

# asbestos



Managing your asbestos hazards



Minnesota  
Department of Health

*Asbestos is a naturally occurring mineral fiber mined from the earth. It was used in over 3,000 products, including many found in homes. When asbestos fibers become airborne, people can easily breathe them in. Once the fibers get into the lungs, they can cause lung cancer, asbestosis, mesothelioma and other lung diseases.*

*However these diseases don't occur right away. It can take 10 to 40 years for these diseases to manifest themselves after a person is exposed to asbestos*

*The Minnesota Department of Health (MDH) has created this guide to explain the health risks of asbestos and why it is important to manage any asbestos that may be in your home.*

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In this guide you will learn:

**Where** asbestos could be in your home

**How** you can be exposed to asbestos

**What** you can do if you have asbestos in your home

Most important, this guide is designed to protect your biggest investment,



What is  
asbestos?



Asbestos is the name for a group of minerals that occur naturally in the ground. Groups of fibers make up asbestos minerals. These fibers have special characteristics. Heat or chemicals do not affect them and they do not conduct electricity. Asbestos is also very strong. Pound for pound, asbestos is stronger than steel. That is why industry has mined and widely used asbestos to make many different products.

Three types of asbestos were commonly used to manufacture products.

- **Chrysotile**, sometimes called white asbestos, is composed of wavy, flexible white fibers. Chrysotile is about 90 to 95 percent of the asbestos used in the U.S.
- **Amosite**, sometimes called brown asbestos, is composed of straight, light gray or brown fibers.
- **Crocidolite**, sometimes called blue asbestos, is composed of straight blue fibers.

Anthophyllite, tremolite and actinolite are three other types of asbestos. They were not commonly used to manufacture products. Recently though, tremolite asbestos has been detected as a contaminant in vermiculite attic insulation and other products that contain vermiculite. Disturbing products that contain vermiculite may cause exposure to tremolite asbestos and result in an asbestos-related disease.



## **How does asbestos affect my health?**

All types of asbestos fibers are dangerous if you breathe them. Some people say that some kinds of asbestos fibers are less dangerous. Many people, including doctors and scientists, disagree. Until proven safe, treat all asbestos as dangerous.

You cannot tell when asbestos is in the air or is hurting your lungs. Asbestos will not make you cough or sneeze. It will not make your skin or throat itch. Asbestos fibers get into the air when asbestos materials are damaged, disturbed or removed unsafely. When asbestos is crushed, it does not make ordinary dust. Asbestos breaks into tiny fibers that are too small to see, feel or taste. Asbestos fibers are approximately 1500 times smaller than a human hair.

Asbestos fibers can be measured when they are in the air. They are measured in units called fibers per cubic centimeter of air (f/cc). A cubic centimeter is about the size of a sugar cube. The air is checked for asbestos fibers by taking samples of the air using air sampling methods. The Minnesota Department of Health has established a “clean air” level of 0.01 f/c

# Can asbestos make me sick?

Laboratory studies and studies of people who worked with or around asbestos show us that asbestos can make you sick. If you breathe asbestos fibers, you may increase the risk of several serious diseases:

- **Asbestosis**, also called white lung disease, is a scarring in the air sacs of the lungs
- **Lung cancer**; and
- **Mesothelioma**, a cancer of the lining of the chest or abdomen

When asbestos is released into the air, it enters the surrounding environment. You can be exposed to asbestos if you enter these environments. If exposed to asbestos, many factors contribute to whether harmful health effects will occur



These factors include:

- **dose** (how much);
- **duration** (how long);
- **exposure pathway** (breathing, eating, or drinking); and
- **other chemicals** to which you are exposed.

Individual characteristics may also have an effect, such as:

- **age**;
- **gender**;
- **nutritional status**;
- **family traits**;
- **lifestyle**; and
- **your general state of health**

## **How much asbestos is dangerous?**

No amount of asbestos is considered safe. Products that contain greater than 1 percent of asbestos minerals are considered to be asbestos-containing by regulating agencies. Asbestosis and lung cancer are dose-related diseases. Dose-related means the more asbestos you breathe, the more likely you are to get sick.

