



Town of Harrison  
Village of Harrison  
Alfred F. Sulla, Jr. Municipal Building  
Building Department  
1 Heineman Place, Harrison, NY 10528  
Phone: 914-670-3050  
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*MEMORANDUM*

E-7

Date: November 17, 2023  
To: Supervisor Richard Dionisio  
Cc: Members of the Town Board  
From: Rocco Germani, Acting Fire Marshal  
Re: Agenda Item

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I am seeking approval to amend our fee schedule to accommodate a new permit type, Installation of Carbon Dioxide Detection System in the Bureau of Fire Prevention, as follows:

Installation of 1-5 devices \$300.00  
Installation of 6 or more devices \$600.00

As per Section 5307 of the New York State Fire Code, storage of compressed gases, like carbon dioxide, must comply with this section. They must be secured and safeguarded in an approved manner, and must display warning signage.

The entire section of the code is attached.

## COMPRESSED GASES

control area as set forth in Section 5003.1 shall be in accordance with the *Building Code of New York State* for high-hazard Group H occupancies.

[NY] TABLE 5306.2  
QUANTITIES OF COMPRESSED GASES REQUIRING  
CONTAINMENT

Type of Gas	Amount (cubic feet at NTP)
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 m<sup>3</sup>.

**5306.2.1 One-hour exterior rooms.** A 1-hour exterior room shall be a room or enclosure separated from the remainder of the building by *fire barriers* constructed in accordance with Section 707 of the *Building Code of New York State* or horizontal assemblies constructed in accordance with Section 711 of the *Building Code of New York State*, or both, with a *fire-resistance rating* of not less than 1 hour. Openings between the room or enclosure and interior spaces shall be self-closing smoke- and draft-control assemblies having a *fire protection rating* of not less than 1 hour. Rooms shall have not less than one exterior wall that is provided with not less than two vents. Each vent shall have a minimum free opening area of 36 square inches (232 cm<sup>2</sup>) for each 1,000 cubic feet (28 m<sup>3</sup>) at *normal temperature and pressure* (NTP) of gas stored in the room and shall be not less than 72 square inches (465 cm<sup>2</sup>) in aggregate free opening area. One vent shall be within 6 inches (152 mm) of the floor and one shall be within 6 inches (152 mm) of the ceiling. Rooms shall be provided with not less than one automatic sprinkler to provide container cooling in case of fire.

**5306.2.2 One-hour interior room.** Where an exterior wall cannot be provided for the room, a 1-hour interior room shall be provided and shall be a room or enclosure separated from the remainder of the building by *fire barriers* constructed in accordance with Section 707 of the *Building Code of New York State* or horizontal assemblies constructed in accordance with Section 711 of the *Building Code of New York State*, or both, with a *fire-resistance rating* of not less than 1 hour. Openings between the room or enclosure and interior spaces shall be self-closing, smoke- and draft-control assemblies having a *fire protection rating* of not less than 1 hour. An *automatic 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 enclosed in a 1-hour-rated shaft enclosure from the room to the exterior. *Approved* mechanical ventilation shall comply with the *Mechanical Code of New York State* and be provided at a minimum

rate of 1 cfm per square foot [0.00508 m<sup>3</sup>/(s • m<sup>2</sup>)] of the area of the room.

**5306.2.3 Gas cabinets.** Gas cabinets shall be constructed in accordance with Section 5003.8.6 and shall comply with the following:

1. Exhausted to the exterior through dedicated exhaust duct system installed in accordance with Chapter 5 of the *Mechanical Code of New York State*.
2. Supply and exhaust ducts shall be enclosed in a 1-hour *fire-resistance-rated* shaft enclosure from the cabinet to the exterior. The average velocity of ventilation at the face of access ports or windows shall be not less than 200 feet per minute (1.02 m/s) with not less than 150 feet per minute (0.76 m/s) at any point of the access port or window.
3. Provided with an *automatic sprinkler system* internal to the cabinet.

**5306.3 Exterior supply locations.** Oxidizer medical gas systems located on the exterior of a building with quantities greater than the permit amount shall be located in accordance with Section 6304.2.1.

**5306.4 Transfilling.** Transfilling areas and operations including, but not limited to, ventilation and separation, shall comply with NFPA 99.

