

How to Properly Remove Spray-on “Popcorn” Ceilings

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



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***Note:** An Owner-Occupied, Single-Family Residence is one that the owner of the home lives in both prior to and after renovation activities. The term does not include rental property, multiple-family units, mixed-use structures that contain a residential unit, and structures involved in commercial/government-related activities (i.e. commercial development, property management, real-estate transactions, ordered demolition, etc.).

This publication is limited to the removal of popcorn ceilings, one of the three most common asbestos abatement projects performed by homeowners. Spokane Regional Clean Air Agency (Spokane Clean Air) offers two additional “how to” manuals in this series, “Asbestos-backed Sheet Vinyl Flooring” and “Cement Asbestos-board Siding.”

Before You Begin

Are you sure your ceiling contains asbestos?

Not all spray-on “popcorn” ceilings contain asbestos. To know for sure, submit “popcorn” samples for laboratory analysis. Cost is minimal. Laboratories are listed in the yellow pages under “Environmental Services” and “Laboratories-Testing.”

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 “popcorn” from each wetted area into a zip-lock plastic bag. If the laboratory reports are negative, meaning one percent or less 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 to the air. Asbestos-containing spray-on “popcorn” ceilings that are in good repair and 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, “popcorn” ceilings that are in good condition can usually be painted (spraying 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 dependent on your ability to thoroughly wet this material before disturbing it. Painting can seal the “popcorn” material, making it difficult or impossible to wet.

Words of Caution

You are liable.

Your only legal options in having asbestos removed from your home are to hire a certified asbestos abatement contractor or do the work yourself. The law prohibits you from hiring anyone other than a certified asbestos abatement 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 home owners 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 popcorn ceilings.

However, common sense dictates that unique and particularly challenging asbestos projects should not be undertaken by the home owner. In such cases, it would be prudent to avoid the possibility of asbestos contamination by abandoning the “do-it-yourself” approach and hiring a certified asbestos abatement contractor.

The work will be difficult.

It is important to note, that even under the best of circumstances, homeowner-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 your heart and lungs.
- Protective clothing can be hot and uncomfortable.
- Work spaces become very humid due to the water used in wetting the asbestos.
- Work can involve ladders and high spaces in some ceiling and siding projects.
- Eye protection often results in reduced visibility.
- Caution must be taken with wiring and electrical power because of all the water being used to wet the asbestos.

Understand that as a home owner, you do not have the equipment, materials, and experience of an asbestos abatement contractor to perform this work. Unlike contractors, who have special machines with high efficiency filters to remove fibers from the workplace air, you have few, if any, safety “back-ups” if something goes wrong.

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. Using metal scrapers on may result in tearing of the plasterboard paper.

**Spokane Regional Clean Air Agency
assumes no liability or responsibility for
injuries, illnesses or related health problems
arising from your performing an
asbestos removal project.**

If Your Ceiling Has Been Painted...

If your “popcorn” 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 test areas 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 held in your other hand. Examine the removed “popcorn” material carefully for wetness.

Dispose of the debris by carefully wrapping it in the plastic, sealing it with duct tape and placing it in an asbestos labeled bag (more disposal detailed are on the last page). If the removed “popcorn” 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 “popcorn” to the ceiling substrate, do not undertake this project. Leave the ceiling alone or hire an asbestos abatement contractor to do the work. If you remove this ceiling dry, you will contaminate your home with asbestos and expose yourself and your family to potentially high concentrations of airborne asbestos fibers. These fibers may remain in your home indefinitely.

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, goggles, disposable gloves, and rubber boots (or shoes that may need to be thrown out after the project).
- **Wetting:** Wetting is critical to asbestos fiber control. Before, during and after removal, asbestos containing material should be thoroughly wetted 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 the removal process.

Personnel & Supplies

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.

- ▶ **Note:** *It is illegal to hire anyone other than a certified asbestos abatement contractor to perform, or assist in, this removal process.*

Protective equipment and clothing

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

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

Respirators provide little protection if they do not fit properly. One respirator is recommended for each person working within the containment area.

