

TerranearPMC Safety Share

Week of December 23 2013 – Space Heaters!

Tis is the season...the cold weather season, that is. Field work around most of the country can be brutal this time of the year as temperatures dip to below freezing. So when feasible, break areas may have portable heaters as a way to help workers from developing a host of health conditions caused by cold weather exposure. Most notably is hypothermia; a condition in which the core temperature drops below the required temperature for normal metabolism and body functions. This typically occurs when our core temperature reaches 35.0 °C (95.0 °F). As the body temperature decreases, characteristic symptoms such as shivering and mental confusion may arise. If the body is not provided the necessary warmth, very serious consequences, including death may occur.

While having portable heaters on site may seem, at first thought, to be an appropriate way to protect against hypothermia, it is most important to understand that if these units are not used properly, we could be setting ourselves up for other serious scenarios – ones that are just as serious as the health consequences from hypothermia for which we are trying to protect against.

In 2010, heating equipment was involved in an estimated 57,100 reported U.S. home structure fires. These fires resulted in 490 deaths, 1,540 injuries and \$1.1 billion in direct property damage. In addition, space heaters can increase the levels of carbon monoxide (CO) in the environment. The problem with CO is that our bodies have a greater affinity to absorb CO into our blood stream than oxygen. Therefore, persons can suffocate in an atmosphere where there is plenty of oxygen, as our lungs will allow CO to cross into the blood stream where the oxygen-carrying molecule, hemoglobin, will grab CO rather than oxygen and transport it throughout our system. The result is asphyxiation.

Below are a number of things to consider regarding space heaters:

- Select a space heater with a guard around the flame area or the heating element. This will help keep children, pets and clothing away from the heat source.
- When selecting a space heater, look for one that has been tested and certified by a nationally recognized testing laboratory. These heaters have been determined to meet specific space heater safety standards, and manufacturers are required to provide important use and care information to the consumer.
- Buy a heater that is the correct size for the area you want to heat.
- Show everyone in your home/workplace how to use a space heater properly.
- Keep doors open to the rest of the house if you are using an unvented fuel-burning (kerosene or natural gas) space heater. This helps to prevent CO build-up and promotes proper combustion. Even vented heaters require facility ventilation for proper combustion.



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- Never leave a space heater on when you go to sleep or leave the area. For fuel-fired heaters, dangerous levels of carbon monoxide could accumulate, or unmonitored burning could cause a fire.
- Be aware that mobile homes require specially designated heating equipment. Only electric or vented fuel-fired heaters

Here are some more Do's and Don't's for space heater use:

- Use modern or new space heaters as older models may not meet newer safety standards.
 - Always follow the manufacturer's directions for proper use.
 - Place the heater on a level, hard, nonflammable surface, such as a ceramic tile floor.
 - Keep the heater at least three feet away from bedding, drapes, furniture, and other combustible materials.
 - Keep flammables, such as gasoline out of the area
 - Keep children and pets away from space heaters.
 - Turn the heater off if you leave the area.
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- Never leave a space heater on when you go to sleep.
 - Don't place a space heater close to any sleeping person.
 - Never use gasoline in a kerosene space heater, as even small amounts of gasoline mixed with kerosene can increase the risk of fire.
 - Don't use portable propane space heaters indoors or in any confined space unless they are specifically designed for indoor use.

The field industrial hygienist can help monitor the area to ensure CO and oxygen levels are appropriate. Remember that an oxygen-deficient atmosphere is one that has less than 19.5% oxygen (while a normal oxygen concentration is 20.9%). OSHA has a published permissible exposure limit for CO of 50 parts per million (ppm) and the American Conference of Governmental Industrial Hygienists has a threshold limit value for CO of 25 ppm. These are concentrations for which workers should not be exposed for a full work shift. There are a number of ways that CO and oxygen levels can be evaluated; mostly notably are multi-gas meters (with the appropriate sensors) and colorimetric indicator tubes (aka Drager tubes). Ask your IH for assistance.

Also, for home safety, make sure smoke alarms are properly operating and are located on every level of your home, outside of sleeping areas and inside each bedroom. To protect your family from CO poisoning, specific alarms can be installed in your home as well. Make sure that your batteries are fresh and working. Both smoke and CO alarms are typically checked twice/year, when the time changes of daylight light savings and standard time occur).

My idea of Christmas, whether old-fashioned or modern, is very simple: loving others. Come to think of it, why do we have to wait for Christmas to do that? *Bob Hope*





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