

# Bulk Insulated Liquid Carbon Dioxide Systems Used in Beverage Dispensing Systems



## Fire Code Requirement:

Insulated liquid carbon dioxide systems with more than 100 pounds of carbon dioxide used in beverage dispensing applications shall comply with the International Fire Code.

### General Requirements:

#### 5307.3.1 Ventilation.

Where insulated liquid carbon dioxide storage tanks, cylinders, piping and equipment are located indoors, rooms or areas containing storage tanks, cylinders, piping and equipment, and other areas where a leak of carbon dioxide is expected to accumulate, shall be provided with mechanical ventilation in accordance with Section 5004.3 and designed to maintain the room containing carbon dioxide at a negative pressure in relation to the surrounding area.

**Exception:** A gas detection system complying with Section 5307.3.2 shall be permitted in lieu of mechanical ventilation.

#### 5307.3.2 Gas detection system.

Where ventilation is not provided in accordance with Section 5307.3.1, a gas detection system shall be provided in rooms or indoor areas and in below-grade outdoor locations with insulated carbon dioxide systems. Carbon dioxide sensors shall be provided within 12 inches of the floor in the area where the gas is expected to accumulate or other *approved* locations. The system shall be designed as follows:

1. Activates an audible and visible supervisory alarm at a normally attended location upon detection of a carbon dioxide concentration of 5,000 ppm (9000 mg/m<sup>3</sup>).
2. Activates an audible and visible alarm within the room or immediate area where the system is installed upon detection of a carbon dioxide concentration of 30,000 ppm (54 000 mg/m<sup>3</sup>).

## Requirements for Gas Detection Systems:

### Construction Permit

If the Carbon dioxide used in insulated liquid carbon dioxide beverage dispensing application exceeds 100 lbs., a construction permit & plan review is required prior to installation. Fee is \$100

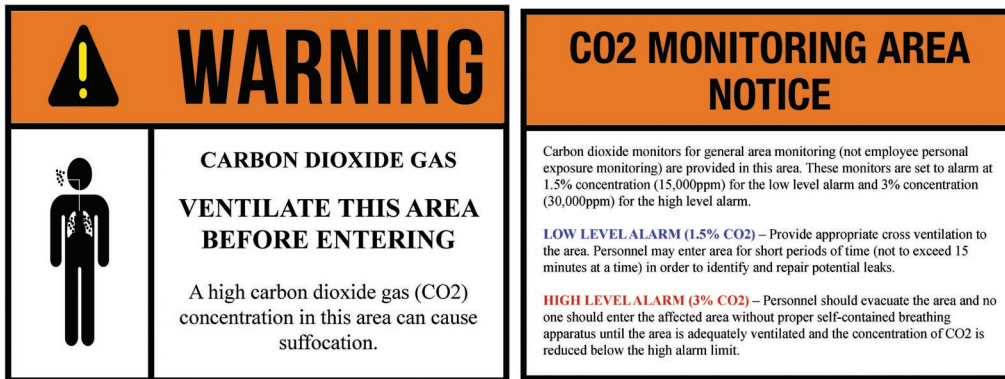
Include with Permit Submittal:

- Installing Contractors information including contact name, phone number and email address
- Floor Plan (scaled) showing location of CO<sub>2</sub> cylinder/tank, piping, and equipment
- Floor Plan (scaled) showing CO<sub>2</sub> detection equipment, displays, strobes, and signage
- Manufacturer's product specification sheets and installation instructions for CO<sub>2</sub> detection equipment

To apply for a permit, visit <https://northlibertyiowa.org/departments/building-inspection/permits/>

# Requirements for Outside the Area of Carbon Dioxide Gas Detection

## Signage -



## Visual Notification -

Separate strobe colors for Low Level & High Level are required. There are various types of alarms available. Verify for approval prior to ordering.



### Normal Status

Optional

### Low Level Alarm

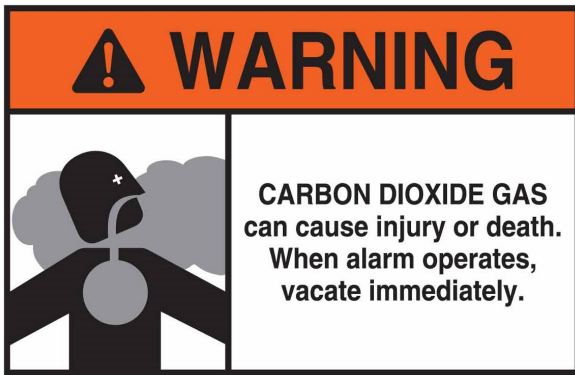
Activates an audible and visible supervisory alarm at a normally attended location upon detection of a carbon dioxide concentration of 5,000 ppm (9000 mg/m<sup>3</sup>)

### High Level Alarm

Activates an audible and visible alarm within the room or immediate area where the system is installed upon detection of a carbon dioxide concentration of 30,000 ppm (54,000 mg/m<sup>3</sup>)

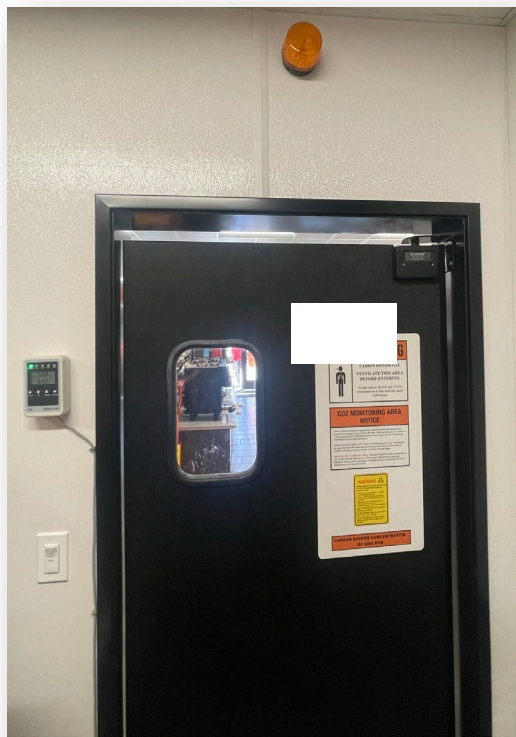
# Requirements for Inside the Area of Carbon Dioxide Gas Detection

## Signage -



## Visual Notification -

Amber strobe for alarm condition



## Detection -

Carbon dioxide sensors shall be provided within 12 inches of the floor in the area where the gas is expected to accumulate or other *approved* locations.