Loss Prevention
Safety Tip

Loss Prevention Program
By Red River Mutual

PORTABLE ELECTRIC CONSTRUCTION HEATER SAFETY

Portable space heaters present shock, fire and burn hazards if used or installed incorrectly. These heaters are intended for **temporary use only!**

Potential Hazards
Extra caution is needed when operating portable electric construction heaters that are 3,000 watts and greater. The high heat output of these devices may increase the risk of fire if the heaters are not used as intended. Failure of the heating element could occur if the units are placed near combustible surfaces, in areas with limited airflow, or if operated under extreme conditions.

Controlling Hazards
CSA offers the following tips to help prevent unexpected failures of metal sheathed heating elements in portable electric heaters that could lead to electrical shock or fires:

- **Selection**: Before buying a heater, ensure it has been tested and certified to the applicable standard by an accredited certification organization, such as CSA, and that it is suitable for its intended use.
- **Instructions**: Always follow the manufacturer's operating instructions and warnings before using a space heater. If you do not have or understand the instructions, contact the manufacturer.
- **Temporary Use**: Electric portable fan space heaters are designed to provide temporary warmth only. They should never be permanently installed or mounted and should not be operated continuously over extended periods of time. Portable heaters should never be suspended from ceilings or rafters or in any other manner.
- **Tampering**: Never hard-wire (removing the plug cap) a portable heater directly to a power supply or modify or tamper with the construction of the unit.
- **Ventilation/Air**: Never block a heater's air flow to or from the fan. Obstruction of a heater's air intake or exhaust could lead to overheating and a potential fire hazard. Do not insert or allow foreign objects to enter any air vent as this may cause a potential for electric shock, fire or damage to the equipment and never use the heater to dry clothes, boots or other items of apparel.
- **Electrical Connection**: Before turning the heater on, make sure the power supply cord's plug cap is fully inserted into the outlet. To avoid overheating and a potential fire hazard, do not use an extension cord with the heater.

Incorrect placement: heater's air exhaust is obstructed.

Incorrect placement: suspended from ceiling

- **Breakers and GFCIs**: Use of an electrical outlet with a Ground Fault Circuit Interrupter (GFCI) or a ground fault protected circuit is recommended. Only use a properly rated fused circuit or a breaker protected circuit for powering the unit as indicated by the manufacturer's instructions.

- **Fire Hazards & Combustibles**: To avoid the risk of fire, do not use heating equipment near combustible surfaces. Heaters should only be installed on a noncombustible surface that extends a minimum of 1.5 meters beyond the front of the heater. Never operate a heater near flammable materials, chemicals or vapours.

- **Maintenance & Storage**: Ensure heaters have had sufficient time to cool down after use before moving or storing and be sure to store heaters in a dry location. Check regularly if there are rust marks or degradation signs on the heating element and follow the manufacturer's instruction for proper maintenance and replacement. Do not use the heater if it has been exposed to any mechanical damage. Periodically clean the heater of any dust or particle accumulation. If you suspect the heater has been damaged or does not seem to work properly, discontinue use and refer to the manufacturer's instructions.

- **Caution: Do not leave a heater unattended while in operation.**

Safe Procedures for Temporary Installations:

- General requirements for installation of cord-connected heating units at all construction sites:
  - Only install heaters approved by an accredited approval agency such as CSA or cUL.
  - Follow manufacturer's installation instructions.
  - Refer to the Canadian Electrical Code (CEC), Part 1, C22.1-09 Section 76 for wiring installation.

- Wiring installation of cord-connected portable construction heaters:
  - Do not remove or tamper with the heater's power cord or attachment plug.
  - The female receptacle must be in an approved enclosure or surface mount.
  - AC-90, Teck-90 or Cab-Tire of appropriate copper AWG size must be used to connect all heaters.
  - All connections must terminate in approved junction boxes, wiring devices or panel boards.
  - All wiring and equipment must be protected by a properly rated circuit breaker or fuse.
  - NMD-90 or NMW-U are no longer permitted as a wiring method, unless the installation complies with Sections 12 and 76 of the CEC C22.1-09.

Heaters for Residential & Commercial Permanent Installation

A safe choice for permanent installation and continuous use is one that is specifically designed for this purpose. These heavy-duty units are well suited to situations where large amounts of heat must be provided in wide open spaces such as garages, workshops, commercial warehouses and construction sites. When choosing a heater, make sure it is CSA approved and includes manufacturer's installation instructions for clearance to combustibles from the top, front and sides of the unit. This type of heater must be installed by a certified electrician, according to the electrical and building codes effective in your region.

The Stelpro RUH Series heater pictured is a good example of this type of unit, which is widely available at home improvement retailers.

Source: Safe Work Manitoba

See more loss prevention tips at www.preventingloss.com