

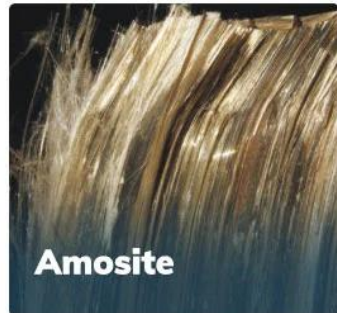


**SAN FRANCISCO
STATE UNIVERSITY**

Department of Environment Health and Safety



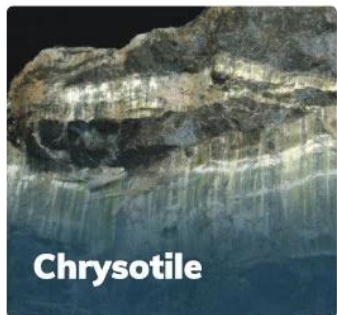
Actinolite



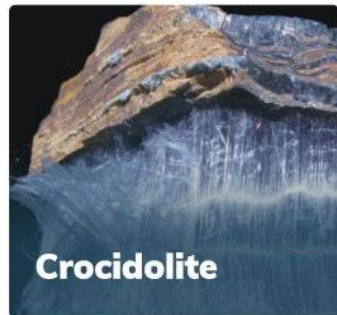
Amosite



Anthophyllite



Chrysotile



Crocidolite



Tremolite

ASBESTOS AWARENESS

SFSU Environment Health and Safety
OCT 2021



SF STATE

TRAINING TOPICS

- Forms and Uses
- Health Effects
- Potential Locations
- Who is at Risk
- Protecting Yourself
- Controlling Exposure



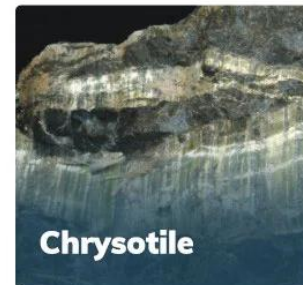
BASIC FACTS

- Asbestos is a mineral that comes apart into fibers.
- Asbestos is dangerous when it is in the air and you inhale it.
- It is very easy to get asbestos in the air.
- Asbestos can kill you, but you can protect yourself.

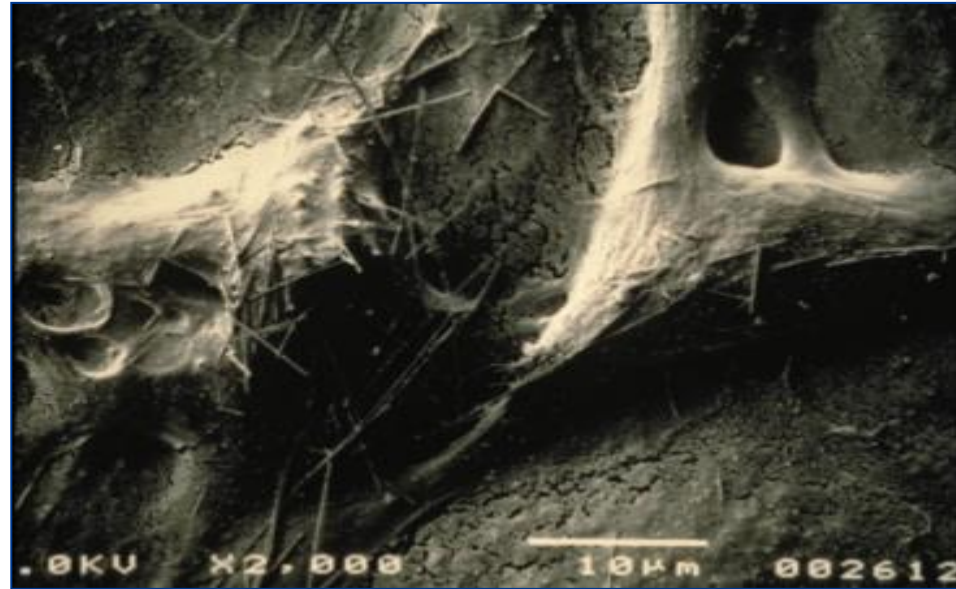


FORMS AND USES

- Chrysotile (white asbestos) – used as insulation, fireproofing, and soundproofing
- Amosite (**brown asbestos**) – used in high-friction applications such as brake shoes and clutches
- Crocidolite (**blue asbestos**) – not as common as the other two forms



