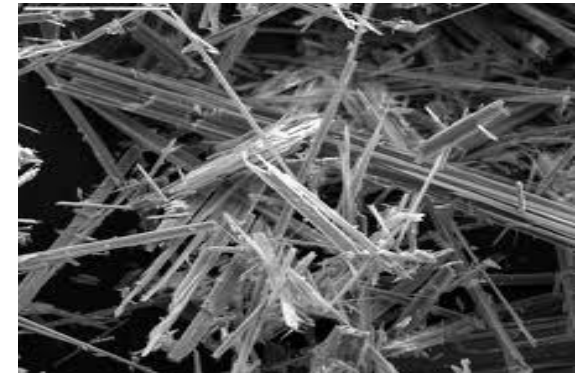
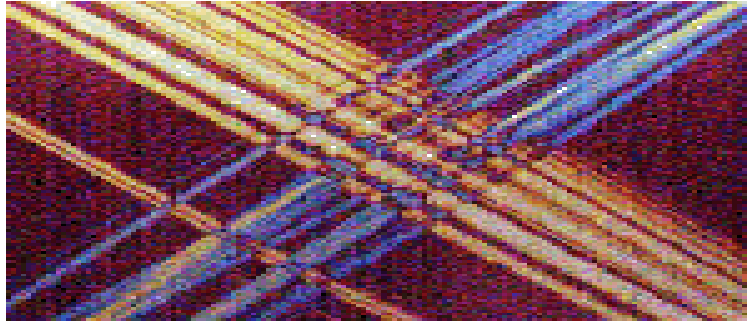
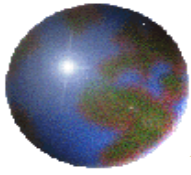


# *ASBESTOS AWARENESS TRAINING*





# Goals of Asbestos Awareness Training

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## **1. Learn the facts about asbestos**

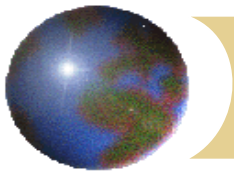
- History
- Uses
- Health Effects
- Locations

## **2. Comply with provisions of 40CFR763.92 (EPA)**

- Training of maintenance, custodial, or personnel who work in a building that contains asbestos.

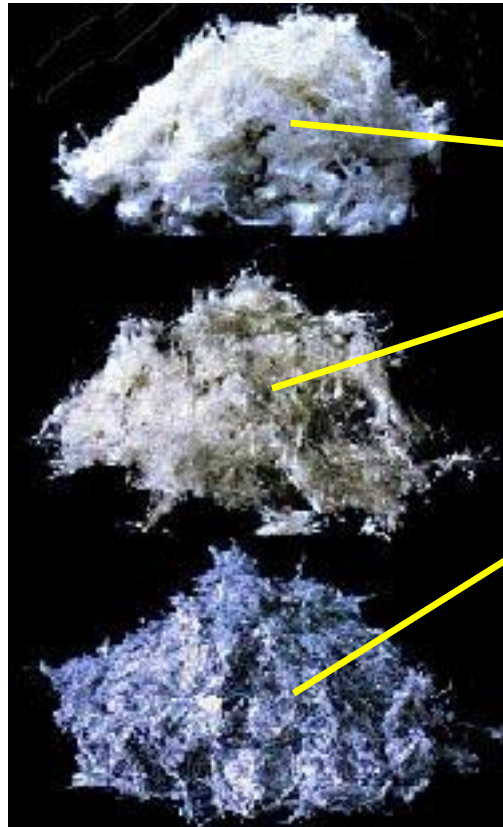
## **3. Learn three new R's**

- Recognize
- Restrict
- Report



# What is Asbestos?

Asbestos is a generic term used to describe a family of inorganic, fibrous, silicate minerals.



