

Mold in Homes

What is Mold?

Mold is a type of fungus that is present in our natural environment. Mold spores, which are tiny microscopic 'seeds', can be found virtually everywhere, including in homes, and are a part of the general dust found in homes. These spores can grow on building materials and furnishings if conditions are correct. Excess moisture is the critical factor in any indoor mold problem. Mold growth should not be tolerated in our homes. Eventually, the moisture and mold will damage what it is growing on, which may include both the building materials and personal belongings. The key to preventing mold growth is to prevent moisture problems.

What does mold need to grow?

Mold only needs a few simple things to grow and multiply:

- Moisture
- Nutrients (food)

Of these, controlling excess moisture is the key to preventing and stopping indoor mold growth.

What are the health concerns?

Health effects from exposure to mold can vary greatly depending on the person and the amount of mold in their home. The type of health symptoms that may occur include coughing, wheezing, nasal and throat conditions. People with asthma or allergies who are sensitive to mold may notice their asthma or allergy symptoms worsen.

Individuals with severely weakened immune system who are exposed to moldy environments are at risk of developing serious fungal respiratory infections. MDH recommends that people consult a medical professional if they are concerned about the effects of a moldy environment on their health.

Are the risks greater for some people?

There is wide variability in how different people are affected by mold exposures. However, the long term presence of indoor mold growth may eventually become unhealthy for anyone. The following types of people may be affected more severely and sooner than others:

- infants and children
- elderly people
- individuals with respiratory conditions or sensitivities such as allergies or asthma
- persons having severely weakened immune systems (for example, people with HIV infection, chemotherapy patients, organ transplant recipients)

Those with special health concerns should consult a medical professional if they feel their health is affected by indoor mold.

Are some molds more hazardous than others?

Some types of mold can produce chemical compounds called mycotoxins although they do not always do so. In some circumstances, the toxins produced by indoor mold may cause health problems. Many, if not most, molds can produce potentially harmful substances, whether it's allergens, mycotoxins, or other compounds. Hence, all indoor mold growth should be removed promptly, no matter what type(s) of mold is present or whether it can produce toxins.

HOME INVESTIGATION

How do I tell if I have a mold problem?

Investigate don't test. The most practical way to find a mold problem is by using your eyes to look for mold growth and by using your nose to



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locate the source of a suspicious odor. If you see mold or if there is an earthy or musty smell, you should assume a mold problem exists.

Other clues are signs of excess moisture or the worsening of allergy-like symptoms.

- Look for visible mold growth (may appear cottony, velvety, granular, or leathery and have varied colors of white, gray, brown, black, yellow, green). Mold often appears as discoloration, staining, or fuzzy growth on the surface of building materials or furnishings. When mold is visible, testing is not recommended.
- Search areas with noticeable mold odors.
- Look for signs of excess moisture or water damage. Look for water leaks, standing water, water stains, condensation problems. For example, do you see any watermarks or discoloration on walls, ceilings, carpet, woodwork or other building materials?
- Search behind and underneath materials carpet and pad, wallpaper, vinyl flooring, sink cabinets, furniture, or stored items (especially things placed near outside walls or on cold floors). Sometimes destructive techniques may be needed to inspect and clean enclosed spaces where mold and moisture are hidden; for example, opening up a wall cavity.

Should I test for mold?

The Minnesota Department of Health does not recommend testing for mold. Instead, you should simply assume there is a problem whenever you see mold or smell mold odors. Testing should never take the place of visual inspection and it should never use up resources that are needed to correct moisture problems and remove visible growth.

Sometimes, mold growth is hidden and difficult to locate. In such cases, carefully conducted sampling may help determine the location of contamination. However, mold testing is rarely useful for trying to answer questions about health concerns. For more information, see MDH's "Testing for Mold" Fact Sheet.

MOLD CLEAN UP AND REMOVAL

To clean up and remove indoor mold growth, follow steps 1-6 as they apply to your home.

1. Identify and Fix the Moisture Problem - the most important step in solving a mold problem is to identify and correct the moisture source(s) that allowed the growth in the first place. Common indoor moisture sources include:

- Flooding
- Condensation (caused by indoor humidity that is too high or surfaces that are too cold)
- Roof and plumbing leaks
- Firewood stored indoors
- Humidifier use
- Inadequate venting of kitchen and bath humidity
- Improper venting of combustion appliances
- Failure to vent clothes dryer exhaust outdoors (including electric dryers)
- Clothes line drying indoors

To keep indoor surfaces as dry as possible, try to maintain the home's relative humidity between 20-40 percent in the Winter and less than 60 percent the rest of the year. You can purchase devices to measure relative humidity at some home supply stores. Ventilation, air circulation near cold surfaces, dehumidification, and efforts to minimize the production of moisture in the home are all very important in controlling high humidity that frequently causes mold growth in our cold climate.