ASBESTOS FIBROUS MINERALS



Serpentine
(93% of commercial use)

Chrysotile

Amphibole
(7% of commercial use)

**Actinolite, Amosite,
Anthophyllite, Crocidolite,
Richterite, Tremolite**



RECOGNIZING FRIABLE ASBESTOS

- ***Friable asbestos*** can be reduced to powder by hand pressure when it is dry. Sprayed-on asbestos insulation falls into this category.
- 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.**
- Because asbestos fibers are so small, once released into the air, they may stay suspended there for hours or even days.



RECOGNIZING FRIABLE ASBESTOS

- **Asbestos Facts**

- Asbestos fibers are also virtually indestructible.
- Resistant to chemicals and heat, and they are very stable in the environment.
- Do not evaporate into air or dissolve in water, and they are not broken down over time.
- Asbestos is probably the best insulator known to man.



RECOGNIZING FRIABLE ASBESTOS

Non-friable asbestos is usually found bonded into other materials. Its fibers are harder to break down into powder but can still be released by cutting, grinding or sanding.



HOW DO ASBESTOS FIBERS ENTER YOUR BODY?

- Asbestos fibers come from damaged materials containing asbestos
- These fibers enter your body when you breath, eat or drink
- They remain in your body for life
- They can cause deadly diseases



HEALTH EFFECTS

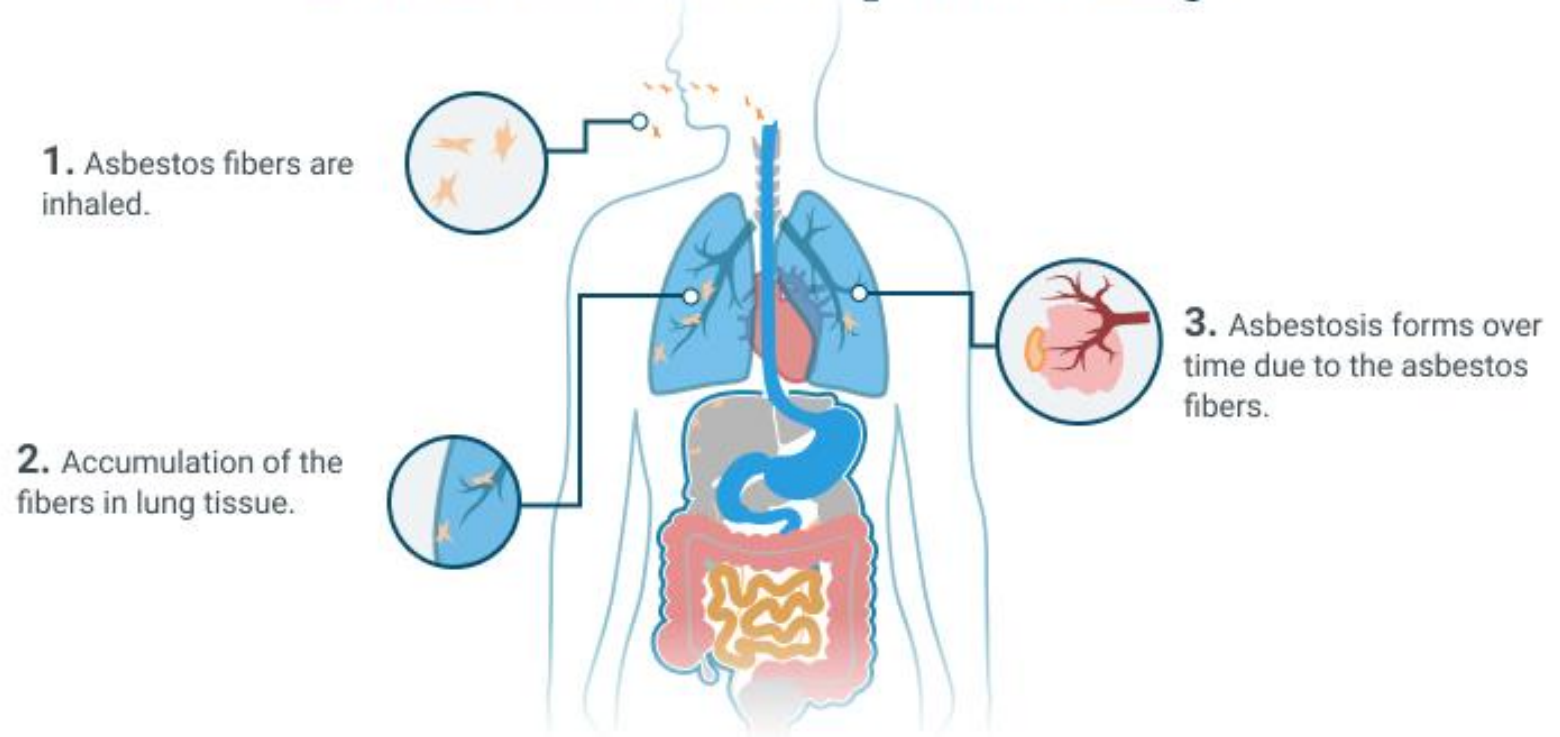
If you inhale asbestos fibers, they can enter your lungs and lodge into tiny air sacs called “alveoli”. It is through these air sacs that oxygen enters the blood and carbon dioxide is removed.