**Chrysotile**

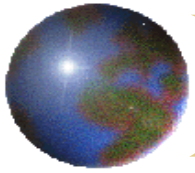
**Amosite**

**Tremolite**

**Crocidolite**

**Anthophyllite**

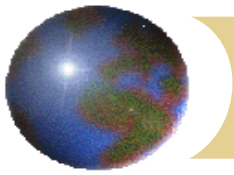
**Actinolite**



# Bulk Chrysotile Asbestos

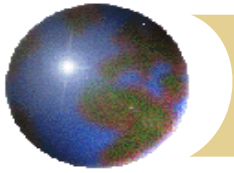
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# History of Asbestos Use

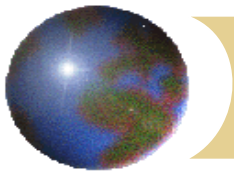
- ✓ First used over 2000 years ago by the Greeks and Roman Empires, and the Mongols of ancient China.
- ✓ Extensive deposits were discovered in Canada in the late 1800s. Other commercial production sites are located in South Africa, the former soviet Union, and the United States.
- ✓ Peak period of use was during World War II, primarily by the shipbuilding industry.
- ✓ Between 1950-1970, over half of the buildings constructed in the US used some form of asbestos material.



# Why use Asbestos?

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- ✓ **Readily available**
- ✓ **Excellent thermal resistance**
- ✓ **High tensile strength**
- ✓ **Chemically resistant**
- ✓ **Does not degrade with age**
- ✓ **Soft and pliant, easy to work with**



# Uses of Asbestos

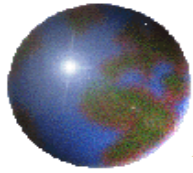
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**Asbestos has been used in hundreds of common products including:**

Insulation products, surfacing materials, floor tiles, linoleum, roofing materials, sealants and adhesives, caulking, gaskets, window glazing, joint material, cement boards, lab equipment fireproofing, ....

**It was also used in less common ways, including:**

Toasters, cooking utensils, paints, childrens clothing, and even cigarette filters!



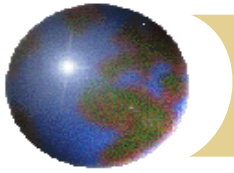
# **Asbestos Containing Material (ACM)**

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**Materials that contain more than 1% asbestos are known as Asbestos Containing Materials (ACM).**

**ACM can be divided into one of three categories:**

- Thermal System Insulation (TSI)
- Surfacing Material
- Miscellaneous Materials



# Common ACM by Category

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## **Examples of TSI:**

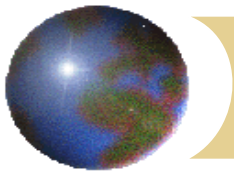
- Heat shielding material
- Pipe insulation and mudded fittings
- Blanket insulations

## **Examples of surfacing materials:**

- Spray applied fireproofing
- Textured ceiling coatings
- Plaster smoothcoat

## **Examples of miscellaneous materials:**

- Floor tiles
- Brake shoes
- Exterior siding



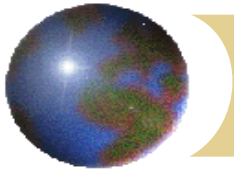
# Identification of ACM

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Although possible to “suspect” a material contains asbestos, actual confirmation can only be achieved by laboratory analysis.

**Bulk material samples must be collected for analysis using Polarized Light Microscopy (PLM) or Transmission Electron Microscopy (TEM) by trained professionals.**

By using special microscopes and reading the optical signature of a material, percent and type of asbestos is determined in a bulk material sample.



# When asbestos is a problem

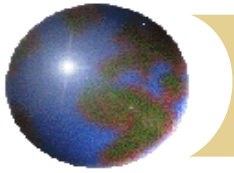
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Intact and undisturbed ACM in a building does not pose a health risk to building occupants.

ACM becomes a potential hazard when asbestos fibers are released into the air.

Fibers can become airborne due to damage, disturbance, or deterioration over time.

Once airborne, asbestos fibers can be inhaled.



# Asbestos Fibers

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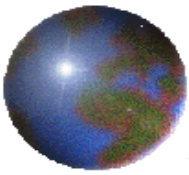
The amount of asbestos exposure required to develop an asbestos related disease is not known.

The physical size and durability of asbestos fibers are primary reasons for their hazardous nature.

