

The Efficiency of Space Heaters

BY BRIAN SLOBODA

Space heaters are small, versatile, and generally good at warming a room, and many people consider purchasing one at some time or another. However, some manufacturers claim that their electric space heater can cut a home's heating bill significantly. Do these claims hold up?

Some basic facts about space heaters will help you get at the truth of the matter. Space heaters work best as a supplement to a furnace or heat pump—they rarely are used as the primary heating source. Three main types of space heaters are available: radiant heaters, convection heaters, and combination heaters. These usually can be purchased for \$30 to \$100.

Radiant Heaters

A radiant heater heats objects and people—not the air—in a room. Their best use is in rooms where those who want to be warmed are in the direct line of sight of the heater. Radiant heaters can be a good choice if you are in a room for a short period of time and want instant heat. They can pose a burn or fire risk, however, and should not be placed near furniture, drapery, pets, or small children.

Convection Heaters

Convection heaters are designed to heat the air—not people or objects—in a room. Hot air from the convection heater rises to the ceiling and forces cooler air to the floor. The cooler air is warmed by the heater and rises to the ceiling, creating a cycle that continues as long as the heater is on. These typically are either base-board or oil- or water-filled heaters. The oil- or water-filled heaters are the most efficient types and often look like a small radiator. These units generally become warm to the touch and, compared to a radiant heater, have a decreased fire and burn risk.

Combination Heaters

As the name implies, combination heaters try to merge the best features of radiant and convection heaters. They often have an internal fan that aids in distributing heat throughout the room. These heaters are versatile, but they typically do not perform as well as radiant or convection heaters.

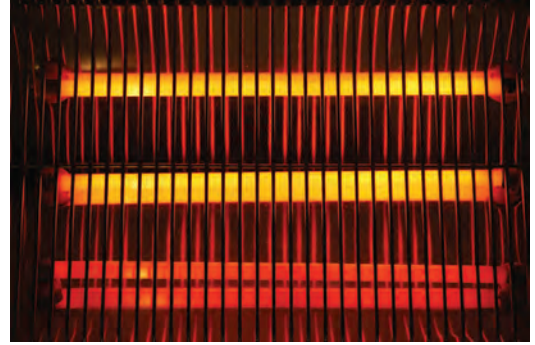
Before purchasing a space heater, you should determine how and where it will be used, and whether a radiant, convection, or



Convection Oil Heater

combination heater will do the job best. Combination units are versatile, but you likely will get better performance from a radiant or convection heater. Use a radiant heater if you want heat instantly and will stay in one spot. If you need to warm an entire room, a convection heater should do the trick.

So can using a space heater cut your home heating bill? Maybe. Most space heaters use between 600 and 1,500 watts of electricity. A homeowner using a space heater 8 hours a day, 5 days a week, for a month, would spend approximately \$15.26 for this additional electricity. However, space heaters can heat only a small space. You can save significantly if you use the space heater in this way: turn the thermostat of your central heating system down considerably (as low as 50 degrees in some cases). Place the space heater in a room occupied by people and



Coils of a Radiant Heater

close that room off from the rest of the home. This method of “zone heating” will save money.

Space heaters do have their place in warming a house, but they simply cannot replace energy-efficient central heating or weatherization improvements to the home. For example, all electric space heaters produce 1 unit of heat for every 1 unit of electricity consumed; in other words, they are 100% energy efficient. Those that use natural gas are 80% efficient. In comparison, geothermal heat pumps can produce more than 3 units of heat for every unit of electricity consumed, making them 300% efficient.

As with any technology, before purchasing a space heater you should understand how the device is used, as well as the energy claims of the manufacturer. While it may be technically possible to cut your heating bill by 50% using a space heater, it is impractical for most people.

Before You Buy

Before buying a space heater, it will be beneficial to take some easy and inexpensive energy-saving measures in your home. Any of these could solve your heating problems without any additional heating equipment:

- Add caulk and weather stripping around doors and windows
- Add insulation to attics and exposed walls
- Clean or replace furnace filters
- Move furniture or obstacles away from heat registers
- Insulate duct work
- Close blinds or curtains at night

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The Cooperative Research Network monitors, evaluates, and applies technologies that help electric cooperatives control costs, increase productivity, and enhance service to their consumer-members.

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