How To Properly Remove Spray-on "Popcorn" Ceilings For Owner-Occupied, Single-Family Residences Only

This publication details the steps necessary for the safe removal of an asbestos-containing "popcorn" ceiling from an owner-occupied, single-family residence by the residing homeowner.

Note: An owner-occupied, single-family residence is a non-multiple unit building containing living space that is currently occupied by one family who owns the property as their permanent and primary residence. Spokane Regional Clean Air Agency (Spokane Clean Air) interprets "currently occupied" to mean that the owner of the home lives in the residence both prior to and after the renovation and demolition activities (assuming a new residence is constructed after demolition). This term includes houses, mobile homes, trailers, detached garages, outbuildings, houseboats, and houses with a "mother-in-law apartment" or "guest room". This term does not include rental property, multiple unit buildings (e.g., duplexes and condominiums with two or more units) or multiple-family units, mixed-use buildings (e.g., a business being operated out of a residence), structure, or installation that contains a residential unit. For these types of properties you must contact Spokane Clean Air prior to any renovation or demolition project.

Be aware that no set of instructions can anticipate all possible situations and variables that a homeowner may encounter in an asbestos abatement (removal) project.

It is essential that you read these instructions from start to finish, making sure you thoroughly understand them before cutting, scraping or disturbing your popcorn ceiling in any way. **Failure to do so poses a health risk to you and your family.**

Exposure to airborne asbestos may cause cancer or other lung diseases. Spokane Clean Air strongly recommends that homeowners hire state-certified asbestos abatement contractors. If, after reading this instruction manual, you still choose to do the work yourself, it is critical that you follow each step completely and carefully - from site preparation to disposal - so that your removal project is effective, safe and legal. Spokane Clean Air assumes no liability or responsibility for house damage, injuries, illnesses or related health problems arising from you performing an asbestos removal project. You assume all risks involved.

This publication is limited to the removal of Spray-on Popcorn Ceiling. Guidance publications are also available for removing Asbestos-Backed Sheet Vinyl Flooring and Cement Asbestos-Board Siding. For information, call (509) 477-4727 or visit www.spokanecleanair.org





Are You Prepared To Take On This Project?

It is essential that you are aware of all the challenges and risks of tackling an asbestos removal project yourself. It can be time consuming, messy, expensive, and dangerous to your health if not performed correctly.

Before you begin any asbestos removal project, you must be able to answer "yes" to all of the following questions:

Are you sure your ceiling contains asbestos?

Not all spray-on popcorn ceilings contain asbestos. To know for sure, submit a sample for laboratory analysis. Cost for testing is minimal. Laboratories are listed in the yellow pages of your phone book under "Environmental Services" and "Laboratories - Testing."

Note: If you decide not to check for asbestos, assume the ceiling texture contains asbestos and answer "Yes."

To take a ceiling sample for lab analysis you will need:

a spray bottle, liquid dishwashing detergent, putty knife, resealable plastic bag, and rubber gloves

- 1. Fill a spray bottle with water mixed with one teaspoon of liquid dishwashing detergent.
- 2. Thoroughly wet three or four small ceiling areas. Allow time for the water to soak in.
- 3. With a putty knife and wearing rubber gloves, carefully scrape about one square inch of popcorn from each area and place into the resealable bag.
- 4. Take or send sample to a local asbestos testing lab.

If the laboratory results are negative, meaning that less than or equal to one percent asbestos was found in the sample, we suggest taking in two additional samples from different areas and having them tested to confirm the analysis.









Asbestos is a problem only if fibers are released into the air. Popcorn ceilings that are in good repair and have not been disturbed should not release asbestos fibers. Hence, the safest, easiest, and least-expensive option may be to leave your ceiling 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) to better encapsulate the fibers. However, be aware that painting these ceilings may prevent you from safely removing them in the future because 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.



Are you prepared to accept the health risks associated with doing the asbestos removal yourself?

Airborne asbestos is a serious health hazard.