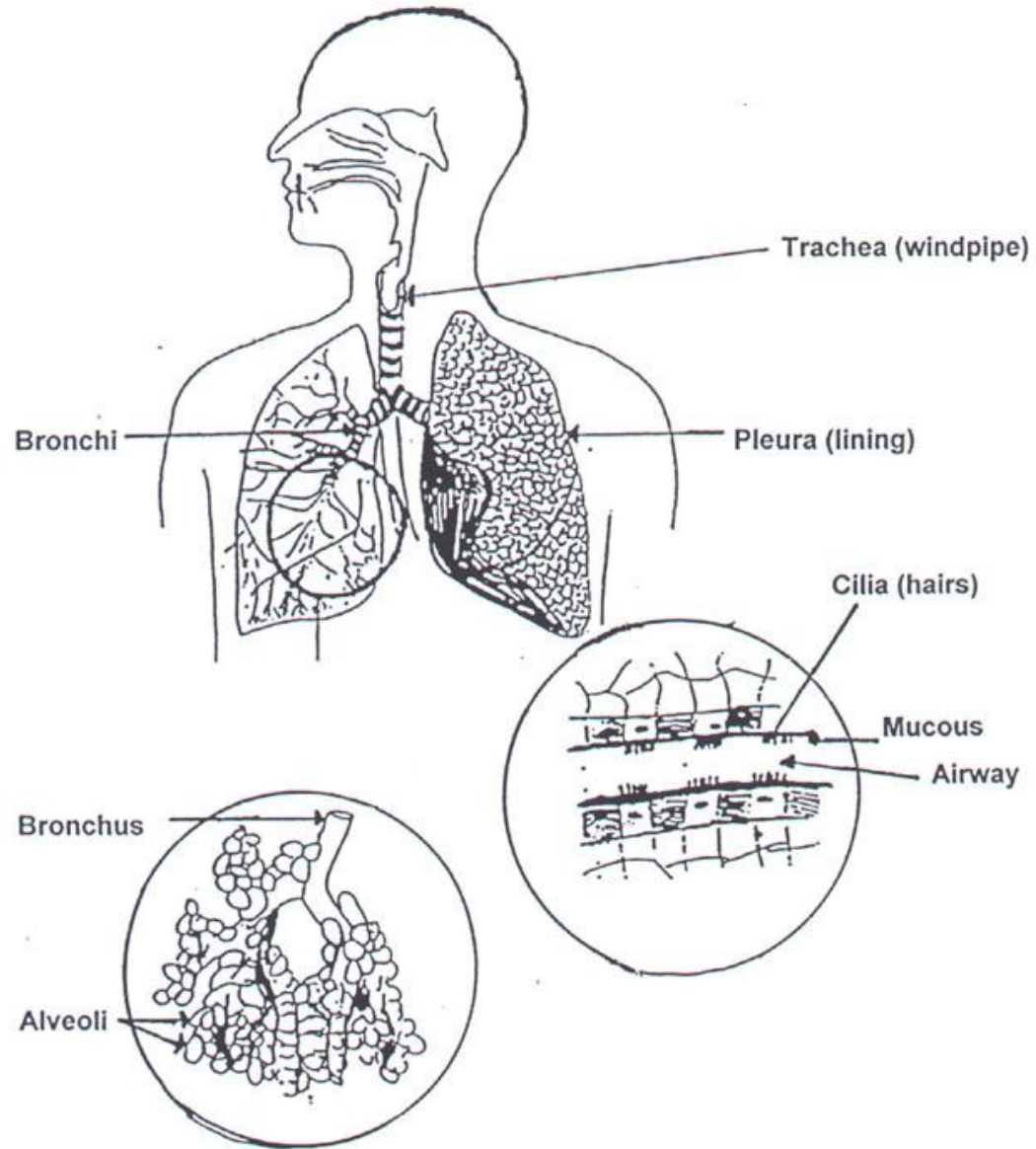
Asbestos fibers are not individually visible to the naked eye.

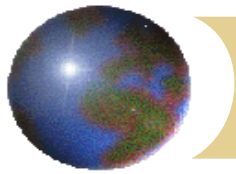
A visible asbestos fiber is actually a fibrous bundle consisting of hundreds or even thousands of individual fibers.

Asbestos is measured in microns or millionths of a meter (= 0.000001m).



# Respiratory System





# Health Effects of Asbestos Exposure

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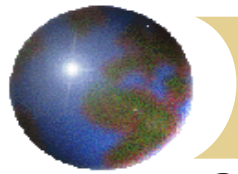
Lung cancer, asbestosis, mesothelioma, and other diseases have been linked to asbestos exposure.

