Permit Requirements
Carbon Dioxide (CO2) Systems Used
In Beverage Dispensing Applications

Kern County Fire Department

Office of the Fire Marshal ~ Fire Prevention
2820 M St. ~ Bakersfield, CA 93301
Telephone (661) 391-3310 ~ Fax (661) 636-0466/67
Website: kerncountyfire.org
Email: fireprevention@kerncountyfire.org

Please include completed Application for Permit (KCFD 200) with submittal

Fee Amount: $290.00
Fee Code: 1.14

This document is to aid in the construction permitting process including Change of Use/Occupancy for an aboveground storage permit within commercial buildings or tenant spaces regarding what should be submitted for the Fire Marshal's Office review. Because every building differs, this guideline is not intended to identify each code requirement applicable, therefore the applicant must follow all appropriate codes adopted by Kern County for the process or construction under review. Other Fire Department operational permits may be required.

1. Permits for CO2 Systems shall be applied for at 2820 M St., Bakersfield, CA 93301.
2. Fee shall be submitted at the time of application submittal. Make check payable to Kern County Fire Department. Visa and MasterCard accepted.
3. A Carbon Dioxide System for Beverage Dispensing with more than 100 pounds of CO2 shall comply with the 2019 California Fire Code **(CFC Sections 5307.3 through 5307.3.2)**.
4. Provide three (3) copies of plans, mechanical drawings only, and one (1) set of the most current system components and design cut sheets from the manufacturer's manual.
5. **Equipment.** The storage, use, and handling of liquid carbon dioxide shall be in accordance with **CFC Chapter 53** and the applicable requirements of NFPA 55, Chapter 13. Insulated liquid carbon dioxide systems shall have pressure relief devices vented in accordance with NFPA 55.
6. **Protection from damage**. Carbon dioxide systems shall be installed so the storage tanks, cylinders, piping, and fittings are protected from damage by occupants or equipment during normal facility operations.
7. **Required protection**. Where carbon dioxide storage tanks, cylinders, piping, and equipment are located indoors, rooms, or areas containing carbon dioxide storage tanks, cylinders, piping, and fittings and other areas where a leak of carbon dioxide can collect shall be provided with ventilation in accordance with CFC Section **5307.3.1** or an emergency alarm system in accordance with CFC Section **5307.3.2**.
8. **Gas Detection System.** A continuous gas detection system shall be provided in the room or indoor area in which the carbon dioxide systems are located and in areas where the heavier-than-air gas can congregate (**CFC 5307.3.2**). If a fire alarm system is installed in the building the gas detection system shall be integrated. Carbon Dioxide sensors shall be provided within

12 inches of the floor in the area where the gas is most likely to accumulate or leaks are most likely to occur. The system shall be designed to detect and notify at a low-level alarm and high-level alarm.

a. The threshold for activation of the low-level alarm shall not exceed a carbon dioxide concentration of 5000 ppm Time Weighted Average over 8 hours.
b. The threshold for activation of the high-level alarm shall not exceed a carbon dioxide concentration of 30,000 ppm. When carbon dioxide is detected at the high-level alarm, the system shall activate an audible and visible alarm in an approved location.

9. **Documentation.** The following information shall be provided with the application for permit per **CFC 5307.4.1**:
   a. Total aggregate of liquid CO2 in pounds or cubic feet at normal temperature and pressure.
   b. Location and total volume of the room where the carbon dioxide operation will be conducted. Identify whether the room is at grade or below grade.
   c. Location of containers relative to equipment, building openings, and means of egress.
   d. Manufacturer's specifications and pressure rating, including cut sheets, of all tubing to be used.
   e. A piping and instrumentation diagram that shows piping support and remote fill connections.
   f. Details of container venting, including but not limited to vent line size, material, and termination location.
   g. Alarm and detection system and equipment.
   h. Seismic support for containers.
10. **Signage.** Hazard identification signs shall be posted at the entrance to the room and indoor areas where the carbon dioxide containers are located per **CFC 5307.4.5**. The sign shall be a minimum of 8 inches wide and 6 inches high and indicate:

CAUTION: CARBON DIOXIDE GAS

Ventilate the area before entering.
A high carbon dioxide gas concentration in
this area can cause asphyxiation.

11. **Container refilling.** Carbon dioxide containers located indoors shall not be refilled unless filled from a remote connection located outdoors. **(CFC 5307.4.7)**

All provisions of the 2019 California Fire Code Chapter 53, Section 5307, and the Kern County Ordinance.

Additional Requirements: _____

Mailing Address:
Kern County Fire Department
2820 M St.
Bakersfield, CA 93301
Attn: Fire Prevention