HEALTH EFFECTS

When asbestos fibers enter the alveoli, they irritate the membrane and leave scar tissue which oxygen cannot penetrate. This condition is called ***asbestosis***.

How Asbestosis Develops in the Lungs



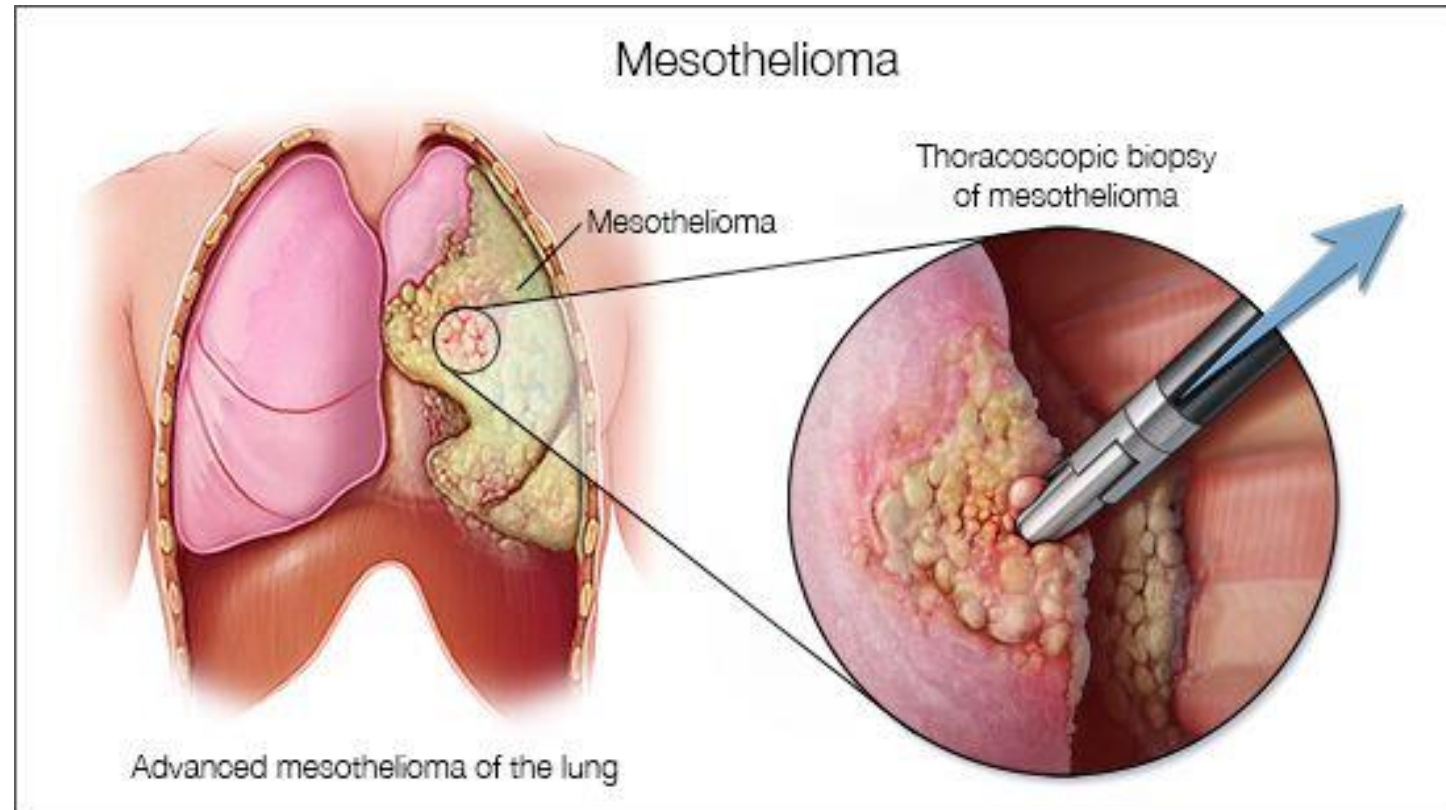
SIGNS AND SYMPTOMS OF ASBESTOSIS INCLUDE:

- Shortness of breath is the primary symptom
- A persistent and productive cough (a cough that expels mucus)
- Chest tightness
- Chest pain
- Loss of appetite
- A dry, crackling sound in the lungs while inhaling.



HEALTH EFFECTS

- Another area that can be affected is the pleura – the membrane lining the lungs.
- Asbestos fibers may migrate from the lungs into the pleura and cause a cancer called ***mesothelioma***.
- It is not dose-related.



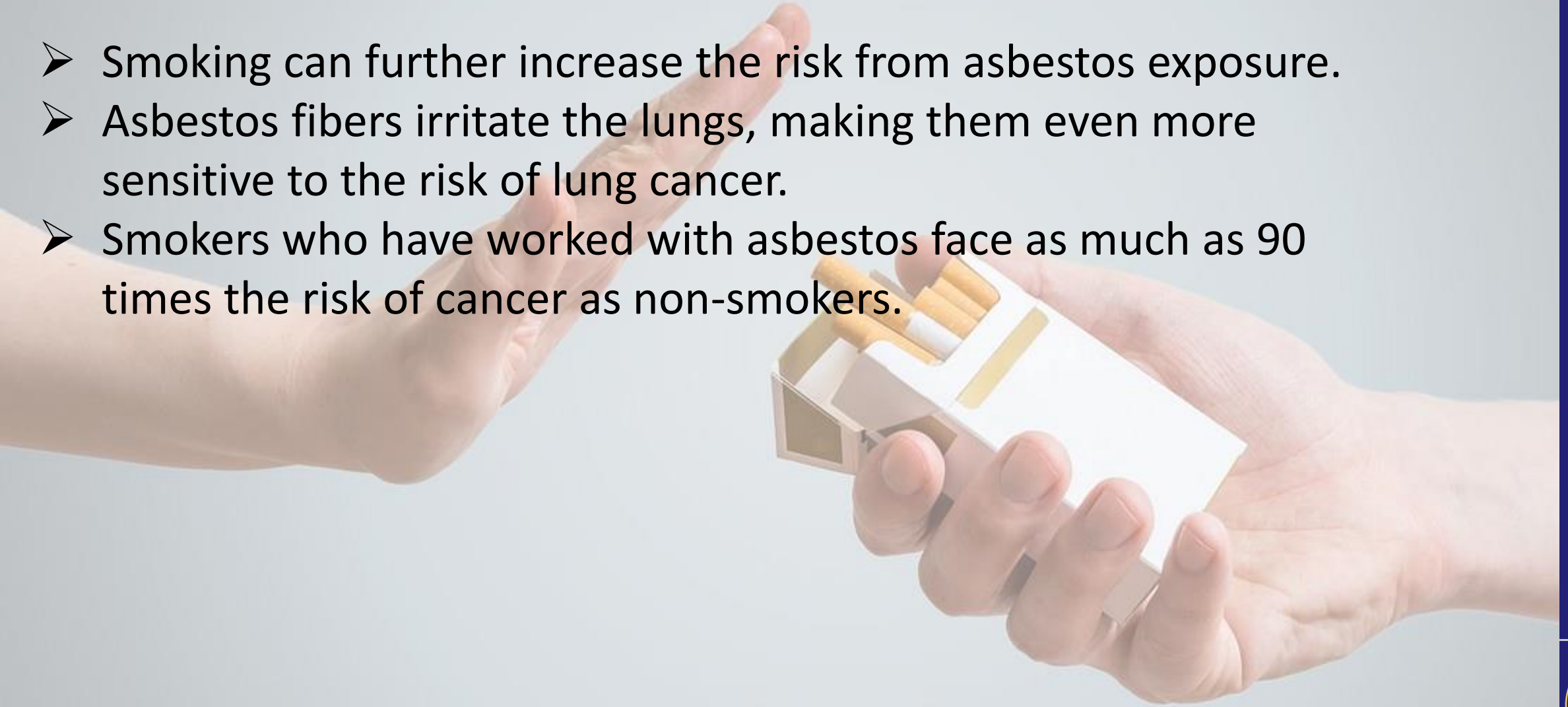
HEALTH EFFECTS

- There are no warning signs that asbestos is causing problems in your body.
- Many harmful effects do not appear for 20 years or more.



HEALTH EFFECTS

- Smoking can further increase the risk from asbestos exposure.
- Asbestos fibers irritate the lungs, making them even more sensitive to the risk of lung cancer.
- Smokers who have worked with asbestos face as much as 90 times the risk of cancer as non-smokers.



DOSE-RELATED



- The more asbestos fibers you breathe or swallow, the more likely you are to get sick. This is called a dose relationship.
- The higher the amount of asbestos, the greater your chances of getting an asbestos disease.
- Mesothelioma is the exception.



POTENTIAL LOCATIONS

- Thermal system insulation, ducts, boilers, pipes
- Sprayed-on or troweled-on surfacing materials
- Asphalt & vinyl floors
- Suspended ceiling tiles
- Fireproof drywall
- Fireproof drapes and curtains
- Roofing felt & shingles
- Exterior siding shingles
- Sprayed-on fireproofing on beams
- High-temp gaskets & valve insulation



WHO IS AT RISK?

- You don't have to work directly with asbestos to be at risk from exposure to airborne fibers. You may be exposed just by working in a building that contains the material.



WHO IS AT RISK (Exposure in general industry:)

- Your risk increases if:
 - Your work area contains friable asbestos, such as sprayed-on insulation.