Asbestos related disease can take 10-40 years to develop.

**Mesothelioma is 100% fatal.**

Most health problems resulting from asbestos exposure have been experienced by workers who were repeatedly subject to high levels of airborne asbestos (shipyard workers).

**In general, the risk is considered negligible for building occupants where undamaged ACM is present.**

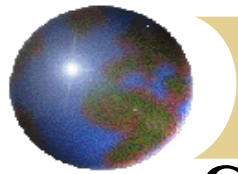


# Relationship Between Smoking, Asbestos, and Lung Cancer

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Non-Smokers who do not work with asbestos have a *normal risk* of developing lung cancer.

Non-Smokers who work with asbestos have a *5x normal* increased risk.

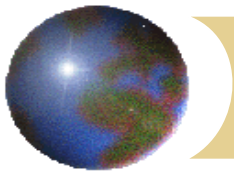


# Relationship Between Smoking, Asbestos, and Lung Cancer

---

Smokers who do not work with asbestos have a  
*22x normal* increased risk.

Smokers who work with asbestos have a  
*80x normal* increased risk of developing lung cancer.



# Where is the Asbestos?

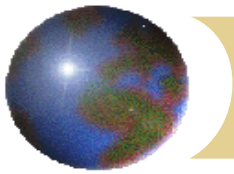
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ACM potentially exists in buildings prior to 1980, and is considered a likely original building material in 1940s-1960s construction.

Most common material identified at Camp Lejeune is **floor tile mastic**.

Other routine materials identified include: **exterior caulking, sealants, and floor tiles**.

Less common, but also identified during inspections: **ceiling tiles, heat shielding, and pipe insulation products**.



# What is being done?

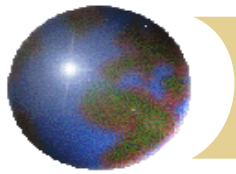
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In 1992 Camp Lejeune began the first phase of a Comprehensive Asbestos Management Program  
CAMP.

Inspections have been conducted in several hundred high priority buildings, additional inspections are currently taking place in many more.

A computerized data management system is currently in use linked to the GIS system at Camp Lejeune.

Labeling, posting warning signs, and occupant notifications are also proceeding.



# Signs used at Camp Lejeune



## **ASBESTOS**

**CANCER AND LUNG DISEASE HAZARD**

**AUTHORIZED PERSONNEL ONLY**

AREA MAY CONTAIN ASBESTOS MATERIALS OR AIRBORNE FIBERS

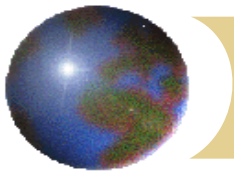
RESPIRATORS AND PROTECTIVE CLOTHING MAY BE REQUIRED

*Consult Asbestos Information Package Located In The  
Mechanical Room Before Performing Work In This Space*

**FOR ADDITIONAL INFORMATION CONTACT:**

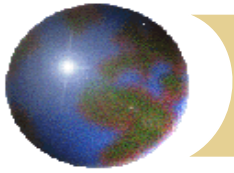
***INSTALLATIONS AND ENVIRONMENT DEPARTMENT***

Billy Parkin 451- 7018



**ASBESTOS  
CANCER AND LUNG DISEASE HAZARD  
AUTHORIZED PERSONNEL ONLY**

If you see this sign posted, remain clear of the area unless you are wearing approved PPE and Control measures are in place to monitor Personal exposure limits (PEL)



# Signs used at Camp Lejeune

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**CAUTION**

**AREA HAS NOT BEEN INSPECTED**

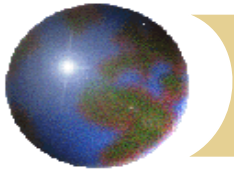
ASBESTOS CONTAINING MATERIALS OR AIRBORNE FIBERS

MAY BE PRESENT

RESPIRATORS AND PROTECTIVE CLOTHING MAY BE REQUIRED

**FOR ADDITIONAL INFORMATION CONTACT:**

**ASBESTOS PROGRAM MANAGER 451-7018**



# Signs used at Camp Lejeune



## ASBESTOS

**CANCER AND LUNG DISEASE HAZARD**

**AUTHORIZED PERSONNEL ONLY**

**RESPIRATORS AND PROTECTIVE CLOTHING MAY BE REQUIRED**

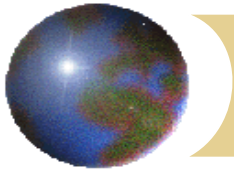
*ACM IDENTIFIED INCLUDES:*

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*INFORMATION PACKET LOCATED AT:*

