

The background image is a blue-tinted photograph. On the left, a hand is shown plugging a white power cord into a wall outlet. On the right, a white portable electric heater is visible, featuring a control knob and a large vented grille. The entire image is overlaid with a network of thin white lines forming a geometric pattern. The text 'RISK RESILIENT' is centered in the upper half, underlined with a thick orange line. Below it, the text 'Portable Electric Heater Safety' is centered in a smaller font. In the bottom right corner, there are three large, stylized white triangles pointing upwards.

RISK RESILIENT

Portable Electric Heater Safety

When temperatures drop, many people turn to portable electric heaters to help heat their homes, workplaces, or worksites. While these units can help trim heating bills and are easy and convenient to use, they also pose fire, shock, and burn hazards if not used properly.

According to the U.S.-based National Fire Protection Association (NFPA), electric heaters are a leading cause of home fires. Based on annual averages from 2014 to 2018, 81% of home heating fire deaths involved stationary or portable space heaters. Fires involving heating equipment resulted in 500 deaths, 1,350 injuries, and US\$1.1 billion in property damage.¹



While losses involving commercial buildings and farm buildings have not been analyzed by the fire and safety industry, earlier research from NFPA shows that...

Heating equipment is the third leading cause of structure fires in office properties.²

For businesses and property owners, it's critical to understand the safety issues posed by electric heaters to help prevent property and equipment losses, injuries, and loss of life.

Know the Risks

Electric heaters (also known as space heaters, construction heaters, garage heaters and box heaters) are typically self-contained, metal-sheathed, fan-forced 240 volts (3000-4000 watts) portable units. Risks arise when electric heaters are defective, improperly installed and incorrectly used.

For example, improperly designed heating elements can fail and overheat when connected to a power source.

Improper installation and use, such as leaving the unit unattended or placing it near combustible material, poses a fire hazard.



¹ "Home Heating Fires," National Fire Protection Agency, Jan. 2021

<https://www.nfpa.org/-/media/Files/News-and-Research/Fire-statistics-and-reports/US-Fire-Problem/Fire-causes/osHeating.pdf>

² U.S. Structure Fires in Office Properties, National Fire Protection Agency, Aug. 2013

<https://www.nfpa.org/News-and-Research/Data-research-and-tools/Building-and-Life-Safety/US-Structure-in-Office-Properties>

Most types of heaters are not intended and not approved for use in wet or dusty locations, areas where flammable and combustible liquids are present, or in corrosive atmospheres such as dairies, marine, greenhouses or chemical storage areas.

Portable heaters are for temporary use only and should never be used as a permanent source of heat. Operating these heaters for long periods of time and left plugged in is a fire waiting to happen.

Fortunately, today's electric heaters are much safer than they used to be. Many modern units have safety features such as a tip-over switch, which shuts down the device if it's not in an upright position, and automatic shutoff, which cuts power when the unit reaches a certain temperature. However, any heating system carries risks and caution must be used at all times.

Be Prepared

While the best way to prevent hazards posted by electric heaters is to simply not use them, that's not always possible. Many employees working in commercial buildings, on construction sites, or at agricultural facilities need the extra warmth to do their jobs comfortably. The following tips and recommendations will help ensure electric heaters are used safely and correctly.

Getting Started

- When purchasing a new heater, ensure that it is tested and certified by an accredited certification organization such as CSA International, which is recognized in Canada, the U.S. and other countries. Look for safety features such as automatic shut-off and tip-over protection.
- Always follow the manufacturer's instructions and warnings before using a space heater.
- Collect and document the manufacturer, model and serial number in the event there is a recall. This information is usually located on the back of the unit or in the owner's manual.
- Before installation, remember that portable heaters are designed for temporary use only. They should never be permanently installed or mounted (unless designed specifically for this purpose), or continuously operated for long periods of time.
- Some electric heaters are designed for use in agricultural facilities and commercial and industrial buildings, and could be installed as replacements for portable heaters. Before purchasing, ensure the heater is suitable for its intended use.

Installing and Operating a Heater

- Plug the device directly into a wall outlet rather than with an extension cord. Fully insert the plug into the outlet and unplug after each use. To prevent electric shocks, use outlets with ground fault protection or a Ground Fault Circuit Interrupter (GFCI).
- Do not hardwire a portable heater directly to a power supply or modify the construction of the unit.
- Keep the heater on a solid, flat surface that extends at least three feet (one meter). Never operate a heater near combustible materials or in proximity to flammable chemicals or vapours.
- Do not block the heater's airflow, as an obstruction of the air intake or exhaust could lead to overheating and a potential fire hazard.
- Always use caution when using a portable heater. Never leave a heater running while unattended or use a heater in a position where it can easily overturn or fall.

Storage and Maintenance

- Make sure the heater has had enough time to cool down before moving or storing the unit. Store heaters in a dry location.
- Clean the heater regularly. Check for signs of degradation and follow the manufacturer's instructions for proper maintenance and replacement. If you suspect the heater has been damaged or does not seem to work properly, stop using it and refer to the manufacturer's instructions.
- Check for any product recalls on the [Government of Canada's "recalls" web page](#). If in doubt, contact the manufacturer directly.

References

1 "Safety tips from CSA International for the safe use of cord-connected, fan-forced electric space heaters," CSA Group
<https://www.csagroup.org/recall/electric-space-heaters-various-15-08/>

2 "Electric portable space heater safety," National Fire Protection Association
<https://www.nfpa.org/-/media/Files/Public-Education/Resources/Safety-tip-sheets/PortableHeaterSafety.ashx>