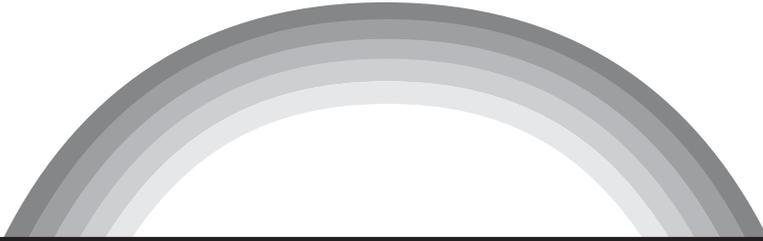


# Disaster Recovery



## Inspect flood-damaged appliances

Flood-damaged appliances increase the risk of fire, explosion, or electrical shock. THEY ARE UNSAFE and MUST NOT be used until they have been disassembled and inspected by a competent repair person. Electrical and gas appliances can be severely damaged by flood water and silt. Damage might be immediately obvious. For example, some appliances floated in the water and were destroyed. Others were covered with mud and silt—there was no question that they needed repair or replacement.

For other appliances the damage might not be obvious. They might even operate at first, but the damage done by water may cause a malfunction sometime in the future.

### **Appliances must be inspected**

Do not make repairs yourself! Contact a licensed contractor or other service professional FIRST! Repair professionals have extensive instructions and checklists for repairing appliances. Appliances that must be inspected include:

- Water heaters
- Air conditioners and heat pumps
- Room heaters
- Damaged venting systems
- Electrical systems
- Clothes dryers
- Clothes washers
- Furnaces and boilers
- All other gas, oil, or electric appliances

Although the damage usually can be corrected, it is a costly and time-consuming process. For older, low value appliances it usually is not worth the expense and complete replacement is suggested. For newer, high value appliances, get an estimate of the cost to repair the damages and compare that repair cost to the replacement cost.

The following examples of the potential dangers from flooded appliances are intended to alert you to the type of potential dangers that can occur. Not all dangers are listed.

### **Gas control valves**

An appliance's gas control valve can malfunction long after the floodwater has receded. This valve, found on gas water heaters, furnaces, boilers, clothes dryers, ovens, and all other gas appliances, controls the flow of gas to the burner. As a safety measure, it shuts off the gas if the pilot goes out. Floodwater and silt can rust or block the many small, precise control parts in the valve, increasing the risk of fire or explosion. It might be months, or even years, before the rust causes failure, or until a piece of silt lodges in a critical location.

This hidden damage is difficult to determine, even for a professional. For this reason, parts critical to the safe operation of the appliance, such as the gas control valve, must be replaced.

### **Final safety switch**

The final safety switch in a furnace might be damaged by floodwater and cause problems much later. This switch shuts off the furnace if the furnace overheats because of some other problem. This switch must work properly for the furnace to operate safely. It must be replaced to make sure that it will work when needed.

## **Gas burners**

Dirty gas burners have the potential to cause problems. Gas burners must have all openings cleaned of mud and rust to make sure that the flame burns clean and does not produce dangerous amounts of the toxic gas, carbon monoxide. As long as the combustion fumes from the appliance are venting to the outdoors, you might not realize the burner is operating poorly. But any blockage of the chimney—by a bird's nest, for example—could cause a potentially life-threatening situation.

## **Electrical appliances**

Electrical appliances might appear to operate correctly, but damaged insulation could present a severe risk of electrical shock or fire. You might not feel a shock when touching the appliance while standing on a dry floor, but if you happen to touch the appliance while standing on a wet floor, you could receive a severe shock.

Electrical switches, controls, and wiring must be thoroughly cleaned or replaced to reduce the risk of electrical shock or electrical short circuits. In some cases, the devices can be disassembled, cleaned, dried, inspected, and safely reassembled.

Electricians can measure the amount of electrical leakage to ensure that it is not excessive. In many other cases, the devices must be replaced. Bearings that are exposed to water and mud will usually fail in the future, unless they are disassembled, cleaned, and re-lubricated.

Thermal insulation, such as the insulation around a cooking oven, will have been damaged by the water and mud. Wet, soggy insulation is ineffective at slowing the flow of heat. It also can cause electrical short circuits for any wiring that is in contact with the insulation. The appliance must be completely disassembled, the mud must be removed, and new insulation meeting original specifications must be installed to reduce the risk of fire and to make sure the oven operates efficiently.

This damage might not appear for many months. For example, a built-in oven might appear to operate correctly, but be too hot on the sides. Several months of operation can heat and dry the wood cabinets surrounding the oven, causing a fire to occur.

Reviewed by Chuck Schwab, ag and biosystems engineering. Originally prepared by Tom Greiner, former extension ag engineer; Susan Uttoff, extension family support field specialist; and Laura Sternweis, extension communication specialist.

## **. . and justice for all**

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, gender, religion, age, disability, political beliefs, sexual orientation, and marital or family status. (Not all prohibited bases apply to all programs.) Many materials can be made available in alternative formats for ADA clients. To file a complaint of discrimination, write USDA, Office of Civil Rights, Room

326-W, Whitten Building, 14th and Independence Avenue, SW, Washington, DC 20250-9410 or call 202-720-5964.

Issued in furtherance of Cooperative Extension work, Acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture. Jack M. Payne, director, Cooperative Extension Service, Iowa State University of Science and Technology, Ames, Iowa.