The more asbestos you are exposed to, the more likely you are to get an asbestos disease.

The one asbestos disease that is different is mesothelioma. Very small amounts of asbestos can give you mesothelioma. Asbestos workers' families have gotten mesothelioma from the dust the workers brought home on their clothes.

## **How long does it take to get sick from asbestos?**

All of the asbestos diseases have a latency period. The latency period is the gap between the time you breathe asbestos and the time you start to feel sick. The latency period for asbestos diseases is between 10 to 40 years. You will not feel sick during the latency period. If you get an asbestos disease, you will begin to feel sick after the latency period.

Not everyone exposed to asbestos gets an asbestos disease. However, anyone exposed to asbestos has a higher risk of getting an asbestos disease. All of the asbestos diseases are difficult to treat. Most are impossible to cure. Stopping asbestos fibers from ever entering your lungs is important. The only cure for most asbestos diseases is to prevent them.





## **Is there any way of knowing if I have been exposed to asbestos?**

The most common test used to learn if you have been exposed to asbestos is a chest x-ray. The x-ray cannot detect the asbestos fibers themselves, but can detect early signs of lung disease caused by asbestos. Other tests, such as lung scanning and computer-aided tomography (CAT scan), are also useful in detecting changes in the lungs.

Where is  
asbestos in  
my home?

The following is a short list of some common ACM found in homes.

- **Adhesives**
- **Appliance parts**
- **Ceiling products**
  - **Ceiling popcorn texture**
  - **Ceiling tiles**
  - **Ceiling tile mastic**
- **Cement-asbestos (Transite) products**
  - **Chimney flue lining**
  - **Ducts**
  - **Pipes**
  - **Shingles**
  - **Siding**
  - **Wall Panels**
- **Electrical products**
  - **Cloth wire insulation**
  - **Electrical panels**
- **Flooring Products**
  - **Asphalt floor tile**
  - **Floor tile mastic**
  - **Vinyl floor tiles**
  - **Vinyl sheet flooring (linoleum)**
- **Heating and Cooling System products**
  - **Boiler insulation**
  - **Chimney packing**
  - **Duct work insulation**
  - **Fireplace mortar**
  - **Furnace insulation**
  - **Gaskets**
  - **Heat shields (paper and cardboard)**
  - **Pipe insulation**
  - **Tank insulation**
- **Paints and Coatings**
- **Plaster**
- **Roofing Products**
  - **Base flashing**
  - **Felt**
  - **Shingles**
  - **Tar or “Black Jack”**
- **Vermiculite**
  - **Attic and wall insulation**
  - **Fireplace decoration**
  - **Gardening product**
- **Vinyl wall coverings**
- **Wall applications**
  - **Caulking and putties**
  - **Spackling compounds**
- **Wallboard or sheetrock**
- **Wallboard joint compound**
- **Window glazing**

## **How do I find out if a product contains asbestos?**

If you live in an older home, the easiest thing to do is to assume the material in question contains asbestos and treat it accordingly. Or you can hire a Minnesota-certified asbestos inspector to sample the material or perform an asbestos inspection. Contact MDH or visit the MDH website to find companies that can safely sample the material. Occasionally you can find asbestos markings on the material or its packaging

## **Aren't all asbestos products banned?**

**No.** The United States Environmental Protection Agency (EPA) has banned the use of only the following asbestos-containing products in new construction and renovation:

- Spray-applied material.
- Pipe insulation
- Boilers and hot water tank insulation
- Various paper and sheet products
- New uses of asbestos

The EPA has no existing bans on other asbestos-containing products or uses.



What should  
I do if I have  
asbestos in  
my home?



## Leave it alone

Asbestos is only a problem if asbestos fibers are released into the air. If the asbestos material is in good condition and if it is not being disturbed, then it will not release asbestos fibers. The safest and least costly option may be to leave the asbestos material alone.



## Repair it

Sometimes, asbestos materials can be repaired. If the asbestos material has minimal damage, it may be repaired with a special coating called encapsulant. Check with your hardware store or a safety supply store for materials to repair or encapsulate asbestos



## Remove it

Removing the asbestos material may be the best option if the asbestos material is extensively damaged or if it will be disturbed by renovation or other activities.

Homeowners may legally remove asbestos materials themselves from the single-family home they own and occupy. However, MDH strongly recommends using a Minnesota-licensed asbestos contractor.

Licensed contractors use techniques that are unavailable to homeowners, so the asbestos is handled safely. They also perform air monitoring to see if the air in your home meets acceptable standards during and at the end of the project.

## **What if I'm buying or selling a house that may contain asbestos?**

If you are buying or selling a house that may contain asbestos, make sure the house has been inspected for asbestos. Housing inspectors are not allowed to "check" for asbestos unless they are a certified MDH Inspector. Some items to consider during buying and selling a house are:

- Has an asbestos inspection been performed?
- Who will hire the asbestos inspector?
- How will the costs and the results of the inspection be shared?
- Will the material be repaired or removed, and how will those costs be shared?



A white wooden post stands in a green lawn, supporting a white horizontal bar. A red rectangular sign with a white border hangs from the bar by two metal rings. The sign features the words "FOR SALE" in large, bold, white, sans-serif capital letters. The background is a blurred garden with stone steps, potted plants, and a yellow house with white window frames.

**FOR  
SALE**

Who can  
remove  
asbestos in  
my home?



Only an asbestos contractor licensed by MDH may do the removal, encapsulation or enclosure of asbestos materials. Homeowners may remove asbestos materials themselves from the single-family home they own and occupy, however MDH does not recommend they do so. The safety of everyone living or entering the house could be compromised if the removal is done improperly.

Licensed asbestos contractors must follow specific requirements when handling asbestos materials.

These requirements include:

- using MDH certified employees
- constructing an airtight work area that confines asbestos fibers
- using a worker decontamination system
- using air filtering devices to keep asbestos fibers in the work area
- using water when removing asbestos materials
- sealing asbestos waste material in airtight containers

In addition, air monitoring must be performed during removal to ensure the air in the home meets acceptable standards at the end of the project.



## **Are there any regulations for removing asbestos in a home?**

**Yes.** MDH regulates asbestos materials in single family or multi-family residences when the amount of asbestos materials to be removed, encapsulated or enclosed is greater than:

- 10 linear feet; or
- 6 square feet; or
- 1 cubic foot

Also, for residential abatement projects in single family or multi-family residences with four or fewer dwelling units, the following asbestos materials are NOT regulated by MDH:

- Ceilings – tiles, texture
- Flooring – linoleum, floor tiles
- Roofing
- Siding

**IMPORTANT: Even though an asbestos material is not regulated by MDH, it does not mean that asbestos material is “safe”! MDH strongly recommends that licensed asbestos contractors conduct the removal of any asbestos material.**

# Hiring an asbestos contractor



The process of selecting an asbestos contractor to remove asbestos from your home may seem daunting. This booklet can help you gather information and will help you to come to an informed decision before you hire an asbestos contractor. Some factors to consider are the costs associated with asbestos removal and the work performance of the contractor. As with any work you contract to have done in your home, some caution should be used when selecting a contractor.



## **When I'm selecting an asbestos contractor, are there any questions I should ask?**

**Yes.** As when hiring any contractor, the more information you have about a contractor may help you make a more informed decision when it comes to hiring one.

Here are some questions you should ask before hiring an asbestos contractor:

### **“Are you licensed by the Minnesota Department of Health (MDH) as an asbestos contractor”?**

State law requires that all asbestos contractors have a license to perform asbestos-related work in single-family residences and residential buildings where the quantity of friable asbestos-containing material to be removed is greater than six square feet, ten linear feet or one cubic foot. Request a copy of their license or contact the MDH Asbestos Program to verify their license.

### **“How much will the asbestos removal cost and what does the cost include”?**

The costs associated with asbestos removal can vary based on the size of the project, the amount of asbestos being removed, and the time required to perform the removal. Costs should include labor, air monitoring and waste disposal. The cost can be higher or lower based on how complicated the project is.

### **“Can you provide references from customers you have done similar asbestos work for”?**

The contractor should be able to provide you with several references. You should select at least three of the references you would like to contact. Ask former customers if they were satisfied with the work and whether or not the contractor completed the project as agreed upon.



## **Is there any other information I should request from the asbestos contractor?**

**Yes.** It is recommended that you obtain bids from more than one contractor, rather than accepting a single bid from one contractor. Be sure to describe the project to each contractor in exactly the same terms, so you can compare bids. Ask each contractor to include a listing of all associated costs such as labor, materials, insurance, bonding, air monitoring costs, and asbestos waste disposal fees. A contractor who comes to your home to look at the anticipated work will give you the most realistic bid.

Request a written work plan from each contractor submitting a bid. The work plan should include a description of the removal and clean up methods to be used. The work plan gives you a chance to better compare the services you will receive as part of the bid. Have the contractor show you how the work plan follows state and federal regulations.

Request that the contractor provide you with copies of the following documentation:

- Minnesota asbestos contractors license
- Minnesota certifications for site supervisors and workers at the site
- The permit issued by MDH
- Waste manifest records
- Laboratory report for the air sampling results



## How will they do the work?

Prior to beginning the removal, have the contractor show you how the work area has been set up. Have them explain the process they are going to use to remove the asbestos. Contractors should never use any of your personal property, such as tools, hoses, vacuums or mops for the project.

Here is a short list of what you should see before and during the removal project:

- All non-contaminated moveable objects should be removed from the work area. Items such as paint cans, bicycles, storage boxes, tools, toys etc. should be moved out of the work area before the contractor begins setting up the work area. You can do this yourself, or the contractor should do it. There may be extra fees for this activity.
- Plastic sheeting on walls and floors isolating the work area from the rest of the basement or house; this is known as the containment or enclosure



- A 3-chambered decontamination unit equipped with a working shower that is connected to the work area; this is known as a “decon”
- A HEPA filter equipped negative air machine, known as a HEPA unit, which creates negative air pressure within the containment to keep airborne asbestos fibers from leaving the containment.
- An airless sprayer to keep the asbestos-containing material wet during the removal process.
- Air sample pumps collecting air samples during the removal of asbestos
- Workers wearing personal protective equipment (respirators and protective suits) and using the decontamination unit when entering and exiting the work area.
- Asbestos material being taken out of the containment in sealed plastic bags.

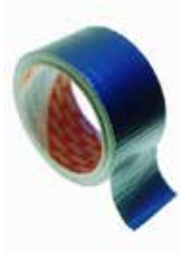


How can  
I remove  
asbestos  
flooring from  
my home?



Removing resilient floor coverings is a common occurrence during home remodeling projects. Resilient floor coverings include linoleum or sheet vinyl and floor tiles.

The Minnesota Department of Health (MDH) recommends using a licensed asbestos contractor to remove asbestos-containing flooring. However, if you choose to remove the flooring yourself, the information in this document will help you complete the job safely. Using the proper equipment, preparation, removal procedures and clean up are important in reducing exposure to asbestos fibers.



## **Tools that are needed.**

The following equipment should be used when removing floor coverings.

- Abrasive scrub pads - for removing residual linoleum backing and adhesive
- Amended water - make by adding 1 cup of dish soap to 5 gallons of water
- Boxes - to put floor tile in after removal
- Duct tape - for sealing openings and bags
- Metal putty knife/razor scraper - for removing material from flat surfaces
- Mop/disposable towels- for clean up
- Personal Protective Equipment - respirator, disposable work suits, gloves, boots and eye protection
- Polyethylene sheeting (poly) - for isolating the work area, covering vents and openings
- Spray bottle/tank – to apply amended water
- Utility knife - for cutting poly sheeting
- Waste disposal bags - heavy-duty yard waste bags work best



## **How to prepare the work area.**

To prepare the work area, remove all movable objects from the work area. This is done to prevent any contamination of these objects. Any object that cannot be removed should be covered with poly and sealed with duct tape. Next, isolate the work area. This will contain any asbestos fibers released during the work to the work area. Isolate the work area by turning off the heating and air conditioning system for the work area and any vents should be covered with poly and sealed with duct tape.

Doorways and any other openings should also be covered with poly and sealed with duct tape. Access to the work area should be limited to one doorway. Cover the doorway with poly and seal with duct tape. Then cut a slit in the poly to allow you to enter and exit the work area. Cover the slit with an additional poly flap secured at the top of the door. This should be the only access to the work area. This will also limit air movement into and out of the work area.



## **How to remove it.**

Before beginning removal, make sure that all tools and equipment that are needed are inside the work area. You should limit the number of times you exit the work area once asbestos-containing materials are disturbed. The personal protective equipment you choose should be put on at this time.

Both floor tile and linoleum need to be wetted with amended water before any removal begins or cuts are made. Amended water suppresses the release of asbestos fibers into the air.



**Floor Tile:** Floor tile is most easily removed from the edges. Use a hammer and putty knife or similar tool to work under the edges of the tile and pop the tile loose. Once the first tile is loose, work the putty knife at a 45 degree angle to gently pop the remaining tiles loose. Avoid excessive breakage during removal to reduce your exposure to asbestos fibers.

**Vinyl Floor Sheeting (Linoleum):** Linoleum may be adhered on the edges or over the entire floor surface. It can be removed by first cutting the material with a utility knife into manageable sections, about 6" wide. Remove the linoleum at the edges by peeling back the material. Use a metal putty knife or razor scraper to scrape the bottom edge of the linoleum. Continue to wet the material as it is scraped and pulled up. The linoleum backing may separate from the linoleum during removal and remain adhered to the floor. Any residual material can be removed by thoroughly wetting with amended water and hand-scrubbing with an abrasive pad.

**Adhesives:** In some cases, the adhesives holding the floor tile or linoleum may need to be removed. Chemical solvents or amended water can be used to accomplish this. Check with the manufacturer about using chemical solvents. Some chemical solvents are not compatible with new adhesives. Do not sand or grind adhesives. Adhesives may contain asbestos and fibers may be released into the air through this action.

**Waste Materials:** Floor tiles should be placed into poly-lined waste boxes. This will prevent additional breakage and potential release of fibers. Linoleum should be wrapped in poly sheeting and sealed with duct tape. Wipe down the exterior of the boxes or poly wrap and remove the waste material from the work area. Continue this process until all flooring has been removed.



## **How to clean-up.**

Clean-up is essential when removing asbestos-containing materials. In this step, you are attempting to remove all the potential asbestos dust and particulate that remains in the work area. The chance of a future asbestos exposure is high if a thorough cleaning and inspection are not done. Wipe all surfaces within the work area with a damp cloth. This includes all poly sheeting in the work area. Rinse the cloth and change the water often to prevent recontamination of surfaces in the work area. Inspect all surfaces for any dirt, dust or debris, and re-clean if necessary. All equipment used for removing the flooring material should be cleaned and inspected. Remove all equipment from the work area.

Next, take down the poly sheeting and place it into waste bags. Re-inspect the work area and re-clean, if necessary. Place all towels and mop heads into waste bags. To decontaminate yourself, wash all exposed skin. Remove your disposable suit by rolling it up inside out and disposing it in a waste bag. Place all poly, towels and other waste into bags and seal with duct tape. It is also recommended that you take a complete shower to remove any potential asbestos fibers still clinging to your body and hair.



## **How to dispose of the waste.**

MDH recommends that all asbestos debris and waste be disposed of in a landfill that accepts asbestos-containing waste. There are three methods of disposing of asbestos waste and they are:

- Contact local waste hauler for special pick-up
- Contact licensed abatement contractor for pick-up and disposal
- Dispose of the waste yourself

A list of landfills that accept asbestos-containing waste can be obtained by calling the Minnesota Pollution Control Agency at (651) 296-6300.

How do  
I protect  
myself  
around  
asbestos?



## Why should I use Personal Protective Equipment (PPE)?

There is a potential for asbestos fibers to be released when removing asbestos-containing material (ACM). In addition to using proper removal procedures, using personal protective equipment will significantly reduce your exposure to asbestos fibers.

**Respirators:** Respirators are used to purify the air you are breathing. The most common respirator is a half-face, dual cartridge respirator. Respirators must be equipped with HEPA filtered cartridges (color coded purple) or an N-100, P-100 or R-100 NIOSH rating. These cartridges are specific for filtering out asbestos fibers. **Paper dust masks available at hardware stores do not filter out asbestos fibers and should not be used!** Half face respirators cover the nose and mouth and consist of a silicone or rubber face piece, elastic head harness and filter cartridges.

Respirators provide little protection if they do not fit properly. Facial hair, especially beards and goatees, will not allow the respirator to fit properly. Read the instructions thoroughly. If

possible, request from the vendor a fit test to ensure a proper fit and instruction on performing a fit check of the respirator seal. A fit check is done each time the respirator is worn.



**Medical Warning:** Respirators cause the lungs to work harder in order to breathe air. Check with your doctor before buying a respirator to see if you are physically able to wear a respirator.



**Eyewear:** Safety goggles or glasses protect your eyes from any falling or flying debris. Eyewear should be used when removing materials from overhead and when cleaning with wire brushes. Eyewear is also recommended during floor tile removal.

### **Disposable Coveralls:**

Disposable coveralls are used to keep asbestos-containing debris off of your body. Several pairs of disposable coveralls with built-in feet should be available during the removal work and clean up. It is recommended that two suits are worn at the same time. Every time you leave the work area, once ACM has been removed, the exterior suit should be removed inside the work area and be disposed of in a designated asbestos waste bag. This will help to ensure all asbestos debris remains in the work area. Oversized coveralls make it easier to move around. Most coveralls do not breathe, so you may get hot and uncomfortable. An optional method is to use old clothes and dispose of them as waste at the end of the project.

**Rubber Boots:** Rubber boots are used to protect your feet from any sharp objects encountered during your project. Boots will also protect disposable coveralls feet so they do not wear through. Pull-on rubber boots without laces or fasteners are recommended. Boots can be washed off at the end of the project and used again. Check the tread of the boot to ensure no debris is stuck in it.



**Disposable Gloves:** Gloves protect the hands from sharp objects and reduce the amount of asbestos contamination on your hands. Several pairs of durable, disposable rubber or cloth gloves should be purchased. Gloves should be worn by each person in the work area. When work is completed, gloves should be disposed of in a designated asbestos waste bag.

**Decontamination:** All equipment and tools should be washed prior to leaving the work area. Inspect all surfaces of your safety equipment to ensure no contamination is leaving the work area. In addition to equipment, all exposed skin should be washed off to eliminate any contamination. Any equipment that cannot be cleaned must be disposed of as asbestos contaminated waste.

Using personal protective equipment in conjunction with the appropriate work and decontamination practices can greatly reduce exposure when removing ACM.

Who can  
remove  
asbestos in  
Minnesota  
homes?





Minnesota Statutes and Rules regulate removal, encapsulation or enclosure of asbestos-containing materials (ACM) from single or multi-family homes in greater than the following quantities:

- 10 linear feet; or
- 6 square feet; or
- 1 cubic foot

Only an asbestos contractor licensed by the Minnesota Department of Health (MDH) may disturb these amounts of asbestos.



## **How do I find out if the material I'm working on is asbestos?**

To determine if the material is ACM, check for asbestos markings on the material or its packaging. Or hire a Minnesota-certified asbestos inspector to sample the material.

Contact MDH for a list of companies that perform sampling at:  
[www.health.state.mn.us/divs/eh/asbestos/](http://www.health.state.mn.us/divs/eh/asbestos/).

**IMPORTANT: Asbestos-containing flooring, roofing, siding and ceiling materials in homes with four dwelling units or less are exempt from MDH regulation. This does not mean the material is not hazardous. MDH recommends you use care when disturbing these materials to prevent yourself and others from being exposed to asbestos fibers. In all situations involving asbestos the Minnesota Department of Labor and Industry has requirements for protecting workers. Contact them at (651) 284-5054 for more information regarding worker protection.**

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