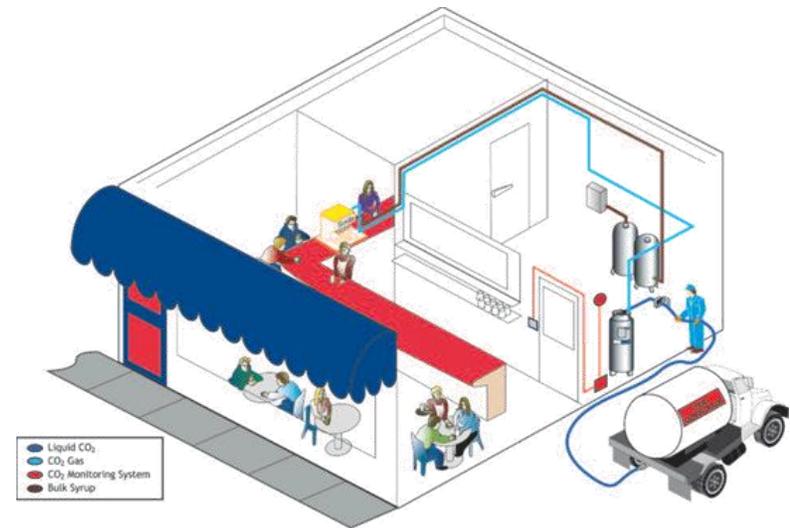




## Carbon Dioxide a Threat to Health and Life



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**Allegheny County Health Department**

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## Carbon Dioxide a Threat to Health and Life

Faulty carbonated beverage systems can cause carbon dioxide to leak, allowing hazardous levels of the gas to build up in enclosed areas leading to illnesses or even deaths to restaurant customers, workers, and emergency responders.

Carbon dioxide is used in numerous workplaces and has been recognized for many years as a workplace hazard.

Some sources of hazardous concentrations of carbon dioxide are:

- Carbon dioxide storage containers that are not properly vented outside of the building not just into walls or ceilings;
- Leaking fittings, connections, storage containers
- Leaking carbonators, syrup pumps, bag in box (BIB) racks (i.e., any equipment using carbon dioxide)
- Leaking beer keg connections and equipment.”

Incidents that have occurred in the past few years include:

- An 80-year-old woman died after being found unconscious in a restroom at an eastern Georgia restaurant; she was killed by a lethal dose of carbon dioxide.

An investigation determined that a "bleed line" on the tank used to carbonate beverages in the drink dispenser was "improperly disconnected within the wall cavity." This caused carbon dioxide to build up in a potentially lethal concentration in the restroom, which was in close proximity to the tank.

- On May, 31 2011 at a Phoenix AZ restaurant an employee was found at the top of a stairwell that leads to the basement storage area. The employee stated that she was going into the basement to check on something and became lightheaded and fell. One of the other employees heard the fall and went to the stairwell to help the patient. Both employees exited the stairwell and called 911 to report the "fall injury."

A responding firefighter and engineer went into the basement to see if the patient had tripped or slipped on something. Shortly after entering the basement both men became lightheaded and quickly exited. Upon exiting the basement, the engineer fell and both members reported dizziness and a bitter taste in their mouths.

- In January, 2005 at a Sanford, Florida restaurant two employees died from exposure to carbon dioxide CO<sub>2</sub> that was being delivered from a tank truck to a stationary storage tank on premises.

Sufficient CO<sub>2</sub> was released to cause both employees to lose consciousness and the ability to escape from the confined area. As with carbon monoxide, there is no warning and rescue must be made by a person with an oxygen supply mask.

- In Cincinnati, Ohio, a delivery driver succumbed to carbon dioxide asphyxiation while dispensing CO<sub>2</sub> from his tractor-trailer. The driver, working for a restaurant supply company, pulled his trailer to the back of a restaurant at 1:30 a.m. to

make deliveries of carbon dioxide and other supplies. This was a routine delivery for this driver as he made regular deliveries to this restaurant every five days at the same time of night.

The driver checked in with restaurant management and then proceeded to make his CO<sub>2</sub> delivery.

After one-half hour, restaurant employees started to look for the driver and found him unconscious and lying face up at the bottom of the stairwell; they immediately called 911.

The paramedic team had to use SCBAs to remove the victim from the stairwell. The paramedics were unable to revive him and he was declared dead at the local hospital.

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### **Important Considerations:**

Carbon dioxide is a colorless, odorless gas and should be treated as a potentially hazardous material with proper warning properties.

Because it is denser than air, high concentrations can persist in open pits and other areas below grade.

The current OSHA standard is 5000 ppm as an 8-hour time-weighted average (TWA) concentration.

Gaseous carbon dioxide is an asphyxiant. Concentrations of 10% (100,000 ppm) or more can produce unconsciousness or death. Lower concentrations may cause headache, sweating, and rapid breathing, and increased heartbeat, shortness of breath, dizziness, mental depression, visual disturbances or shaking.

The seriousness of the latter symptoms is dependent on the concentration of carbon dioxide and the length of time the individual is exposed.

The response to carbon dioxide inhalation varies greatly even in healthy normal individuals.