

Flood Clean Up Manual

LOGAN COUNTY HEALTH DISTRICT

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SAFETY/INJURY CONTROL

DROWNING: Drowning is the #1 cause of flood deaths. Follow these precautions:

- Do not enter swiftly flowing water, regardless of your ability to swim. You risk drowning even in swiftly moving shallow water-6 in. of moving water can knock you off of your feet.
- Do not rely on cars or other vehicles to protect you from floodwaters; people are more likely to drown inside a vehicle. Do not drive around the road barriers; the road or bridge may be washed out. Do not drive into water flowing across a roadway; it may be deeper than it appears.
- Even shallow standing water holds hazards, particularly for small children. Use a pole or a stick to make sure that the ground is still there before walking through an area where the water is not flowing. Generally, you should avoid wading in standing water, however, because it may hide snags or other physical hazards (e.g., glass or metal fragments).

HOUSEHOLD HAZARDS: UTILITIES

Repairs and cleanup go much more quickly when your home's utilities are in working order. But you need to take certain precautions.

Natural Gas

When returning to your home, check immediately for leaking gas pipes. Do this by smell only. If you must have light, use battery-powered flashlights or lanterns. **DO NOT turn lights on or off and DO NOT use candles, oil or gas lanterns or torches;** if gas lines are broken, an explosion could occur.

If you smell gas or suspect a leak, turn off the main gas valve at the meter, open all windows and leave the house. Notify the gas company or the police or fire department. Do not re-enter the house until you are told it is safe to do so. The U.S. Consumer Product Safety Commission recommends that all gas control valves on furnaces, water heaters and other gas appliances be replaced if they are under water. Silt and corrosion from flood water can damage internal components of control valves and prevent proper operation. Gas can leak and result in an explosion or fire.

Fuel Oil or Propane

Fuel oil or propane tanks may have floated during a flood and connecting pipes may be broken, even underground tanks can float. Turn off the fuel valve tank and check for leaky pipes. If you find a leak or are not sure the system is safe, call a professional.

Electricity

If floodwater has entered your home, the electrical system will need to be thoroughly checked and repaired. Remember, when working around electricity, it is important to wear rubber gloves and rubber soled shoes. Rubber insulates and can protect from shocks. Ideally,

this work should be done by an electrician. Consult your utility company before using power generators. Be aware that it is against the law and a violation of electrical codes to connect generators to your homes electrical circuits without approved, automatic interrupt devices. If a generator is on-line when electrical service is restored, it can be a major fire hazard. In addition, improperly connecting a generator to your home's electrical circuits may endanger line workers helping to restore power.

CARBON MONOXIDE

Portable generators and other gasoline-powered equipment should be used only in well-ventilated spaces. Ideally, they should only be used outdoors. The same is true for camp stoves and charcoal grills; fumes from charcoal are especially dangerous. All combustion engines, even small ones, produce carbon monoxide, which is odorless and colorless. Carbon monoxide can rapidly build up in an indoor area before individuals are aware they are being exposed. Most deaths from carbon monoxide poisoning occur at night while the victims are sleeping. Even if awake, confusion, headaches, dizziness, fatigue and weakness may set in too quickly for victims to save themselves.

Once inhaled, carbon monoxide decreases the blood's ability to carry oxygen to the brain and other vital organs. Carbon monoxide poisoning can cause permanent brain damage, including changes in personality and memory. As CO levels in the blood increase, chest pains and heart attacks can occur in people with pre-existing coronary artery disease.

If you suspect carbon monoxide exposure or poisoning, leave the area immediately and call emergency personnel. Be sure the gas company or the local health department is notified. Affected individuals should be led to fresh air and provided with oxygen, if necessary. Follow standard first-aid practices: Keep victims warm and quiet until help arrives.

DEBRIS REMOVAL

Receding floodwaters leave tons of debris behind. Furniture, appliances, animal carcasses, clothing, building materials, vehicles, and chemical and other containers are just some of the items that litter the landscape. Getting rid of these materials requires time, patience, and caution.

Burning

During flood emergency situations, it may be permissible to burn debris and other water created by the flood. Check with local officials to see if there are any restrictions.

If you do burn debris, use common sense. Burn in a centralized location that is away from residential areas. Be sure that the fire is continuously monitored.

There are some materials that should not be burned, including chemicals, batteries, painted or treated wood, plastics, tires, asphalt and asbestos. All chemicals should be handled and disposed of according to requirements established by the USEPA and OEPA.

FOOD SAFETY

FOOD/WATER/HYGIENE

As a rule of thumb, do not eat any food that has come in contact with floodwater. **IF THE SAFETY OF ANY FOOD OR BEVERAGE IS QUESTIONABLE FOLLOW THE SIMPLE RULE-WHEN IN DOUBT THROW IT OUT.**

If you are unsure of a food product's safety, call your local health department or the US Department of Agriculture, food safety hotline at 1-800-535-4555 M-F 10 a.m.-4 p.m. or the Ohio Department of Agriculture 1-800-282-7606.

