

EASY\$ TIP SHEETS

Energy Advice Saving Yukoners Money

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Portable Electric Space heaters

Portable electric space heaters, like all electric heaters, are 100% efficient; they convert all the power they draw into heat. A typical 1,500-watt portable heater will warm 185 to 215 square feet (17 to 20 square metres) of space, depending on how well the room is insulated and how cold it is outside.

Portable heaters come in a wide variety of sizes and shapes: large or compact, upright or low contour, cube-shaped or low and narrow. Floor, baseboard and shelf models are also available.

Types of portable electric heaters

There are two basic types of portable electric heaters: convective and radiant.

Convective Heaters

Portable convective heaters work by moving hot air around the room using a fan to create warm air currents. A good option for quickly warming larger spaces and keeping them warm, convective heaters create the same amount of heat as radiant heaters with the same wattage, but usually disperse the heat more quickly. Convective heaters include electric-element, liquid filled and ceramic types.

Goal and Summary

A portable electric space heater is an effective and convenient way to add supplementary heating to a chilly room or to heat an unheated space. Portable heaters are a temporary solution for office workers and renters who don't have good temperature controls around their desks or living spaces, or for homeowners who want to work on a project in an unheated area.

This Easy\$ tip sheet will explain the types of space heaters available, explain how to **select and operate** a space heater for your needs and briefly examine the **cost** of operation.

Electric-element heaters

Electric-element heaters operate by moving air over heated wire or coil elements inside the heater – either using a fan or by creating warm air currents. They are relatively inexpensive and mechanically simple. With a responsive thermostat, they can maintain room temperature effectively.

Liquid-filled heaters

Liquid-filled heaters use an electric element to warm water or oil, which in turn heats a radiator creating natural convective air currents in the room. The thermal mass of liquid holds heat well, minimizing fluctuations in temperature. While liquid-filled heaters maintain their heat for a long period, they also take longer to heat up and are no more efficient than non-liquid-filled models.

Ceramic heaters

Ceramic heaters use a fan to draw air through a ceramic heating element and distribute heat from the hot element throughout a room. They are usually compact and lightweight.

Radiant Heaters

Radiant heaters emit infrared radiation from heat elements. Because radiant heaters warm people and objects rather than air, they are better for small areas or spot heating. Radiant heaters include metal-rod and quartz types.

Metal-rod radiant heaters

Suitable for basements and garages, this type of heater is good for spot heating and uses a heat element placed in front of a polished reflector that radiates heat. These heaters warm people and objects first, which in turn warm the surrounding air.

Quartz heaters

These heaters use electric elements inside a quartz glass tube that radiates heat to warm people and objects. These heaters can pose a fire hazard; however, as the quartz tube is fragile and easily broken.

Buying and Operating your space heater

It is important to know what type of area you need to heat before selecting a space heater. Larger spaces generally benefit from convective heaters while smaller spaces are better serviced by radiant heaters.

Buying a space heater with a responsive thermostat is a good idea because it will control the output of the heater effectively and maintain a more consistent room temperature. Models without a thermostat require closer monitoring by the user.

Unless they are controlled with a thermostat, space heaters are unresponsive to changes in room or outdoor temperatures, sometimes resulting in wide differences in temperature from one room to another.

Safety

Look for these safety features that help prevent overheating and risk of fire.

- A model that does not tip over easily.

- An automatic shut-off that turns the unit off if it is tipped over. Some may have an alarm.
- An overheat sensor that shuts the heater off if the internal temperature gets too high.
- Adequate screening to prevent accidental contact with the fan blades or hot heating element.

Other features to look for when purchasing

- A quiet fan to move warm air around the room.
- Two or more heat-output settings.

Operating your space heater safely

- Keep drapes, newspapers, clothing and other combustible objects a safe distance away. Check the manual for recommended positioning of the heater.
- Put the heater where it can't be tipped over easily.
- Never dry clothes by draping them over the heater.
- If you must use an extension cord, for safety reasons, use a heavy duty cord, to prevent overheating. Do not place cord under carpet.
- Do not leave the heater running unattended.
- Always try to plug into a ground fault circuit interrupter, which prevents electric shock by shutting the heater off if there is a short circuit or similar electrical problem.
- Check the temperature of the grille face to ensure it doesn't become too hot to touch.

Cost to purchase and operate

Portable electric space heaters can range in cost from about \$30 to \$275. Low-cost units can sometimes maintain room temperature and distribute heat as well as larger, more expensive models.

Based on Yukon residential electrical rates, the cost to operate a portable heater should be approximately:

- 9.5 cents an hour at 1000 watts output; or
- 13.1 cents an hour at 1500 watts output.

Running a 1500 watt heater 10 hours a day adds up to about \$43 a month in cost.



This Easy\$ tip sheet is provided by the Energy Solutions Centre.

If you have additional questions or comments, please contact the Energy Solutions Centre:

Phone: (867) 393-7063 or toll-free from the communities at 1-800-661-0408 ext. 7063

Mail: Box 2703 (EMR-206),
Whitehorse, Yukon Y1A 2C6

Web: www.esc.gov.yk.ca