



Guidelines on Clean-up After Flood

When returning to a building that's been flooded after natural disasters such as hurricanes, tornadoes, and floods, be aware that the area may be contaminated with mold or sewage, which can cause health risks for personnel and patients.

When You First Reenter Your Building

- If you have standing water in the building and can turn off the main power from a dry location, then go ahead and turn off the power, even if it delays cleaning. If you must enter standing water to access the main power switch, then call an electrician to turn it off. **NEVER turn power on or off yourself or use an electric tool or appliance while standing in water.**
- Have an electrician check the building's electrical system before turning the power on again.
- If the building has been closed up for several days, enter briefly to open doors and windows to let it air out for awhile (at least 30 minutes) before you stay for any length of time.
- If the building has been flooded and has been closed up for several days, presume it has been contaminated with mold. (See [Protect Yourself from Mold.](#))
- If your building has been flooded, it also may be contaminated with sewage. (See [After a Hurricane or Flood: Cleanup of Flood Water.](#))

Dry Out Your Area

If flood or storm water has entered your building, dry it out as soon as possible. Follow these steps:

- If you have electricity and an electrician has determined that it's safe to turn it on, use a "wet-dry" shop vacuum (or the vacuum function of a carpet steam cleaner), an electric-powered water transfer pump, or sump pump to remove standing water. If you are operating equipment in wet areas, be sure to wear rubber boots.
- If you do not have electricity, or it is not safe to turn it on, you can use a portable generator to power equipment to remove standing water. **Note: If you must use a gasoline-powered pump, generator, pressure washer, or any other gasoline-powered tools to clean the area, never operate the gasoline engine inside an enclosed or partially enclosed structure, even if the windows and doors are open. Such improper use can create dangerously high levels of carbon monoxide and cause carbon monoxide poisoning.**
- If weather permits, open windows and doors to aid in the drying-out process.
- Use fans and dehumidifiers to remove excess moisture. Fans should be placed at a window or door to blow the air outwards rather than inwards, so not to spread the mold.
- Have your office heating, ventilating, and air-conditioning (HVAC) system checked and cleaned by a maintenance or service professional who is experienced in mold clean-up **before you turn it on.** If the HVAC system was flooded with water, turning on the mold-contaminated HVAC will spread mold throughout the office. Professional cleaning will kill the mold and prevent later mold growth. When the service determines that your system is clean and if it is safe to do so, you can turn it on and use it to help remove excess moisture from your office.

How to Clean Up

- Wear rubber boots, rubber gloves, and goggles during cleanup of affected area.



- Remove and discard items that cannot be washed and disinfected (such as carpeting, carpet padding, rugs, upholstered furniture, foam-rubber items, books, wall coverings, and most paper products).
- Remove and discard drywall and insulation that has been contaminated with sewage or flood waters.
- Thoroughly clean all hard surfaces (such as flooring, concrete, molding, wood and metal furniture, countertops, appliances, sinks, and other plumbing fixtures) with hot water and laundry or dish detergent and disinfect with a solution of 1 cup of bleach to five gallons of water.
- Steam clean all carpeting.
- Help the drying process by using fans, air conditioning units, and dehumidifiers.
- Have your onsite waste-water system professionally inspected and serviced if you suspect damage.
- After completing the cleanup, wash your hands with soap and water. Use water that has been boiled for 1 minute (allow the water to cool before washing your hands).
 - Or you may use water that has been disinfected for personal hygiene use (solution of 1/8 teaspoon of household bleach per 1 gallon of water). Let it stand for 30 minutes. If the water is cloudy, use a solution of 1/4 teaspoon of household bleach per 1 gallon of water.
- Wash all clothes worn during the cleanup in hot water and detergent. These clothes should be washed separately from uncontaminated clothes and linens.
- Wash clothes and linens contaminated with flood or sewage water in hot water and detergent. It is recommended that a laundromat be used for washing large quantities of clothes and linens until your onsite waste-water system has been professionally inspected and serviced.
- Seek immediate medical attention if you become injured or ill.

