



FIRE CONSTRUCTION PERMIT SUBMITTAL CHECKLIST

SERVING THE CITIES OF LAKE STEVENS, MONROE AND SULTAN

COMPRESSED GAS SYSTEMS

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 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, repair damage to, abandon, remove, place temporarily out of service, or close or substantially modify a **Compressed gas Systems** required by Section 105.6.2 of the 2021 Washington State Fire Code 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 "Compressed gas submittal checklist"
- Plans
- Cut sheets for all piping, tanks, valves, system appliances

NOTE – A CARBON DIOXIDE SYSTEM USED IN BEVERAGE DISPENSING HAS ITS OWN FIRE CONSTRUCTION PERMIT APPLICATION CHECKLIST

PLANS

The following is a list of information required on all plan submittals for review of a "Compressed gas systems" 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:

- A compressed gas permit is required for amounts that exceed the amounts listed in table 105.5.9.

**TABLE 105.5.9
PERMIT AMOUNTS FOR COMPRESSED GASES**

| <u>Type of gas</u> | <u>Amount (cubic feet at NTP)</u> |
|--|--|
| Carbon dioxide used in CO2 enrichment systems | 875 (100 lbs) |
| Carbon dioxide used in insulated liquid CO2 beverage dispensing applications | 875 (100 lbs) |
| Corrosive | 200 |
| Flammable (except cryogenic fluids and liquefied petroleum gases) | 200 |
| Highly Toxic | Any amount |
| Inert and simple asphyxiant | 6,000 |
| Oxidizing (including oxygen) | 504 |
| Pyrophoric | Any amount |
| Toxic | Any amount |

For SI: 1 cubic foot = 0.02832 m³

- Indicate type of compressed gas to be permitted:
 - Carbon Dioxide for enrichment systems Amount _____
 - Corrosive
 - Name _____ Amount _____

- Flammable
 - Name _____ Amount _____
- Highly toxic
 - Name _____ Amount _____
- Inert and simple asphyxiant
 - Name _____ Amount _____
- Pyrophoric
 - Name _____ Amount _____
- Toxic
 - Name _____ Amount _____

GENERAL REQUIREMENTS TO BE SHOWN ON PLANS

- Indicate the compressed gas containers, cylinders, and tanks are designed, fabricated, tested, marked with the specifications of:
 - DOTn 49 CFR Parts 100-185
 - ASME Boiler and Pressure Vessel Code, Section VIII
- Indicate the pressure relief device design
 - CGA S-1.1
 - CGA S1.2
 - CGA S-1.3
 - ASME Boiler and Pressure Vessel Code, Section VIII
- Pressure relief devices shall be arranged to discharge upward and unobstructed to the open air, preventing impingement of escaping gas upon the container, adjacent structures or personnel.
- Marking requirements:
 - Stationary compressed gas containers, cylinders and tanks shall be marked with the name of the gas, shall have a NFPA 704 placard installed, and all individual containers, cartons or packages shall be marked in an approved manner, and any rooms or cabinets containing compressed gasses shall be conspicuously labeled "COMPRESSED GAS"
 - Piping systems shall be marked in accordance with ASME A13.1 and consist of the contents name and include a direction-of-flow arrow. Markings shall be provided at each valve; at wall and floor or ceiling penetrations; at each change of direction; and not less than every 20 feet through out the piping run.
- Indicate location and the method of securing the compressed gas cylinders from accidental dislodgement and against unauthorized personnel access.
- Compressed gas cylinders, containers, and tanks shall not be placed near elevators, unprotected platform ledges or other areas where falling would result in allowing a drop exceeding ½ the height of the container, cylinder or tank.
- Compressed gas containers, cylinders, and tanks shall be protected from direct contact with soil or unimproved surfaces. Water accumulation shall be prevented from occurring.
- Overhead cover shall be provided where extreme temperatures prevail.
- Approved lighting shall be provided, either natural or artificial.

- Indicate if generation, compression, storage and dispensing equipment for compressed gases are to be located in above ground or below ground vaults. If yes, then ensure all provisions of WSFC 5303.16 are complied with and included in the design.
 - Yes
 - No
- Indicate all ventilation to be provided, the location of the intake to the ductwork in relation to the floor

MEDICAL GASES

- Medical gases shall be located in areas dedicated to the storage of such gases without other storage or uses
- Where quantities of gasses being stored exceed the permit amount on Table 105.5.9, they shall be in a 1-hour exterior room, a 1-hour interior room or a gas cabinet.
- 1-hour exterior room requirements:
 - Room shall be separated from reminder of building by fire barriers constructed per the Building Code Section 707.
 - Openings between the room or enclosure and interior spaces shall be self-closing smoke and draft assemblies having a fire resistance rating of not less than 1-hour
 - There shall be at least one exterior wall that has at least two vents, with a minimum free opening area of 36 square inches per vent per 1000 cubic feet of gas being stored. There shall be not less than 72 square inches in aggregate free opening area. One vent shall be located near the ceiling and the other located near the floor. There shall be not less than one automatic sprinkler to provide container cooling in case of a fire.
- 1-hour interior room requirements:
 - Room shall be separated from the remainder of the building by fire barriers constructed in accordance with Section 707 of the building code or horizontal assemblies constructed per Section 711 of the IBC, each having a 1-hour rating.
 - Openings between the room or enclosure and interior spaces shall be self-closing smoke and draft assemblies having a fire resistance rating of not less than 1-hour
 - An automatic fire sprinkler system shall be installed within the room.
 - The room shall be exhausted through a duct to the exterior
 - Supply and exhaust ducts shall be in a 1-hour rated shaft from the room to the exterior.
 - Approved mechanical ventilation shall be provided at a minimum rate of 1 cfm per square foot of the area of the room.
- If a gas cabinet is to be utilized it shall:
 - Exhausted to the exterior through a dedicated exhaust system installed in accordance with the mechanical code.
 - Supply and exhaust ducts shall be in a 1-hour rated shaft from the cabinet to the exterior.
 - Provided with an automatic sprinkler system internal to the cabinet.