



After A Flood

How to Keep Safe
and Clean Up



City of Independence
Water Pollution Control
(816) 325-7711
www.independencemo.org/wpc

Water

Assume that all water sources are contaminated until proven safe. Purify all water used for drinking, cooking, and for washing eating and cooking utensils unless the Water Department has declared it safe. Also, purify the water you use to wash your hands, body, and all kitchen and bathroom surfaces.

Do not use water that has a dark color, an odor, or that contains floating materials. To disinfect water, use one of the four following methods:

1. Boil at a rolling boil for three to five minutes;
2. Add 16 drops of liquid chlorine bleach per gallon of water. Make sure the bleach has no active ingredient other than four to six percent sodium hypochlorite;
3. Add 20 drops of two percent iodine per gallon of clear water or 40 drops per gallon of cloudy water; or
4. Add water purification tablets according to directions on the package. (These tablets can be bought at most drug and sporting goods stores.)

Thoroughly mix these solutions and let the water stand for at least 30 minutes before using. If the water does not have a detectable chlorine smell at the end of this time, repeat the dose. If the water doesn't have a slight bleach odor at the end of another 15 minutes, try to find another source of water.

Always use clean or purified water to wash any parts of the body that have come in contact with surfaces contaminated by flood waters. Water in water pipes should be safe to drink if the valve on the main building water line was closed before the flood. Also, it may be possible to have non-contaminated water in the toilet flush tank (not the bowl) which could be used. If the tank is not clean or if the water has set in it for more than 24 hours, do not drink it.

While cleaning up, wash exposed skin frequently with purified water and soap. Wear rubber gloves for extra protection against contamination. Do not touch your face or eyes.

Take pictures of the damage, inside and out, including contents for insurance claims.

Mold

Exposure to mold is common inside and outside the home, but those with allergies and asthma are especially sensitive. Mold exposure may cause cold-like symptoms, watery eyes, sore throat, wheezing and dizziness, and may trigger asthma attacks. Mold can usually be detected by a musty odor and discoloration of surfaces - mold may change surfaces to white, green, brown, black or orange. Molds grow on organic materials, such as paper, leather, dirt and they grow in moisture. Correcting the source of the water or dampness will decrease the chance of molding.

Cleaning, disinfecting and drying surfaces prevents mold growth. Reduce moisture levels in the home to the best extent possible. Fix plumbing leaks and seepage. Dry surfaces quickly, within 24 to 48 hours, if possible. Increase air flow within your home. If the outdoor air is humid, run central air conditioning or a dehumidifier instead of leaving windows open. Running a fan will also help dry things out.

All molding surfaces should be cleaned with a bleach and water mix (one cup bleach to one gallon water). You can add a little dish soap to the bleach water to cut dirt and oil on the walls or surfaces that can hold mold. Providing good ventilation and wearing rubber gloves, apply the bleach water mix to the surface with a sponge or applicator, let it sit for 15 minutes, then thoroughly dry the surface.

Useful Phone Numbers

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|-------------------------|----------------|
| Missouri Gas Energy | (816) 756-5252 |
| Power & Light | (816) 325-7550 |
| Water Pollution Control | (816) 325-7711 |
| Trash Line | (816) 325-7623 |

Safety

Watch where you step. Wear rubber boots and gloves. Watch for water, mud, snakes, loose flooring, holes and nails. Don't use an open flame as a light source. Use only battery-operated flashlights to examine areas and buildings. Be sure children are safe and cared for at all times. Never leave young children alone or allow them to play in a damaged or flooded building. Wear protective clothing on your legs, arms, feet and hands while cleaning up debris. Wash hands thoroughly and often with antibacterial soap and water.

Prior to entering any building, check for structural damage. Make sure the building is safe and nothing is in danger of collapsing. If possible, turn off any outside gas lines and let the house air out for several minutes. Call the gas company to check your service if you suspect or smell a gas leak. Be sure all electric and gas services are turned off before entering the premises for the first time. If you have to step in water to get to your electric box, call a licensed electrician. Do not attempt to shut off electricity if the breaker box is wet or near water. Call an electrical service company to assist you. Do not plug anything into an electric circuit until house wiring has been approved for safe use. Electrical equipment should be checked and thoroughly dried before being returned to service. Make sure the electric power is off, remove covers from outlets, fuses or breaker boxes, thoroughly dry and spray with contact cleaner/lubricant. Watch for electrical shorts or live wires. Do not turn on lights or appliances if there is a chance for short circuits - have a licensed electrician check the system.

