

Introduction to the mold removal process

What is mold?

Mold is a fungus. It needs oxygen, water and a food source to grow. Mold can grow on any organic surface, especially wood and drywall. Instead of seeds, molds produce reproductive cells called spores. The mold spore is the component that most people are allergic to.

Why is it important to clean mold?

Many of the molds growing in this area can cause health problems. Different people have different reactions to mold. For many people, mold exposure can cause respiratory problems, skin and eye irritation, and other allergy symptoms. Living in a moldy environment can exacerbate existing health conditions such as asthma. Additionally, mold will eventually decompose the wood that it grows on. Placing drywall over moldy wood is not effective, as the mold will continue to cause decay in the wall cavity,

Health risks of cleaning mold:

There are thousands of different species of mold. While many molds are black in color they are not necessarily "toxic black mold". For many people, exposure to mold causes an allergic reaction. Mold may pose more severe, long-term health risks for people who have immuno-compromised conditions or lung problems. Please consult www.epa.gov for more extensive health information.

When cleaning mold, everyone needs to wear eye protection, respirator masks, and Tyvek™ suits.

Basics of mold removal:

The best way to clean a house of mold is to physically remove as many mold spores as possible while keeping the house as dry as possible. Sanitizing chemicals like ShockWave, bleach, or Pine Sol will not kill all of the mold spores. In fact, most disinfectants are only capable of stunting mold growth without killing the actual spore. Alive or dead, mold spores can cause health problems. Also, if spores are not removed from the house, once moisture is present, mold will grow back.

Preventing mold re-growth:

Once as much mold as possible has been removed from the house, the goal is to prevent the mold from growing back. The best way to prevent further mold growth is by controlling the environment of the house. Mold is less likely to grow in areas that are: dry, well-lit and well-ventilated. On rainy days, keep the windows of the house closed. **Roof damage and broken windows should be repaired or tarped before the mold removal process begins.** On dry days, open the windows of the home to promote air circulation. Residents can also run fans in their homes when the weather is dry.

SUPPLIES

Finishing:

Crowbars
Hammers
Brooms
Dustpans
Dust brushes

Grinding and scrubbing:

4.5 inch angle grinders
2 twisted/knotted wire cup brushes per grinder
Handheld stainless steel wire brushes
Stepstools or ladders
Window fans (optional)

Vacuuuming:

Shop-Vac
HEPA filters
HEPA-Vac bags
Vacuum attachments

Wiping:

Terry cloth or cotton rags
Bucket

Sealing

Airless paint sprayer with 3-13 Reversa- Tip
or Wagner paint sprayers
Latex-based KILZII primer
5 gallon strainer sack
Paint Brushes
4 Additional clean buckets

For All Stages

Generator
Gas for the generator
Extension cords
Stepstools and/or ladders
Garbage bags

Morale:

Radio
Extra Batteries
Snacks

Safety (for all stages):

Tyvek™ suits
N-95 masks with ventilators
Eye protection
Heavy work gloves
Rubber gloves
Earplugs (optional)
Eye wash solution
First-Aid kit
Drinking water

FINISHING

Purpose: To ensure that the house is fully prepped to begin the mold removal process.

Remove all porous materials from the house

- Insulation
 - Clean the house of insulation. Look for insulation attached to nails, stuck to the vapor barrier, on floors, and hanging from ceilings.
 - Remind volunteers to handle fiberglass insulation with care. Contact with eyes and skin or ingestion could be hazardous, and inhalation can lead to irritation and other respiratory problems.
- Gypsum Board (drywall, soffits, ceilings etc.)
 - Be sure all drywall has been removed, even above the water line. Mold might be present in the entire house.
 - Look for excess drywall attached to nails, in window frames, hanging from ceilings, behind paneling and in hard-to-reach places.
 - Drywall is a good food source for mold; so be thorough in removing it.
- Ventilation ducting lined with insulation
 - Only remove heating/ventilation ducting
 - Combination air-conditioning/heating units should be removed by professionals (these can be identified by the copper piping attached to the unit)

Remove mold-ridden wood that is not important to the structural integrity of the house.

(For example: blocking for light fixtures and mirrors, closets, etc.)

Remove protruding nails:

- Be careful **not** to remove nails that are holding up load-bearing wood or that are attaching siding.
- This step makes the grinding and wiping stages both safer and easier.

Remove floor material to expose the sub-floor.

- If tiles are 9" x 9" or 8" x 8", **DO NOT REMOVE them**, these may contain asbestos. Also, the adhesive used to attach the tiles to the sub-floor may contain asbestos as well.
- Note: many homes have multiple layers of flooring.

Assess mold growth on the ceiling and in the attic or crawl space.

- Try to remove ceilings whenever possible. This will make the de-molding job easier and more effective. Be sure to remove the ceiling if it has visible mold on it.
- If the ceiling is not removed, remember to treat all exposed wood in the attic.
- **Do not touch** spray on ceilings, these may contain asbestos. Additionally, if the tiles were made prior to 1981, these or the mastic adhesive may contain asbestos.

IMPORTANT: Sweep the house thoroughly. This will be the last time you will be able to sweep the floor, because after the grinding stage, it is important to avoid stirring up the air.