2. Begin Drying All Wet Materials - as soon as possible after becoming wet. For severe moisture problems, use fans and dehumidifiers and move wet items away from walls and off floors. Check with equipment rental companies or restoration firms for additional equipment or contracting options.

3. Remove and Dispose of Mold

Contaminated Materials - items which have absorbed moisture (porous materials) and have

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mold growing on them need to be removed, bagged and thrown out. Such materials may include dry wall, insulation, plaster, carpet/carpet pad, ceiling tiles, wood products (other than solid wood), and paper products. Likewise, any such porous materials that have been in contact with sewage should also be thrown away. Non-porous and semi-porous materials with surface mold growth may be saved if they are structurally sound (see step 4).

Take Steps to Protect Yourself - the amount of mold particles in air can increase greatly when mold is disturbed. Consider using protective equipment when handling or working around mold contaminated materials. The following equipment can help minimize exposure to mold:

- Rubber gloves
- Eye goggles
- Outer clothing (long sleeves and long pants) that can be easily removed in the work area and laundered or discarded
- At a minimum, you should use an N95 or a N100 type disposable respirator. Where mold growth is very heavy or covers an extensive area or if you are sensitive to airborne contaminants, greater respiratory protection may be more appropriate. More protective options include half-face negative-air respirators with a HEPA filter (i.e., N100, P100).

Take Steps to Protect Others - plan and perform all work to minimize the amount of dust generated. Where possible, consider the following actions to help minimize the spread of mold spores:

- Enclose or contain all moldy materials in plastic (bags or sheets) before carrying through the home.
- Hang plastic sheeting to separate the work area from the rest of the home.
- Cover supply and return vents in the work area.
- Place fans in windows of work area to pull contaminated air out of the work area and exhaust it to the outdoors.

- Remove outer layer of work clothing in the work area and wash separately or bag
- Damp clean the entire work area to pick up settled mold spores in dust.

4. Clean Surfaces - surface mold growing on non-porous or semi-porous materials such as hard plastic, concrete, glass, metal, and solid wood can usually be cleaned. Cleaning to remove and capture all mold contamination, is very important because dead spores and mold particles may cause health problems if they are left in place.

- Thoroughly scrub all contaminated surfaces using a stiff brush, hot water and a non-ammonia soap/ detergent or commercial cleaner.
- Collect excess cleaning liquid with a wet/dry vacuum, mop or sponge
- Rinse area with clean water and collect excess rinse water.

5. Disinfect Surfaces (if desired) - after cleaning has removed all visible mold and other soiling from contaminated surfaces, a disinfectant may be used to kill mold missed by the cleaning. In the case of sewage contamination, disinfection is strongly suggested--contact the Minnesota Department of Health for appropriate advice.

- Mix 1/4 to 1/2 cup bleach per gallon of water and apply to surfaces where mold growth was visible before cleaning. Apply the solution with a sponge or by other methods that do not over saturate or flood the surface area.
- Collect any run-off of bleach solution with a clean and filtered wet/dry vacuum, sponge or mop. However, do not rinse or wipe the bleach solution off the areas being treated -- allow it to dry on the surface.

Always handle bleach with caution. **Never mix bleach with ammonia** -- toxic chlorine gas may result. Bleach can irritate the eyes, nose, throat, and skin. Provide fresh air (for example, open a window or door). Protect skin and eyes from contact with bleach. Test solution on a small area before treatment, since bleach is

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very corrosive and may damage some materials.

6. Remain on MOLD ALERT - Continue looking for signs of moisture problems or return of mold growth. Be particularly alert to moisture in areas of past growth. If mold returns, repeat cleaning steps and consider using a stronger solution to disinfect the area again. Regrowth may signal that the material should be removed or that moisture is not yet controlled.

Can ozone air cleaners remove indoor mold?

Some air cleaners are designed to produce ozone which is a strong oxidizing agent and a **known irritant of the lungs and respiratory system**. Studies have shown that ozone, even at high concentrations, is not effective at killing airborne mold or surface mold contamination. Even if mold was killed by ozone, the health threats would not be reduced until mold contaminants are removed through cleaning. Health experts, including the Minnesota Department of Health, do **not** recommend the use of ozone to address mold or any other indoor air problems.

When can we rebuild?

Rebuilding and refurnishing must wait until all affected materials have dried completely. It may take several days or weeks for building materials to fully dry and return to prior moisture conditions. A moisture meter may help measure drying progress.