- ▶ **Note:** *Persons with beards cannot be adequately fitted with this type of respirator and should not participate in asbestos abatement work.*
- **Coveralls**—Several pairs of disposable coveralls with built-in booties should be purchased. Oversized coveralls make it easier for workers to move around. One pair will be needed for each entry into the containment area. Every time a worker leaves a containment area during a removal project, coveralls should be disposed of in a properly sealed asbestos disposal bag. This will help ensure all asbestos debris remains on plastic
- **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.

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- **Eye protection**—Each person within the containment area should be equipped with non-fogging goggles.
- **Durable rubber gloves**—Several pairs of durable, disposable rubber gloves should be purchased. Rubber gloves should be worn by each person working within the containment area. Every time a worker leaves a containment area during a removal project, these gloves should be disposed of in an asbestos disposal bag. A new pair of gloves should be donned with each re-entry into the containment area. This will further allow for the containment of all asbestos debris.

Tools and Supplies

- **Tank sprayer (2-3 gallons)**—This will be your means of wetting “popcorn” ceiling materials.
- **Liquid dish washing detergent**—Mixed at one cup per five gallons of water for best results in wetting.
- **Wallboard taping or “putty” knives**—The best sizes for scraping off “popcorn” ceiling materials have four-to-six inch blades.
- **Polyethylene sheeting**—This will be used to create containment areas. You’ll 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 in the work area.

- **Asbestos waste disposal bags**—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’ll need at least four bags per 100 square feet of ceiling to be removed.
- **Duct tape**—Numerous rolls will be needed for building a containment area and sealing waste disposal bags.
- **Clean, disposable rags**—A large supply should be on hand for assorted removal and clean-up purposes.
- **Bucket**—This will be needed for washing tools at the end of the project.
- **Encapsulants**—These could be latex primer paint or an approved latex asbestos sealing product. They will be used for encapsulating areas after “popcorn” materials have been scraped off.

► *Note: Safety equipment and other supplies can be obtained from local “Safety Equipment” and hardware stores. (See the yellow pages for a complete listing.)*

Prep Work

First things first

1. Post signs warning any “drop-in” friends, family and other visitors of the work taking place.
2. Remove all furniture from the room(s) where the popcorn removal is to take place.
3. Turn off heating/air conditioning systems and tape all light switches in the off position.
4. Turn off electrical power to all ceiling light fixtures in the project area, then remove them. After removal, seal exposed wires with electrical tape. Be careful not to disturb the “popcorn” material during these activities.
5. Remove smoke alarms or other devices attached to or near the ceiling, being careful not to disturb “popcorn” material.

Build a containment area

1. Throughout the area of the house where the popcorn ceiling is to be removed, cover the floors with six mil polyethylene plastic sheeting. Place the sheets so that they overlap room edges by about a foot. Run the extra foot of sheeting up each wall and tape the edges there securely. Make sure there’s plenty of excess plastic—do not pull tight—so that plastic won’t pull away from the walls when you’re working near room corners

and edges. Tightly seal all seams between pieces of sheet plastic with duct tape.

If popcorn is to be removed from rooms that are joined by halls or spaces where no removal is to take place, lay 6 mil plastic sheets on the floor to create a path on which to walk between containment areas.

2. Hang 2 or 3 mil polyethylene plastic 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 wallpaper, consider using slender finishing nails to secure a piece of screen molding to the top of the wall and tape the plastic wall sheets to the wood strip.
3. Lay a second layer of 6 mil plastic on the floor. In larger rooms, install this second layer in pieces of 100-120 square feet. Lay the plastic in a loose, overlapping manner without using tape or adhesives.
4. Construct plastic “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, if needed, by cutting a five-to-six foot vertical slit in a plastic “isolation wall” and then taping a floor-length plastic flap over the slit on the inside of the containment area.

5. Once you've completed the plastic containment, make sure the entire area where the removal is to take place is isolated with polyethylene sheeting. The only exposed surfaces within the containment should be the ceiling and about an inch or less of wall below the ceilings. 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 and exit to the work area. Open the door and seal doorway with 6 mil plastic. Create an entrance/exit through the plastic by cutting a vertical slit as described above and covering it on the inside with a plastic flap. Then lay down a sheet of 4-6 mil polyethylene outside the door. At a minimum, have a water spray bottle, clean wet rags, a bucket 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. Lay down a sheet of 4-6 mil polyethylene outside the door and, as a minimum, have a water spray bottle and an asbestos waste disposal bag at this location.
7. Windows may be opened for ventilation. However, regulations require that there be no visible emissions to the outside air. Construct and tape an oversized plastic flap or canopy over the inside of each open window (or take other precautions) to ensure no debris passes through windows.

Wet the ceiling

1. If your “popcorn” ceiling was painted, use the wetting process determined to be successful in earlier tests. Apply the water plus wetting agent with the tank sprayer. However, if the testing procedures for wetting described earlier in this publication failed to penetrate the paint and thoroughly saturate the “popcorn” to the ceiling substrate, do not proceed. Leave the ceiling alone or hire an asbestos abatement contractor to do the work.
2. If your “popcorn” ceiling was never painted, spray the ceiling

with liquid detergent and water using the tank sprayer. Mix liquid detergent with the water at a ratio of one cup to five gallons. Spray the “popcorn” material several times and ensure the popcorn is thoroughly wet before removal. Spray-on “popcorn” 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 outside the containment area is not available to refill sprayers, you may need a hose with automatic shut-off at the entrance to the plastic enclosure for refilling the tank sprayer(s).*

Put on protective clothing and equipment

Those who will enter the containment area to do the removal should put on disposable coveralls outside the containment area while standing on the entrance/exit plastic. They should then put on gloves, goggles and respirators equipped with HEPA filters. Tape your gloves to your disposable coverall sleeves around the wrists to ensure your arms and wrists remain covered.

► **Note:** *If you must leave the plastic containment area during the project, wet down and remove protective equipment and clothing while standing on the plastic just outside the entrance/exit to the work area. Place coveralls and gloves in a waste disposal bag. Then step off the plastic. Upon returning, put on new coveralls and gloves.*

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 gypsum board or other ceiling substrate underneath, you're ready to begin removing. If the material is not thoroughly wet, re-apply water (with detergent) and allow time for it to soak in.

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

Taking Down the “Popcorn” Ceiling

1. Cushion ladder legs by wrapping them with rags or a similar material, thereby preventing them from penetrating the plastic sheeting on the floor.
2. Using an eight-inch putty or wallboard taping knives, thoroughly scrape the spray-on “popcorn” material from the ceiling, allowing the debris to fall onto the plastic sheets below.
3. Wipe any remaining residue off with clean wet rags. Turn rags frequently so you are wiping with a clean surface. Otherwise, remaining asbestos material will be smeared around but not

removed. If the ceiling beneath is painted, wet wiping is very effective. With unfinished sheet rock, wiping is helpful but is less effective. Don't try to rinse contaminated rags. Dispose of them in an asbestos waste disposal bag.

4. Use clean rags to wet wipe the exposed portion of the wall between the top of the duct tape and the ceiling.
5. Keep plastic on the floor and walls wet at all times by periodically spraying them to prevent any debris from drying and becoming airborne.

Taking Down the “Popcorn” Ceiling, continued

► *Note: If your spray-on “popcorn” 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 “popcorn” removal, you will likely need to refinish or*

re-texture the ceiling before painting. Under no circumstances should you sand ceilings after removal of sprayed on popcorn material. This will result in asbestos fibers being released into the air.

Cleaning Up

Remove debris from the floor

1. After you’ve removed all the “popcorn” ceiling material in one room within the containment area, carefully fold and roll up the top layer of loose plastic sheets to contain fallen debris.
2. Double bag the folded plastic, along with the ceiling debris it contains, into pre-marked asbestos waste disposal bags. The top level of floor plastic was put down in 100-120 square foot sections. Plastic plus wetted “popcorn” on this square footage will be quite heavy and may be all you want to carry in a single, doubled-bagged container. Make sure all contaminated wipe rags are also placed inside these bags. Follow this process for each subsequent room.
3. After removing all asbestos material from the project enclosure, thoroughly wipe down all tools and ladders with clean wet rags. Place tools in a bucket or plastic bag for more thorough cleaning later. Dispose of rags as asbestos debris.
4. Before you remove any plastic sheets that are taped to the walls and floor, encapsulate those ceiling areas from which “popcorn” material has been removed. Roll or spray these areas with a latex primer paint or an approved latex asbestos encapsulant. In spite of your best efforts to thoroughly remove the asbestos fibers, some fibers may remain on the ceiling. These asbestos fibers will be encapsulated by the paint primer or other spray application. Any future ceiling finishing work should not entail sanding these surfaces.

Remove plastic containment

1. Spray plastic 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 plastic. First, peel the plastic off the walls and lower them onto the floor. Then, carefully roll-up the plastic on the floor, being careful that all debris stays contained within the plastic. Work backward, toward your exit. Stay on the plastic flooring at all times during this process. In larger rooms, you may need to bag the wall plastic separately to avoid creating a bundle of plastic too large to bag. Roll and fold the plastic sheeting toward you while remaining on the plastic.

3. Place each roll of contaminated plastic inside asbestos waste disposal bags.
4. Place each bag of asbestos debris into a second, clean bag, carefully securing each by twisting the tops, bending the twisted part over and securing with duct tape.

Decontamination

1. Make sure that you dismantle and bag the containment area in such a way that the last piece of plastic upon which you’re standing is the plastic sheet you placed on the floor outside what formerly was the entrance/exit to the containment area.
2. While standing on this last piece of plastic sheeting, spray yourself (or each other) with water to wet down any asbestos debris/fibers on the outside of your respirator and disposable coveralls.
3. Remove boots. Double bag them in asbestos waste disposal bags for disposal, or, should you want to keep them, remove any gross accumulations of popcorn material and set them aside on the plastic sheet for further cleaning.
4. Remove your disposable gloves and coveralls by peeling them off and turning them inside out as you remove them. Step off the last plastic sheet.
5. Remove respirators and take out their filters. Discard the filters with other asbestos waste. Using clean wet rags, wipe down your respirator, goggles, tools used in the removal and, if you elect to keep them, your boots. Place your respirator, goggles, and tools in the bucket and your boots in a plastic bag for washing later.
6. Double bag remaining debris, cleaning rags, other disposable items and the last plastic sheet in properly labeled asbestos disposal bags. Tightly seal each bag with duct tape. Use wet rags for any further clean-up. Never attempt to vacuum or sweep up asbestos debris. This will cause any fibers present to become airborne in your house.
7. Take a shower.

Disposal

1. Asbestos debris may be disposed of only at disposal sites or transfer stations licensed to receive such waste. A list of such sites may be obtained by calling Spokane Clean Air at 477-4727. Call sites for disposal fees.
2. A waste manifest is required for disposal. Waste manifest forms are available at the disposal sites, by calling Spokane Clean Air at 477-4727, or available to download at www.spokanecleanair.org.
3. All debris must be properly packaged for disposal by double bagging your debris inside pre-labeled 6 mil bags designed specifically for asbestos disposal. You must write your last name, address, and date of removal on each container.
4. Debris must be legally disposed of within 10 calendar days of being generated. If you must store the packaged debris prior to disposal, ensure it is stored in a secured area, such as a locked basement or garage.
5. All double bagged or wrapped debris must be hauled to a disposal site or transfer station in a covered vehicle.



***This type
of removal
requires alot of
detailed prep
work***



***Scraping &
Spraying***



***Bagging
for
Special
Disposal***



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