

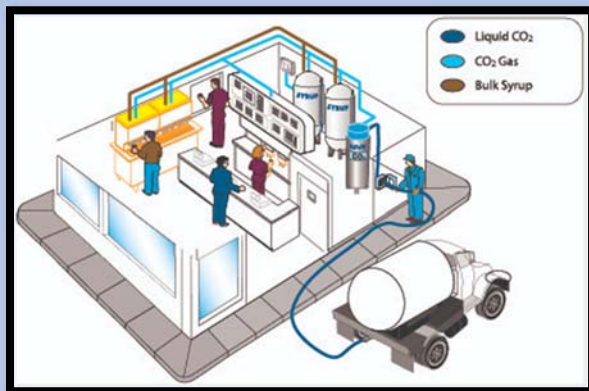
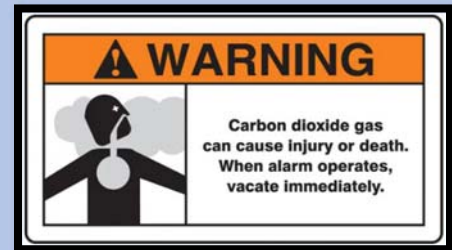


14455 West Van Buren Street, Suite E102 Goodyear, Arizona 85338  
(623) 932-2300

## CARBON DIOXIDE BEVERAGE DISPENSING

The intent of this guideline is to provide the information necessary to ensure that the maintenance of compressed gas containers, cylinders, tanks, and detection systems will comply with the applicable provisions of the 2018 *International Fire Code* (IFC), Chapters 9, 50 and 53, and NFPA 55. Additionally, this guideline is also providing awareness on the hazards associated with CO-2. **BE AWARE OF ALL WARNING SIGNS AND UNDERSTAND HOW YOUR SYSTEM OPERATES.**

**WARNING!** Carbon Dioxide (CO-2) is a colorless, odorless, gas that asphyxiates (suffocation) by displacing oxygen in the air. Several fatal carbon dioxide incidents have occurred in restaurants where CO-2 leaked from large storage tanks serving carbonated beverage dispensers.



**UNDERSTAND.** This is a simplified layout for a CO-2 beverage dispensing system for a restaurant. Anywhere that liquid CO-2, or CO-2 gas is piped inside a building; a potential exists for a leak. Levels of CO-2 at only 4% (40,000 ppm) is considered Immediately Dangerous to Life & Health (IDLH) and can cause death. A 1,000-pound tank can produce levels as high as 8% throughout a small restaurant.

**RECOGNIZE.** CO-2 can be stored in liquid form in an insulated vacuum sealed container (dewars on the right) or as a gas in high-pressure cylinders (on the left).





**LISTEN.** Leaks in CO-2 beverage dispensing systems are found using CO-2 specific sensors that are strategically placed in the building where CO-2 is used or mixed. The sensor can be part of a stand-alone system or wired into the building fire alarm system. The sensor and system will provide a warning signal at 1.5% (15,000 ppm) to advise that a leak has been detected and that service is needed. An evacuation signal is provided at 3% (30,000 ppm) to have the building evacuated.

**READ.** If the CO-2 alarm sounds and/or the building fire alarm system activates, all occupants are to evacuate the building immediately and call 911. The alarm is indicating that there is a level of CO-2 that was detected that is hazardous to people. **DO NOT RE-ENTER THE BUILDING** until the Fire Department has cleared the space.

**INSTALL.** The CO-2 detection system must be installed per IFC, Section 916 and must include a power connection, battery back-up, CO-2 sensors, local alarm, signage, and connection to the fire alarm system.



Help the Goodyear Fire Department help your business to be safe and compliant. The following are required by the Fire Marshal's Office and the Fire Code.



Section 901.6 of the 2018 edition of the *International Fire Code* requires that the CO-2 Beverage Dispensing Detection Systems be inspected by a licensed company, approved to work on these types of systems, on an annual basis. The systems are to be fully inspected for the calibration of sensors, alarm signals, battery back-up, and interoperability to other systems (fire alarm). Where maintenance, repairs, or replacement is warranted by the inspection, repairs are to be made immediately. **YOU ARE REQUIRED TO HAVE YOUR SYSTEM INSPECTED ON AN ANNUAL BASIS.**

Inspection records are to be uploaded to the Compliance Engine (3<sup>rd</sup> party inspection database) and provided to the Fire Inspector when requested during inspections. **KNOW WHO TO CALL WHEN SERVICE IS NEEDED FOR YOUR SYSTEM. MAINTAIN YOUR RECORDS.**

Per Section 105.6.8 of the 2018 *International Fire Code*, an annual Operational Permit is required when there is at least one hundred (100) pounds of CO-2 in the system. If compliance cannot be maintained, the CO-2 beverage dispensing system will be required to be shut off or limited to a maximum of 100 lbs. in high pressure cylinders. **MAINTAIN COMPLIANCE.**