Breathing asbestos fibers can cause lung cancer and other diseases. When asbestos containing materials are disturbed, asbestos fibers, up to 1,200 times thinner than a human hair, can be released into the air. When released into the air, asbestos cannot be seen and quickly circulates through your home. When inhaled, these fibers become trapped in lung tissues. Medical research tells us that up to 30 years after inhalation, asbestos fibers can cause **lung cancer**, **mesothelioma** — a related terminal cancer of the tissue that lines the chest cavity, and **asbestosis** — a condition that can lead to breathing problems and heart failure.

There is no known safe level of asbestos exposure. This is why medical, environmental health and regulatory organizations stress the need to protect one's health by minimizing exposure to airborne asbestos fibers, particularly at elevated levels, which can occur during a remodeling project.



Without proper breathing equipment and body coverage at all times when working with asbestos, you or anyone in the vicinity of the removal area may be at risk.

The removal procedures described in this publication are intended to help resident resident homeowners minimize health risks associated with do-it-yourself asbestos removal projects. However, it should be understood that with any removal project some release of asbestos fibers into the air is unavoidable, and as stated earlier, there is no known safe level of asbestos exposure.

Are You Prepared To Take On This Project? (cont.)



TIP

To find out if you are ready for full-size projects, start with a small room (10' x 10') and follow these procedures.

Are you prepared to assume the challenge of do-it-yourself asbestos removal and disposal?

The work will be difficult, requiring the purchase of safety equipment. Even under the best of circumstances, do-it-yourself asbestos projects can be physically demanding and potentially dangerous.

- Breathing through a respirator is more difficult than normal breathing and places 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.
- 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.
- Without electricity and with plastic sheets covering doors and windows, it can be difficult to see in the work area.

Understand that as a resident homeowner, you may not have specialized equipment, materials, and experience of an asbestos abatement contractor to perform this work. Unlike contractors with machines that have high-efficiency filters to remove fibers from the air, you may have few, if any, safety "back-ups" if something goes wrong.

The work will be time consuming. The total time it takes to remove a popcorn ceiling can be substantial. Time estimates to complete a removal project 500-700 sq. ft. are:

- Collect supplies 1/2 day
- Set up containment area 1 day
- Removal and clean up 1 day (Note: do not attempt more than what can be removed and cleaned in one day)
- Disposal ½ day









The work may cause damage to your home. 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 wetted plasterboard ceilings may result in tearing of the plasterboard paper.

Are you aware of the legal issues involved?

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.

During removal — The law prohibits you from hiring anyone other than a Certified Asbestos Abatement Contractor to perform, or assist with, asbestos removal work in your single-family residence. Resident homeowners may remove asbestos themselves, provided they follow applicable standards. But as stated above, this option is difficult, time-consuming and dangerous to your health if prescribed work procedures are not strictly followed.

During disposal — If you choose to remove asbestos yourself, you take on the legal liability of ensuring proper bagging and identification of asbestos debris, correct transport (in a covered vehicle), and disposal **ONLY** at disposal sites or transfer stations licensed to receive such waste. These regulations protect your community from the harmful effects of asbestos.

The Washington State Department of Labor and Industries has regulations that may also apply. Call 1-800-4-BE-SAFE or visit **www.lni.wa.gov** for more information.

If you answered "No" to any of the above questions, and if you still wish to have asbestos removed from your home, YOU MUST CONTACT A STATE-CERTIFIED ASBESTOS REMOVAL CONTRACTOR. This is the quickest, safest, and most-reliable way to remove asbestos from your home.

Contact Spokane Clean Air for a list of contractors and/or service providers. Call (509) 477-4727 or visit www.spokanecleanair.org.

Before any removal of asbestos is done, you must fill out the Waste Shipment Record form available on our website, www.spokanecleanair.org.

Before You Begin Asbestos Removal

No set of instructions can address all possible situations and variables that a resident homeowner may encounter in an asbestos removal project. This publication is intended to address the common steps and most important issues involved in removing popcorn ceilings.

Common sense dictates that unique and particularly challenging projects should not be undertaken by the resident homeowner. In such cases, avoid the possibility of asbestos contamination by abandoning the "do-it-yourself" approach and hiring a state-certified asbestos abatement contractor.

