

## Construction Heaters

### *Hazards and Appropriate Use*

#### **The Situation**

240 Volt Construction Heaters are relatively inexpensive and provide a substantial heat output of up to 4,800 watts per unit. As a result, many property owners install these heaters in garages or utility areas to provide primary or supplemental heating to these spaces.

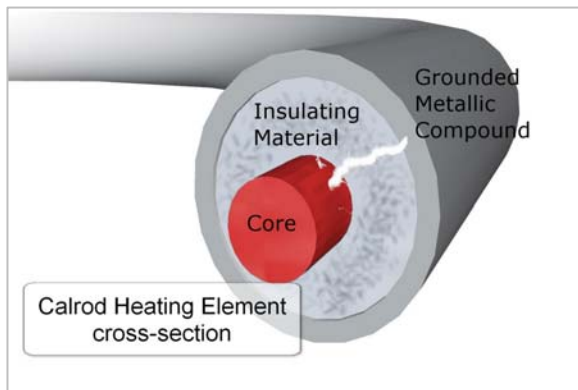
#### **The Problem**

Construction heaters are intended for temporary use in a supervised environment. When not used as intended, failure may result in destruction of property and life.

Many of these heaters use similar calrod heating elements. In normal

operation, the inner core heats as electric current is supplied.

The surrounding insulating material conducts the heat to the exterior sheathing material, a metallic compound. Over time, or with excessive heat, the insulating material can break down. This failure results in an electrical arc which bridges from the inner core to the outer sheath (see illustration). The arc will then burn its way along the element but may not provide enough resistance to trip a breaker. The result is a stream of sparks which are fan-forced outside the heater into the building the heater serves.



#### **The Response**

The potential for the failure of these heaters has been recognized by manufacturers and by safety agencies.

- **CSA International** issued product alert [APB 15-08](#)<sup>1</sup> in December of 2008 -- more details below.
- **Manitoba Office of the Fire Commissioner** states, "the OFC has investigated 18 fires that have been caused by heater element failures. In these cases, five fires involved residential dwellings. Of concern are the large, fan-forced, metal-sheathed, electric heaters such as the 240 volt, 3,000 watt and greater ranges. These space heaters are designed, manufactured and tested for temporary use only and should not be permanently installed in a building or mounted or suspended from the ceiling or rafters of a structure or home.... Any of these types of heaters that are being used for permanent heat should be replaced with heaters designed for permanent use and installed to the manufacturer's instructions."<sup>2</sup>
- **Stelpro**, a heater manufacturer, now offers a safety device to increase the safety of heaters manufactured prior to 2009. See: <http://www.stelpro.com/en/prevention/>.



## **MMFI Approach**

To avoid unintended mishaps, MMFI disallows the use of construction heaters as a primary or ongoing heat source for any building or space within a building.

The intended use for these heaters is to provide a temporary source of heat until a permanent heat source is installed as would be the case on a construction site. When utilized for that purpose, strict attention should be paid to the tips offered by CSA International. See their [full text](#).

If you have any questions about the use of these or any other heating product, please call one of our risk consultants.



## **CSA Guidelines (with product Alert APB 15-08)**

The following are some of the tips [CSA International provides](#) to prevent accidents due to unexpected failures of construction heater elements:

- **“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.*
- **Extra caution:** Use extra caution when operating portable heaters. *Do not leave the heater running while unattended* or use the heater in a position where it can be easily overturned or fall.
- **Fire Hazards and 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 or in proximity to any volatile or flammable chemicals or vapours.<sup>3</sup>

For more tips see the endnote address below.

---

<sup>1</sup> [http://www.csa-international.org/product\\_recalls/search/default.asp?articleID=9415](http://www.csa-international.org/product_recalls/search/default.asp?articleID=9415)

<sup>2</sup> <http://news.gov.mb.ca/news/index.html?archive=&item=5175>

<sup>3</sup> [http://www.csa-international.org/regulator\\_news/Default.asp?articleID=9385&language=english](http://www.csa-international.org/regulator_news/Default.asp?articleID=9385&language=english)