Respiratory protection
- ♦ Protective clothing
- ♦ Wet methods
- ♦ HEPA vacuum
- ♦ Avoidance – sawing, sanding, drilling

Licensed Personnel – Asbestos

- ♦ Accredited asbestos laboratory
- ♦ Asbestos consultant
- ♦ Asbestos contractor
- ♦ Asbestos inspector
- ♦ Asbestos management planner
- ♦ Asbestos project designer
- ♦ Asbestos project monitor
- ♦ Asbestos supervisor
- ♦ Asbestos training provider
- ♦ Asbestos worker

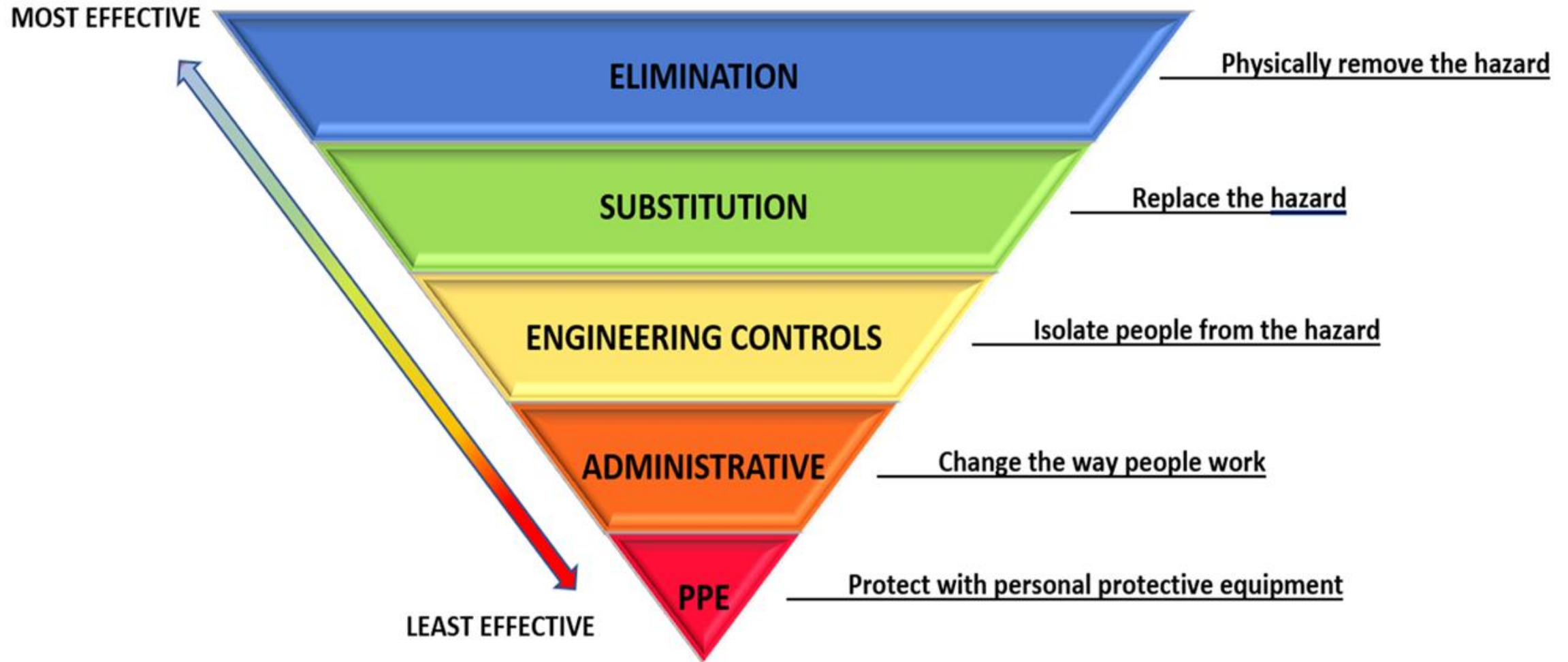


ASBESTOS WORK CLASS	WORK ACTIVITIES
CLASS I	Activities involving the removal of TSI and surfacing of ACM and PACM
CLASS II	Activities involving the removal of ACM which is not thermal system insulation or surfacing material. This includes, but is not limited to, the removal of asbestos-containing wallboard, floor tile and sheeting, roofing and siding shingles and construction mastics.
CLASS III	Activities that constitute repair and maintenance operations, where ACM, including TSI and surfacing ACM and PACM, is likely to be disturbed.
CLASS IV	Maintenance and custodial activities during which employees contact, but do not disturb, ACM or PACM and activities to clean up dust, waste and debris resulting from Class I, II and III activities.



