

# BEST PRACTICES HEATING

Maintenance facilities in most locations across the United States require some form of heating during the winter months to ensure worker comfort. Heat may be provided using a forced air central heating system that warms the air throughout the maintenance facility or utilizes an air-to-air heat exchanger.

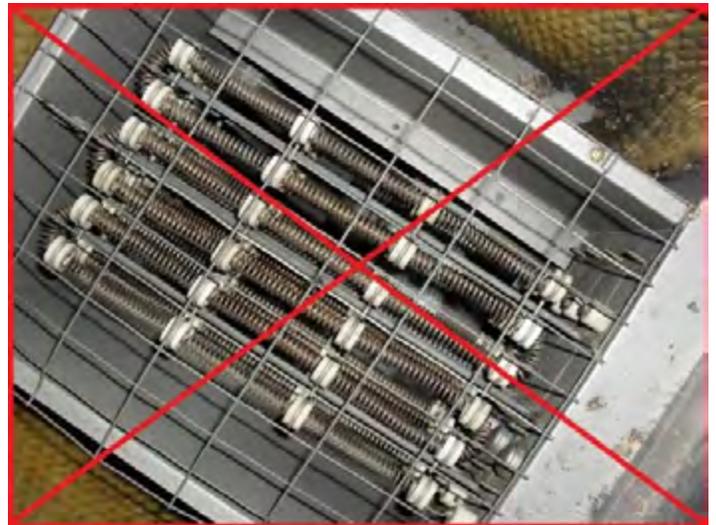


**Localized space heating is another method for heating a maintenance facility. Localized space heating is typically accomplished using open flame gas-fired, infrared, direct radiation, tube-type heaters fueled by natural gas or propane, or electric infrared heating units. Most of these types of heating apparatus are mounted to either the wall or roof of the facility or suspended from the ceiling.**

All heating systems present specific challenges for CNG vehicle maintenance facility compliance. Codes and regulations require that specific conditions be met for both heaters and heating systems. For major repair garages, NFPA 30A gives the guidance that heaters with surfaces above 750F shouldn't be permitted in areas where gas may be. The IFC does not have any specific requirements for CNG and LNG repair garages with respect to sources of ignition.

Each of the following heaters provides a potential ignition source in the event of a natural gas release. For flame-fired heaters it is, of course, the flame itself. For gas-fired infrared direct radiation heaters, even for those where the flame is contained within the heating elements, the surface temperature of the radiant heating elements may exceed 750°F, thereby presenting a potential ignition source. Electric heaters that employ heating coils and a fan may or may not be compliant depending upon the operating temperatures reached by the heating coils.

Portable propane heaters should be prohibited from use. Gas-fired fan-type heaters are not compliant because of their inherent open flames and must be replaced with units that meet the codes. This includes gas-fired fan-type heaters in which the pilot light is the only open flame.



Forced air heating systems present a hazard if gas is mixed with makeup air to the unit. Forced air heating must use makeup air from outside the areas of the facility that may experience a gas leak.

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Compliance with the codes and regulations can be achieved by simply removing the non-compliant heating units and/or replacing them with units that are compliant. Gas-fired infrared tube-type radiant heaters are commonly employed in maintenance facilities that service conventionally fueled vehicles. Manufacturers of these types of heating systems now manufacture units that have contained flames and surface elements that do not exceed 750°F and sealed combustion chambers.

Note that the heaters above have ducting that draws fresh air from the ceiling of the facility. Supply air and exhaust flow from gas-fired infrared tube-type radiant heater(s) must be completely contained and directed to and from the outside of the maintenance facility. This can be accomplished by routing the inlet air and exhaust air through the facility wall or roof.

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Forced air heating systems mounted outside do not present direct hazards as potential ignition sources for combustible gas, as long as the supply air comes from outside the facility, and is not re-circulated. These types of systems become cost-effective in larger facilities that would require considerable numbers of infrared tube type heaters.

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