CANNED FOOD

Carefully examine all canned and bottled goods that have been submerged or come in contact with floodwater. Some cans or bottles may be safe to use after a good cleaning. Follow these guidelines:

- After being under water, containers with cork-lined lids or caps, screw tops or pop tops are nearly impossible to clean thoroughly around the opening. Any major temperature changes can actually cause contaminants to be sucked into containers. They should be discarded.
- If they appear undamaged, tin cans are usually safe. Wash in bleach water (liquid, unscented laundry bleach with sodium hypochlorite of 5.25%- 1 tablespoon per 1 gallon of cold water) for one minute, then dry to prevent rusting.
- If cans have pitted rust spots that cannot be buffed off with a soft cloth, contamination may have entered through corroded holes in the walls of the can. Discard these cans.
- A can with ends that bulge or spring in and out when pressed should be discarded immediately. This usually means bacteria are growing inside and producing gas that expands the can. ***Do not taste the contents of such cans.***
- If a can is crushed, dented or creased, the contents may not be safe to consume. ***Do not taste.***
- Generally, home canned foods should not be used. While exposure to floodwater is not, by itself, a safety problem, floodwater can contain bacteria. Since there is no way to tell whether seals have remained intact, it is not possible to tell if food in jars covered by floodwater is contaminated. The contents of such jars should be considered unsafe and discarded. If jar tops were not exposed to floodwater, the jar can be sanitized with a strong household bleach solution (1 tablespoon per quart of hot water).
- Destroy any foods in paper or cardboard containers that have come in contact with floodwater.

FRESH FOOD

- Root and garden vegetables that have come in contact with floodwater should be discarded.
- Citrus fruits should be washed well, sanitized in a chlorine solution, and peeled before eating. Apples and other fruits should be sanitized, peeled, and cooked before eating. Do not eat these fruits raw, even if they have been sanitized.

PREPARING FOOD DURING A POWER OUTAGE

In all likelihood, a flood will mean disruption in electrical and gas service and in the availability of potable water. This, in turn, will affect the way you prepare food. These guidelines can help you cope:

- If heat for cooking is limited, choose casseroles and other one dish meals that cook quickly or use no-cook foods. Avoid frozen foods since they require longer cooking times. To avoid storing leftovers, open only what will be eaten at one meal at a time.
- Do not serve foods that spoil quickly. Ground meats, creamed foods, hash, custards, meat pies and any food containing mayonnaise are all potential sources of botulism poisoning.
- Try an alternative cooking method. If dry wood is handy, you may want to cook in your fireplace. Many foods can be easily skewered, grilled, or cooked over a fire. If your home still has electricity, electric skillets, hot plates, etc., can provide an alternative cooking method.
- **REMEMBER, DO NOT USE FUEL-BURNING CAMP STOVES OR CHARCOAL BURNERS INSIDE YOUR HOME. THE FUMES CAN BE DEADLY.**
- If potable water is in short supply, save liquids from canned vegetables and fruits and use them in cooking.

WHAT TO DO WHEN YOUR REFRIGERATOR FAILS

When power goes off in the refrigerator, you can normally expect food inside to stay safely cold for four to six hours, depending on how warm your kitchen is.

- Add block ice to the refrigerator if the electricity is off longer than four to six hours. As this ice melts, the water may saturate food packages. Be sure to keep packages out of water as it drains.
- High protein foods (dairy products, meat, fish, and poultry) should be consumed as soon as possible if power is not restored immediately. They cannot be stored safely at room temperature.
- Fruits and vegetables that are un-cut can be safely kept at room temperature until there are obvious signs of spoilage (slime, mold, wilt). In fact, with good ventilation,

vegetables will last longer at room temperature. Remove them from the refrigerator if electrical service may not resume soon.

WHAT TO DO WHEN A FREEZER FAILS

When the electricity is off, a fully stocked freezer will keep foods frozen two days if the door remains closed. A half-full freezer can keep foods about one day. What can you do if electrical service will not be re-connected within one or two days?

- Keep the freezer door closed
- If your friends have electricity, divide your frozen foods among their freezers.
- Seek freezer space in a store, church, school, or commercial meat locker or freezer that has electrical service.
- Know where you can buy dry and block ice. Dry ice freezes everything it touches; 25 pounds of it will keep a 10 cubic foot freezer below freezing for 3-4 days. When using dry ice, be sure to use precautions. *Never touch dry ice with bare hands!* Also do not stick your head into a freezer that contains dry ice. It gives off carbon dioxide which replaces oxygen, so leave the door open a short time before examining food.

