



**Monthly Topic: Gas Detection for Your Mechanical System**

- A building’s mechanical system is the heartbeat of the heating, ventilation and air conditioning systems. These areas include utility plants, boiler and chiller rooms, mechanical or electrical rooms and fuel rooms. Many states are adopting laws that require the monitoring of these potentially hazardous environments.
- Within each of these rooms, there can be a potential leak of combustible and/or toxic gases. Another threat is the leak of refrigerant gases. This is a gas potentially harmful to the environment as well as personal safety. The existence of a leaking refrigerant gas also comes at high cost to the owner.
- When the boiler room is located outside of the chiller room, routine checkups on the area are less frequent. This may increase the risk of combustible or toxic gas buildup in the environment.



- Carbon Monoxide – CO is created by incomplete combustion and is one of the main gases emitted by a faulty boiler. CO is considered the “silent killer” because it has no smell or taste and cannot be seen. Without a CO detector, a person is rendered helpless. Based on an article by the CDC, unintentional, non-fire related carbon monoxide poisoning is a leading cause of death by CO.
- Natural gas, also referred to as methane throughout the industry, is a commonly used fuel for heating any indoor property. Methane is a combustible gas that, when exposed to a spark or flame and mixed with the right amount of oxygen, can create an explosion. When not monitored, methane creates a potentially hazardous and dangerous environment.

- Chiller rooms have the potential be very hazardous and costly when a refrigerant leak is present. Per the standard ASHRE 15 8.13.2.1 – *Each refrigerating machinery room shall contain a detector, located in an area where refrigerant from a leak will concentrate. The detector shall trigger an alarm inside and outside of the mechanical room as well as actuate ventilation. The detector shall also shut down any combustion process in or near the room in the event of a refrigerant leak.*
  - There are a wide variety of refrigerant gases that are used in modern society. Refrigerant poisoning typically occurs in locations such as confined spaces or enclosed chiller rooms. Symptoms of mild or moderate poisoning include headache, nausea, vomiting, coughing and dizziness. Severe poisoning can be fatal.
- Three main factors as to why installing gas detectors in mechanical/chiller rooms is imperative -
  - Safety – Any person within the property is potentially exposed to harmful gases.
  - Cost – Refrigerant leaks are very expensive, but can be prevented if monitored or detected.
  - Proper ventilation and/or valve shut off at low levels of harmful or explosive gases can eliminate potentially hazardous situations.

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