 - You work near a construction or renovation area which contains asbestos.
 - You are engaged in maintenance or custodial activities in areas containing asbestos.
 - You work with automotive brake and clutch repair



PROTECTING YOURSELF

- Never drill holes or hammer nails in ceilings or surfaced walls.
- Wear the proper PPE when removing ceiling tiles or light fixtures from suspended ceiling grids.
- Try to avoid scraping floor tiles, walls or disturb ductwork when moving furniture.



PROTECTING YOURSELF

- When removing ventilation system filters, do not shake the filters to remove the dust.
- Don't dust, sweep up debris or vacuum carpets in areas that may contain asbestos.
- If you find any material that you suspect may contain asbestos, notify your supervisor.



CONTROLLING EXPOSURE

- Asbestos Emergency Kit
 - Gloves
 - Protective eyewear
 - Disposable clothing
 - Booties
 - Garbage bags
 - Water bottle
 - Important Telephone numbers



CONTROLLING EXPOSURE

- Follow your workplace safety procedures and pay attention to asbestos warning signs.
- Always heed the labels on asbestos products or waste.
- Remember that good housekeeping practices are very effective in reducing your exposure to asbestos.




SUMMARY

- Asbestos kills.
- Beware of material that easily crumbles containing asbestos.
- If you must work near asbestos, your goal is to prevent asbestos from becoming airborne.
- Regulated areas contain dangerous levels of airborne asbestos.



SUMMARY

! CAUTION



Asbestos Dust Hazard. Avoid Breathing Dust.
Wear Assigned Protective Equipment.
Do not remain in area unless your work requires it.

CAUTION

ASBESTOS HAZARD
DO NOT DISTURB WITHOUT PROPER TRAINING AND EQUIPMENT

 **Danger**
Asbestos

 **Do not disturb material**

 **Report accidental damage immediately**



QUESTIONS



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THE END