1. Conduct a "wet" test.

If your popcorn ceiling has been painted, you will need to test to see if water can adequately penetrate the paint and wet the asbestos-containing material prior to the disturbance. Thorough wetting before, during and after removal is critical for preventing the release of asbestos fibers into the air.

To conduct a "wet" test you will need:

a spray bottle, liquid dishwashing detergent, putty knife, one foot square piece of plastic, rubber gloves

- 1. Fill a spray bottle with water mixed with one teaspoon of liquid dishwashing detergent.
- 2. Spray water over a few square inches of ceiling. Do this in several different test areas.
- 3. Allow 15 to 20 minutes for the water to soak in, re-spraying each test area two or three more times during this period.
- 4. Put on personal protective equipment.
- 5. With a putty knife and wearing rubber gloves, carefully scrape off the material, catching the debris on a piece of sheet plastic held in your other hand.





- 6. Examine the removed popcorn carefully. It should be thoroughly wet.
- 7. 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 details listed near the end of this guide.)

If the removed popcorn was not thoroughly wet, repeat the "wet" test increasing the number of spray applications, the amount of water used, and the length of time allowed for the water to soak in to determine the best way to achieve the maximum wetting of the ceiling material.



If, after numerous tries, you are unable to get the water to penetrate the paint and saturate the ceiling materials DO NOT UNDERTAKE THIS PROJECT. Leave the ceiling alone or hire an asbestos abatement contractor to do the work.

2. Gather essential personnel and supplies.

Workers



It is illegal to hire anyone other than a state-certified asbestos abatement contractor to perform or assist in the removal process.

Three people are recommended to remove a popcorn ceiling: two homeowners that reside in the house being worked on should perform the removal work and a third person 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 people inside the containment area to remove their disposable clothing and put on new clothing for each exit and entrance to the work area.

Before You Begin Asbestos Removal (cont.)

Protective equipment and clothing



During removal, all workers must be protected from breathing or spreading asbestos fibers by wearing an appropriate respirator, disposable coveralls, goggles, disposable gloves and rubber boots (or shoes that can be thrown out after the project.)

Note: Before beginning your project, you'll need to obtain the following items. All items marked with a [A] (triangle) must be purchased at specialty stores that carry approved health and safety equipment used for asbestos removal.

Check the yellow pages of your phone book under "Safety Equipment and Clothing" for a list of safety equipment vendors.



Respirators – Half-face, dual-cartridge respirators, each equipped with a pair of HEPA filters (color coded purple) are required. One respirator is required for each person working within the containment area. Respirators provide little protection if they do not fit properly, so request a fit test from the vendor.

Persons with beards often cannot be adequately fitted with this type of respirator and should not work within contaminant areas.



Coveralls – Several pairs of disposable coveralls with built-in booties should be purchased for each person who will be in the work area. Oversized coveralls make it easier for workers to move around. NEW COVERALLS WILL BE NEEDED FOR EACH ENTRY INTO THE CONTAINMENT AREA. Every time a worker leaves a containment area, coveralls should be wetted and disposed of in a properly sealed asbestos waste disposal bag.



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.



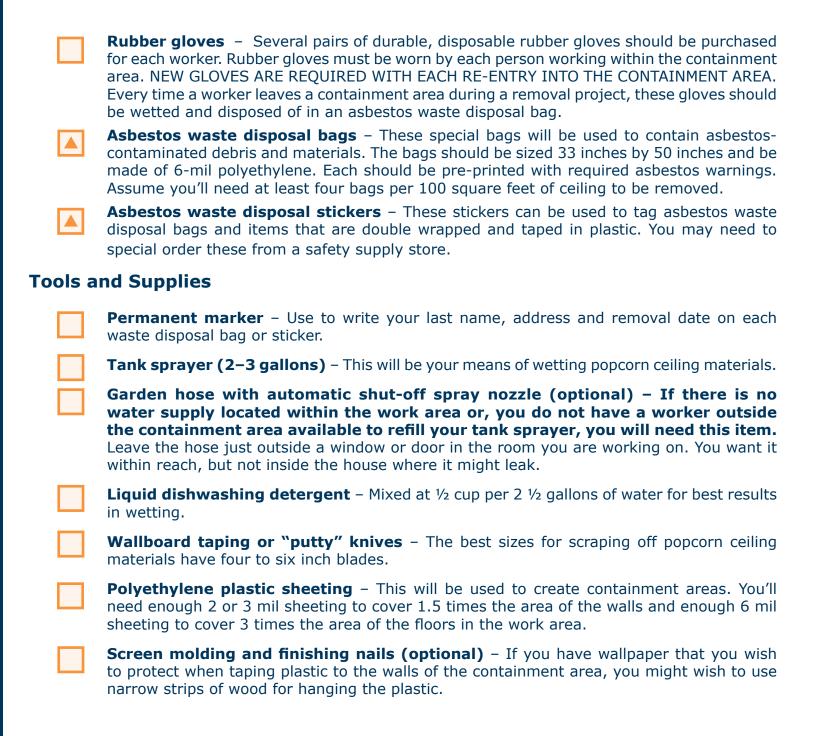
Eye protection – Each worker within the containment area should be equipped with non-fogging goggles.