MILK SAFETY

Be sure that the milk you drink is properly pasteurized. If pasteurized milk is not available, raw milk should be heated to the boiling point, but not boiled, before drinking. Canned or powdered milk may be substituted for fresh milk. Canned milk will keep safely for a few hours after the can is opened. If mixing powdered milk, be sure that you use bottled or disinfected water. Powdered milk should be used immediately.

POTABLE WATER

A person requires 2 gallons of water or other fluids each day. Meeting this requirement can be difficult during a flood, however, when many public and private water supplies may be contaminated. The safest course is to consider all water unsafe after a flood. Listen to public service announcements on the safety of your area's water supply and follow instructions of local authorities.

If you have a private water well, you should open your cold water tap and run the water for about 30 minutes to allow the well to recharge naturally. Then have the well disinfected and tested before drinking and using for cooking. If you need assistance contact the local health department.

The safest approach is to drink and cook with bottled water or water previously stored in the refrigerator. If you have to use tap water, boil it vigorously for at least 3 minutes. If you cannot boil it, add five drops of household bleach to each gallon of water. Mix thoroughly and allow to stand for 30 minutes. This method should only be used with water that is clean in appearance and free of odor.

Caution should be used in the storage and handling of bottled water. It should not be stored where it will be exposed to sunlight, and it should not be placed in areas where the temperature is elevated.

Two sources of water within the home that can be used for some purposes are the hot water heater and the top tank (not the bowl) of the toilet. Hot water heaters usually hold up to 30 gallons. If water from either of these sources is used for drinking or cooking, it should be boiled first.

Remember, do not use contaminated water to make ice, coffee, brush your teeth or wash dishes. If there is a shortage of safe drinking water. Use clean disposable eating utensils, plates, and napkins.

SEPTIC SYSTEMS AND SOLID WASTE DISPOSAL

Septic tank systems that have been flooded should not be used until after floodwaters recede. Once waters have gone down, the system should be checked for broken lines or sewage surfacing. Any problems should be corrected before the system is returned to service. Outdoor toilets that have been flooded should be scrubbed thoroughly with a solution of 2 cups of laundry bleach per gallon of water. In the aftermath of a flood, most communities will provide portable toilets, but these may be limited.

If no toilet facilities are available, deposit waste in a water tight container used for that purpose only. Place a small amount of water in the receptacle before it is used to make emptying it easier. Dig a trench or pit and empty the contents into it as soon as possible after use. Cover the waste after each use with a thin layer of dirt, ashes, or lime. Also empty the water used to wash the receptacle into the trench. When closing the trench, cover it with at least 12 inches of soil.

PERSONAL HYGIENE

Following a flood, it can be difficult to maintain good personal hygiene and cleanliness. Doing so is imperative however, due to the increased risk of disease.

One of the most important things you can do to prevent the spread of waterborne disease is to always wash your hands with plenty of soap and clean warm running water. This is important:

- Before preparing or eating food, handling a baby, smoking, or any other activity that involves touching something that may enter a person's mouth. Make sure children do the same.
- After using the toilet
- After handling articles contaminated with floodwater or sewage

When no regular safe water supply is available, use bottled, boiled, or chemically disinfected water for washing hands (and brushing teeth).

Keep wash cloths and dish towels clean. Bacteria can remain on towels and cloths, so wash linen often with clean water and soap. Parents need to take special care that their children follow these precautions. Do not allow children to play in floodwater areas, wash their hands, and do not allow them to play with floodwater contaminated toys that have not been disinfected.

MOLD

Mold is likely to be a problem in homes that have been flooded. Mold has the potential of affecting the health of family members of all ages. Recent reports have alerted the public to the danger of the mold *Stachybotrys*. This mold has a black or black-green slimy appearance, and grows on wood and wood based products that have become and remain wet.

Pulmonary hemorrhage is bleeding of the lungs. Symptoms include coughing up blood and nosebleed. This can be fatal in infants, get immediate medical attention.

Clean-up precautions: The wood inside the walls must be completely dried and paneling, dry wall, and insulation should be discarded to prevent mold growth. Fix all leaks and eliminate water sources associated with mold growth. Clean hard surfaces with a solution of bleach and water (1/2 cup bleach per gallon of water); make sure to ventilate the area when using bleach. Wear filter masks and gloves to avoid contact with the mold. Let the bleach and water sit for 15 minutes and then dry the area thoroughly. Porous materials that are wet and cannot be cleaned and dried should be discarded, as they can remain a source of mold growth. For further information call Centers for Disease Control 770-488-7320

PESTS

MOSQUITOES, FLIES, ETC.

The large amount of pooled water and the filth and debris that remain after a flood may provide an ideal breeding ground for mosquitoes, flies, and other insects. While the majority of these will merely be pests, some can carry communicable diseases such as typhoid, dysentery, and encephalitis. The first and best defense against these pests and the illnesses they may carry is to eliminate the places where they breed.

