

## Using a generator when disaster strikes

The following information, developed by the Red Cross with technical advice from the Centers for Disease Control and Prevention, the National Fire Protection Association (publisher of the National Electric Code ®) and the U. S. Consumer Product Safety Commission, is provided to address questions about using a generator when disaster strikes.

### Purchasing a Generator

If you choose to buy a generator, make sure you get one that is rated for the amount of power that you think you will need. Look at the labels on lighting, appliances, and equipment you plan to connect to the generator to determine the amount of power that will be needed to operate the equipment.

For lighting, the wattage of the light bulb indicates the power needed. Appliances and equipment usually have labels indicating power requirements on them. Choose a generator that produces more power than will be drawn by the combination of lighting, appliances, and equipment you plan to connect to the generator including the initial surge when it is turned on. If your generator does not produce adequate power for all your needs, plan to stagger the operating times for various equipment.

If you can not determine the amount of power that will be needed, ask an electrician to determine that for you.

(If your equipment draws more power than the generator can produce, then you may blow a fuse on the generator or damage the connected equipment.)

### Using a Generator

The primary hazards to avoid when using a generator are carbon monoxide (CO) poisoning from the toxic engine exhaust, electric shock or electrocution, and fire. Follow the directions supplied with the generator. Every year, people die in incidents related to portable generator use.

**Under no circumstances should portable generators be used indoors**, including inside a garage, carport, basement, crawlspace, or other enclosed or partially-enclosed area, even with ventilation. Opening doors and windows or using fans will not prevent CO buildup in the home. The CO from generators can rapidly lead to full incapacitation and death, but CO can't be seen or smelled.

Even if you cannot smell exhaust fumes, you may still be exposed to CO. If you start to feel sick, dizzy, or weak while using a generator, get to fresh air **RIGHT AWAY - DO NOT DELAY**. Because you may have windows open to get fresh air while the power is out, be sure to place the generator away from windows, doors, and vents that could allow CO to come indoors. To avoid electrocution, keep the generator dry and do not use in rain or wet conditions. To protect the generator from moisture, operate it on a dry surface under an open canopy-like structure, such as under a tarp held up on poles. Dry your hands if wet before touching the generator.

It is a good idea to install battery-operated CO alarms or plug-in CO alarms with battery back-up in your home, according to the manufacturer's installation instructions. If CO gas from the generator enters your home and poses a health risk, the alarm will sound to warn you. Test the battery frequently and replace when needed.

**Be sure to turn the generator off and let it cool down before refueling.**

Gasoline spilled on hot engine parts could ignite.

Store fuel for the generator in an approved safety can. Use the type of fuel recommended in the instructions or on the label on the generator. Local laws may restrict the amount of fuel you may store, or the storage location.

Ask your local fire department for additional information about local regulations. Store the fuel outside of living areas in a locked shed or other protected area. Do not store it near a fuel-burning appliance, such as a natural gas water heater in a garage. If the fuel is spilled or the container is not sealed properly, invisible vapors from the fuel can travel along the ground and can be ignited by the appliance's pilot light or by arcs from electric switches in the appliance.

**Plug appliances directly into the generator. Or, use a heavy duty, outdoor-rated extension cord** that is rated (in watts or amps) at least equal to the sum of the connected appliance loads. Check that

the entire cord is free of cuts or tears and that the plug has all three prongs, especially a grounding pin. Never try to power the house wiring by plugging the generator into a wall outlet, a practice known as “backfeeding.” This is an extremely dangerous practice that presents an electrocution risk to utility workers and neighbors served by the same utility transformer.

It also bypasses some of the built-in household protection devices.

### **Future Considerations**

The only recommended method to connect a generator to house wiring is by having a qualified electrician install a power transfer switch. This switch must be installed in accordance with the National Electrical Code ® (NEC), which is published by the National Fire Protection Association, and all applicable state and local electrical codes. Call a qualified electrician or check with your utility company to see if they can install the appropriate equipment.

For power outages, permanently installed stationary generators are better suited for providing backup power to the home. Even a properly connected portable generator can become overloaded. This may result in overheating or stressing the generator components, possibly leading to a generator failure. Be sure to read instructions that come with the generator to make sure you operate it within its limitations for power output.

This information was developed by the American Red Cross with technical advice from the National Fire Protection Association (publisher of the National Electric Code®) and the U.S. Consumer Product Safety Commission.

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