

Asbestos Refresher Training

(26 Mar 15)



“A naturally occurring fibrous mineral”

References

- Asbestos Hazard Emergency Response Act (AHERA)
- AHERA Accredited Inspector Training Manual For Asbestos Control

Agenda

- What is it?
- History
- Who regulates it?
- Uses
- Terminology
- Health Effects
- What does it mean to us?
- Response Actions
- The Future

“The Mineral of a Thousand Uses”

- Because of asbestos natural properties, it has been an additive to many materials in construction, industry, automotive and consumer products.
- **Heat and flame resistant**
- Has high tensile strength
- Resistant to some forms of chemicals such as acids
- Does not evaporate into air or dissolve in water
- Very flexible / resistant to breaking when stretched
- **Adds mechanical strength to mixtures as a binder**
- Able to cover large surfaces
- Sound proof
- Excellent heat and electrical **insulator**
- **Cheap** and **readily** available





ASBESTOS



CHRYSOTILE



AMOSITE



CROCIDOLITE



TREMOLITE



ACTINOLITE



ANTHOPHYLLITE

- Asbestos is a generic name for the six most common fibrous minerals used in commercial industry since the 1800s:
 - Chrysotile (white asbestos) 99% of the worlds production and 95% of all asbestos containing material (ACM).
 - Amosite (brown asbestos)
 - Crocidolite (blue asbestos) Used in high temperature insulation applications.
 - Tremolite
 - Actinolite
 - Anthophyllite
- Extremely rare and of little commercial value.

Vermiculite

- Vermiculite is not the same as asbestos; however, it has the similar properties and effects. It is useful in lawn and garden products and as shipping packing material.



Where does it come from?

- Asbestos is extracted from rock formations. These formations occur naturally in many parts of the world. The minerals are mined from open quarries and underground.
- Once extracted from the earth, the mineral is crushed, milled, and graded.



The History of Asbestos

- During WWII, the U.S. Navy chose asbestos as the insulation of choice for the use of steam powered ships.
- Following the war, it was promoted as the “magic mineral” which resulted in increased production and accelerated use.
- Useful characteristics, wide availability and low cost resulted in asbestos being used in over **3,000 products**.
- Use peaked in the 1960s and early 1970s.
- 75% of Asbestos used today was installed during the Golden Age of Expansion (1945-early 60s)

The History of Asbestos

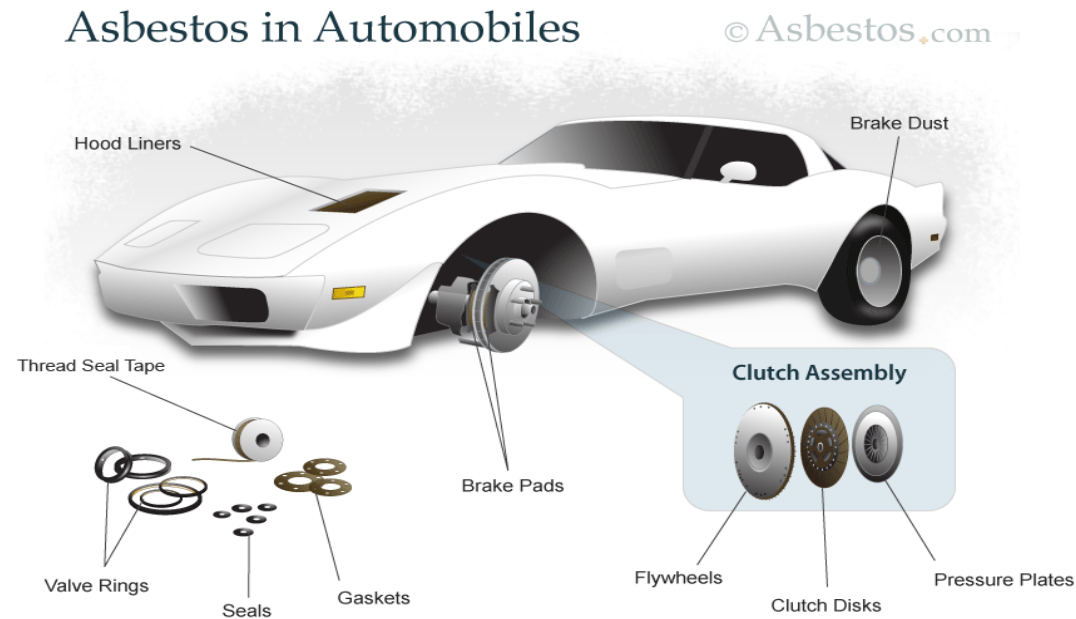
- In the United States, concerns about asbestos-related diseases started to appear in the early 1900s.
- However, use began much earlier than the industrial revolution. It has been used for thousands of years. Historians have evidence of the Romans and Chinese using the heat and flame resistant properties.





How was it used?

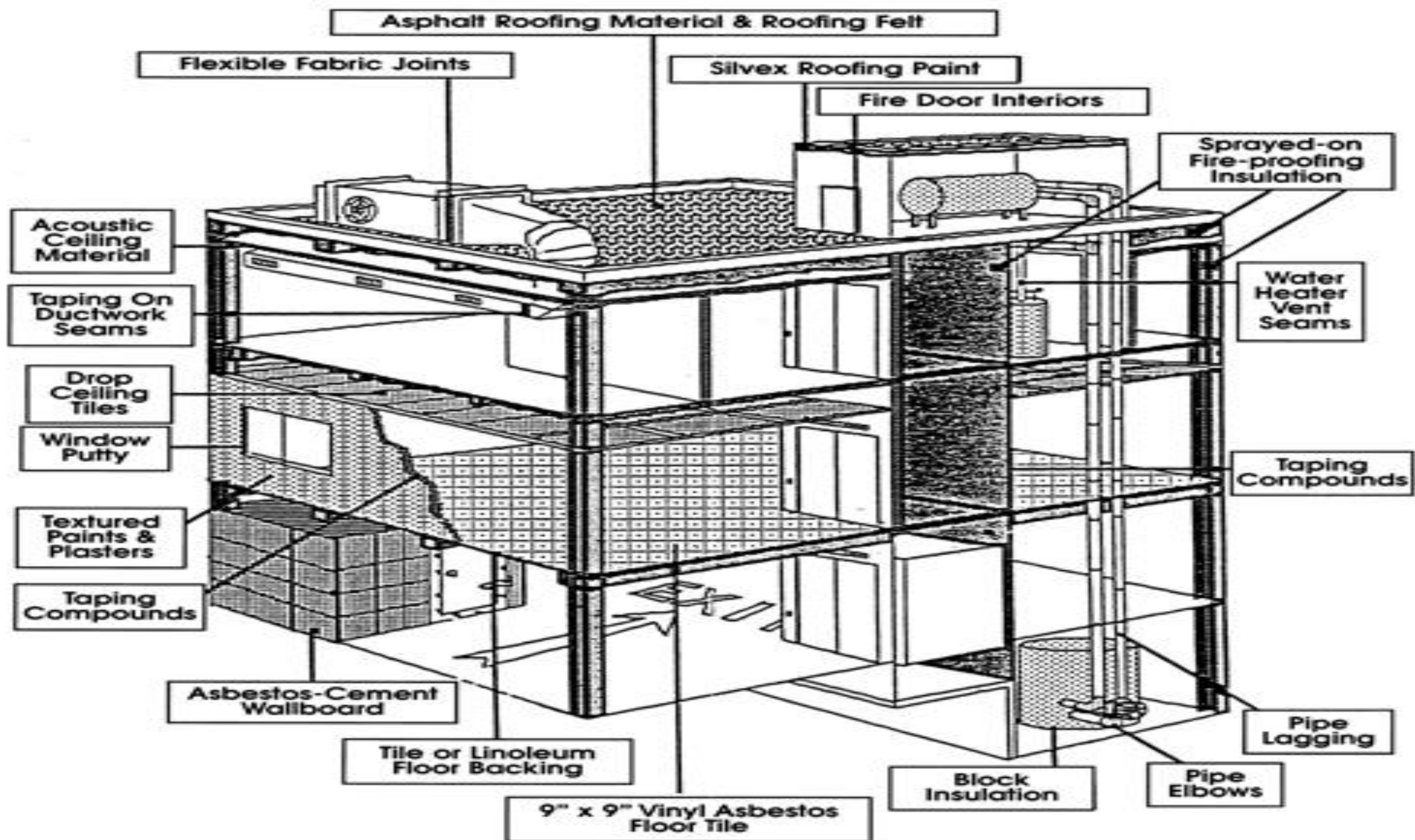
- Appliances – stoves, ovens, refrigerators, furnaces, toasters, irons, coffee pots, space heaters, hair dryers, iron board covers, hot pads, and electric blankets.
- Cars - Brakes, clutches, gaskets.





How is it used?

- Sprayed Fireproofing
- Insulation
- Putties, caulks, and adhesives
- Sprayed-on acoustical plaster
- Roofing shingles and roofing felts
- Ceiling tiles
- Brake linings
- Boilers and furnaces
- Steam pipes and heat exchangers
- Fireproof doors and gloves
- Science laboratory countertops
- Furnace ducts
- Resilient floor tiles and linoleum
- Stove Top Pads
- Cement Sheet
- Kilns



Who Regulates It?

- In response to growing evidence about the health risks of asbestos, the federal government began regulating asbestos through the [Environmental Protection Agency \(EPA\)](#) and the [Occupational Safety and Health Administration \(OSHA\)](#).
- The **Clean Air Act (1970)** required the EPA to develop and enforce regulations to protect the general public from exposure to airborne health hazards.

Asbestos Protection

1970s asbestos legislation lead to the EPA:

- Declaring asbestos to be a toxic material
- Banned it as a material for friable building insulation
- Banned the use of most spray-on asbestos
- Established guidelines for the application, removal and disposal of friable asbestos-containing materials

Asbestos Protection

- In 1989 the EPA banned new uses of asbestos. Some uses were permanently discontinued, but other products were still manufactured and used.
- In 1996, the EPA lifted the ban on asbestos by allowing limited use.
- **Therefore, never assume a new building is asbestos free.**

School Specific Regulation

The Asbestos in Schools Identification and Notification Act of 1982
requires schools to:

- Inspect friable material
- Analyze materials for asbestos
- Post results
- Notify parents and employees of asbestos is found
- Maintain appropriate records

School Specific Regulation

- Congress passed the [Asbestos Hazard Emergency Response Act \(AHERA\)](#) in 1986. The Act required the EPA to develop regulations creating a comprehensive framework for dealing with asbestos in **public and private schools.**

AHERA Requirements

AHERA requires schools to:

- Develop, maintain and have on file an asbestos management plan (AMP).
- Carry out the plan in a timely fashion.
- Notify parent, teacher and employee groups about asbestos related activities.
- Assign an asbestos coordinator to oversee asbestos management.
- Complete an asbestos inventory for each building and keep the report in the office for the public to read.

Today

- Asbestos is still used today.
- Substitute materials do exist; however no substitute is as versatile and cost effective as asbestos.
- Due to asbestos restrictions imposed by many countries, world wide production is decreasing. (North America 3.2 %)

Terminology

Friable – Asbestos is most hazardous when it is friable – easily crumbled and reduced to a powder by simple hand pressure.

Non-Friable – Material when dry may not be crumbled, pulverized or reduced to powder by hand pressure.

ACM – Asbestos Containing Material.

ACBM – Asbestos Containing Building Material (excludes material installed outside a building – roofing felt, siding)

OSHA & EPA Definition

Asbestos Containing Material (ACM):

- Material that contains >1 % Asbestos Fiber

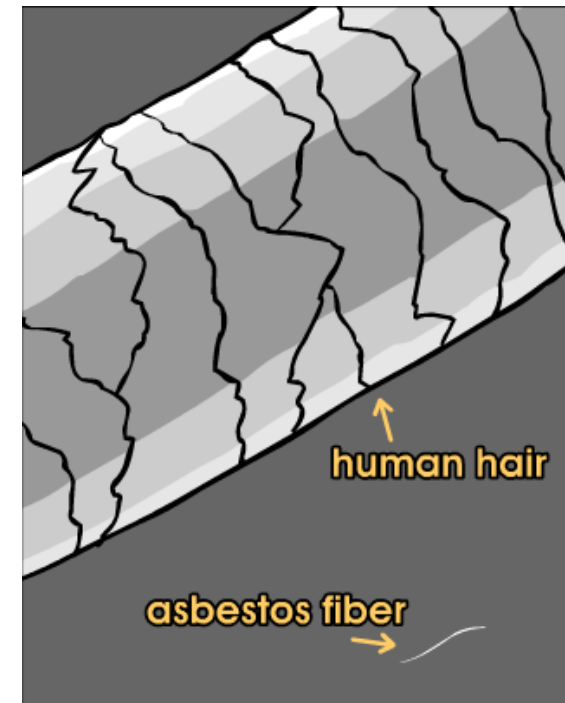
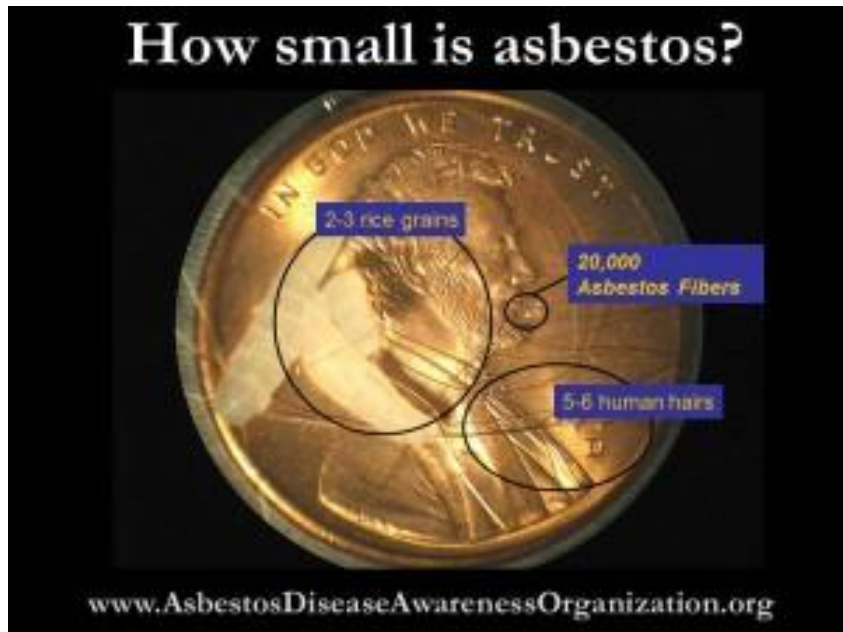
EPA identifies three categories of ACM used in buildings:

- **Surfacing Materials** – Sprayed or troweled on surfaces
- **Thermal System Insulation (TSI)** – Inhibits heat transfer and condensation
- **Miscellaneous Materials** – Largely non-friable products (floor tiles, roofing felt, concrete pipe, outdoor siding, and fabrics).

Why Not Use It?

Health Effects

- Asbestos fibers are dangerous when inhaled. The body's protective systems screen larger fibers, but smaller fibers can lodge deep within the lungs.
- A typical fiber is 700 times smaller than a human hair (smaller than bacteria). Because they are so light they can remain suspended in the air for many hours – or even days



Facts

- When the fibers break down they tend to separate lengthwise. This causes a “multiplication effect”. The smaller fibers are the most hazardous.
- Asbestos is a carcinogen (cancer causing agent) mainly affecting the lungs.
- Found in most homes built or remodeled before 1979.
- The use of asbestos in the US is so wide spread that all of us have some degree of exposure.

Lung Disease

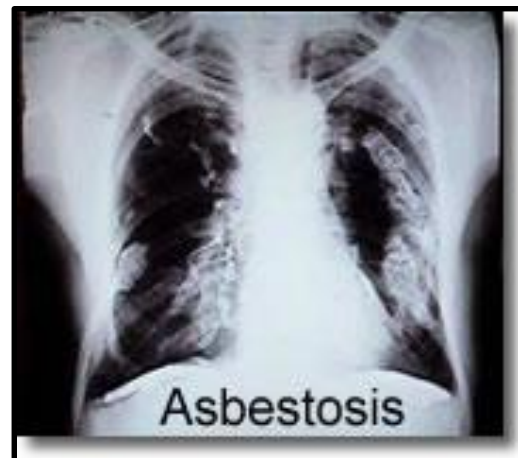
Asbestosis – scarring (fibrosis) of the lung. The scarring impair the elasticity of the tissue and hampers the ability to exchange gas leading to inadequate oxygen intake to the blood

Mesothelioma – cancer in the lining of the chest or abdominal wall. Considered a marker disease of asbestos exposure (Family members).

Lung Cancer – malignant tumor of the bronchi covering

Lung Disease

- All are irreversible.
- According to the Center for Disease Control. More than 3000 people per year die from asbestos related diseases such as asbestosis, lung cancer, and mesothelioma. No cure exists for these diseases.
- **Synergistic Effect:** Smoking and asbestos exposure working together have a synergistic effect; the smoker exposed to asbestos fibers is at least fifty times (50x) more likely to develop lung cancer than the general public.

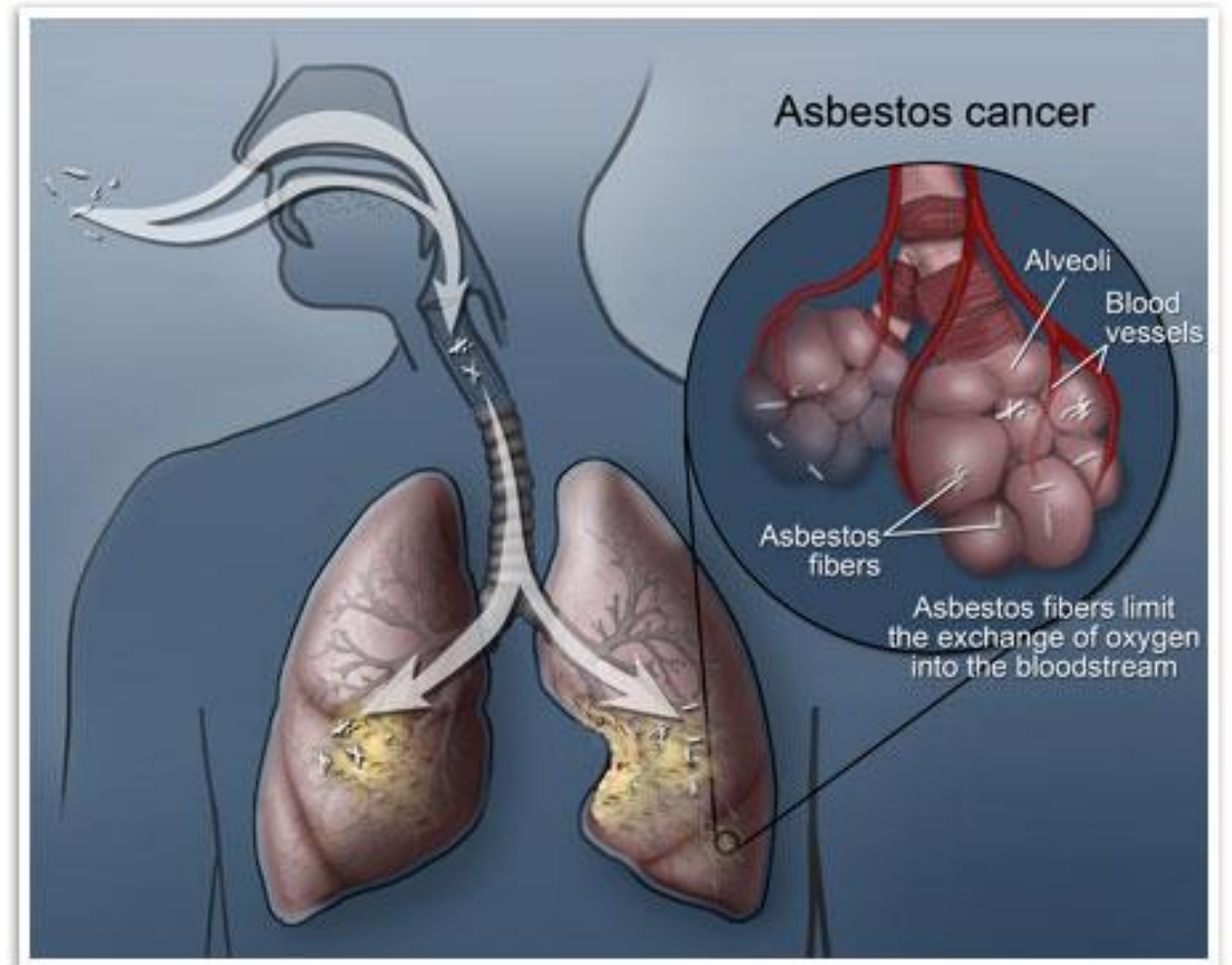


Latency Period

Asbestosis – 15-30 years

Mesothelioma – 30-40 years

Lung Cancer – 20-30 years



"This is not something you can tough out"

What does this mean to us?

Medford School District

- When the opportunities present themselves we remove asbestos from the schools.
- When it is cost prohibitive we isolate it, contain it, and/or encapsulate it.
- We manage it safely and proactively.

How Do We Manage It Safely?

- We train, we educate, we notify.
- Before any work is performed we check our Asbestos Management Programs (AMPs).
- We inspect our remaining asbestos areas every six months to ensure that the condition has not changed.
- We update our Asbestos Management Plans (AMPS) every three years.

Things You May See

Thermal System Insulators



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



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



Structural Fireproofing



Gaskets



**JOINT COMPOUND
OVER SHEETROCK
WALLBOARD**



**SPRAY-APPLIED
ACOUSTIC CEILING
PLASTER**

Roofing





**ASBESTOS CEMENT
(AC) PIPE**



**ASBESTOS CEMENT
LAB FUME HOOD
EXHAUST DUCT**



**EXPOSED MASTIC
UNDER 4" RUBBER
WALL BASECOVE**

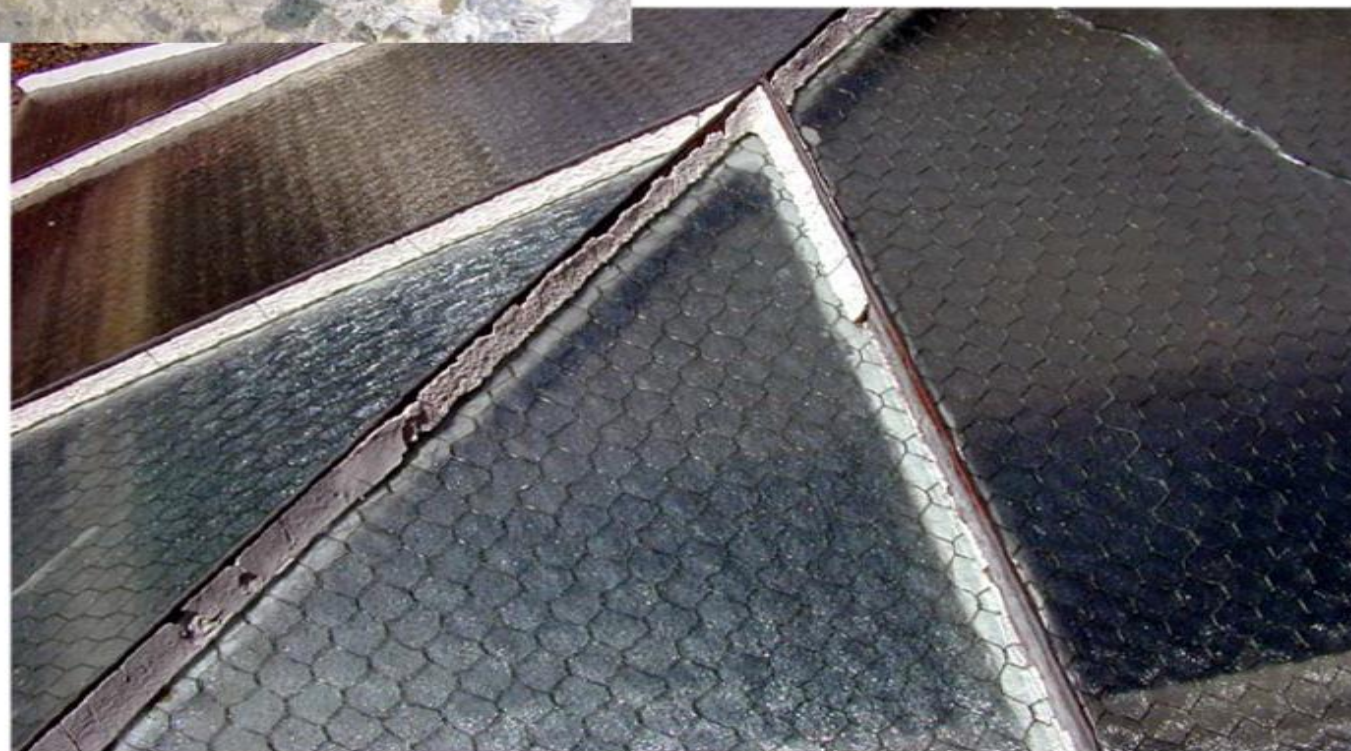


**EXPOSED MASTIC
UNDER CERAMIC
WALL TILE**



**BROWN CAULK
AT PIPE PENETRATION**

**GLAZING (WHITE)
ON SKYLIGHT
WINDOWS**



Wire Insulation



Fire Doors



**FIRE-RATED DOOR
WITH UL LABEL ON
INSIDE (HINGE) EDGE**

FLOORING



**VINYL SHEET FLOORING
(MOSAIC PATTERN)**



**9" VINYL ASBESTOS TILE
(LEFT) & BLACK ASBESTOS
MASTIC (BELOW) EXPOSED
DURING CARPET REMOVAL**





**LAY-IN
ACOUSTIC
CEILING TILE**

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



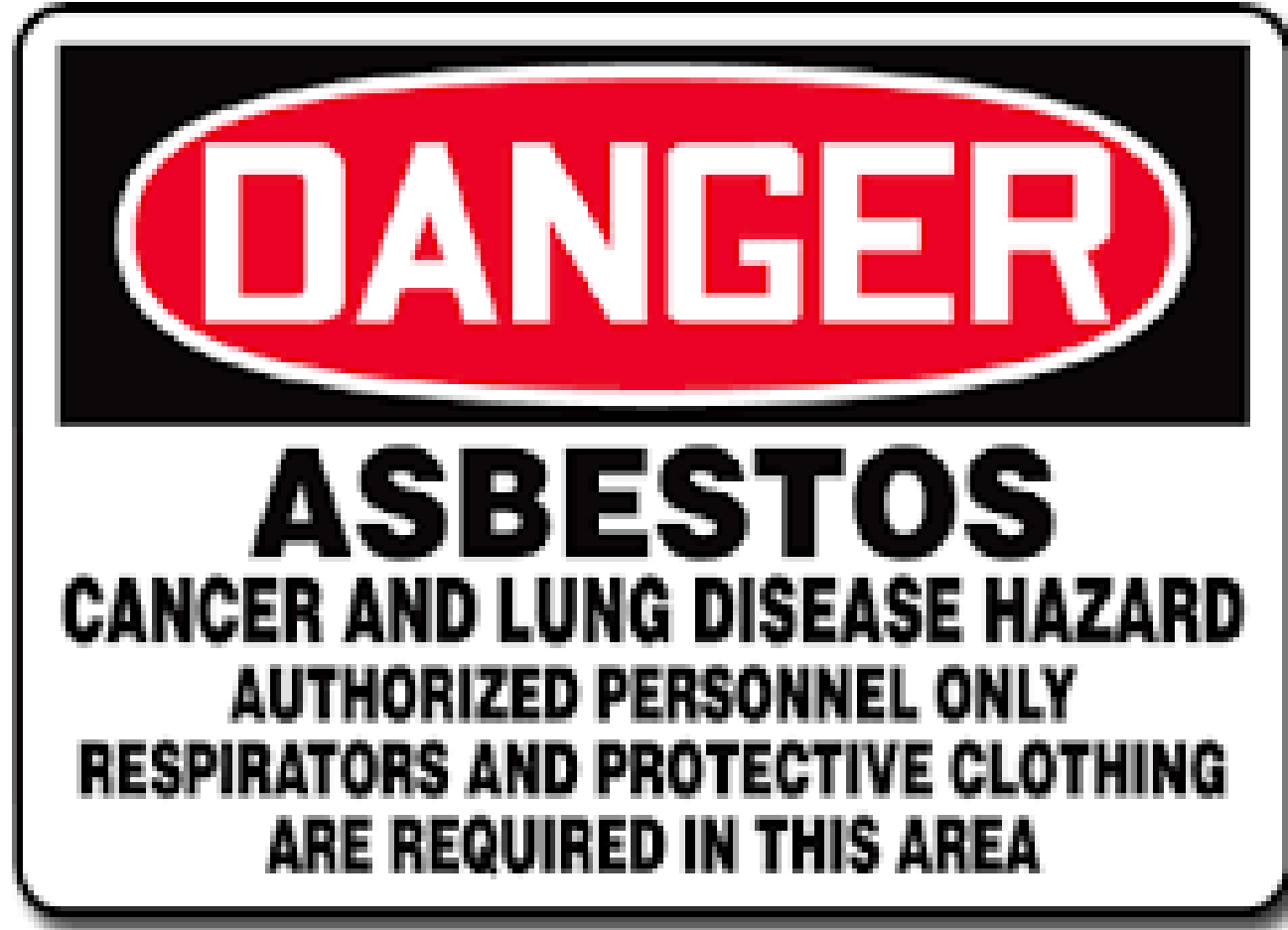
Response Actions To A Fiber Release

“If asbestos containing material is disturbed (broken, sanded, abraded, drilled through, punched through, etc.) then this is called an asbestos fiber release event”.

- Remove yourself and others from the area.
- Report it to the Facilities Department and the site leadership.
- Isolate the area. Seal it off. Tape off air gaps.
- Turn off HVAC servicing the area.
- Label the area with a sign / Post monitors.
- Facilities will call in licensed asbestos professionals to assess the situation, abate it, and conduct air clearance testing before opening the area back up.

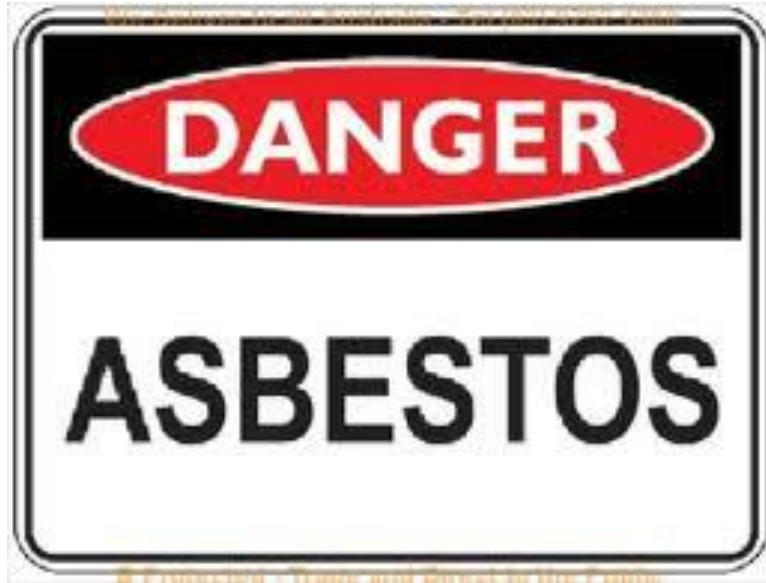
***Do not attempt to clean it up.**

If you see this.....?



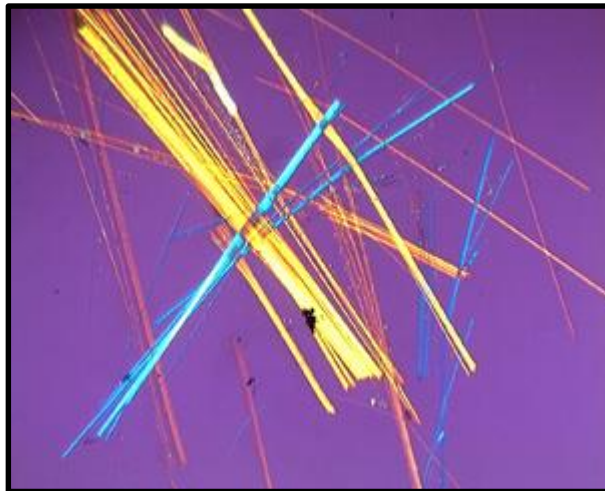
Case Study

- A teacher at North sees a sticker on a hood vent that looks like this:



Suspect Material

- While it is possible to “suspect” that a material contains asbestos by visual assessment, actual determination can only be made by instrument analysis.
- EPA requires that bulk samples of suspect material be lab analyzed by polarized light microscopy (PLM). This determines percentage and type of asbestos.



The presence of asbestos does not mean it must be removed. Asbestos does not always present a hazard in homes and buildings. It is still legal under current regulations as long as the asbestos-containing materials are in good condition, thus not releasing asbestos fibers into the air.



Asbestos Management Plan (AMP) - Inspections Are Good For Three Years

School	Asbestos Present	Last AMP	Next AMP Update Due	Remarks
Abraham Lincoln Elementary School*	No	Not Required.	Not Required.	Abe Lincoln was built in 1996. No asbestos containing material was used in the construction material.
Griffin Creek Elementary School	Yes	Jul 2012	Jul 2015	In 2007, a large scale asbestos abatement project removed/enclosed <u>many</u> of the asbestos-containing materials.
Hoover Elementary School	Yes	Jul 2012	Jul 2015	In 2007, a large scale asbestos abatement project removed/enclosed <u>many</u> of the asbestos-containing materials.
Howard Elementary School	Yes	Jan 2013	Jan 2016	In 2008, a large scale asbestos abatement project removed/enclosed <u>many</u> of the asbestos-containing materials.
Jackson Elementary School**	No	Jan 2013	No Longer Required.	In 2008, a large scale asbestos abatement project removed <u>all</u> of the asbestos-containing materials.
Jacksonville Elementary School	Yes	Jan 2013	Jan 2016	In 2008, a large scale asbestos abatement project removed/enclosed <u>many</u> of the asbestos-containing materials.
Jefferson Elementary School	Yes	Apr 2011	Apr 2014	In 2007, a large scale asbestos abatement project removed/enclosed <u>many</u> of the asbestos-containing materials.
Kennedy Elementary School	Yes	Jan 2013	Jan 2016	In 2007, a large scale asbestos abatement project removed/enclosed <u>many</u> of the asbestos-containing materials.
Lone Pine Elementary School	Yes	Mar 2013	Mar 2016	In 2008/09, a large scale asbestos abatement project removed/enclosed <u>many</u> of the asbestos-containing materials.
Oak Grove Elementary School	Yes	Jun 2013	Jun 2016	In 2008/09, a large scale asbestos abatement project removed/enclosed <u>many</u> of the asbestos-containing materials.
Roosevelt Elementary School**	No	Jun 2013	No Longer Required.	In 2008, a large scale asbestos abatement project removed <u>all</u> of the asbestos-containing materials.
Ruch Elementary School	Yes	Jun 2013	Jun 2016	In 2008, a large scale asbestos abatement project removed/enclosed <u>many</u> of the asbestos-containing materials.
Washington Elementary School	Yes	Aug 2013	Aug 2016	In 2007/08, a large scale asbestos abatement project removed/enclosed <u>many</u> of the asbestos-containing materials.
Wilson Elementary School	Yes	Aug 2013	Aug 2016	In 2008, a large scale asbestos abatement project removed/enclosed <u>many</u> of the asbestos-containing materials.
Hedrick Middle School	Yes	Jul 2012	Jul 2015	In 2009, a large scale asbestos abatement project removed/enclosed <u>many</u> of the asbestos-containing materials.
McLoughlin Middle School	Yes	Apr 2013	Apr 2016	In 2009, a large scale asbestos abatement project removed/enclosed <u>many</u> of the asbestos-containing materials.
Central High School	Yes	Jan 2013	Jan 2016	In 2010/11, a large scale asbestos abatement project removed/enclosed <u>many</u> of the asbestos-containing materials.
North High School	Yes	May 2013	May 2016	In 2008/09/11, a large scale asbestos abatement project removed/enclosed <u>many</u> of the asbestos-containing materials.
South High School*	No	Not Required.	Not Required.	South was built in 2010. No asbestos containing material was used in the construction material.

* South and Abraham Lincoln have never had asbestos material in the school; therefore, there is no requirement for an AMP.

** Jackson and Roosevelt have had all asbestos abated; therefore, 3 year periodic inspections are no longer required (Confirmed this with Jeff Herren from PBS on 5 Feb 15)

Hard copies of the Asbestos Management Plans are stored in binders in the Facilities Department records room.

Digital versions of the Asbestos Management Plans are stored on the maintenance share drive in the Asbestos Folder.

Before any work is done at a school site, check the site specific Asbestos Management Plan to ensure that there is no asbestos present in the area you are working.

Before a contractor does any work at a site that currently has asbestos, notify him/her of the presence of asbestos, and the availability of the Asbestos Management Plans.

School District Designates						
Local Education Agency (LEA) Designate	Name	Position	Required Training			
			Asbestos Initial Inspector Course		Asbestos Management Planner Course	
			Completed	Expires	Completed	Expires
Primary	Ron Hayniear	Support Services/Facilities Manager	15 Oct 2014	15 Oct 2015	13 Feb 2015	13 Feb 2016
Alternate	Rick Rose	Mechanical Supervisor	15 Oct 2014	15 Oct 2015	13 Feb 2015	13 Feb 2016

School District Responsibilities

Custodial/Maintenance Training	Date	Training needs to be a 2 Hour awareness class documented on Training Record Form C with the sign in sheet attached.
	26-Mar-15	The training should be a general overview highlighting the history, potential health effects, and where it is located.
		Class is located on the maintenance share drive in the Asbestos folder.

Inspection Report and Management Plan On File	PBS conducts the Asbestos Management Plans for each site. We maintain them in hard copy in the facilities office and digitally on the maintenance share drive in the asbestos folder.
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O & M Program	This is included in the Asbestos Management Plans produced by PBS and stored in hardcopy and digitally in the facilities department.
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Periodic Surveillance and Re-Inspections	The periodic surveillance reports should be done at all sites that <u>currently have friable asbestos</u> every six months. Anyone who has had the annual two hour awareness training can do the inspection. The purpose of the inspection is to assess known friable material that is accessible to determine if there have been any changes in its condition since the previous inspection. PBS does the 3 year re-inspections.
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Annual Notification	This is a notification that should be posted on a website, sent out annually, or placed in the newspaper. It informs the parents, District employees, and the public that there is asbestos located in the schools. It states that there have been measures to contain the remaining asbestos and that the current Asbestos Management Plans (AMP) are stored at the District in the Facilities Department and available for public inspection if/when requested.
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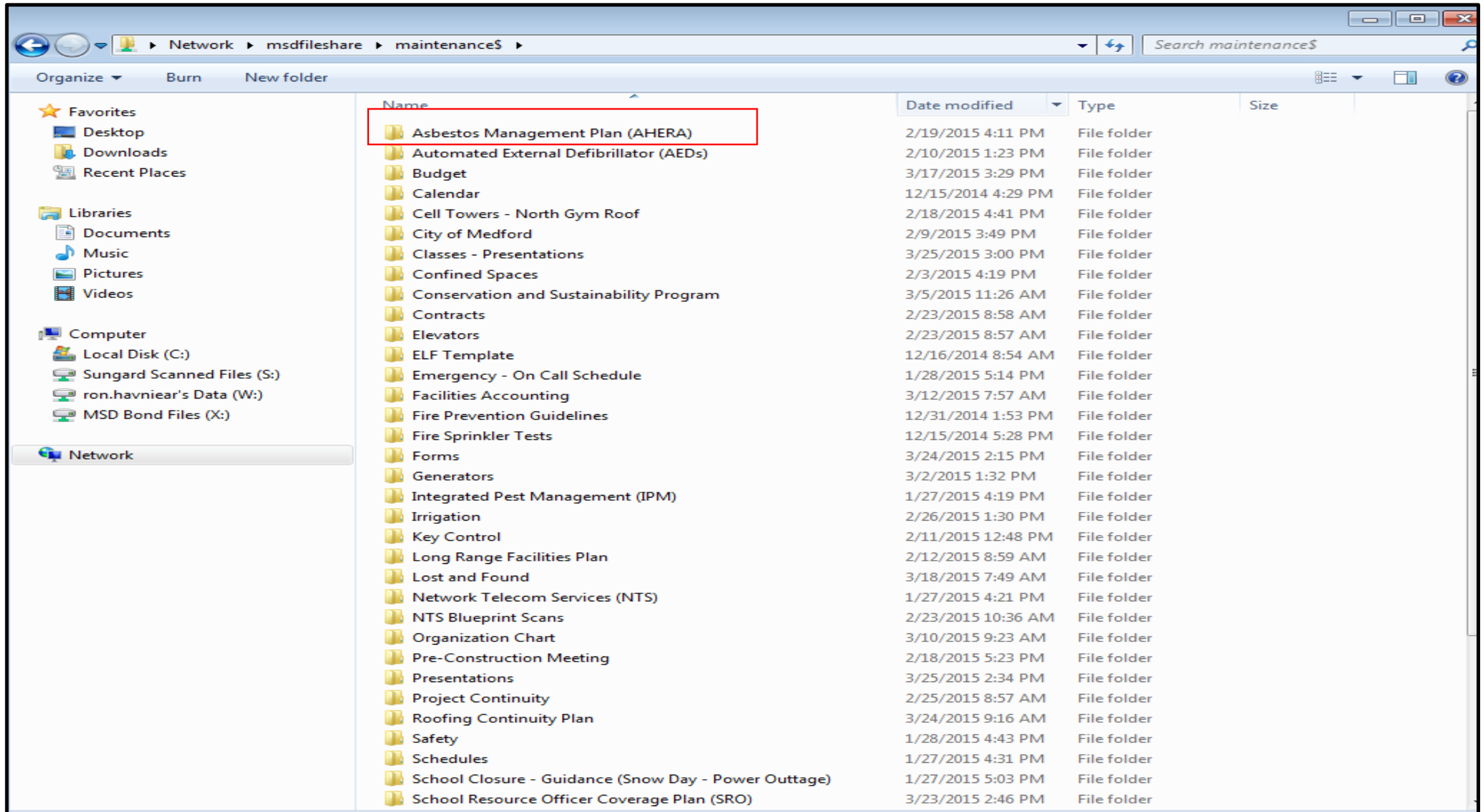
Points of Contact

Oregon Department of Environmental Quality (DEQ)			
Name	Office Location	Phone Number	Website
Steve Croucher	Medford	(541) 776-6107 or (877) 823-3216	http://www.deq.state.or.us/aa/asbestos/contact.htm

PBS Engineering and Environmental					
Name	Position	Address	Email	Phone #	Website
Jeff Heeren	Inspector/Management Planner	2645 Willamette St. #A Eugene OR, 97405	jeff.heeren@pbsenv.com	(541) 868-0955	www.pbsenv.com

*EPA Region 10 does our inspections. They normally provide written notice of an upcoming inspection.

Facilities Share Drive



Check On Learning

Is asbestos still allowed to be used?

Do we have asbestos in the schools?

Should anyone perform work before checking AMP?

What does friable mean?

What do we do if we suspect we have an asbestos incident?

A parent requests to see our AMP – what do we do?

Questions/Comments/Guidance