The following recommendations will help protect yourself from mosquitoes and other insects:

- Avoid places and times when mosquitoes bite. Generally, the peak biting periods occur just before and after sunset and again just before dawn.
- Be sure door and window screens are tight-fitting and in good repair
- Wear appropriate clothing. Long sleeved tops and long pants keep mosquitoes away from the skin. Clothing should be light colored
- Check to see that your mosquito repellent contains DEET. When outdoors, apply repellent to exposed skin or clothing, as indicated on the product label.

- Empty water in tires, tin cans, bird baths, yard ornaments, or other places where mosquitoes might breed. Be sure to check clogged gutters and flat roofs that may have poor drainage. Make sure cisterns, cesspools, septic tanks, fire barrels, and rain barrels are covered tightly
- Empty your pets water bowl daily
- Grade the ground around your home so water can run-off and not collect in low spots. Fill holes or hollows near your home that accumulate water.
- If you have an ornamental water garden or livestock water troughs, stock them with mosquito-eating fish (minnows, Gambusia, goldfish, guppies, etc.) They eat mosquito larvae
- Keep weeds and tall grass cut short; adult mosquitoes look for these shady places to rest during the hot daylight hours and after a blood meal
- Use a flyswatter or a household spray to kill mosquitoes, flies, or other insects that get into buildings. Spray shrubbery and shaded areas of buildings to kill adult insects. Read and follow all label directions when applying any insecticide

Once floodwaters recede, those whose homes were damaged or destroyed must decide whether to remain in the flood-prone area and rebuild. For those who decide to stay, the American Red Cross and the Federal Emergency Management Agency advise that they flood proof their houses. The following suggestions have been adapted from the pamphlet “*Repairing Your Flooded Home*” published by the Federal Emergency Management Agency Publications, PO Box 70274 Washington DC 20024 or from the Ohio Department of Health, PO Box 218 Columbus, OH 43266-0118, or from your local chapter of the American Red Cross.

CHECKING FOR STRUCTURAL DAMAGE

Before beginning the actual cleanup of your home, there are several steps that should be taken first.

- Contact your insurance agent.
- If the agent is overwhelmed with damage reports and cannot inspect your property immediately, take photographs of the damage before beginning cleanup
- Keep accurate records of cleanup and repair bills, flood-related living expenses, and actual losses (furniture, clothing, etc.)
- If you have difficulty with the insurance carrier, contact the Ohio Department of Insurance at 614-644-2658
- Be sure to contact your municipal and county governments to make sure that plans for repairs or rebuilding conform to local building codes

Precautions before entering a damaged building

- use extreme caution in and around any building that may have suffered structural damage
- Determine if gas lines are broken. If so turn off the gas at the meter or the tank
- If you enter the building at night, be sure to use a battery powered flashlight or lantern.
- Watch for loose plaster and ceilings that could fall

- Open as many doors and windows as possible to remove moisture, odors, and flammable, toxic gases. If windows are stuck, take off window strips and remove the entire sash. If doors are stuck, drive out door hinge pins with a screwdriver and hammer and remove the doors.

Foundations

Flood waters can undermine a structure's foundation and other supports. In order to assure that the structure is safe to enter, it is best to have a contractor or the community's building inspector check the foundation to see if it is unsuitable. In fact, some communities may require official inspections for all buildings after a flood. If the building had sustained extensive structural damage, a reputable local contractor should be contacted for repairs. However, if you choose to do the work yourself, here are some guidelines:

- Check the foundation and supports for any visible signs of settling and cracking. If you find such damage, uncover footings and raise, reinforce, or brace any settled sections. Be alert for washouts when uncovering footings
- If washouts have occurred, fill spaces to within 12 inches of the footing with gravel or crushed rock and finish with concrete reinforced with steel rods.
- Check piers for settling or shifting
- If the building has shifted or settled badly, install temporary bracing until repair work can be done
- Pump water out of basements. Avoid using a pump powered by your home's electrical system since it is probably wet. Instead, use a gas powered pump.

The American Red Cross cautions that if a basement is flooded, the homeowner should not be in too big of a hurry to pump it out...here is why. Water in the ground outside the house is pushing hard against the outside of the basement walls. But the water inside the basement is pushing right back. If the basement is drained too quickly, the pressure outside the walls will be greater than the pressure inside the walls – and that may make the walls and floor crack and collapse, causing serious damage. To avoid this situation, follow these steps when pumping water out of the basement:

- Never go into a basement that has water standing in it unless you are sure the electricity is off
- When the flood waters are no longer covering the ground, start pumping that water out of the basement
- Pump the water level down 2-3 feet. Mark the level and wait overnight
- Check the water level the next day. If the water went back up over your mark, it is still too early to drain the basement. Wait 24 hours then pump the water out 2-3 feet again. Check the level the next day
- When the water stops going back up, pump down another 2-3 feet and wait overnight. Repeat these last two steps until all water is pumped out of the basement
- Drain crawl spaces and remove all mud and debris to keep joists and foundation wood from rotting. This may mean jacking up the house