The information in this fact sheet is general in nature and is not intended to be used as a substitute for professional advice. For more information see <http://www.bt.cdc.gov/disasters/floods/recovery.asp#cleanup> or please contact your local health department.

Additional information on Healthcare Water System Repair following Disruption of Water Supply is available at <http://www.bt.cdc.gov/disasters/watersystemrepair.asp>.

People at Greatest Risk from Mold

After natural disasters such as hurricanes, tornadoes, and floods, excess moisture and standing water contribute to the growth of mold in homes and other buildings. When returning to a home that has been flooded, be aware that mold may be present and may be a health risk for your family.

People with asthma, allergies, or other breathing conditions may be more sensitive to mold. People with immune suppression (such as people with HIV infection, cancer patients taking chemotherapy, and people who have received an organ transplant) are more susceptible to mold infections.

Possible Health Effects of Mold Exposure

People who are sensitive to mold may experience stuffy nose, irritated eyes, wheezing, or skin irritation. People allergic to mold may have difficulty in breathing and shortness of breath. People with weakened immune systems and with chronic lung diseases, such as obstructive lung disease, may develop mold infections in their lungs. If these or other health problems occur after exposure to mold, contact your doctor or other health care provider.



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Recognizing Mold

You may recognize mold by:

- **Sight** (Are the walls and ceiling discolored, or do they show signs of mold growth or water damage?)
- **Smell** (Do you smell a bad odor, such as a musty, earthy smell or a foul stench?)

Safely Preventing Mold Growth

Clean up and dry out the building quickly (within 24 to 48 hours). Open doors and windows. Use fans to dry out the building.

- **When in doubt, take it out!** Remove all porous items that have been wet for more than 48 hours and that cannot be thoroughly cleaned and dried. These items can remain a source of mold growth and should be removed from the home. Porous, noncleanable items include carpeting and carpet padding, upholstery, wallpaper, drywall, floor and ceiling tiles, insulation material, clothing, leather, paper, wood, and food. Removal and cleaning are important because even dead mold may cause allergic reactions in some people.
- To *prevent* mold growth, clean wet items and surfaces with detergent and water.
- Homeowners may want to temporarily store items outside of the home until insurance claims can be filed. [See recommendations by the Federal Emergency Management Agency \(FEMA\)](#) .
- If you wish to disinfect, refer to the U.S. Environmental Protection Agency (EPA) document, A Brief Guide to Mold and Moisture in Your Home at <http://www.epa.gov/iaq/molds/images/moldguide.pdf> .

Removing Mold Growth

To **remove** mold growth from hard surfaces use commercial products, soap and water, or a bleach solution using 1 cup of bleach in 1 gallon of water. Use a stiff brush on rough surface materials such as concrete.

If you choose to use bleach to remove mold:

- Never mix bleach with ammonia. Mixing bleach and ammonia can produce dangerous, toxic fumes.
- Open windows and doors to provide fresh air.
- Wear non-porous gloves and protective eye wear.
- If the area to be cleaned is more than 10 square feet, consult the U.S. Environmental Protection Agency (EPA) guide titled *Mold Remediation in Schools and Commercial Buildings* . Although focused on schools and commercial buildings, this document also applies to other building types. You can get it free by calling the EPA Indoor Air Quality Information Clearinghouse at (800) 438-4318, or by going to the EPA web site at http://www.epa.gov/mold/mold_remediation.html .
- Always follow the manufacturer's instructions when using bleach or any other cleaning product.
- More information on personal safety while cleaning up after a natural disaster is available at www.bt.cdc.gov/disasters/workers.asp .

For more information on mold, visit CDC's Mold Web site at <http://www.cdc.gov/mold/> .



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Additional guidance is available from the Environmental Protection Agency at www.epa.gov/iaq/pubs/flood.html and the Federal Emergency Management Agency at www.fema.gov/hazards/floods/whatshouldidoafter.shtm.