**5306.5 Medical gas systems.** Medical gas systems including, but not limited to, distribution piping, supply manifolds, connections, pressure regulators and relief devices and valves, shall be installed in accordance with NFPA 99 and the general provisions of this chapter. Existing medical gas systems shall be maintained in accordance with the maintenance, inspection and testing provisions of NFPA 99 for medical gas systems.

## SECTION 5307 COMPRESSED GASES NOT OTHERWISE REGULATED

**5307.1 General.** *Compressed gases* in storage or use not regulated by the material-specific provisions of Chapters 6, 54, 55, and 60 through 67, including asphyxiant, irritant and radioactive gases, shall comply with this section in addition to other requirements of this chapter.

**5307.2 Ventilation.** Indoor storage and use areas and storage buildings shall be provided with ventilation in accordance with Section 5004.3. Where mechanical ventilation is provided, the systems shall be operational during such time as the building or space is occupied.

### Exceptions:

1. A gas detection system complying with Section 5307.2.1 shall be permitted in lieu of mechanical ventilation.
2. Areas containing insulated liquid carbon dioxide systems used in beverage dispensing applications shall comply with Section 5307.3.

**5307.2.1 Gas detection system.** In rooms or areas not provided with ventilation in accordance with Section 5307.2, a

gas detection system complying with Section 916 or, where *approved*, an oxygen depletion alarm system, either of which initiates audible and visible alarm signals in the room or area where sensors are installed, shall be provided.

**5307.3 Insulated liquid carbon dioxide systems used in beverage dispensing applications.** Insulated liquid carbon dioxide systems with more than 100 pounds (45.4 kg) of carbon dioxide used in beverage dispensing applications shall comply with Section 5307.3.1.

**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 (305 mm) 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>).

**5307.4 Carbon dioxide enrichment systems.** The design, installation and maintenance of carbon dioxide enrichment systems with more than 100 pounds (45.4 kg) of carbon dioxide, and carbon dioxide enrichment systems with any quantity of carbon dioxide having a remote fill connection, shall comply with Sections 5307.4.1 through 5307.4.7.

**5307.4.1 Documentation.** The following information shall be provided with the application for permit:

1. Total aggregate quantity of liquid carbon dioxide in pounds or cubic feet at *normal temperature and pressure*.
2. Location and total volume of the room where the carbon dioxide enrichment operation will be conducted. Identify whether the room is at grade or below grade.
3. Location of containers relative to equipment, building openings and *means of egress*.

4. Manufacturer's specifications and pressure rating, including cut sheets, of all piping and tubing to be used.
5. A piping and instrumentation diagram that shows piping support and remote fill connections.
6. Details of container venting, including but not limited to vent line size, material and termination location.
7. Alarm and detection system and equipment, if applicable.
8. Seismic support for containers.

**5307.4.2 Equipment.** Pressure relief, vent piping, fill indicators, fill connections, vent terminations, piping systems and the storage, use and handling of the carbon dioxide shall be in accordance with Chapter 53 and NFPA 55.

**5307.4.3 Gas detection system.** A gas detection system complying with Section 916 shall be provided in rooms or indoor areas in which the carbon dioxide enrichment process is located, in rooms or indoor areas in which container systems are located, and in other areas where carbon dioxide is expected to accumulate. Carbon dioxide sensors shall be provided within 12 inches (305 mm) of the floor in the area where the gas is expected to accumulate or leaks are most likely to occur. The system shall be designed as follows:

1. Activates a low-level alarm upon detection of a carbon dioxide concentration of 5,000 ppm (9000 mg/m<sup>3</sup>).
2. Activates a high-level alarm upon detection of a carbon dioxide concentration of 30,000 ppm (54 000 mg/m<sup>3</sup>).

**5307.4.3.1 System activation.** Activation of the low-level gas detection system alarm shall automatically:

1. Stop the flow of carbon dioxide to the piping system.
2. Activate the mechanical exhaust ventilation system.
3. Activate an audible and visible supervisory alarm signal at an *approved* location within the building.

Activation of the high-level gas detection system alarm shall automatically:

1. Stop the flow of carbon dioxide to the piping system.
2. Activate the mechanical exhaust ventilation system.
3. Activate an audible and visible evacuation alarm both inside and outside of the carbon dioxide enrichment area, and the area in which the carbon dioxide containers are located.