Roofs

Holes in roofs must be covered in order to keep rain from doing more damage to the interior of the home. Cover holes with boards, tarps, plastic sheeting, or roll roofing. If the holes are large, you may need to support the temporary covering in the center to keep it from tearing from the weight of the rain. If roof sections are sagging, use 4x4's or other heavy lumber to brace weak areas. If you are uncertain how to shore up floor or ceiling joists, call a contractor

Turn Power Off

- Disconnect the main electrical switch and any other switches controlling electricity in outbuildings. If the main switch is in the basement, be sure that the area around the switch box is dry before working on the electrical system.
- Remove all fuses or put circuit breaker in "off" position
- Disconnect all plug-in equipment and appliances and turn-off the switch at each piece of permanently connected equipment. Unscrew all light bulbs

Clean and dry the system

If electrical outlets and switches are wet, they should be dried before service is restored. The US Consumer Product Safety Commission recommends that all electric circuit breakers, ground fault circuit interrupters, and fuses that have been under water be replaced to avoid explosions and fires.

- Remove switch covers, outlets and other electrical connections
- Pull receptacle, switches, and wires about 2 inches out from the boxes, but do not disconnect the wiring
- After removing mud and dirt with clean water, allow connections and wiring to dry completely. This could take days
- Use extreme caution in cleaning mud and dirt from the main power box. Your home's main power line enters here, so this can be an extremely hazardous part of the system to work on. It is best to assume the power line is hot even if a test light shows that power is off. Never hose out a hot switch box

Wear rubber gloves and rubber-soled shoes and be sure to not touch anything wet or stand in water while working on the box. In an emergency, the electrical meter can be pulled from its base to disconnect the power. Notify the electric company that you broke the seal.

Check the system for shorts

- While standing on a dry board or ladder and wearing rubber gloves and rubber-soled shoes, check the main switch box to be sure all fuses are removed

- Close the main switch and look for sparks or smoking wires, both of which indicate shorted switch connections. If you see such shorts, carefully try to correct the problem. A new switch may be needed
- If the switch is in working order, open the switch and insert a fuse in one branch circuit
- Close the switch box to check for shorts in that branch circuit
- If the fuse does not blow immediately, wait at least 15 minutes to check for slower electrical leaks. Carefully inspect all parts of the branch circuit you are checking; smoking wires or sparks indicate a problem. If there are any signs of smoking or heating, if the fuse blows or breaker trips, remove all fuses and open the main switch. You may need to do additional cleaning or drying, or you may need to replace circuit parts.
- Repeat the steps above for each of the other circuits, one at a time
- If, after checking all of the circuits, they appear to be in good condition, once again remove all fuses and open the main switch. Replace wires for electrical receptacles, switches, and light outlets in junction boxes. Replace covers. Then check each branch circuit again, one at a time, by replacing one fuse at a time and closing the main switch
- If everything is OK, close the main switch
- For 24 hours, be careful when using receptacles and switches. There may be slow leaks that could cause shocks.
- Do not plug in electrical appliances that have been flooded until they have been reconditioned
- If some circuits are faulty, use only the undamaged circuits. Do not overload undamaged circuits with too many lights or appliances until normal capacity is restored. Some newer homes may have a ground fault interruption system with the circuit breaker. This will probably need to be replaced
- Outdoors use extreme caution if you find yourself around power lines. Do not touch downed power lines, particularly those in water, or objects that are in contact with downed power lines.

WORKING ON THE INTERIOR OF THE HOME

The following tips for dealing with the interior of a home and its contents after a flood have been derived from recommendations by the Federal Emergency Management Agency

Lower the Humidity

Everything will dry more quickly and clean more easily if you can reduce the humidity in the house. There are many ways to lower the humidity and stop rot and mildew, but you will have to delay using some methods if you have no electricity. Be patient—drying your house could take several weeks. Until your house is reasonably dry, damage caused by mildew and decay will continue. The musty odor will stay forever if the house is not dried out well

Open up the house

If the humidity outside is lower than it is indoors, and if the weather permits, open all the doors and windows to exchange the moist indoor air for drier outdoor air. If the sun is out, it should be

drier outside. When temperatures drop at night, an open house is warmer and will draw moisture indoors. At night and when the humidity outside is high, close the house.

Open closet and cabinet doors

Remove drawers to let air circulate. Drawers may stick because of swelling. So no try to force them. Help them dry by opening up the cabinet so air can get to it. You will probably be able to remove drawers as the cabinet dries out.

Use fans

Fans help move the air and dry out your home. Do not use central air conditioning or the furnace blower if the ducts were under water. They will blow out dirty air that may contain contaminants from sediment left in the duct work. Clean or hose out the ducts first.

Run dehumidifiers

Dehumidifiers and window air conditioners will reduce the moisture, especially in closed-up areas

Use desiccants

Desiccants (materials that absorb moisture) are very useful in drying closets or other closed area where air cannot move through. Desiccant like the following are usually available at hardware stores: chemical dehumidifier packs, cat litter made of clay, calcium chloride pellets (used to melt ice in the winter). Close off the area being dried. Calcium chloride can burn skin, and make the air salty. Do not use it near computers or other delicate equipment

Call a contractor

There are contractors who specialize in drying out flooded buildings. They have large fans and dehumidifiers that can dry out a house in a few days. Be careful of contractors who inflate prices and with out-of-town contractors who request payment in advance

Sort contents and discard debris

You have 3 types of contents. They should go to 3 different places: items you want to save, items to be thrown out, and garbage

- Things you want to save should be moved to a safe, dry place, such as the second story or outside. The longer they sit in water, the more damaged they will become. Do not leave wood furniture in the sun because it will warp as it dries. To save an area rug, lay a sheet or some other material on top of it before you roll it up so the colors will not bleed. Clean it promptly
- Things you do not want to save should be put outside to dry until your insurance adjuster comes to confirm your losses. Take pictures or videotapes and list each item for the record
- Garbage (food, and anything else that could spoil) should be disposed of immediately. Do not let garbage build up. Garbage piles will cause yet another health hazard by attracting animals and insects. If your insurance adjuster has not come, tell your agent that you need to get rid of potential health hazards. That person will tell you how to make sure that your losses are covered. Then throw the stuff out, preferably in sealed garbage bags

HOW FLOOD WATER AFFECTS YOUR HOME

Once contents and debris have been cleared, the next step is to get the water out of the ceilings and walls. How you drain and dry your ceilings and walls depends on how they are constructed.

- **Wallboard.** Most ceiling and walls are covered with wallboard, especially in newer homes. Wallboard acts like a sponge, drawing water up above the flood level. It becomes very fragile if it stays wet for long and will fall apart when bumped. When the wallboard finally dries, there will still be mud and contaminants inside. Since wallboard that has been soaked by floodwater can be a permanent health hazard, you should discard it.
- **Plaster.** Plaster will survive a flood better than wallboard. You should not need to replace it, but it will take a very long time to dry. Sometimes the plaster will separate from its wood laths as it dries. Then the wall will have to be removed and replaced.
- **Insulation.** There are 3 main types of insulation, and each reacts differently to flood waters. Styrofoam survives best; it may only need to be hosed off. Fiberglass bats should be thrown out if they are muddy. If soaked by clean rainwater, remove them so the rest of the wall can dry. They can be put back in the wall, but it will take a very long time for them to dry. Cellulose (loose or blown-in treated paper) insulation holds water for a long time. It can also lose its antifungal and fire retardant abilities and therefore, should be replaced.
- **Wood.** If it is allowed to dry naturally, wood will usually regain its original shape. Different layers of laminated wood, such as plywood, may dry at different rates, and that may cause the layers to separate. Some contaminants will stay in the wood after it dries, but not as much as stays in flooded wallboard. Wood studs and sills will be covered by new wallboard and painted, so they are well removed from human contact. Therefore, wet wood studs and sills do not need to be replaced if they are allowed to dry properly.

Drain the ceilings and walls

- **Ceilings.** Check for sagging ceilings. Wet plaster or wallboard is very heavy and dangerous if it falls. Drain ceilings carefully. Attach a nail or other pointed object to the end of a long stick. Stand away from, not under, the sag (a doorway is safest). Poke a hole in the ceiling at the edge of the sag so any trapped water can begin to drain. Do not get close to lights and other electrical fixtures with the stick. Do not start at the center of the sag or the ceiling may collapse suddenly. After the water drains, poke another hole, lower down the sag. Keep poking holes as you move to the lowest point. If the flood waters went above the ceiling, you should replace it if it is made of wallboard. A plaster ceiling will dry eventually but if it has too many cracks or sags, you will have to tear it down and replace it. Remove any wet insulation in the ceiling to allow the joists to dry.
- **Walls.** Remove water trapped within your walls. To check for water take off the baseboard. Stick an awl or knife into the wall about 2 inches above the floor. If water drips out, cut or drill a hole large enough to allow water to drain freely. Use a hand or cordless drill or saw to avoid shock and avoid drilling in areas that may

contain wiring. If you are going to replace wallboard anyway, you do not have to be neat, use a hammer to knock out a hole. If your walls are plaster, a knife will not penetrate them. Drill a hole above the sill plate to drain water. Do not use a hammer or chisel because the plaster could shatter. In a newer home, you may have metal sill plates. A metal sill acts as a gutter at the bottom of the wall cavity. Drill a hole at floor level to drain the water, using a hand or cordless drill.

