

COMMONWEALTH OF KENTUCKY
OFFICE OF HOUSING, BUILDINGS, & CONSTRUCTION
BOILER AND PRESSURE VESSEL INSPECTION
500 MERO ST, FRANKFORT, KY 40601
502-537-1708

Liquid Carbon Dioxide Storage Vessel (LCDV) Safety Requirements

General Requirements	
<p style="text-align: center;"><u>Indoor and Outdoor</u></p> <p><u>LCDSV's Shall Not:</u></p> <ul style="list-style-type: none"> • Be located within 10 feet (3,050 mm) of the following: <ul style="list-style-type: none"> ▪ Elevators ▪ Unprotected platform ledges ▪ Areas where falling would result in distances exceeding half the container height. • Be installed within 36 inches (915 mm) of electrical panel. • Be installed on roofs. <p><u>LCDSV's Shall:</u></p> <ul style="list-style-type: none"> • Be installed with sufficient clearance for: <ul style="list-style-type: none"> ▪ Filling ▪ Operation ▪ Maintenance ▪ Inspection ▪ Replacement • Be safely supported with vessel supports, foundations and settings in accordance with jurisdictional requirements, manufacturer recommendations and/or industry standards. • Be equipped with isolation valves. 	<p><u>Outdoor Installations:</u></p> <ul style="list-style-type: none"> • LCDSV's installed outdoors shall have vehicle impact protection, (i.e. guards or bollards) installed in accordance with local building codes. • Shall be above grade. • May require additional UV protection for tubing and hoses. • Do not require gas detection and alarm systems or signage. <p><u>Indoor Installations:</u></p> <ul style="list-style-type: none"> • CO₂ gas detection and alarm systems with a low-level pre-alarm activation at 5,000 ppm and a full high alarm at 30,000-ppm concentration of CO₂ shall be located in rooms or areas where carbon dioxide storage vessel(s) are located. • Must have signage as stated below. • Portable LDCV's shall not be filled indoors, and must have the safety valve/vent valve circuit connected at all times except when the tank is being removed for filling, and have a smooth pathway without stairs to the outdoors.

Fill Box Location/Safety Relief/Vent Valve Circuit Termination

Fill boxes and/or vent valve terminations shall be installed above grade, outdoors in an unenclosed, free airflow area. The fill connection shall be located so not to impede means of egress or the operation of sidewalk cellar entrance doors, including during the delivery process and:

- Shall be at least 36 inches (915 mm) from any door or operable windows
- Shall be at least 36 inches (915 mm) above grade
- Shall not be located within 10 feet (31 m) from side at the same level or below, from any air intakes
- Shall not be located within 10 feet (31 m) from stairwells that go below grade.

Signage:

The warning sign shown shall be posted at the entrance to the building, room, enclosure, or enclosed area where the carbon dioxide storage vessel(s) are located.

- Additional instructional signage shall be posted outside the vessel area and shall:
 - Indicate the low and high concentrations that will trigger the gas detection alarms, (5,000 ppm and 30,000 ppm respectively)
 - Indicate that personnel may only enter the area for no more than 15 minutes at the Low Level Alarm (5,000 ppm)
- Indicate that personnel should evacuate the area if a High Level Alarm (30,000 ppm) is activated

