
**Asbestos Removal Procedures
for Home Owners**

**How to Properly Remove
Asbestos-Containing
Spray-on Textured Ceilings**

IMPORTANT: *Read these procedures from start to finish, making sure you thoroughly understand them, before any asbestos abatement is undertaken.*



**Utah Department of Environmental Quality
Division of Air Quality
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Note: *This publication by the Division of Air Quality is limited to the removal of spray-on ceilings in single family, owner-occupied residential dwellings by the owners themselves. State and Federal regulations require specific work practices and worker training for persons performing asbestos removal projects in all other situations.*

Before You Begin

Are you sure your ceiling contains asbestos?

Not all spray-on, textured ceilings contain asbestos. To know for sure, submit a small sample for laboratory analysis. Cost is minimal. Laboratories are listed in the yellow pages under "Asbestos - Consulting and Testing." A list of local laboratories may also be obtained by contacting the Division of Air Quality at 536-4000.

Use a spray bottle to thoroughly wet three or four small ceiling areas with water mixed with a few drops of liquid detergent. Using a putty knife, take a composite sample by carefully scraping about one square inch of spray-on from each wetted area into a zip-lock plastic bag. If the laboratory results are negative, meaning less than 1 percent asbestos was found in the sample, take two additional samples to confirm the analysis.

If you decide not to check for asbestos, assume the ceiling contains asbestos and treat it accordingly.

If so, are you sure you want to remove it?

Remember, asbestos is a problem only if fibers are released into the air. Asbestos-containing, spray-on ceilings that are in good repair and are not being disturbed will not release asbestos fibers. Hence, the safest, easiest and least expensive option may be to leave it alone. Sometimes it is possible to work around asbestos without removing it. For example, spray-on ceilings that are in good condition can usually be painted with a thin coat of latex paint (spraying with an airless sprayer is recommended). However, be aware that painting these ceilings may prevent you from safely removing them in the future. Do-it-yourself removal is highly dependant on your ability to thoroughly wet this material before disturbing it. Painting can seal the spray-on material, making it difficult or impossible to wet.

Words of Caution

The Utah Division of Air Quality assumes no liability or responsibility for damage, injuries, illness or related health problems arising from your performing an asbestos removal project. You assume all risks involved.

You are liable.

Your only legal options in having asbestos removed from your home are to hire a certified abatement contractor or to do the work yourself. The law prohibits you from hiring anyone other than a certified asbestos contractor to perform asbestos removal work. Family members and friends may participate legally, provided they do so on a voluntary, no-pay basis. Be advised that the removal procedures described in this publication are intended to help homeowners minimize health risks associated with "do-it-yourself" asbestos removals. However, it should be understood that removing asbestos from your home can be dangerous. Some release of asbestos fibers into the air is unavoidable and there are no known safe levels of asbestos exposure.

Be aware that no set of instructions can address all possible situations and variables that a home owner may encounter in an asbestos removal project. In this publication, we have tried to address the more common and most important issues involved in removing spray-on ceilings.

Particularly challenging projects *should not* be undertaken by the home owner. **If you are not confident in your ability to safely perform the asbestos removal, the Division of Air Quality recommends that you abandon the "do-it-yourself" approach and hire a certified asbestos abatement contractor.**

The work will be difficult.

It is important to note that even under the best of circumstances, home owner performed asbestos projects can be physically demanding and potentially dangerous.

- * Breathing through a respirator is more difficult than normal breathing and places an additional stress on the heart and lungs. A physician should be consulted before anyone performs strenuous work while wearing a respirator.
- * Protective clothing can be hot and uncomfortable.
- * Work spaces become very humid due to the water used in wetting the asbestos.
- * Eye protection often results in reduced visibility.
- * Caution must be taken with wiring and electrical power because water is used to wet the asbestos.

The work may cause damage.

These procedures may result in damage to walls and ceilings. Duct tape can discolor wood paneling, tear wallpaper and remove paint and texture. Water may stain walls and damage floors. Using metal scrapers on wetted plasterboard ceilings may result in tearing of the plasterboard paper.

If your ceiling has been painted...

If your spray-on ceiling has been painted, you may not be able to penetrate the paint with water to thoroughly wet the asbestos-containing material prior to disturbance. Thorough wetting is critical for preventing the release of asbestos fibers during removal. Try one or more tests to determine if you can penetrate the paint layer to thoroughly wet the material prior to disturbance. Use a plastic spray bottle containing a teaspoon or less of liquid detergent (wetting agent) in water. Spray water over a few square inches of ceiling, allowing up to 15 to 20 minutes for the water to soak in. Re-spray several times during this period. Then scrape off the material carefully with a small putty knife, catching the debris on a piece of sheet plastic in your other hand. Examine the removed material carefully for wetness.

Dispose of the debris by carefully wrapping it in the plastic, sealing it with duct tape and placing it in the garbage. If the removed material was not thoroughly wet, try increasing the number of spray applications, the amount of wetting agent used and times for soaking in, to determine the best way to achieve the maximum wetting of your spray-on material. If, after trying various spray procedures, you are unable to get water through the paint in order to saturate the spray-on material to the ceiling substrate, **do not undertake this project**. Leave the ceiling alone or hire a certified asbestos abatement contractor to do the work. If you remove the ceiling dry, you will contaminate your home with asbestos and expose yourself and your family to potentially high concentrations of airborne asbestos fibers.

----- Removal Procedures -----

Basic Rules

- * **Worker Protection:** During removal, you will need to protect yourself from breathing or spreading asbestos fibers by wearing an appropriate respirator, disposable coveralls, disposable gloves, and rubber boots.
- * **Wetting:** Wetting is critical to asbestos fiber control. Before, during and after removal, asbestos materials should be thoroughly saturated with water in order to keep asbestos fibers out of the air. Once removed, asbestos debris should be kept wet until packaged and sealed for disposal.
- * **Containment:** You will need to contain your asbestos debris by constructing a plastic containment around the ceiling areas you wish to remove. This is accomplished by covering walls and floors within the project room or rooms to ensure all debris is captured and remains on plastic sheeting during removal.

----- Personnel and supplies -----

Workers

It is recommended that three workers perform the job.

Two should perform the work and a third should be "standing by" outside the work area to provide water, tools and other supplies as needed while work is in progress. This will minimize the need for removal workers to remove disposable clothing and put on new for each exit and entrance to the work area.

Protective equipment and clothing

Before beginning your project, you will need to obtain the following items:

- * **Respirators:** Half-face, dual cartridge respirators, each equipped with a pair of HEPA filters (color coded purple). Request from the vendor a fit test to ensure a proper fit and

instruction on performing a check of the respirator seal prior to each use. Respirators provide little protection if they do not fit properly. Respirators must be worn continually by each person within the containment.

Note: *Persons with beards cannot be adequately fitted with this type of respirator and should not work within the containment.*

- * **Coveralls:** Several pairs of disposable coveralls with built-in booties should be purchased. Oversized coveralls make it easier to move around. One pair will be needed for each entry into the containment area. Every time a worker leaves the containment area during a removal project, coveralls should be disposed of in a properly sealed asbestos waste bag. This will help ensure all asbestos debris remains on plastic.

Personnel and supplies (continued)

- * **Rubber Boots:** Laceless, pull-on rubber boots without fasteners will protect coverall booties so they do not wear through. Rubber boots can be washed off later or disposed of as contaminated debris.
- * **Eye protection:** Each worker within the containment area should wear non-fogging goggles.
- * **Rubber gloves:** Several pairs of durable, disposable rubber gloves should be purchased. Rubber gloves should be worn by each person in the containment area. Every time a worker leaves the containment area, these gloves should be disposed of in an asbestos disposal bag. A new pair of gloves should be worn with each re-entry into the containment area.



Tools and Supplies

- * **Tank sprayer(2-3 gallons):** This will be your means of wetting spray-on ceiling materials.
 - * **Liquid dish washing detergent:** Mixed at one cup per five gallons of water for best wetting results.
 - * **Wallboard taping or "putty" knives and a dust pan:** The best sizes of knives for scraping have four to eight-inch blades. The dust pan is for catching the spray-on material as it is removed and placing it in the asbestos waste bag.
 - * **Step ladder:** A six foot or taller aluminum or fiberglass ladder should be used when hanging the containment and during removal. Chairs and shorter ladders are not recommended. Remember that you will be wearing goggles, coveralls and rubber boots which limit vision and mobility.
 - * **Polyethylene plastic sheeting(poly):** This will be used to create containment areas. You will need enough 2 or 3 mil sheeting to cover 1.5 times the area of the walls and enough 6 mil sheeting to cover 3 times the area of the floors.
- * **Asbestos waste disposal bags:** These bags will be used for containing asbestos contaminated debris and materials. The bags should be sized 33 inches by 50 inches and made of 6 mil polyethylene. Each should be pre-printed with required asbestos warnings. Assume you will need at least four bags per 100 square feet of ceiling to be removed.
 - * **Duct tape:** Numerous rolls will be used in building the containment area and in sealing waste bags.
 - * **Clean, disposable rags:** A large supply should be on hand for assorted removal and clean-up purposes.
 - * **Encapsulants:** These could be latex primer paint or an approved latex asbestos sealing product. They will be used for sealing areas after the spray-on material has been removed.
Note: *Asbestos-specific equipment and materials may be purchased from safety equipment vendors listed under "Safety Equipment and Clothing" in the Yellow Pages.*

Prep Work

First things first

- 1.Post signs warning "drop-in" friends, family and other visitors of the work taking place.
- 2.Remove all furniture from the room(s) where the spray-on removal is to take place.
- 3.Turn off heating/air conditioning systems and seal the vents with poly and duct tape. If the vents are mounted on the ceiling, wait until the containment is constructed to remove the vent covers.
- 4.Turn off all electrical power to ceiling fixtures in the project area at the breaker box. Even though the light switch is turned off, there are often live wires at the light fixture.
- 5.If lighting is required to conduct the project, it should be wired to a circuit outside the removal area and protected with a Ground Fault Circuit Interrupt (GFCI) outlet.

Prep Work (continued)

Build a containment area.

1. Throughout the area of the house where the spray-on ceiling is to be removed, cover the floors with 6 mil poly. Place the sheets so that they overlap room edges by about a foot. Run the extra foot of sheeting up the wall and tape the edges there securely. Make sure there is plenty of excess poly - do not pull tight - so that the poly will not pull away from the walls when you are working near the edge of the room. Tightly seal all seams between sheets of poly with duct tape. If spray-on removal is going to take place in areas that are joined by halls or spaces where no removal is to take place, lay a layer of 6 mil poly sheeting on the floor to create a path on which to walk between containment areas.

2. Hang 2 or 3 mil poly sheeting on the walls within approximately one inch of the ceiling, forming a tight seal with duct tape. Make sure the sheets overlap and extend to the floor. Seal all wall seams with duct tape. To minimize damage to wall paper, consider using slender finishing nails to secure a piece of molding to the top of the wall, and tape the poly wall sheets to the wood strip.

3. Lay a second layer of 6 mil poly sheeting on the floor. In larger rooms, install the second layer in pieces of 100-120 square feet. Lay the plastic in a loose, overlapping manner without using tape or adhesive.

4. Construct poly isolation walls in doorways or room openings, if necessary, to separate the work area from the rest of the house. Create an entrance/exit to the work area, by cutting a five to six foot vertical slit in a poly isolation wall and then taping a floor-length poly flap over the slit on the inside of the containment area.

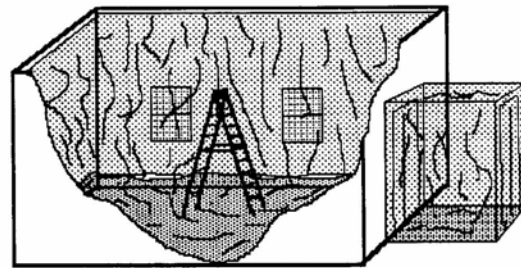
5. Once you have completed the poly containment, make sure the entire area where removal is to take place is isolated with poly sheeting. The only exposed surface within the containment should be the ceiling and about an inch or less of the wall below the ceiling. This ensures that all asbestos material is contained during removal.

6. If there is a door to the outside within the containment area, make this your point of entry/exit from the work area. Open the door and seal the door way with 6 mil poly sheeting. Create an entrance/exit through the poly by cutting a vertical slit as described above and covering it on the inside with a poly flap. Then lay a sheet of 6 mil poly outside the door. At a minimum, have a water spray bottle, clean, wet rags and an asbestos waste disposal bag at this location. If there is no exit door to the outside within the containment, create an entrance/exit within the house, either through a door or through an isolation wall as described above. Create a secondary containment or air-lock at the entrance/exit by constructing a wooden frame approximately four feet by five feet at the base and six to seven feet high. Completely enclose the interior of the box with 2 or 3 mil poly on the sides and top and 6 mil poly on the floor. Make flap doors on the

air-lock as described above and seal one side to the containment area. All entrance and exit to the containment should be through this air-lock. All contaminated equipment and clothing must be left within the air-lock. At a minimum, have a water spray bottle, clean, wet rags and an asbestos waste disposal bag at this location.

7. Windows may be opened for ventilation. However, take precautions to prevent the escape of visible emissions to the outside air. Construct and tape an oversized poly flap or canopy over the inside of each open window to ensure no debris passes through the windows.

8. Remove all ceiling mounted light fixtures, smoke alarms, etc. After removal, seal exposed wires with electrical tape. Be careful not to disturb the spray-on materials during these activities.



Put on protective clothing and equipment.

Those who will enter the containment area to do the work should put on disposable coveralls outside the containment area while standing on the entrance/exit poly or within the air-lock. They should then put on gloves, goggles and respirators equipped with HEPA filters. If the coveralls are equipped with a hood, be sure to put the respirator head straps on underneath the hood. Tape your gloves to your disposable coverall sleeves around the wrist to ensure your arms and wrists remain covered (be sure to leave a folded tab at the end of the duct tape around your wrist, without the tab, removal with gloved fingers is very difficult). Seal the top of the rubber boots with duct tape to keep out ceiling material as it falls.

Wet the ceiling.

1. If your spray-on ceiling was painted, use the wetting process determined to be successful in earlier tests. Apply the water plus wetting agent with a tank sprayer. However, if in the process described earlier, you were unable to saturate the spray-on material to the ceiling substrate, **do not undertake this project**. Leave the ceiling alone or hire an asbestos abatement contractor to do the work.

Prep Work (continued)

2. If your spray-on ceiling was never painted, spray the ceiling with wetting agent and water using the tank sprayer. Spray the ceiling material several times with water and **ensure the material is thoroughly wet before removal**. Spray-on material is very porous and absorbs a lot of water. Thorough wetting will keep asbestos fibers out of the air.

3. Wait 15 to 20 minutes for the water to thoroughly penetrate.

Note: If someone is not available outside the containment to refill sprayers, you may need a hose with automatic shut-off at the entrance to the enclosure to refill the tank sprayer(s).



Test for wetness.

Once inside the containment area, test for wetness by scraping off a few inches of ceiling material. If it is thoroughly wet to the plasterboard or other ceiling substrate, you are ready to begin removing. If the material is not thoroughly wet, re-apply water and allow time for it to soak in.

Again, if you find you are unable to thoroughly wet the material, **do not proceed!** Use a certified asbestos abatement contractor to perform additional work.

Note: If you must leave the containment area during the project, wet down the protective clothing with the spray bottle. Clean off the rubber boots, goggles and respirator with clean wet rags. Remove the clothing while standing on the poly just outside the entry/exit or within the air-lock. Place the coveralls and gloves in a waste disposal

bag. Remove the respirator only after equipment has been cleaned and clothing has been sealed in the waste bag. Then step off the poly or out of the air-lock. Upon returning, put on new coveralls and gloves.

Taking down the spray-on ceiling

1. Cushion ladder legs by wrapping them with rags or a similar material, thereby preventing them from penetrating the poly sheeting on the floor.

2. Using four to eight-inch putty or wallboard tapping knives, thoroughly scrape the spray-on material from the ceiling, catching the material as you scrape with the dust pan. Place the scraped material into an asbestos waste bag.

3. Wipe any remaining residue off with clean wet rags. Turn the rags frequently so you are wiping with a clean surface. Otherwise, remaining asbestos material will be smeared around and not removed. If the ceiling beneath the spray-on was painted, the wet wiping is very effective. With unfinished sheet rock, wiping is helpful but is less effective. **Do not try to rinse and re-use contaminated rags.** Dispose of them in an asbestos waste disposal bag.

4. Use clean rags to wipe the exposed portion of the walls between the poly sheeting and the ceiling.

5. Keep the poly on the floors and walls wet at all times by periodically spraying them to prevent any debris from drying and becoming airborne.



Cleaning Up

Remove debris from the floor.

1. After you have removed all of the spray-on ceiling material in one room within the containment area, seal the asbestos waste bags containing the removed material and contaminated rags. Waste bags are sealed by gathering the top of the bag, twisting it, and wrapping with duct tape; and then folding the twisted, taped portion over, taping it again to form a goose neck.
2. Carefully fold and roll up the top layer of loose plastic sheets to contain fallen debris. Bag the folded poly, along with the debris it contains, into asbestos waste disposal bags.
3. Thoroughly wipe down all tools and ladders with clean, wet rags. Place the cleaned equipment on the poly sheet outside the entry/exit or within the air-lock. Dispose of rags as asbestos debris.
4. Before you remove any poly sheets that are taped to the walls and floor, encapsulate those ceiling areas from which spray-on material has been removed. Roll on or spray these areas with a latex primer or an approved latex asbestos encapsulant. In spite of your best efforts, some asbestos fibers will remain on your ceiling. These fibers will be encapsulated by the paint primer or other spray application.
5. Double bag the asbestos waste by placing each asbestos waste bag into another bag and sealing the second bag with a goose neck as above. Place the sealed bags outside the containment, being careful not to contaminate the outside of the bag.

Note: If your spray-on ceiling was applied as part of original construction, the ceiling was likely never finished for painting. Thus, even if you did no damage during the spray-on removal, you will likely need to refinish or re-texture the ceiling before painting. **Under no circumstances should you sand ceilings after removal of spray-on material.** This will result in asbestos fibers being released into the air.

Remove the poly containment.

1. Spray poly walls and floors with water one last time, making sure any visible asbestos debris is thoroughly wet.
2. Beginning at the point most distant from your containment entrance/exit, remove all poly sheeting. First, peel the poly off the walls and lower them onto the floor. Then carefully roll up the poly on the floor, being careful that all debris remains within the poly. Work backwards toward your exit. Stay on the poly flooring at all times during this process. In larger rooms it may be necessary to bag the wall poly separately to avoid making a bundle too large to bag.

3. Double bag each roll of contaminated poly inside asbestos waste bags and seal with a goose neck as described above.

Decontamination

1. Make sure that you dismantle and bag the containment area in such a way that the last piece of poly upon which you are standing is the poly you placed on the ground outside the entrance/exit or within the air-lock.
2. Thoroughly clean all equipment of all visible residue with clean, wet rags. Before storing equipment, it should be washed again outside with a garden hose.
3. While standing on the last piece of poly sheeting, or within the air-lock, spray yourself (or each other) with water to wet down any asbestos debris/fibers on the outside of your respirator and disposable coveralls. Spray the walls of the air-lock.
4. Remove boots. You may either thoroughly clean the boots with wet rags and set them aside or, if you do not wish to keep them, place them inside an asbestos waste bag.
5. Thoroughly clean goggles and the outside of respirator (while wearing the respirator) with wet rags.
6. If an air-lock was used within the house, step out onto the entrance/exit poly. Collapse the poly ceiling and walls as you did in the containment. Fold the air-lock poly and place it in an asbestos waste bag.
7. While on the poly sheeting, remove your disposable gloves and coveralls by peeling them off and turning them inside out as they are removed. Step off the last poly sheet.
8. Remove respirators and take out their filters. Discard the filters with other asbestos waste. Perform final cleaning of respirators, goggles and other equipment using clean, wet rags and place used rags in asbestos waste bag.
9. Double bag remaining disposable items including remaining poly sheet by rolling from edges and placing in asbestos waste bag. Use wet rags for any future clean-up. Never attempt to vacuum or sweep up asbestos debris. Seal and double bag as outlined above.
10. Take a shower.

Disposal

Asbestos waste from an asbestos project may be disposed of only at landfills approved by the Division of Air Quality to accept asbestos waste. The location and phone numbers of such sites may be obtained by calling 801-536-4000.

All asbestos waste must be transported and disposed of in double sealed waste containers with the appropriate asbestos label. You must write your last name and address where the waste was generated on each container prior to removal from your home. The asbestos waste must be transported in a manner that will not permit the release of asbestos fibers into the air. Asbestos debris should be transported in a covered vehicle.
