

Gas Leak

Every year there are personal injuries and property damage as a result of gas leaks. The following information could save lives and damage and everyone in your building should be aware of what to do in the event of a gas escape. This information should be part of your Company Safety Policy and discussed at regular safety meetings. Your HVAC contractor should be happy to demonstrate the tool required and the method of turning off the gas to either an appliance or the building.

The most common cause of a gas leak is direct physical contact with a gas supply line or appliance and occurs most frequently while moving inventory with lift trucks. Minor leaks can occur over time due to corrosion or failure of the joint sealing compound.

What you should know about Natural Gas or Propane

- Both gases are colorless and odorless. The smell of gas is due to an added odorant called Mercaptan. This is the strongest smell known to man and is added by the distributor of the gas.
- Natural gas is lighter than air and will rise to the ceiling of a building where it may not be readily detected
- Propane is heavier than air and will stay near the floor or in recesses such as pits and ditches
- There has to be a shut off valve for every appliance using a fossil fuel such as natural gas or propane by Code. Some valve require a wrench or tool to turn the supply off
- Both natural gas and propane require a specific mix of air to gas for the gas to be combustible or explode. For example a room filled top to bottom with gas will not ignite because there is no air to support the process of combustion
- When gas burns cleanly (blue flame), one of the product of combustion is Carbon Dioxide (CO₂). When a gas does not burn completely (yellow flame) one product of combustion is carbon monoxide (CO). Both CO₂ and CO are equally dangerous / deadly. The effects on the human body begin with headaches, nausea, vomiting. The more the concentration or exposure, the more severe will be the effects and can lead to unconsciousness, respiratory failure and death by asphyxiation
- It is easy to blame the seasonal flu for the above symptoms. If the person feeling these symptoms feels “better” after leaving the building or getting fresh air, then the problem is most likely CO or CO₂ poisoning and no one should be permitted back into the area until the problem is resolved. If all of the people in the area have the same symptoms, call 911 and evacuate the area.
- Common causes of the CO or CO₂ poisoning from a faulty appliance are, blocked chimney vent, broken chimney, dirty burners from lack of maintenance, improper gas / air mixtures, cracks or perforations in the heat exchanger (see “Cracked Heat Exchanger” description under the heading of “About” on our home page

If You Smell Gas

Confirmed Leak from physical contact with a gas line or an appliance

- Call 911, tell the operator that there is a confirmed gas escape at your address.
- Evacuate the building of all personnel. If in a multiple occupancy building notify the other tenants also and get well away from the building
- DO NOT turn on or off any electrical devices as a spark could cause ignition
- If there is maintenance personnel on site, turn the gas off at the meter
- Designate someone with knowledge of the building to direct the fire department to the gas meter and location of the occurrence and let the F/D know if the gas has been turned off.
- Do not re enter the building until given permission by the Fire Department
- Contact your heating / air conditioning contractor to make the repairs.
- The source of the leak (escape) may be able to be isolated and made safe so that other heating appliances that were not faulty can be restarted following a mandatory pressure test of the gas line.

If you think... you smell gas

- If unsure, notify other staff to confirm if they sense the same odor (similar to rotten eggs or sulfur)
- Check any propane lift trucks in the area (remember propane gas is heavier than air so if you smell gas at floor level this could be the source. Check with the operator of the lift truck to see if he has recently changed the fuel tank and removed the empty tank to outdoors. (it is against the law to store propane cylinders inside of a building whether empty or full))
- Check any appliance in the immediate vicinity, specifically in the vicinity of the gas supply line
- Go to a mezzanine level to “smell” for the odor (remember natural gas is lighter than air so it will accumulate at the ceiling level)
- Do not ventilate the space until you are sure of a leak as fresh air may make the odor harder to detect.
- Check any floor drains in the area of the odor. It is not uncommon for the “trap” of a floor drain to dry out over the course of the winter and allow sewer gases to vent back into the space. If this is found to be the cause simply pour a pail of water down the drain to refill the trap.
- If the odor is detected in the immediate vicinity of an appliance, turn the thermostat for the appliance to the lowest setting to turn the unit off.
- Notify your heating contractor for further instructions or follow up of the report
- Do Not use an open flame for leak testing. Use soapy water on fittings that are suspect of leaking

Repairs to gas lines and restarting the appliances

- Damaged pipe will be replaced with new
- Any fittings that were broken will be replaced with new
- The pipe will be properly supported and identified with yellow paint or tape as per the B-149 gas code book
- The system will be pressure tested with nitrogen gas for a specific pressure and duration, depending upon the size of pipe and length of pipe
- Once the system is proven to be pressure “tight” the nitrogen pressure will be released to the atmosphere
- The gas will be turned back on at the meter and an “approved” purge burner will be used to purge natural gas at the furthest point from the meter under constant supervision by a licensed gas fitter
- Each appliance on the supply line will be restarted and operating gas pressure tested for proper pressure according to the appliance nameplate
- The gas fitter will “sign off” that the repair has been properly completed and tested and affix a test tag to the pipe work including his name, company, duration of the test, test pressure, length of pipe, date of the test, address of the test and his gas fitter license number