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## FREQUENTLY ASKED QUESTIONS ABOUT FLOODING, MOLDS, AND HEALTH

After a flood, there is the possibility for the growth of mold in houses, apartments, and other buildings. Molds may grow on walls and ceilings, mattresses, furniture, clothing, toys and many other items. In some cases, molds may affect a person's health. No two families face the same problem. Your local health department and disaster relief officials can help you to understand the problem and how to take appropriate steps to clean your home, apartment, or property.

### **Q. What is mold, and where does it come from?**

**A.** Molds are types of fungi that are found everywhere. There are many different types of molds, and they can be found even in the cleanest houses. When environmental conditions are dry and cool, molds produce spores which do not actively grow. When there is a lot of moisture or high humidity and temperatures above 65°, the mold spores become active and will start to grow rapidly.

### **Q. Why is mold a problem after a flood?**

**A.** Floods provide ideal conditions for rapid mold growth. Floodwaters are absorbed by porous surfaces which act like sponges. The soaked objects are an ideal environment for mold growth. Molds and other microorganisms penetrate deeply into these wet materials. As they slowly dry out, the moisture that evaporates from them keeps the humidity in a home or apartment very high, providing an ideal environment for molds to grow on walls and other surfaces. To make things worse, buildings may be closed-up for days or weeks after a flood before anyone can get in to clean them. Closed-up buildings trap moisture inside and provide ideal mold growing conditions.

### **Q. How do I know I have mold in my home?**

**A.** Molds usually look like small speckled spots scattered over a surface, and they may be black, brown, green, white, pink, orange, or almost any other color. In time, the number and size of spots increase, and a surface may become completely covered with mold. Molds have a musty or mildew, earth-like smell. Molded surfaces often have a slick or slimy feel to them.

### **Q. How can I tell whether I have mold or dirt on my walls?**

**A.** Sometimes it can be difficult to tell the difference. Spraying the discoloration with a bleach solution can help. If the discoloration is mold, it will usually disappear or become much fainter. If it is dirt, the discoloration will usually not be changed by the bleach.

### **Q. Is mold a health hazard?**

**A.** Some people can live in places with large amounts of molds, and not be bothered by them. If you cough, wheeze, are short of breath, or have difficulty breathing, you may be sensitive to or affected by molds. Other signs that you may be sensitive to molds include watery, itchy, burning, or red eyes; runny or stuffy nose or sinuses; nose or throat irritation; sneezing; and in some cases, hives or welts, or skin rash. If you have any of these symptoms, you should not stay in a previously flooded building which smells musty, even if there is no visible mold.

### **Q. How do molds make people sick?**

**A.** Mold spores are invisible and can be inhaled. The smaller inhaled mold spores can irritate the lungs, and make it harder to breathe. Some people are allergic to molds, and may have an allergic reaction when they inhale mold spores. This may cause

infections in the lungs. Some molds make toxins that affect people differently.

**Q. Are there people who should particularly avoid mold?**

**A.** Yes – some people are particularly likely to become sick around molds. These include young children, the elderly, pregnant women, and people with asthma or any sort of chronic lung disease. People whose immune systems have been suppressed (AIDS, people receiving chemotherapy for cancer) and those who are very allergic should avoid heavy mold infestations. If possible, these people should not live in a moldy building until it has been thoroughly cleaned. They should avoid moldy conditions and should see their family doctor, if they develop symptoms.

**Q. If the mold doesn't seem to be bothering me, is there any risk to my health?**

**A.** Some people over time may become allergic to molds and develop symptoms such as watery, itchy eyes; runny, stuffy nose; sneezing, coughing, or wheezing; or a rash. There is no way to predict who might develop allergy to molds. In general, it is best to reduce your exposure to molds as much as possible.

**Q. I've heard there's one kind of mold that's really dangerous, what is it?**

**A.** A slimy black mold with white edges called *Stachybotrys* (Stacky-bo-tress). It can produce toxins under very specific circumstances, and may make people sick. Not much is known about the health effects of *Stachybotrys* which grows in buildings where people live. In cases where *Stachybotrys* may have made people sick, other molds and additional factors were also present that may actually have been responsible for the symptoms. Black is a very common color for molds, but *Stachybotrys* is not a very common mold. It has been suggested that materials need to be very wet for at least a week for *Stachybotrys* to grow. There have been a few outbreaks of pulmonary hemosiderosis (bleeding from the lungs) in children, and *Stachybotrys* was present in extremely high levels in the buildings where these children lived.

**Q. What can I do to control molds once I get back into my house or apartment that has been flooded?**

**A.** Get rid of all household items which have been water soaked, such as soft furniture, mattresses, carpeting, and anything else that can absorb water and cannot be adequately cleaned. This includes furniture made of pressboard (also known as particleboard or chipboard). Wooden items made of plywood should be discarded. Items that can be thoroughly washed or dry cleaned, can be kept after cleaning. In general, porous items such as paper, cardboard boxes, cloth, wallboard, foam rubber, and stuffing in furniture and toys can trap mold spores. **Just letting items dry out will not remove the mold, and mold will grow again anytime there is enough moisture in the air, such as on humid days.** Hard surface materials such as glass, metal, and plastic, including kitchen utensils can be kept after they are thoroughly washed. Any wooden items used to prepare, serve, or contain food should be discarded.