Beware of outdoor hazards. Watch out for loose or dangling power lines, and report them immediately to Independence Power & Light at (816) 325-7550. Fire is the most frequent hazard following floods. Do not use combustion devices designed for outdoor use such as gasoline-powered generators, camp stoves and lanterns, or charcoal-burning devices, indoors. Carbon monoxide levels can build up rapidly.

Sanitary sewer backups require more caution when cleaning. Use rubber gloves and rubber boots. A protective mask may also be in order.

Food

Water damaged foods may not be safe to eat. If you have any question or a doubt about the safety of any item, dispose of it. Otherwise keep the following points in mind.

Destroy the following foods if they have been contaminated by flood waters: fresh fruits and vegetables (even those still in the garden); foods in cardboard containers or paper cartons; foods in bags, such as rice, sugar or flour; foods, liquids or beverages in capped bottles or containers with pulltops, corks, or screw lids. This includes canned foods in glass jars, whether you bought them or canned them yourself.

Foods in sealed cans, uncontaminated, may be safe to eat if the cans don't have bulges or leaks, but you must disinfect the cans before opening them. To disinfect cans, remove the labels and wash the container with soap or detergent. Rinse in a chlorine bleach solution using two tablespoons of household bleach to each gallon of water. Dry and then re-label or mark.

Information is available about food handling from the USDA Food Safety Hotline from 9 am to 4:30 pm. Call toll-free 1-800-535-4555 or try their web site at www.fsis.usda.gov.

In the event of a power failure, frozen or refrigerated foods warmed to above 40 degrees F for two to three hours may not be safe to eat. If food has been above 40 degrees for less than two hours, cook immediately or freeze. Partially thawed frozen foods with ice crystals may be safely re-frozen. Do not refreeze frozen dinners that have thawed. Discard any meat that has a questionable odor or that has been exposed to temperatures above 40 degrees F for two hours or longer. Foods in the freezer without power may stay frozen for one to three days, depending on these conditions: The door must have remained closed. The freezer must be full or almost full. The temperature outside may be moderate. The freezer must be large and well-insulated.

Dry ice can be put on boards or heavy paper and placed in the freezer on top of packages to keep temperatures below freezing. Allow 2 ½ to 3 pounds of dry ice per cubic foot of space. More will be needed in an upright freezer, because dry ice should be placed on each shelf. Dry ice can cause burns, so don't handle it with bare hands.

Dishes

Dishes, pots, pans and utensils that have been covered by floodwater should be carefully inspected, washed and disinfected before they are used again. Discard any items made of porous material, such as wood, plastic or rubber. Any dishes with deep cracks should be thrown away as well. Wash the remaining items in hot detergent solution, using a brush, if necessary, to remove dirt. After sudsing and brushing, rinse in clear hot water. Then immerse in a bleach solution to sanitize. To sanitize metal items, boil them in water for at least two minutes. Let all items air-dry. Do not dry them with a dishtowel. If cabinets were in contact with floodwater, clean and sanitize them before storing the clean dishes.

Use bleach with caution. Never mix bleach with other chemicals, cleaners or household products. A solution of 1/2 cup to 1 cup bleach per gallon of water is sufficient for general disinfectant use.

Clothes

When cleaning clothes soaked during storm flooding, remember that the flood water may have been contaminated. Simply drying the clothes is not enough. Clothes must be disinfected to kill harmful bacteria. Dry cleaning is also effective.

Wear rubber or plastic gloves to separate and sort the clothing. Begin by sorting out clothing that should be dry-cleaned and take to the cleaner as soon as possible. If due to power failure, you are unable to machine wash right away, rinse washable items several times in cold water (soak overnight in cold water and detergent if heavily soiled) and then air dry. As soon as possible, machine wash clothing, using detergent and a disinfectant. Use highest water level and do not overcrowd the washer. Use hottest water temperature suitable for the garments. Wash on longest cycle. Then, dry in a dryer set at the hottest temperature suitable for the fabric. If an item is still stained after washing, rewash before drying it...drying may make some stains hard to remove.

Septic Systems

If there's a chance of flooding, make sure septic tanks are full of liquid. Empty tanks are buoyant and may "pop" out of the ground during flooding. Plug floor drains, if necessary, to keep sewage from backing up into the basement.