Asbestos Waste Disposal Bag



Before You Begin Asbestos Removal (cont.)

| Duct tape – Numerous rolls will be needed for a containment area and sealing waste disposal bags. |
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| Clean, disposable rags – A large supply should be on hand for assorted removal and clean-up purposes. |
| Spray bottle – A water sprayer bottle will be needed to spray clothing upon exiting the containment area. |
| Bucket – You will need a bucket for washing tools at the end of the project. |
| Ladder with cushioned legs – If you need a ladder to reach the ceiling areas, you will |
| need to wrap and tape rags or foam around the ladder legs so they do not puncture the plastic on the floor of the containment area. |



Containment Area with Sign

Site Preparation

3. Prepare the house.

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| Post signs warning friends, family and others who might visit to stay away from the work area. Make sure pets cannot come near the work site. |
| Turn off heating and air conditioning systems. |
| Remove all furniture from the room(s) where the popcorn removal is to take place. |
| Tape all light switches in the off position. |
| 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. |
| Remove any smoke alarms or other devices attached to or near the ceiling, once again being careful not to disturb popcorn material. |

Containment area

TIP

Hang these instructions like a calendar.
See instructions for details.

4. Build a containment area.

You need to contain asbestos debris by constructing a plastic containment area around the ceiling areas you wish to remove. This is accomplished by covering the walls and floors within the project room(s) to ensure all debris is captured and remains on plastic sheeting during the removal process.

| Hang 2- or 3-mil polyethylene plastic sheeting on the walls, approximately 1 inch down from the ceiling, with duct tape. SMOOTH THE DUCT TAPE FOR A TIGHT SEAL. Make sure the plastic 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 small strip of wood (like screen molding) to the top of the wall and then hang the plastic sheets from the wood strip using duct tape. |
|---|
| Cover floors with 6-mil polyethylene plastic sheeting throughout the removal area Overlaps sheets near room edges by about a foot and run the extra foot up each wall and tape all edges there securely. DO NOT PULL TIGHT. Make sure there's plenty of excess plastic so it won't pull away from the walls when you're working near room corners and edges. Tightly seal all floor seams between sheets of 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-min plastic sheets on the floor to create a path on which to walk between containment areas. |
| Post these instructions for reference in an accessible location within the containment area away from where you'll be spraying water. |
| Lay a second layer of LOOSE 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, generously overlapping manner. DO NOT SEAL EDGES OF THIS SHEET WITH TAPE. This layer will be used to roll up and dispose of debris. |
| Construct plastic "isolation" walls in doorways or room openings. It may be necessary to separate the work area from the rest of the house by sealing the openings with 6-mi plastic. |

Site Preparation (cont.)

Windows may be opened for ventilation. However, the law requires that there be no asbestos fibers released into the air outside. Cut and tape an oversized plastic flap over the inside of each open window to ensure no debris passes through the windows.



TIP

Before you start the abatement process make sure you have all needed supplies in the containment area with you.