GRINDING²

Purpose: To physically remove visible, living mold as well as invisible spores from the wood.

Use electric power grinders and handheld wire brushes to remove the mold.

Use grinders on:

- Areas where mold growth is heavy.
- Rougher wood surfaces.
- Larger surface areas.

Use wire brushes on:

- Areas without heavy mold growth, especially smoother wood.
- Places that the grinder cannot reach.
- Anywhere where wood meets wood (corners, crevices, behind blocking, baseboards, cracks).

Technique and tips:

- Start from the top and work your way down. Scrub *with* the grain of the wood.
- Don't forget the undersides of windowsills.
- *Do not* scrub or grind vapor barriers. Scrubbing could tear the material.
- Don't scrub or grind the floors.
- If the ceiling is intact, do not scrub or grind the ceiling. If the rafters are exposed, scrub and grind the rafters. Make sure to check the crawl spaces for visible mold.
- Place fans in the windows to exhaust air and spores from the house while you are grinding (optional).

Safety:

Power grinders can be dangerous. Make sure that the people operating them have been trained to use them safely. Read and follow all the manufacturer's directions.

Have your volunteers give the grinder operators at least seven feet of distance to work in.

People operating the grinders **must** wear eye protection, heavy work gloves, and respirators.

When operating the grinder, watch out for nails and staples in the wood, be aware of other people, and be sure the power switch is off when the grinder isn't in use.

IMPORTANT: After grinding and scrubbing the entire house, wait at least 30 minutes to give the mold spores a chance to settle to the ground. Close all the windows and the doors. Keep the air as still as possible to avoid stirring up the settled spores. *Do not sweep* once the grinding is finished.

SPORE REMOVAL³

HEPA Vacuuming

Purpose: To physically remove dislodged spores from the house.

- Vacuum every surface in the house. Work from the top down. Concentrate on:
 - Horizontal surfaces (windowsills, baseboards, etc.)
 - Corners and crevices, especially places grinders and scrubbers couldn't reach
 - Vacuum the entire floor in every room, especially along the baseboards.
 - Don't use the HEPA vacuum to pick up anything larger than a penny. Have someone go around ahead of the vacuum to gather larger materials by hand.
 - Bring various attachments to use for different areas (large attachment for floors, angled attachment for corners).
- HEPA filters:
 - You can use regular Shop Vacs to do the vacuuming step, but they **MUST** be outfitted with HEPA filters. Any lower-grade filters will allow the spores to escape back into the house.
 - To clean HEPA filters. Blow air from the inside of the filter out until visible spores are gone.

Wiping

Purpose: To collect any spores that were not removed by vacuuming or scrubbing, and remove them from the house.

- Make a solution of water and a sanitizing agent. Follow product directions for dilution ratio. You can use: Shockwave™, ReCon™, PineSol™, or any sanitizing solution.
- Fold a rag in half several times so that you have several clean surfaces to work with.
- Dampen the rags with the sanitizing solution and wring them out well. The rag should be damp but not wet.
- Wipe every surface in the house, working from top to bottom. Again, concentrate on cracks, crevices and hard to reach places.
- For ceilings, use ladders or try placing a damp rag on a broom. Don't touch spray on ceilings (popcorn ceilings), as these might contain asbestos.
- Don't forget ceiling fans, the underside of windowsills, fire stops, and baseboards.
- Wipe the entire floor.

NOTE: Once a surface of a rag is dirty, do not put it back on the wood. Fold it over to maintain a clean working surface. Get fresh rags often, and don't put dirty rags back into the sanitizing solution. Throw the dirty rags away when you're done.

Remember: During the vacuuming and wiping stage, try to keep the air as settled as possible. Once the spores have settled, don't sweep, and keep the windows closed.

SEALING

4

Purpose: To create a surface that inhibits future mold growth, and to protect the wood from moisture.

Do not seal over wet or moist wood.

Box the paint by dumping it from one bucket to another. This mixes the paint.

Put the strainer bag in the bucket, let it sit for a minute, and then pull it out. Now the paint is thin enough to use in the paint sprayers.

Paint the walls and rafters of the house. Don't forget to paint the undersides of windowsills, blocking and other materials.

Use brushes on corners and cracks. Be sure to seal any area you may have missed throughout the process.

Tip: Have lots of clean buckets on hand for cleaning up after you're through painting. Follow the manufacturer's instructions on how to clean the sprayers properly. Make sure to clean your brushes and the sprayers before the paint dries. If the paint does dry, Methyl Ethyl Ketone (MEK) can be used for cleaning.

Now that you know the process, be aware that there will be many instances that do not fit into this guide. Use your judgment to figure out the best way to complete the job.

Keep the following concepts in mind:

- The best way to clean mold is the physically remove the spores from the house.
- Introduce as little water as possible to porous surfaces (including wood studs).
- Once the grinding phase is complete and the spores have settled, avoid stirring up the spores. For example: If partway through the process you realize that part of floor needs to be removed, wait until the sealing stage is finished to remove the floor.

Even mold remediation experts will not remove all of the spores from a house. Also, many of these houses were moldy before the storm even hit. Our mold removal process is a balance between efficiency and thoroughness. Do the best you can with the resources you have!

For Training Information:

Call us at **228-257-6094**

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