WorkSafeBC

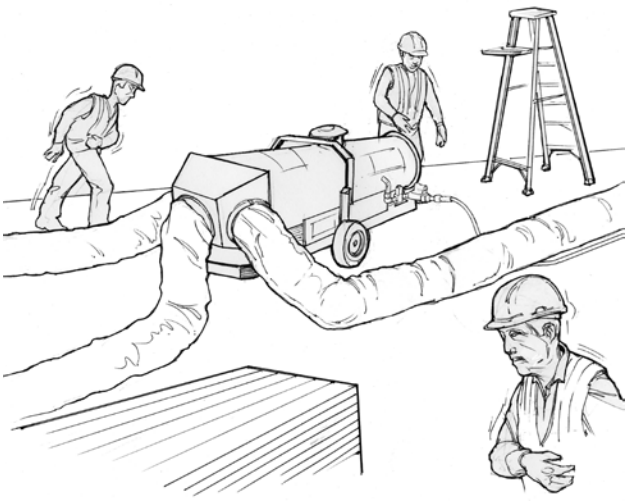
Hazard Alert

Workers poisoned by carbon monoxide while using heater

Three workers at a construction site had to be treated for carbon monoxide poisoning as the result of improper use of a gas-powered heater.

The heater was being used to heat a building that was under construction. It was running on propane, but could also run on natural gas. Either type of gas could be connected to the heater by a hose. The correct gas-supply pressure could then be chosen by positioning a valve handle. Setting the valve handle to the propane position allowed the gas to flow at a higher pressure. Setting it to the natural gas position supplied the gas at a lower pressure. At the time of the incident, the valve handle was not locked into position as it should have been. It slipped from the propane position (vertical) to the natural gas position (horizontal). This meant that the gas-supply pressure was too low. As a result, the propane did not burn properly, and so the heater's exhaust gases contained more carbon monoxide than normal. Carbon monoxide quickly reached hazardous levels inside the building, making the workers dizzy and nauseous.

The manufacturer's instructions for the heater stated that the valve handle should be locked into position. The instructions also said that if the heater was used indoors, the exhaust gases must be vented to the outdoors. These instructions were not followed.



The effects of carbon monoxide poisoning depend on the level of carbon monoxide and the duration of exposure. Symptoms include shortness of breath, headaches, nausea, dizziness, and vomiting. At concentrations of 700 to 1,000 parts per million (ppm), carbon monoxide poisoning can result in comas and convulsions. At 1,000 ppm and above, carbon monoxide poisoning can be fatal if not treated. Workers' exposure to carbon monoxide must not exceed 25 ppm averaged over an eight-hour period. The limit for short-term exposures (no longer than 15 minutes) is 100 ppm.

Safe work practices:

- Always install and use equipment according to the manufacturer's instructions. Vent gas-powered heaters as directed by the manufacturer to prevent exposure to carbon monoxide.
- Conduct air-monitoring to ensure that carbon monoxide levels remain within occupational exposure limits.

Industry:
Construction

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For assistance and information on workplace health and safety, call toll-free within B.C. 1 888 621-SAFE (7233) or visit our website at WorkSafeBC.com.

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