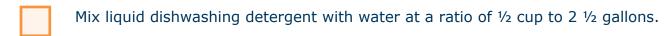
| ne morae or each open minaem to ensure no aest is passes timeagn the minaems. |
|--|
| Create a secure entry/exit point. If there is a door to the outside within the containment area, make this your designated point of entry and exit to the work area. Open the door and seal the doorway with 6-mil plastic. Create an entrance/exit through the plastic by cutting a 5- to 6-foot vertical slit in the plastic and covering it on the inside with a plastic flap. Then lay down a sheet of 6-mil polyethylene outside the door. This is your decontamination area. If there is no exit door to the outside from the containment area, create an entrance/exit within the house either through a door or through an "isolation" wall. |
| Label asbestos waste disposal bags using a permanent marker pen. Write your last name, address, and date of removal on each bag. It is easier to label bags prior to filling them. |
| Place supplies at the entry/exit point. At a minimum, have a water sprayer bottle, clean wet rags, a bucket, and asbestos waste disposal bags at any entry/exit location. |
| Check your work. 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 area should be the ceiling and about an inch or less of wall below the ceilings. This ensures that all asbestos material will be contained

5. Wet the ceiling.

during removal.

Thorough wetting is critical to keep asbestos fibers out of the air. If your ceiling is painted and the "wet" test you conducted in Step 2 failed to thoroughly wet the popcorn ceiling to the substrate, do not proceed. Leave the ceiling alone or hire an asbestos abatement contractor to do the work.



| | Spray the ceiling with the liquid dishwashing detergent and water mixture using the tank sprayer. Spray the popcorn material enough times, according to the results of your "wet" test, to ensure the ceiling will be saturated with water before removal. |
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| | Wait 15 to 20 minutes for the water to thoroughly penetrate. Spray-on popcorn material is very porous and absorbs a lot of water, so keep applying water during this time |



Proper Respirator & Goggles



Protect Yourself

6. Put on protective clothing and equipment.

| Put on coveralls, gloves, goggles and respirator. Those who will enter the containment area to do the removal must put on disposable coveralls outside the containment area while |
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| standing on the entrance/exit plastic. They should then put on gloves, goggles and respirators equipped with HEPA filters. |

Tape your gloves to the sleeves of your disposable coveralls around the wrists to ensure your arms and wrists remain covered.

If you must leave the plastic sheeting down for the containment area during the project, use the spray bottle to 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 an asbestos waste disposal bag. Then step off the plastic. Upon returning, put on new coveralls and gloves.

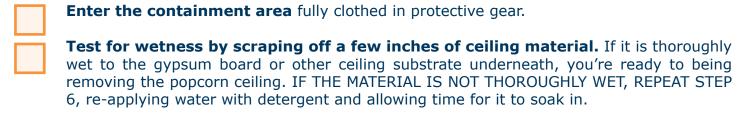
Protect Yourself (cont.)



Person in Proper Protective Clothing

Asbestos Removal

7. Test ceiling for water saturation.

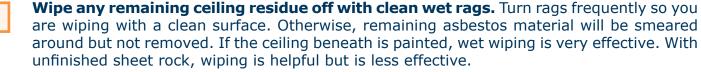


If, after more applications of water, you are still unable to thoroughly wet this material, do not proceed. Use a state-certified asbestos abatement contractor to perform any additional work.

8. Scrape off popcorn.

Keep the plastic on the floor and walls wet at all times by periodically spraying them to prevent any asbestos debris from drying and becoming airborne.

| Г | | Thoroughly scrape the spray-on popcorn material from the ceiling using 4- to 6-incl |
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| | | putty or wallboard taping knives and, if needed, standing on a ladder with cushioned legs |
| | | Allow the debris to fall onto the plastic sheets below. |
| | | |



Use clean rags to wet wipe the exposed portion of the wall between the top of the duct tape and the ceiling.

Dispose of all rags in an asbestos waste disposal bag. Do not try to rinse contaminated rags.







Asbestos Removal (cont.)



Under no circumstances should you sand ceilings after removal of spray-on popcorn material.

If your popcorn ceiling was applied as part of original house 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. Sanding the ceiling would result in remaining asbestos fibers being released into the air. DO NOT SAND YOUR CEILING.

