



## Standby Generators

### Do You Need a Standby Generator?

1. Do you live in an area prone to serious power outages (for example, have you had two or more outages lasting at least twelve hours in the past year)?
2. Do you rely on an electrically-operated well pump or water purifier for fresh water?
3. Do you rely on a sump pump to keep your basement and its contents dry?
4. Do you rely on a home medical device powered by electricity?
5. Are you elderly or otherwise susceptible to extreme temperatures?
6. Do you require refrigeration for infant needs such as formula, or medications such as insulin?

If you answered “Yes” to any of these questions, a standby generator may be a good investment for you and your family’s safety and security.

### Calculating Your Power Needs

It’s important to get the correct size generator for your needs. Make a list of the crucial circuits in your home: well pump, furnace, refrigerator, freezer, stove, and a few key lighting circuits. Add up the wattage for all these needs and that will give you the minimum capacity to shop for. A list of common appliance power needs is included on the next page.

A back-up power system should be large enough to power the essential systems in your home. You could certainly put in a system that is powerful enough to run the entire house, including big energy users like air conditioners and clothes dryers. But most of the time you just want to keep the basics running.

However, if you rely on medical equipment such as nebulizers, oxygen concentrators, or power stair lifts, you need to make sure your backup system is up to the task of running them.

### Types of Generators

#### Portable

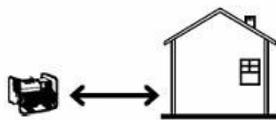
If outages aren’t frequent, then a portable generator could be an option. It is crucial to keep portable generators at least ten feet away from the house, to prevent carbon monoxide poisoning. You need to use heavy-duty extension cords to connect your appliances directly to the generator. A portable generator isn’t suitable for use with hard-wired appliances. Also, since they tend to sit idle for long periods, the gas can go stale and gum up the engine.



#### Installed

The next type is the Installed Gasoline Generator. This tends to be a larger unit, on wheels, possibly with an electric starter. A sub-panel for the supported circuits is wired into the house, and a special connection plug is installed outside the house to connect the generator to the panel. This type of unit still has the same issues with gasoline as the smaller portable unit, but is located outside and eliminates snaking extension cords.



<b>⚠ DANGER</b>	
<b>Using a generator indoors WILL KILL YOU IN MINUTES.</b>	
<b>Exhaust contains carbon monoxide, a poison gas you cannot see or smell.</b>	
 <b>NEVER use in the home or in partly enclosed areas such as garages.</b>	 <b>ONLY use outdoors and far from open windows, doors, and vents.</b>

## Whole-House

Larger generators can be permanently installed, with automatic transfer switches and weekly self-testing cycles. They will start automatically, usually within a minute of the power failure, and shut down when the power is restored. They can be powered either by natural gas or hooked up to a propane tank. These units can be large enough to power an entire house if desired, and can cost several thousand dollars. They are installed in weatherproof cabinets and make less noise than the average lawnmower.



Some generators are actually just super-sized battery backups, which can keep systems running for up to a day or two before needing to be recharged. These are fine for short outages, but won't last long during a multi-day outage. The advantage of such a system is that it switches over almost instantly, so you don't have to wait for a generator to power up. Another plus is that these systems are virtually silent.

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## Calculating Your Generator Capacity Needs

Note: When calculating power requirements, remember that a motor draws the most energy when it is starting up (surge watts). Avoid starting multiple appliances at the same time while using a generator.

**A small generator (4 to 5 kilowatts) will run:**

- Refrigerator
- Gas stove
- Microwave
- A few lights

**A medium generator (5 to 8 kilowatts) will run all of the above, plus:**

- Well pump
- Sump pump
- Freezer
- Gas/oil furnace
- Garage door opener
- One or two electric stove burners
- More lights

**A large generator (8-12 kilowatts) will run all the above, plus:**

- A small air conditioner or heat pump

**Larger generators (17-45 kilowatts) can run an entire house.**

### *Typical Power Requirements for Common Household Appliances*

Appliance	Rated Watts	Surge Watts
Refrigerator (1/4 HP)	500	2000
Freezer (1/4 HP)	600	1200
Sump Pump	800	2000
Well Pump (1 HP)	1900	5700
Well Pump (2 HP)	2500	7500
Microwave	1000	1000
Furnace Fan (1/2 HP)	875	2300
Electric Range (per element)	1500	1500
Garage Door Opener (1/3 HP)	750	750
Window Air Conditioner	1200	4800
Space Heater	1800	1800
Heat Pump	4700	12000
Electric Water Heater	4000	4000
Central Air Conditioner (10K BTU)	1500	6000
Central Air Conditioner (24K BTU)	3800	15000
Coffee Maker	1500	1500
Blender	300	900

The above are guidelines; your appliances may differ. Refer to your specific appliances for precise power requirements. These can usually be found on a label, along with the model and serial number. You can also contact the manufacturer for information.