

FLOOD RECOVERY: ELECTRIC MOTORS AND APPLIANCES

ELECTRIC MOTORS

There are a considerable number of electric motors in your home. The furnace, either gas or electric, washer, dryer, air conditioner, dishwasher, refrigerator and freezer all have an electric motor that may be damaged by exposure to flood water. As always, safety should be your first consideration.

CAUTION: Don't start up any heating, cooling or other electrical equipment that has come in contact with flood water. Serious damage and life-threatening injury can occur. Make sure all electrical equipment is either unplugged or power to it has been disconnected at the main breaker.

Any electrical equipment that has an electric motor and has been subjected to flood water will need to be inspected and evaluated individually by appropriate professionals before using.

Contact your insurance adjuster to determine your coverage for repair versus replacement, especially of heating and air conditioning equipment. If possible, also check your warranty. Flood damage to this equipment may not be covered by warranty. The objective is to make an informed decision on whether repair or replacement is the best course.

Successfully repairing an electric motor depends on the following considerations:

- the length of time the motor was under water,
- the age of the motor,
- the type of bearings involved and how they are lubricated, and
- the type of contaminants in the flood water.

Repairs, particularly for heating and cooling equipment that has been exposed to flood water, will likely be extensive. Manufacturers usually recommend that all motors, electrical components, safety controls, and (in the case of gas appliances) gas valves be replaced. A detailed and thorough cleaning and disinfecting of all components is also recommended.

Given the likely expense of attempting to have equipment repaired, replacement may be the best option. Consider selecting new equipment that is much more energy efficient.

APPLIANCES

Evaluate large appliances individually and determine whether it is more prudent to salvage or replace them. In all cases, there are some general guidelines to follow.

Stoves

An assessment by a qualified appliance technician will help you decide if it is better to replace or to refurbish the damaged stove. As a start, disconnect the stove and remove the back cover to expose portions of the insulation. Allow the insulation to dry thoroughly before turning the stove on.

If the controls and rheostats have gotten wet, have them replaced. In gas stoves, you should always replace the pilot orifices and gas control system if water is present. The interior surfaces must be cleaned and disinfected. Once the stove is operable, an extended "bake out" period is recommended. The high operating temperature of a stove will help eliminate residual moisture that could cause later problems.

Refrigerators and Freezers

If your refrigerator or freezer was submerged in flood water, it should be replaced. Refrigerators and freezers contain insulation that could be wet if the units were under water. This insulation is difficult to reach without destroying the cabinet of the unit. It will dry very slowly because the cabinet walls remain relatively cool while the appliance is on.

Mullion heaters in some refrigerators, which eliminate condensation, are of further concern in water-soaked cabinets because they present a shock hazard. The slow dry-out of the insulation in refrigerator/freezers is conducive to the formation and growth of bacteria carried between the walls of the cabinet by the flood.

When you replace your refrigerator, keep in mind that it alone can account for as much as 15 percent of your energy budget. A typical new refrigerator with automatic defrost and a top-mounted freezer uses about 800 kiloWatt-hours (kWh) per year; a typical 20-year-old model uses about 2,000 kWh. Replacing your old unit can save considerable amounts of money and energy for years to come.

If flood water covered only a few inches of your floor, it is likely that the insulation for a refrigerator/freezer is dry, and you will only need to check the refrigeration system along the bottom and back of the unit. The system is sealed, and unless it was punctured during the flood it should be in good shape. Check all electrical controls including the defrost timer, thermostats and other safety interlocks and replace them if there is significant water damage.

Washers and Dryers

As with other appliances, clean, dry and disinfect your washing machine and dryer and have an electrician or appliance technician check all electrical contacts and connections. Replacement of these units' timer controls will likely be necessary.

If you decide on replacement, be aware that most of the energy used by washing machines is used to heat the water. Look for machines that offer several water temperature selections for both wash and rinse cycles. A load of laundry washed and rinsed in hot water can cost as much as 20 times more than one using cold water for both cycles. Also, look for machines that allow you to choose different water levels.

If you decide to replace your dryer, you'll find that newer models are able to sense dryness and automatically shut off. Compared with the older models that operate on a timer, a new model can save between 10 percent and 15 percent on energy costs.

Dishwashers

Clean, dry and disinfect your dishwasher and have an electrician or appliance technician check all electrical contacts and connections. Replacement of the timer control system will probably be necessary.

If you need to replace the dishwasher, keep in mind that like the washing machine, most of the energy used by dishwashers goes toward heating water, so units using less water also use less energy. Many dishwashers have energy-saving features, such as "no heat" drying cycles and light wash cycles, which can save both water and energy. Units equipped with booster heaters will heat water to the higher levels necessary to adequately clean and disinfect dishes (generally 140 degrees F). This feature allows you to keep your water heater at a lower setting, thus reducing your household water-heating costs. For each 10 degrees you reduce your water heater temperature you save three percent to five percent.

Small Appliances

You will need to unplug, clean, dry and disinfect small appliances, including microwave ovens, TVs, etc., inside and out. Examine them carefully and determine whether to repair or to replace them. In some cases, simply drying the entire unit with careful attention to the electrical parts will be enough. Allow an extended drying time before testing the appliance.

Lighting

If you must replace lighting, consider compact fluorescent lamps. They are more expensive than incandescents (\$15 to \$20 each), but they last much longer and use a great deal less electricity. Depending on how long your lights are on each day, installing compact fluorescents could save you quite a bit of money over time.

Finally, after a natural disaster where major rebuilding is necessary, be wary of opportunists trying to profit from your misfortune. Be a cautious consumer.

- Hire licensed contractors.
- Always ask for references from previous customers, or check with consumer protection agencies.
- Don't sign any contracts if you have doubts.
- Don't pay for work in advance.

Adapted from a US Department of Energy Publication, "Rebuilding Your Flooded Home: Guidelines for Incorporating Energy Efficiency."

For more information, visit www.depweb.state.pa.us, keyword: DEP Flood Recovery.