FIRE CONSTRUCTION PERMIT SUBMITTAL CHECKLIST

SERVING THE CITIES OF LAKE STEVENS, MONROE AND SULTAN

INSULATED LIQUID CARBON DIOXIDE SYSTEM USED IN BEVERAGE DISPENSING SYSTEM

PROJECT INFORMATION	
Site address:	**Associated Permits:**
Project Name / Tenant:	**Property Owner:**

Electronic file standards

File naming standard: Electronic plans and documents shall be named as specified in bold type under "permitting requirements". For example, the seating plan must be named "Seating Plan".

Acceptable file types: Plans, calculations, specifications and supporting documents shall be uploaded as a PDF file.

Document Orientation: All plans must be uploaded in "Landscape" format in the horizontal position. All other documents can be in "Portrait" format.

CODE EDITIONS

□ 2021 Washington State Fire and Building Code, 2020 NFPA 55 and as applicable - Lake Stevens Municipal Code 14.84, Monroe Municipal code 15.04.110 and Sultan Municipal Code 15.05

PERMITTING REQUIREMENTS

A Fire Construction Permit is required to install or modify an ***Insulated liquid CO2 systems used in beverage dispensing*** required by Section 105.6.2 of the 2021 WAFC and local code amendments. **The following information is required at time of application for the Fire Construction Permit.**

- □ Completed Fire Construction permit submittal application
- □ Completed "Insulated liquid CO2 systems used in beverage dispensing submittal checklist"
- □ Plans
- □ Manufacturer's cut sheets for gas detection system, tank, piping

PLANS

The following is a list of information required on all plan submittals for review of a "Compressed gas –CO2 – used in beverage dispensing" permit application. The plan shall be drawn to 1/8"=1'-0" minimum scale. The applicant is required to submit all of this information so an accurate and timely review may be done:

- □ Floor Plan showing:
    - □ Room(s) where detection to be installed
    - □ Usages of rooms/areas
    - □ Locations of CO2 gas detection system visual/audible warning appliances
    - □ Type of gas detection system installed
    - □ Indicate location of all equipment that is being monitored by gas detection system.
    - □ Indicate any piping, how it is installed, where it is installed
    - □ Indicate seismic anchoring method for the tank complying with IBC chapter 16 and floor loading limitations of the building.

Construction permits required:

- □ Mechanical permit for a ventilation system if/where installed.
- □ Additional permitting by the Labor & Industries Boiler and unfired pressure vessel division may be required.

Liquid Carbon Dioxide Storage Vessels (LCDSV's) installation Location:

- □ The LCDSV foundation or floors in multi-storied buildings shall be designed to support the weight of the system at its full capacity.
- □ Bollards are required to be installed where LCDSV both indoors and outdoors are subject to vehicular damage.
- □ LCDSV shall be secured to prevent falling caused by contact, vibration, seismic activity.
- □ LCDSV shall not be located near elevators, ledges, platforms or other locations where the LCDSV would be allowed to drop distances exceeding ½ the height of the LCDSV.
- □ LCDSV shall be located where temperatures will not exceed 125°F t or sub-ambient (low) temperatures unless designed for that use.
- □ LCDSV shall not be located within 36" of an electrical panel.

LCDSV vent pipe requirements:

- □ LCDSV vent piping shall be vented outdoors where the discharge is located at least 36" from all building openings, 36" above the ground, 10' from side to side at the same level or below from any air intakes, and 10' from stairwells that go below grade.

Hazard identification signs and warning signs requirements:

- □ A NFPA 704 hazard identification sign shall be installed on the exterior side of the exterior door leading to the LCDSV. The sign shall have the following ratings: Health=3, Flammability=0, Instability=0, Special=SA.

- □ A warning sign shall be posted at the entrance to the building, room, enclosure, or confined area where the LCDSV is installed, measuring 8" wide and 6" high, stating the following:

CAUTION – CARBON DIOXIDE GAS

Ventilate the area before entering.
A high carbon dioxide (co2)
gas concentration
in this area
can cause suffocation.

- □ Signs shall be provided adjacent to the gas detection system visual/audible notification appliances, advising occupants of the nature of the signals and actions to take in response to the signal.

Ventilation and Gas detection system requirements:

- □ All LCDSV with more than 100 pounds of carbon dioxide used in beverage dispensing and located indoors shall have mechanical *ventilation* complying with WSFC 5307.3.1 and 5004.3.1 OR a self contained *gas detection system complying with WSFC 5307.3.2.*

□ Mechanical ventilation shall comply with the following:
- □ Rate shall be not less than 1 cubic foot per minute per square foot of floor area over the storage area.
- □ System shall continuously operate.
- □ A manual shutoff control shall be provided outside of the room in a position adjacent to the access door to the room; the switch shall be break glass and be labeled "VENTILATION SYSTEM EMERGENCY SHUTOFF".
- □ Exhaust shall be taken from a point within 12" from the floor.
- □ The exhaust and inlet air openings shall be designed to provide air movement across all portions of the floor or room to prevent accumulation of vapors.
- □ Exhaust air shall not be re-circulated.

□ CO2 Gas leak detection system (self contained) shall comply with the following:

- □ Gas detection shall be provided in rooms or indoor areas and in below grade outdoor location. This includes walk in coolers, freezers, syrup dispensing/mixing racks, basements and rooms where CO2 could collect.
- □ Visible and audible notification appliances shall be located inside of walk in coolers and rooms where CO2 could collect.
- □ CO2 sensors shall be located within 12" of the floor where the gas is expected to accumulate.
- □ Gas detection system shall be permanently connected to building power supply or be cord connected to an un-switched receptacle using a restraining means that secures the plug to the receptacle.
- □ Gas sampling shall be continuous
- □ Gas detection system shall **NOT** be connected to the building fire alarm system.
- □ Inspection and testing of gas detection systems shall be conducted annually.
- □ Sensor calibration shall be performed at the frequency specified by the sensor manufacturer.
- □ The system shall activate an audible and visible supervisory alarm at a normally attended location upon detection of CO2 concentration of 5000 ppm.
- □ The system shall activate an audible and visible alarm within the room or immediate area where the system detects a CO2 concentration of 30,000 ppm.

Requirements at time of final permit inspection:

□ Approval by the Labor and Industries Boiler Division for all carbon dioxide systems shall be completed. Note – Labor and Industries inspects all Liquid Carbon Dioxide Storage Vessels that are greater than 300 Lbs. for all occupancies and greater than 220 Lbs. for an assembly occupancy having an occupant load greater than 50.

□ Mechanical permit for ventilation system final inspected – (if installed)