

Understanding Portable Electric Heaters



Three main heater designs:

- ▶ **High-Temperature Radiant:** These are characterized by the glowing red heating elements and shiny mirrored reflector behind the coils. Radiant heaters don't heat the air, rather they "beam" their warmth directly to people or objects in the room like the sun's warmth.
- ▶ **Natural Convection:** Instead of red-hot coils, they distribute the same amount of heat over a wider surface to the heater. This allows the flow of air over their surface (natural convection) to transfer heat to the air. These are often seen as long, slender baseboard designs. Others look like old-fashioned cast iron radiators. They are warm to the touch, but not hot enough to burn you. On a watt-for-watt basis natural convection heaters put out as much warmth, but you don't feel the intense heat as from a radiant design.
- ▶ **Fan-Forced:** This relies on a blower to push air over the heating coils. Designed like a "mini furnace" these heaters must warm the air in the room to increase comfort. They don't rely on a large surface area to transfer their heat to the air so fan-forced heaters are often smaller in size than other designs. Keep in mind that small fans are also present in radiant heaters too. If most of the heat radiates out from visible glowing coils it is classified as a radiant heater.

Facts about these types of heaters:

A number of portable electric heaters are being marketed using misleading information. The energy and cost saving **claims are based on the idea that you turn down the temperature of your home's primary heating system** and use the portable heater to spot heat the area you are occupying.

Portable electric heaters range in price from around \$20 to \$300. Heaters that have the same wattage will produce the same amount of heat. How the heaters distribute the heat may differ as explained above. The difference between a \$20 and \$300 portable electric heater of the same wattage and same design (radiant, convection or fan-forced) would be the appearance only.

Cooperative members should keep in mind that **all portable electric heaters are 100 percent efficient** and watt per watt, they all provide the same heat output and cost the same to operate. When purchasing a portable electric heater the most important consideration is the number of watts it draws. The higher the watts, the more heat it will deliver and the more it will cost to operate.

How to calculate the cost of running a portable electric heater:

First convert watts to kilowatt-hours:

$$\frac{\text{_____}}{\text{watts}} / 1,000 = \frac{\text{_____}}{\text{kilowatt-hours}}$$

Next calculate the operating cost:

$$\frac{\text{_____}}{\text{kilowatt-hours}} \times \frac{\text{_____}}{\text{cost per kilowatt-hour}} \times \frac{\text{_____}}{\text{hours of operation}} = \frac{\text{_____}}{\text{cost of operation}}$$