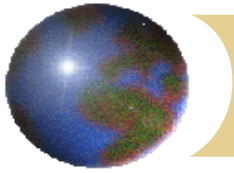
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*FOR ADDITIONAL INFORMATION CONTACT:*  
**ASBESTOS PROGRAM MANAGER 451-7018**



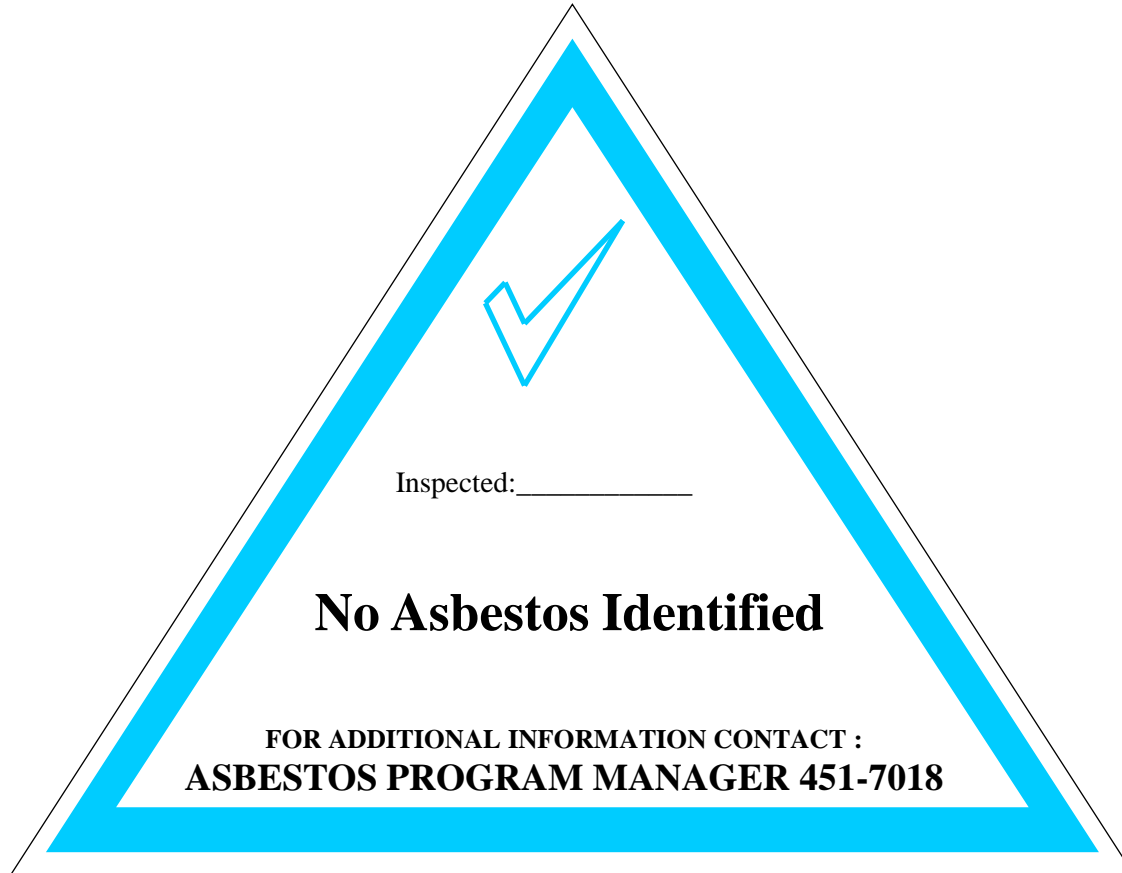
# Signs used at Camp Lejeune

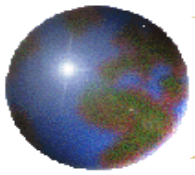
 <b>ASBESTOS</b> <b>CANCER AND LUNG DISEASE HAZARD</b> <b>AUTHORIZED PERSONNEL ONLY</b> RESPIRATORS AND PROTECTIVE CLOTHING MAY BE REQUIRED	
<i>ACM IDENTIFIED INCLUDES:</i> _____	
<i>INFORMATION PACKET LOCATED AT:</i> _____	<i>FOR ADDITIONAL INFORMATION CONTACT:</i> <b>ASBESTOS PROGRAM MANAGER 451-7018</b>
	Inspected: _____