Repeat the process to drain all of the wall cavities. Depending on the spacing between the studs in your walls, make a hole about every 16-24 inches. Watch out for wiring, which is usually at the same height as your electrical outlets. If there is wet insulation; you will have to remove the wallboard to remove the insulation.

Dry the ceilings and walls

Flood soaked wallboard should be removed and thrown away. Plaster and paneling can often be saved, but you will still need to get air circulating in the wall cavities to dry the studs and sills. Different approaches are used for different materials

- **Wallboard.** If dirty floodwaters soaked the wallboard at least 4 feet above the floor, take down all of the wallboard and replace it. If the water level was less than 4 feet; remove the lower four feet of wallboard. You can fill the gap with 4x8 foot sheets of wallboard installed sideways. If you have Styrofoam insulation –or no insulation— and the wallboard was soaked with clean rainwater, you can dry the walls using the technique below for plaster walls. You will have to remove insulation if it is not Styrofoam.
- **Plaster walls.** If the plaster is clean and in good shape, you can drill or cut ventilating hole in each wall cavity. Place holes low enough so the baseboard will cover them after the wall dries out. Open up the walls on both sides of the interior walls. For exterior walls, drill or cut holes only on the inside of the house. However, if there is wet insulation, you will have to remove the plaster in order to take out all of the insulation.
- **Concrete block.** The cavities in concrete block walls will drain on their own. The water will not damage concrete like it will wood or wallboard.
- **Wall covering.** Vinyl wall covering seals the wall and keeps it from drying out. Wallpaper paste will promote the growth of mold and mildew. For these reasons, you should remove and discard all wall covering that got wet.
- **Paneling.** Carefully pry the bottom of each panel away from the wall. Use something to hold the bottom away from the sill so the cavities can drain and dry out. You can nail them back into shape after they and the studs dry out. However, if there is wet insulation, you will have to remove all paneling to remove the insulation.

Dry the floor

Air needs to move around flooded areas so they dry out. This usually means that you must remove floor covering. Because floodwaters contain mud and dirt, most soaked floor coverings must be thrown away. Keep a piece of all floor coverings so the insurance adjuster can determine its value.

Air needs to circulate below the floor to dry it out. If the crawl space of your house is flooded, pump it out. Remove any plastic sheets, vapor barriers, or insulation from beneath the floor. Replace them when the floor and foundation are dry.

If a house with a basement was flooded over the first floor, remove finished basement ceilings or cut or drill holes between all joists to allow air circulation. Do not cut or drill near electric lines or pipes.

Clean-up

The walls, floors, closets, shelves, contents – every flooded part of your house – should be completely washed and disinfected. Some projects, such as washing clothes may have to wait until all utilities are restored. Others may be best done by professionals.

Clean-up supplies

The American Red Cross and other organizations often distribute clean-up kits after a disaster. These contain useful items such as brooms, mops, buckets, and other cleaning supplies.

In most cases, household cleaning products will do the job if you use them correctly. Check the label on the products to see how much to use. Apply the cleaner and give it time to work before you mop or sponge it up. Follow directions and all safety precautions on the containers. After cleaning a room or item, go over it again with a disinfectant to kill germs and smell left by floodwaters. You may also need to get rid of mildew.

Cleaning tips

Tackle one room at a time. A two-bucket approach is the most efficient. Use one bucket for the cleaning solution and one for the rinse water. Rinse out your sponge, mop, or cleaning cloth in the rinse bucket. Using two buckets keeps most of the dirty rinse water out of your cleaning solution. Replace the rinse water frequently.

- **Walls.** Start cleaning a wall right above the floodwater level. If you did not remove wallboard or plaster, you may find that it will not come clean. If you have removed the wallboard or plaster, wash the studs and sills and disinfect.
- **Furniture.** Do not try to force open swollen wooden doors and drawers. Take off the back of the piece of furniture to let air circulate. You will probably be able to open drawers after they dry. Solid wood furniture can usually be repaired and cleaned, but wood veneer often separates and warps. Wood alcohol or turpentine applied with a cotton ball may remove white mildew spots on wood. Cream wood restorers with lanolin help restore good wooden furniture. Upholstered furniture soaks up contaminants from floodwaters and should be cleaned only by a professional. This is also true of carpets and bedding. Unless the piece is very valuable, upholstered furniture soaked by floodwaters should probably be discarded. Get a cost estimate from a professional to see if furniture is worth saving.
- **Appliances.** There is an unexpected danger of shock with some electrical appliances such as TV sets and radios. Certain internal parts store electricity even when the

appliance is unplugged. Check the back for a warning label. Appliances with such labels will need professional cleaning.