Cleaning Up

9. Remove loose plastic and debris from floor.



disposal.

| Fold and roll up top layer of loose floor plastic. After you've removed all the popcorn |
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| ceiling material in one room within the containment area, carefully fold and roll up the top |
| layer of loose plastic sheets that contain fallen debris. |
| |

Once removed, asbestos debris should be kept wet until packaged and sealed for

| Double bag the folded plastic, along with the ceiling debris it contains, into pre- |
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| marked asbestos waste disposal bags. The top level of the floor plastic was put down |
| in 100- to 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, double-bagged container |
| Follow this process for each room. |

| | Wipe down all tools and ladders with clean wet rags after removing all asbesto |
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| | material from the project enclosure. Place tools in a bucket for more thorough cleaning late |

| Γ | Dispose of all contaminated rags as asbestos debris in a sealed asbestos was | ste |
|---|--|-----|
| L | disposal bag. | |

| | Place tools in a | bucket or plastic bag | for more thorough | cleaning later. |
|--|------------------|-----------------------|-------------------|-----------------|
|--|------------------|-----------------------|-------------------|-----------------|

| 10. Apply ceiling encapsulant to seal in residual asbestos. | | |
|---|--|--|
| | Roll or spray ceiling 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 will remain. Before you remove any plastic sheets that are taped to the walls and floor, encapsulate any residual asbestos on those ceiling areas from which popcorn material has been removed. ANY FUTURE CEILING FINISHING WORK SHOULD NOT INVOLVE SANDING THESE SURFACES. | |
| L1. Remove wall and floor plastic. | | |
| | Spray plastic walls with water one last time, making sure any visible asbestos debris is thoroughly wet. | |
| | Plan your final exit. It's critical 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 the entrance/exit to the containment area. Place plenty of asbestos waste disposal bags and duct tape along your "exit" route. | |
| | 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 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. | |
| | Place each roll of contaminated plastic inside asbestos waste disposal bags. | |
| | 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. | |
| | r attempt to vacuum or sweep up asbestos debris. This will cause any fibers nt to become airborne in your house. | |



Cleaning Up (cont.)

12. Decontaminate.

| Stand on the last piece of plastic sheeting outside the entry/exit door. |
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| Spray yourself (or each other) with water to wet down any asbestos debris/fibers on the outside of your respirator and disposable coveralls. |
| Remove boots, gloves and coveralls. Remove your disposable gloves and coveralls by peeling them off and turning them inside out as you remove them. Double bag them in asbestos waste disposable bags. Dispose of boots as contaminated waste or put them on the plastic sheet for cleaning later. Step off the plastic sheet. |
| Remove respirators and take out their filters. Discard the filters with other asbestos waste. |
| Clean safety gear. Using clean wet rags, wipe down respirator and goggles used in the removal, and, if you elect to keep them, your boots. Place respirator and goggles in a bucket and your boots in a plastic bag for washing later. |
| Double bag all remaining debris, including all cleaning rags, disposable items and the entry/exit plastic sheet, in asbestos waste disposal bags. |
| Secure all waste debris bags by tightly twisting the tops of each bag, bending the twist part over and securing with duct tape. |
| Take a shower. |

Disposal

13. Prepare and check all waste disposal bags.

Plastic bags or plastic sheeting that has been punctured will not be accepted by waste disposal sites.

All debris must be properly packaged for disposal: double bagged inside pre-labeled 6-mil bags designed specifically for asbestos waste disposal. Tops should be twisted and securely taped down. If you haven't already done so, use a permanent marker pen to write your last name, address, and date of removal on each bag.

14. Transfer bags to an approved asbestos waste disposal site.

All double-bagged or wrapped debris must be hauled to a disposal site licensed to receive asbestos containing waste. Debris must be legally disposed of within 10 calendar days of being generated. If you must store the packaged debris prior to disposal, store it in a secured area, such as a locked shed or garage.

Currently, the only site in Spokane County licensed to receive asbestos containing waste is Graham Road Recycling and Disposal Facility, 1820 S. Graham Rd, Medical Lake, WA 99022, (509) 244-0151. Prior to waste delivery, contact the site for disposal fees and any additional requirements they may have for disposal. A Waste Shipment Record/Manifest form is available on our website, www. spokanecleanair.org.









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