# Signs used at Camp Lejeune

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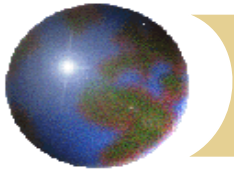




# Signs used at Camp Lejeune

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# Other Sources for Information

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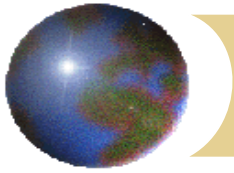
Asbestos notifications are posted on bulletin boards in buildings where ACM has been identified.

Information packages are located in mechanical rooms/ at the main electrical panel for use by base maintenance.

If you think you have an exposure problem call the following Base Agencies;

Asbestos Program Manager – Billy Parkin 451-7018

MCCS Safety Office – 451-5077



# Regulations that Apply to Asbestos

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Toxic Substances Control Act (TSCA), Title I

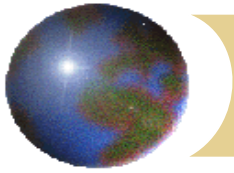
EPA 40CFR763, Asbestos Hazard Emergency Response Act (AHERA)

Asbestos School Hazard Abatement Reauthorization Act (ASHARA)

EPA 40CFR61-M, National Emission Standards for Hazardous  
Air Pollutants (NESHAPs)

OSHA 1910.1001 (General Industry), 1926.1101(Construction Industry),  
1915.1101 (Respirators)

OPNAVINST 5100.8G and 5100.23E, DOT, .....



# The three R's

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## **Recognize**

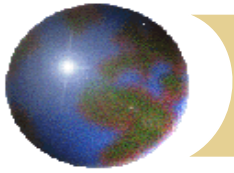
that there is indeed a hazard

## **Restrict**

access to the area where the spill is located. Do not allow further damage to occur

## **Report**

To the Asbestos Program Manager



# Recognize

**The presence of ACM is not a hazard if material is intact.**

**Friable ACM** (able to be broken or crumbled with hand pressure)  
is more likely to release asbestos fibers than;

**Non-friable ACM** (solid, strong, intact or made with certain binders)

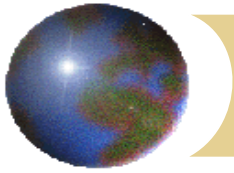
Typical friable ACM would include:

Pipe insulations and mudded fittings, heat shielding materials, ACM debris

Typical non-friable ACM would include:

Floor tiles, caulking, adhesives, and roofing materials

Note that **non-friable ACM can become friable** if not treated properly!



# Restrict Access

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If damaged ACM is identified, and the material has the potential for becoming friable, restrict access to that area as best possible:

Lock doors

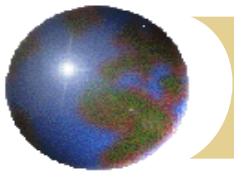
Cover material with plastic

Post a sign

Make a detour

Inform others to avoid disturbing the material further.

**Do not attempt repair or clean-up asbestos spills unless you have been specially trained to do so!**



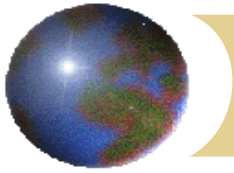
# Report Incident

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## **Contact the Asbestos Program Manager 451-7018**

Give building number and exact location within the building  
Give a description and approximate quantity of material involved  
Inform of steps you have taken to address the problem

The APM will check for information on file to determine if the material is asbestos, give additional instructions, and set in motion the appropriate response to the situation.



# Summary

## **1. Facts about asbestos**

- History
- Uses
- Health Effects
- Locations

## **2. Provisions of 40CFR763.92 (EPA)**

- Training of maintenance, custodial, or personnel who work in a building that contains asbestos.

## **3. The three R's dealing with asbestos**

- Recognize
- Restrict
- Report