Controls and Protection

Hierarchy of Controls



Controlling Asbestos Exposure

- ♦ Removal – glove bags, full containments
- ♦ Repair – wet wrap small sections
- ♦ Enclose – preformed PVC covering, metal jackets, wood – airtight barrier
- ♦ Encapsulate – prevents delamination
- ♦ Operations and maintenance – surveillance, housekeeping, notifications



Fiber Release Episodes

- ♦ Any unintentional or unexpected disturbance of ACM resulting in release of fibers into occupied spaces
- ♦ Often happens without knowledge of Designated Person
- ♦ Can result in widespread contamination and costly cleanup





FIBER RELEASE EPISODE GUIDANCE FOR THE DESIGNATED PERSON

A fiber release episode, as defined by the Department of Labor Standards (DLS) at 454 CMR 28.02 and AHERA 40 CFR 763.83, means any uncontrolled or unintentional disturbance of asbestos containing material (ACM) resulting in a visible emission.

The use of best practices when responding to a fiber release episode will ensure that building occupants are protected and that the fiber release episode is promptly and effectively remediated. The minimum requirements for responding to a fiber release episode are set forth in 454 CMR 28.13(7)(e)1 and 2. The Designated Person should assess the situation, implement initial steps to contain the release, and contact their asbestos consultant to assist with a prompt and effective response action.

A minor fiber release involves the disturbance of three or fewer square or linear feet of ACM. A major fiber release involves the disturbance of greater than three square or linear feet of asbestos. The response action for any major fiber release episode requires a project design specifying means and methods, and must be conducted by a licensed asbestos contractor. The Local Education Agency (LEA) must notify DLS of any major fiber release within 24 hours of its occurrence, and if necessary, file written notification to the state [454 CMR 28.13(7)(e)2.d].

The initial steps that the Designated Person must take to protect building occupants include:

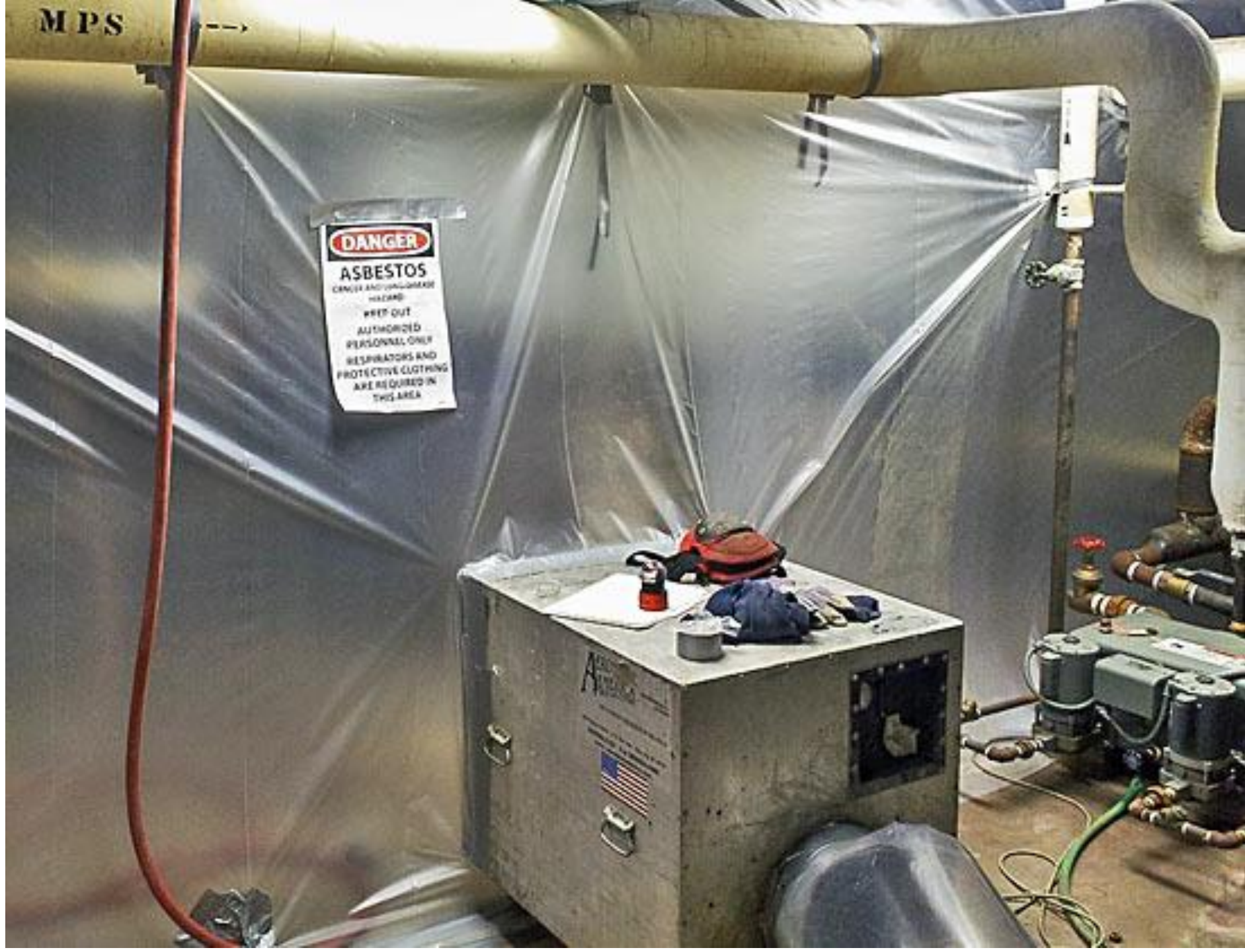
1. Isolating the area. Restrict access to the area by the general public. Foot traffic through the area can spread the extent of contamination to clean areas of the building, and expose building occupants to asbestos fibers.
2. Post warning signs at all access points to the area. Signs should be large and readily visible. Signs should indicate: Restricted Area. Asbestos Hazard. No unauthorized access. No entry without proper training and equipment.
3. Shut down or temporarily modify the air handling system to prevent the distribution of airborne asbestos fibers to unaffected areas of the building.
4. Notify DLS within 24 hours of the release. Contact the DLS AHERA program hotline at DLSfeedback@state.ma.us or 617-626-6290.
5. Contact the asbestos consultant to evaluate the situation and assist the Designated Person in developing a remediation strategy. The strategy may include bulk sampling, air sampling and/or wipe sampling.
6. Contact the asbestos contractor to clean visible debris, and remove or repair damaged or exposed ACM.

Keep a record of the event in the AHERA management plan: date and location, description of episode, what interim control measures were used, the project design, contractor information and any air testing reports.









A microscopic image showing a dense cluster of white, fibrous asbestos material on the left side, with individual fibers extending towards the right against a dark background.

ASBESTOS

DO NOT DISTURB



Danger
Asbestos



**Do not disturb
material**



**Report accidental
damage immediately**







PRECAUTIONS FOR ASBESTOS REMOVAL

Suggested safety equipment
for workers who are removing,
handling and disposing of
asbestos-containing materials.

GLOVES

COVERALL

A Tyvek coverall keeps
dust off of clothing and
should be disposed of
after completing work

EYE PROTECTION

Non-fogging goggles
or safety glasses

RESPIRATOR

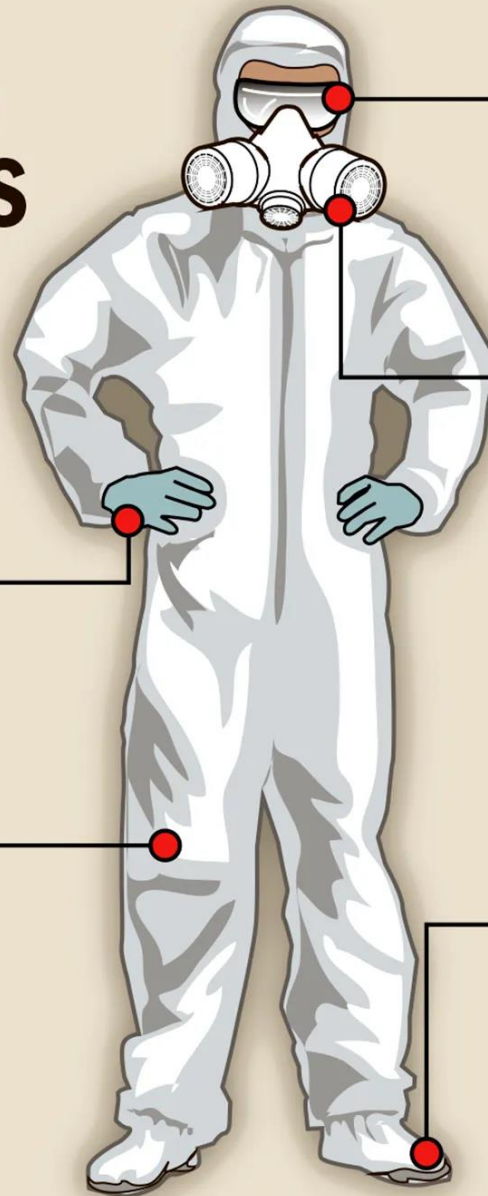
Dual-cartridge respirator
with 2 HEPA filters
(high-efficiency particulate air)

BOOTS

Washable, lace-less rubber
boots under coveralls

SOURCE: State of Oregon
Department of Environmental Quality

MARTHA THIERRY
/DETROIT FREE PRESS





Confirm

- ♦ Plan – is it working?
- ♦ Inspections
- ♦ Training
- ♦ Documentation

Duties – EPA AHERA

- ♦ Inspect all schools for asbestos
- ♦ Develop management plans
- ♦ Keep asbestos in good condition
- ♦ Conduct re-inspections every 3 years and surveillance – 6 months
- ♦ Ensure all asbestos-related work is done by trained and licensed personnel
- ♦ Training – designated person and all custodial/maintenance staff

Asbestos Management Plan

Name and address of each school building and whether the building contains asbestos-containing building material, and the type of asbestos-containing material

Date of the original school inspection

Plan for re-inspections every two years

Blueprint that clearly identifies the location of asbestos-containing building materials that remains in the school

Description of any response action or preventive measures taken to reduce asbestos exposure

Copy of the analysis of any building, and the name and address of any laboratory that sampled the material

Name, address, and telephone number of the "designated person" or committee to ensure the duties of the school district or non-profit private school are carried out

Documentation of steps taken to inform workers, teachers, and students or their legal guardians about inspections, re-inspections, response actions, and periodic surveillance

Review

- ♦ Terminology
- ♦ Background – asbestos
- ♦ Health hazards
- ♦ Regulations



Review

- ♦ Potential and actual locations
- ♦ Recognition of hazards
- ♦ Controls and protection
- ♦ Q and A



Knowledge Check

- ♦ Asbestos is a group of six naturally occurring minerals made up of heat-resistant fibers.
- ♦ **True**
- ♦ Asbestos is not banned in the United States.
- ♦ **True**
- ♦ The No. 1 cause of work-related death in the world is asbestos related diseases.
- ♦ **True**
- ♦ Asbestos fibers can be embedded in the digestive tract.
- ♦ **True**

Knowledge Check

- ♦ Symptoms of asbestos-related diseases can take years to appear.
- ♦ **True**
- ♦ Existing breathing or lung conditions can increase the risk of asbestos-related diseases.
- ♦ **True**
- ♦ Asbestosis is non-cancerous.
- ♦ **True**
- ♦ Mesothelioma is a form of cancer.
- ♦ **True**

Knowledge Check

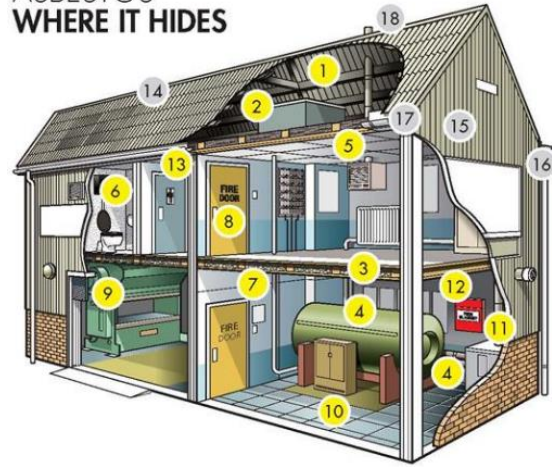
- ♦ The Asbestos Hazard Emergency Response Act are regulations that apply to schools.
- ♦ **True**
- ♦ Schools must have an Asbestos Management Plan.
- ♦ **True**
- ♦ Any activities disturbing asbestos must be performed by an accredited person.
- ♦ **True**
- ♦ This training does not qualify you to perform asbestos abatement.
- ♦ **True**

Knowledge Check

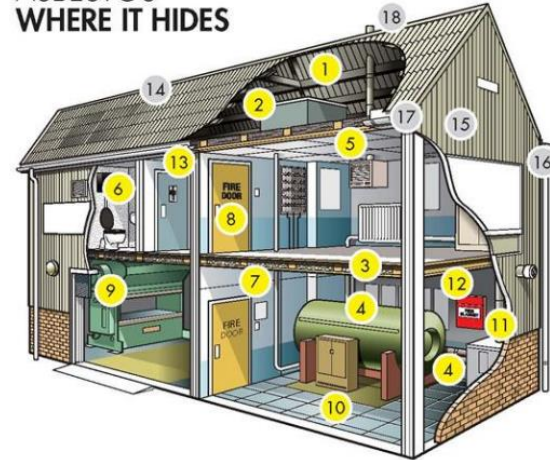
List five things at work or home that may have asbestos in them.

- ♦ Roof, walls, insulation, floor tiles, shingles, pipe, hair dryer, more!

ASBESTOS
WHERE IT HIDES

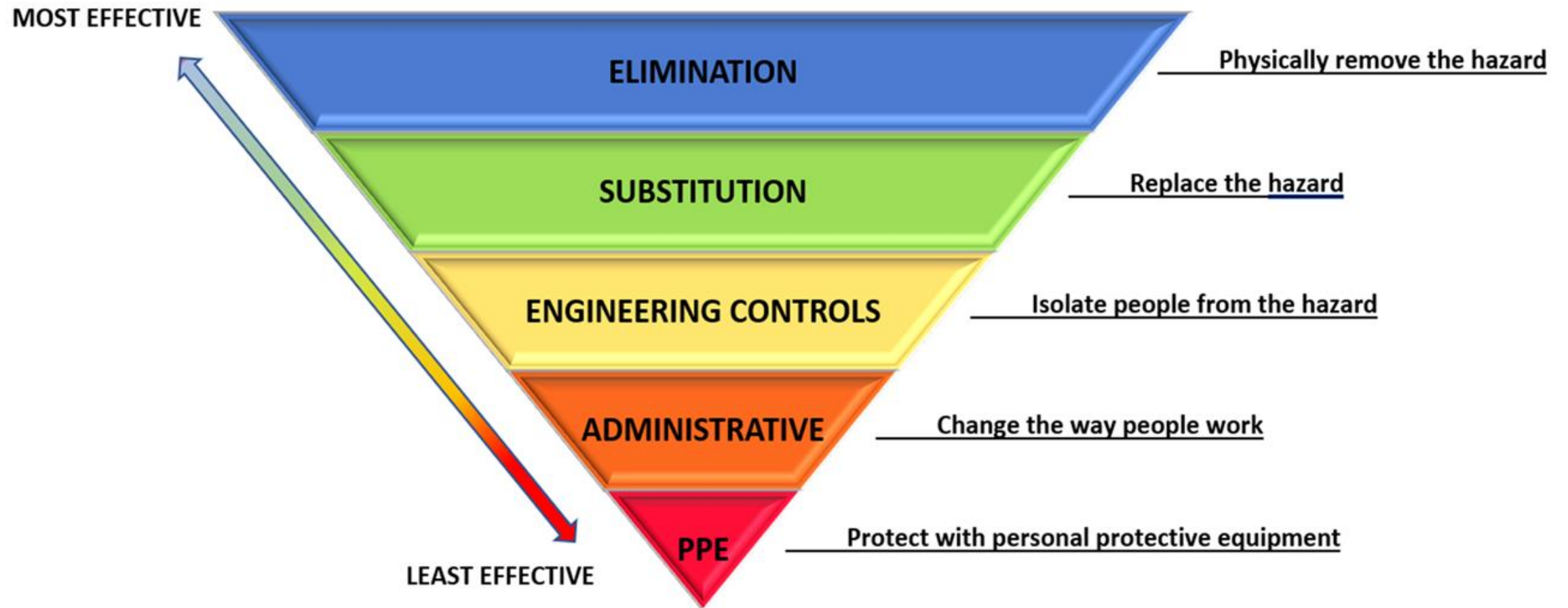


ASBESTOS
WHERE IT HIDES



Knowledge Check

Hierarchy of Controls



Resources

OSHA	www.osha.gov
NIOSH	www.cdc.gov/niosh
CDC	www.cdc.gov
EPA	www.epa.gov/asbestos
Patient Resource	www.mesothelioma.com
Asbestos Resource	www.asbestos.com
MA Asbestos Safety Program	www.mass.gov-asbestos-safety-program

*HAVE QUESTIONS,
COMMENTS OR
CONCERNS?*





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