You will need appliances such as the washing machine, dryer, dishwasher, and vacuum cleaner to help clean your house and its contents. The motors of heating elements can usually be cleaned. If you cannot wait for a professional cleaning job, unplug, disassemble, and hose off the appliances thoroughly (with hot water if possible). Then clean and disinfect them, but do not use detergents. Clean and disinfect dishwashers, washing machines, and dryers only with water that has been declared safe for drinking. Make sure the sewer line is working before you start a dishwasher or washing machine.

You can speed up the drying process for motors and parts by using a blow dryer or a moisture displacement spray. Moisture displacement sprays, such as electronics parts cleaners or WD-40 lubricating oil, are available at hardware stores. The sprays can also stop corrosion until the appliance can be disassembled and cleaned.

Moving parts such as motors and pulleys will need oil or grease. Contacts and electrical switches can be cleaned with a moisture displacement spray or an aerosol contact cleaner. Allow a motor to run for 30 minutes with no load before you use it.

Refrigerators, freezers, and ovens are more complicated. They may have foam insulation and sealed components that suffered little water damage. But these appliances hold food, so they should be cleaned, disinfected and checked by a professional or replaced. Check the insulation; if it is wet the appliance will probably have to be discarded. If the insulation is not wet and the motor and freezing unit are in safe working condition, clean and sanitize your refrigerator or freezer by following these steps:

- Dispose of any spoiled food
- Remove shelves, crisper drawers and ice trays and wash with hot water and detergent. Follow with a disinfectant rinse (2 ounces of bleach per gallon of water).
- Wash the interior of the refrigerator or freezer, including the door and gasket, with warm water and baking soda (1 teaspoon baking soda per quart of water) or vinegar or ammonia (1 cup of either per gallon of water). Rinse with disinfectant solution.
- Leave the door open and allow fresh air to circulate for about 15 minutes
- If odors remain, use a commercial refrigerator deodorizer or activated charcoal, which is available at drugstores. Spread about 3 ounces on a sheet of aluminum foil or in a shallow pan and place on refrigerator or freezer shelf. Foods can remain in the refrigerator with the charcoal. After 6-8 hours, reactivate the charcoal by placing it in an oven at 350° for several minutes. Put the charcoal back in the refrigerator or freezer; repeat the process until the odors disappear.

If you have doubts about whether your appliances should be replaced, have them checked by a repair person. If the repair person advises you to replace an

expensive appliance, get the opinion in writing and discuss it with your insurance adjuster before you spend money for another one.

Clothing and linens

Even if your washing machine did not get wet, do not use it until you know that the water is safe enough to drink and that your sewer line works, before you wash clothes in the washing machine, run the machine through one full cycle. Use hot water and a disinfectant.

Take clothes and linens outdoors and shake out dried mud or dirt before you wash them. Hose off muddy items to remove all dirt before you put them in the washer. That way your drain will not clog. Check the label on clothes and linens and wash them in detergent and warm water if possible. Adding chlorine bleach to the wash cycle will remove most mildew and will sanitize the clothing, but bleach fades some fabrics and damages other fabrics. You can buy other sanitizers, such as pine oil cleaners, at the grocery store to sanitize fabrics that cannot be bleached. If the label says "dry clean only", shake out loose dirt and take the item to a professional cleaner. Furs and leather items are usually worth the cost of professional cleaning. If you want to clean leather yourself, wash the mud off and dry the leather slowly away from heat and sunlight.

Kitchen items

Throw out soft plastic and porous items that probably absorbed whatever the floodwaters carried. Floodwaters are contaminated, so you may want to wash dishes by hand in a disinfectant. Air-dry the disinfected dishes; do not use a dishtowel. Like the washing machine, the dishwasher should be used only after you know your water is safe to drink and your sewer line works. Clean and disinfect it first. Then use a hot water setting to wash your pots, pans, dishes, and utensils.

Paper, books, and computers

Valuable papers such as books, photographs, and stamp collections can be restored with a great deal of effort. They can be rinsed and frozen until you have time to work on them. Less effective is to place the papers in a sealed container, such as a plastic bag, with moth crystals. Dry the papers quickly when you thaw or unseal them, a blow dryer will do. Do not try to force paper products apart – just keep drying them. Photocopy valuable papers and records soon because substances in the floodwater may make them deteriorate.

If a computer disk or tape has valuable information, rinse it in clear water and put it in a plastic bag in the refrigerator. Later you can take it to a professional drying center and have the data transferred to a good disk or tape. To find a company near you, call 314-894-0276

The yard

As you get rid of things from your house, do not turn your yard into a dump. Health hazards such as food and garbage must be hauled away as soon as your insurance agent

has told you how to make sure your loss is covered. Other things you throw away should be removed as soon as your insurance adjuster says it's okay.

Lawns usually survive being under water for up to four days. Mud can be hosed off shrubs. You may have to replace the lawn if there was mud much thicker than an inch deep or if erosion has occurred. Check with a local nursery, garden store, or Cooperative Extension Service.