**Q. What does "thoroughly washed" mean?**

**A.** Washed in hot, soapy water.

**Q. What should I do about the floors, walls, and ceilings?**

**A.** Vinyl floors, drywall, insulation, and in some cases ceilings should be removed and replaced. It takes a long time for water under vinyl floors, and in the walls, to dry out. While they are wet, two things are happening. Water spreads up the walls and insulation much higher than the flood water level due to a process called "wicking." As the water spreads through the walls and insulation, mold quickly develops. With the mold established in the drywall and insulation, it will grow anytime in the future that the humidity is high enough. Just sealing the surface with paint, polyurethane, or fiberglass is not adequate. Removing the drywall and insulation is the only way to determine the extent of wicking. All water-damaged materials should be removed and discarded. In general, hard surfaces that can be washed and treated with a bleach solution can stay in the home.

**Q. How long do I need to wait after removing the drywall and insulation to make repairs?**

**A.** Wait until any remaining wood or other building materials in the wall are thoroughly dry. This process may take days to weeks; however, replacing the wall before it is thoroughly dry will result in future mold problems. It could also cause structural damage in the future. The most accurate way to determine when the wall can be replaced is to test the wood with a moisture meter. Opening the building during the day if the humidity is low, and allowing good air circulation can speed up drying. The building should be closed at night. Dehumidifiers can also help dry buildings.

**Q. How can I sanitize walls and other surfaces?**

**A.** The mold and mildew should first be removed by scrubbing it with a detergent solution. For walls and ceilings, paint stores have mildew surface cleaners. Hardwood floors and woodwork may be cleaned with a phosphate cleaning solution such as trisodium phosphate, available in hardware stores. Be sure to follow the directions when you use any commercial cleaning product. **Never mix chlorine bleach of any type with ammonia as the mixture produces deadly fumes.** After scrubbing the mold and mildew, the surface should be disinfected with a bleach solution of one cup of ordinary household laundry bleach in one gallon of water. The bleach solution should remain in contact with the surface for at least two minutes to kill the mold and mildew. Fumes from bleach can be irritating. Make sure the work area always has adequate ventilation. After the bleach has been applied for at least two minutes, it should be rinsed or sponged off with clean water.

**Q. Is there more risk of exposure to mold when cleaning it up?**

**A.** Yes – mold counts in the air may be 10 to 1000 times higher when cleaning up moldy material than at other times. The most important protection is to wear a particle-filtering mask to protect yourself from inhaling mold spores. The ordinary dust mask is not sufficient. The mask should be a 3-M N95 particle removal mask or the equivalent which is capable of filtering particulates equal to or larger than 0.3 microns. These masks can be bought at some home improvement and hardware stores. The masks do not remove bleach or other fumes, so the area should be well ventilated while you work.

You should also wear long pants and long-sleeved clothing that can be washed or discarded, a head cover, waterproof boots, and heavy rubber gloves. Safety glasses or goggles are also recommended for eye protection. Try cleaning a small patch of mold first. If the cleaning process seems to make you feel sick, especially if you have trouble breathing, consider having someone else do the work. You should use these same protective measures if you are ripping out vinyl floors, drywall, insulation, or removing other moldy, water-damaged material.

**Q. Can ozone air cleaners help remove mold?**

**A.** No – ozone has been used to disinfect water and in some cases to eliminate odors. However, it can irritate the lungs, and some ozone generators produce indoor levels far above safe levels. Moreover, ozone does not control molds even at levels far above levels which are considered safe. We strongly recommend that you do not use an ozone generator in any occupied air space.

**Q. Can heating and cooling systems be contaminated with mold?**

**A.** Yes – the ductwork that carries hot or cold air, the blowers, and air handlers can become contaminated if they are under water. Air ducts that are made of sheet metal, or sheet metal with fiberglass insulation on the outside, can be cleaned and disinfected. Air ducts that are made entirely of fiberglass, or have interior fiberglass insulation may have to be removed and replaced. Furnaces and other air handling equipment may also need to be replaced. We recommend contacting a qualified heating and cooling contractor in your area.

**Q. After I have my house cleaned, should I have it checked for mold?**

**A.** No - testing for molds is expensive and the health department does not provide this service. More important, you can't completely get rid of molds, so any testing almost certainly will find some molds. However, this does not necessarily mean you need to reclean your house. If you don't see mold coming back, or smell mold, you have probably done an adequate job of cleaning your house.

**Q. Anything else I should consider?**

**A.** If you hire people to clean and disinfect your house, ask them to show you their business credentials, and provide you with a list of what materials they plan to use to disinfect the house. Also, ask them to show you statements from the Environmental Protection Agency (EPA) that the disinfectants they plan to use actually can be used to disinfect molds. Con artists and others trying to take advantage of people often come into an area after a flood. Be wary of anyone who tries to tell you that your health is in danger because of mold, and you need to do something immediately. If you are not feeling sick, you probably have time to evaluate the situation before you make a decision. And if you are feeling sick and think it may be due to mold exposure, see your doctor and consider temporarily moving out of your house until it can be cleaned.

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