Do not use the sewage system until water in the disposal field is lower than the water level around the house.

If you suspect there's damage to your septic tank, have it professionally inspected and serviced. Signs of damage include settling or inability to accept water. Most septic tanks are not damaged by a flood since they are below ground and completely covered. However, sometimes septic tanks or pump chambers become filled with silt and debris, and must be professionally cleaned. If tile lines in the disposal field are filled with silt, a new system may have to be installed in new trenches. Because septic tanks may contain dangerous gases, only trained specialists should clean or repair them.

Vehicles

Cars that have water damage over the dash are usually considered a total loss. Use a wet/dry vacuum and let the car air out. If the water was higher than the hubcaps, open the hood and let the electrical system dry out. Have the grease in the wheel bearings checked to see if it needs replacing. For mowers and other lawn equipment, flush out the oil and gas tanks or take them to an authorized repair service.

Pets

Keep pets safe by bringing them inside and keeping them separate. Stress can alter behavior. Even cats and dogs who normally nap together could fight. Watch animals closely. Leash your pets when they go outside. Familiar scents and landmarks may be altered. Also, snakes and other dangerous animals may be brought into the area with flooding. Downed power lines are a hazard. If vaccinations are not already up to date, get to the vet as soon as possible.

Floors

Cleaning water-soaked carpets and floors is a difficult chore in itself, but in the aftermath of a major storm, contamination by mud, silt, sewage, and mildew can compound the problem. It's best to get professional cleaners to work on carpets and floors, if possible, particularly if sewage is involved. Regardless of who does the work, begin cleanup as soon as possible.

If the carpet doesn't feel wet but you suspect the subfloor is, then pull up one or two corners of the carpet to check the condition. If rugs are wet and it is possible, pull up wet rugs or carpet and drape outdoors to clean. Carpets can be hosed down. With a broom, work a low-sudsing, disinfectant carpet cleaning product deep into all soiled areas.

To discourage mildew and odors, rinse with a solution of two tablespoons household bleach to one gallon of water. Don't use this solution on wool carpets. To avoid further mildew problems and shrinkage, dry carpet and floor thoroughly before re-laying carpet. Use fans, wet/dry vacuum cleaners, and dehumidifiers to speed up the drying process. Waffle weave and foam or rubber-type carpet pads may be reused, if properly cleaned and depending on their condition and the amount and type of flooding.

Only use regular chlorine bleach for sanitation. Do not use scented or color safe bleach. Change the disinfecting solution often and whenever it is cloudy.

Sections of sub-floors that separate must be replaced to avoid buckling. When floor coverings are removed, allow sub-floors to dry thoroughly, even if it takes several months. Moisture or high humidity may attract termites and carpenter ants. In wood floors, remove a board every few feet to reduce buckling caused by swelling. Ask a carpenter for tips on removing tongue-and-groove boards. Clean and dry the floor thoroughly before attempting repairs. In vinyl floors with wood sub-floors, the floor covering should be removed so that the sub-floor can be replaced. With concrete floors, removal of floor covering isn't necessary except to hasten drying of the slab. Loose tiles may be replaced individually if the floor hasn't been soaked. If water has seeped under sheet flooring, remove the entire sheet.

Furniture

For all bedding: Hang out to air and dry thoroughly; then brush to remove excess dirt and soil. Dry clean or put through two complete washing cycles and dry as directed. If pillows are foam rubber or stuffed with feathers or fiberfill, put them through a regular washing cycle using sudsy lukewarm water. Check the ticking on the feather pillow to see if it is tight. If it is, do not take the feathers out of the pillow. If the ticking is worn, transfer the feathers to a muslin bag larger than the ticking. Sew up the bag, wash feathers in it; then dry, and put them back in the ticking. Plan to use a non-chlorine disinfectant in the wash or rinse water for pillows containing foam, down or feathers. Use bleach on fiberfill pillows. Air-dry foam rubber pillows. There is danger of fire if they are put in an automatic dryer. Feather pillows may be dried in an automatic dryer at a low temperature setting or may be air-dried. Do not wash kapok and cotton-filled pillows. The cotton filling will become lumpy because water disintegrates kapok. These pillows probably should not be reclaimed.