**5307.4.4 Pressurization and ventilation.** Rooms or indoor areas in which carbon dioxide enrichment is provided shall be maintained at a negative pressure in relation to the surrounding areas in the building. A mechanical ventilation system shall be provided in accordance with

the *Mechanical Code of New York State* that complies with all of the following:

1. Mechanical ventilation in the room or area shall be at a rate of not less than 1 cfm per square foot [ $0.00508 \text{ m}^3/(\text{s} \cdot \text{m}^2)$ ].
2. When activated by the gas detection system, the mechanical ventilation system shall remain on until manually reset.
3. The exhaust system intakes shall be taken from points within 12 inches (305 mm) of the floor.
4. The ventilation system shall discharge to the outdoors in an *approved* location.

**5307.4.5 Signage.** Hazard identification signs shall be posted at the entrance to the room and indoor areas where the carbon dioxide enrichment process is located, and at the entrance to the room or indoor area where the carbon dioxide containers are located. The sign shall be not less than 8 inches (200 mm) in width and 6 inches (150 mm) in height and indicate:

CAUTION – CARBON DIOXIDE GAS  
VENTILATE THE AREA BEFORE ENTERING.  
A HIGH CARBON DIOXIDE (CO<sub>2</sub>)  
GAS CONCENTRATION  
IN THIS AREA  
CAN CAUSE ASPHYXIATION.

**5307.4.6 Seismic and structural design.** Carbon dioxide system containers and piping shall comply with the seismic design requirements in Chapter 16 of the *Building Code of New York State* and shall not exceed the floor loading limitation of the building.

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



TOWN – VILLAGE OF HARRISON  
BUREAU OF FIRE PREVENTION  
One Helneman Place, Harrison, NY 10528  
Phone 914-670-3000 Fax 914-670-3170  
www.harrison-ny.gov



**APPLICATION FOR FIRE PREVENTION PERMITS**  
**PERMIT TO INSTALL CARBON DIOXIDE DETECTION SYSTEMS**

THREE SETS OF PLANS AND APPLICABLE FEES MUST BE SUBMITTED WITH ALL APPLICATIONS. FEES ARE NON-REFUNDABLE. CHECK OR MONEY ORDER MADE PAYABLE TO THE TOWN OF HARRISON. ONE CHECK PER APPLICATION

APPLICATION NO.: \_\_\_\_\_ DATE FILED: \_\_\_\_\_

**CHOOSE ONE**

- ☐ INSTALLATION OF 1-5 DEVICES \$300.00  
☐ INSTALLATION OF 6 OR MORE DEVICES \$600.00

PROPERTY ADDRESS \_\_\_\_\_

BLOCK \_\_\_\_\_ LOT(S) \_\_\_\_\_

Description of system to be modified/installed:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Owner**

Name \_\_\_\_\_ Phone \_\_\_\_\_ Fax \_\_\_\_\_

Address \_\_\_\_\_

Email: \_\_\_\_\_

**Commercial Tenant (if any)**

Name \_\_\_\_\_ Phone \_\_\_\_\_ Fax \_\_\_\_\_

**Design Professional (must be licensed in the State of New York)**

Name \_\_\_\_\_ Phone \_\_\_\_\_ Fax \_\_\_\_\_

**Contractor (must be licensed in New York State)**

Name \_\_\_\_\_ Phone \_\_\_\_\_ Fax \_\_\_\_\_

Address \_\_\_\_\_

Email: \_\_\_\_\_ NYS Alarm License # \_\_\_\_\_

**FOR OFFICE USE ONLY:**

PERMIT FEE \_\_\_\_\_ DATE: \_\_\_\_\_ RECEIPT NO. \_\_\_\_\_

APPLICANT SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_

## Agenda

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**From:** Suzanne Fuller  
**Sent:** Friday, November 17, 2023 2:56 PM  
**To:** Agenda; Richard Dionisio  
**Cc:** Rocco Germani  
**Subject:** FW: Message from Sue Building 4050  
**Attachments:** SKM\_4050231117180200.pdf

Please see the attached agenda item. For some background on this. We have some facilities in town that are currently storing these vessels unsafely. An example of this is a beverage dispensing machine that requires the tanks to operate. They are currently storing back-up tanks in an unsafe manner.

This will help the Fire Inspectors monitor and maintain compliance.

Best Regards,

Suzanne Fuller  
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**From:** [building@harrison-ny.gov](mailto:building@harrison-ny.gov) [mailto:[building@harrison-ny.gov](mailto:building@harrison-ny.gov)]  
**Sent:** Friday, November 17, 2023 6:03 PM  
**To:** