



## HOMEOWNERS

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## Floods and HVACR Equipment

After a flood or storm surge from a hurricane, homeowners are advised to take important safety precautions with regard to their home's heating and cooling systems. A house or basement exposed to standing water can damage your home's water heater, furnace, boiler, air-conditioning, ventilation, and heat pump system — putting your family at risk.

### Replace, Don't Repair

Flood-damaged heating and cooling equipment and systems should be replaced and not repaired, according to AHRI. All inspection and replacement work on flooded equipment should be performed by [qualified heating and cooling contractors](#), not by homeowners. You can turn misfortune into opportunity by considering new, energy-efficient models that will lower your future energy bills. Also ask your local utility about available rebates for new energy-efficient gas or propane furnaces.

### Ductwork

If you have a central forced-air furnace in the house you are repairing, pay attention to your ductwork too. A [qualified heating contractor](#) will not try to salvage duct insulation that has been in contact with flood water, but will replace it because it is impossible to decontaminate. Your contractor also will clean, dry and disinfect the ductwork. Doing a thorough job will require disassembling the ductwork. These repairs to your ductwork also give your contractor the opportunity seal joints in the ductwork and improve insulation to reduce heat loss.

### Gas Furnaces and Boilers

If there is any question whether flood water has reached a gas appliance, have the unit checked by a [qualified heating contractor](#). Natural gas furnaces, space heaters and boilers all have gas valves and controls that are especially vulnerable to water damage from floods and that damage may not be easy to detect. Corrosion begins inside the valves and

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controls, and damage may not be readily visible, even if the outside of the device is clean and dry. At a minimum, this damage can result in reliability problems.

### Electric Furnaces

An electric furnace consists of electrically heated coils, a fan to provide air circulation across the coils, and controls which include safety relays. Just like the gas-fired warm-air furnace, the electric furnace is susceptible to corrosion and damage, resulting in reliability problems or safety hazards. If there is any question whether flood water has reached an electric furnace, have the unit checked by a [qualified heating contractor](#).

### Propane Heating

Use extreme caution when there is the potential for propane leaks and get propane equipment checked, repaired and/or replaced by a [qualified heating contractor](#) as quickly as possible after a flood. In every case, your contractor must replace all valves and controls that have been in contact with flood water. Propane systems also require attention to their gas pressure regulator. This regulator contains a small vent hole in its body to sense outside pressure. For effective gas pressure regulation, this hole must always remain unobstructed. During a flood, debris can easily plug the hole, causing dangerous malfunction or corrosion. The regulator should be replaced, as water from floods can carry corrosive chemicals.

### Radiant Ceiling Heat

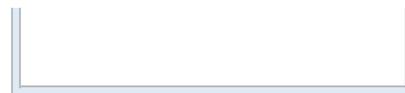
In this type of heating system, electrically-heated cables are embedded in the plaster or drywall ceiling. The cables warm the ceiling, which in turn warms the room by radiant heat. If the ceiling becomes wet from a flood, the plasterboard will weaken and perhaps crack, and the ceiling will need replacement. Although the electrical cables themselves may appear to be undamaged due to their tough, waterproof coating, there may have been large mechanical stresses on the cable, and a qualified electrician should be consulted to determine whether the cable is reusable.

### Heat Pumps and Air Conditioning Systems

Split air conditioning and heat pump systems have power and control wiring between the indoor and outdoor parts of the system, and the piping that moves the refrigerant from inside to outside the home and back.

Even if the system is in contact with flood water for a long period, this sealed system is likely to remain intact. However, if flood water has repositioned either the indoor or outdoor units of a split system by only a small amount, there is the potential for a breached refrigerant system. The heat pump (or air conditioning system) will then require major repair or full replacement.

If the refrigerant system remains intact after the flood, the entire system should be cleaned,



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dried, and disinfected. You should have a [qualified heating and cooling contractor](#) check all electrical and refrigeration connections for both indoor and outdoor units, including all control circuits. The decision to repair or replace should be made by a qualified professional on a case-by-case basis.

### **Water Heating Systems**

Whether your water heater is gas-fired, oil-fired or electric, if it was exposed to flood water, the unit should be replaced. A new water heater is a relatively small investment, and replacing it is fairly easy to do.

In a gas unit, valves and controls will likely corrode. In an electric unit, the thermostat and controls will likely corrode. In both types, the insulation surrounding the unit will be contaminated and will be nearly impossible to disinfect. Additionally, the insulation would take a long time to dry, leading to corrosion of the tank from the outside.

Even if water heater components have been cleaned and the unit seems to operate properly, parts may corrode in the future. Both gas and electric water heaters have a pressure relief valve that can corrode and stick after being exposed to flood water. Be sure, therefore, to replace this valve as well.

### **Government Aid**

For victims of some natural disasters, government aid may be available to help consumers finance the replacement of flood-damaged HVAC equipment. Homeowners should contact any of the offices of the Federal Emergency Management Agency ([FEMA](#)) set up to help flood victims in your area.