Foam-rubber and urethane-foam mattresses are mildew-proof and odorless. The cover can be removed and machine-washed (or you may want to discard it and buy a new cover). The foam mattress part can be thoroughly washed with a garden hose. Squeeze a detergent and water solution through the foam if possible. Reconditioning of other types of mattresses is too difficult to do at home. For a good innerspring mattress, check with a nearby commercial renovating company to see if it is worth reclaiming. Check cost of renovation against replacement cost. As a general rule, inexpensive mattresses are not worth the expense of reclaiming and should be discarded.

An innerspring mattress badly soaked by flood water cannot be salvaged without professional reconditioning.

Unless upholstered furniture is antique or very valuable, it should probably be thrown out. Cleaning should be done only by a professional. For wood furniture, put it up on boards or blocks and keep it level. Clean with soap and water or oil soap. Furniture will dry in 4 to 6 weeks.

Appliances

Electric motor cleaning should be done by repair professionals or electricians.

Appliances that have had working parts submerged in water should be serviced. Running equipment before it is properly cleaned could seriously damage it. Unplug immediately. Meanwhile, you can clean the hard surfaces of your appliances. Use a heavy-duty cleaner and hot water to remove stains and silt deposits. Follow up with a rinse of bleach water solution. To remove odors from freezers and refrigerators, wash the inside of the cabinet and the plastic gasket that seals the door with a heavy-duty cleaner and water. Rinse and dry. If the odor remains, wash with a solution of one teaspoon baking soda to each quart of warm water.

After they've been serviced, washers and dryers that have been immersed in floodwater will need to be sanitized. To disinfect the washer, pour chlorine bleach into the empty machine and complete a 15-minute cycle at the hot setting. Unplug the dryer and wipe all areas of the drum and dryer door with a cloth dipped in bleach and water solution. Leave the dryer door open until all parts are thoroughly dry. Then plug in and resume normal use.

Any heating system exposed to floodwater must be cleaned before use. Even if the heating system works, dirt-clogged chimneys and smoke boxes could cause the furnace to explode. Check the inside of a flooded furnace before starting any fires. Flush sediment from the chimney. If the heater is jacketed, clean out all mud between the stove and the outside casing. Take the smoke pipe out of the chimney, and reach through the thimble to remove any mud from the lower portion of the chimney flue. This assures a draft for the fire. In oil burning systems, inspect the fuel storage tank for opened seams. Dismantle the burner and clean all parts with kerosene. Inspect and clean the air blower. Replace fuel filters and clean and dry out the fuel pump. Remove housings that enclose gears, and clean the gears thoroughly with kerosene. Grit in the gears will cause undue wear. Be extra careful that fan motors, electric ignition systems, and wiring are completely clean and dry before you turn on the electricity.

Walls

In some cases, insulation may also need to be removed, dried or replaced. Allow at least two months before applying paint because paint applied to damp walls will later blister and peel. Plastered walls and wallpaper can be cleaned without replacing the paper. Badly soaked wall board or sheetrock will probably have to be replaced. Allow plaster to dry thoroughly before washing it. Brush off any loose surface dirt. Use a mild soap or a nonsudsing commercial cleaner to wash a painted wall. Always start washing walls at the bottom and work up. Ceilings should be done last.

After walls are cleaned and before wallpaper is replaced, paint or spray walls with a disinfectant. Add one ounce or two tablespoons of the disinfectant to two gallons of water. This will make the walls mildew resistant. The same solution may be applied to washable wallpapers.

When cleaning basements with concrete walls and floors, first bail or pump out water and remove mud from the floor. Pump only about one-third of the water per day to avoid structural damage. Then remove mud and surface film on ceiling, walls and floor with a coarse brush or long-handled broom. Spray or wet the ceiling and walls with lukewarm water, then scrub with hot soapsuds. Repeat if necessary, using clean soapy water. Rinse walls and ceiling with a clear, lukewarm water moistened brush.

Rock salt is a good disinfectant. But, do not use rock salt on concrete surfaces—it will ruin concrete, causing it to chip, fragment or flake.

To remove odors, use a chlorine bleach solution, or use common rock salt, or stock salt. Use 1 cup of rock salt per gallon of water. You can use rock salt on dry wall or plaster—but be sure to rinse well afterward. Sprinkle the salt over the basement and, if the floor is dry, spray or pour a small amount of water over the salt. This mixture of salt and water makes a strong brine that should be allowed to stand on the floor until dry. When dry, sweep and wash the floor with soapy water. This treatment will disinfect the basement as well as remove odors.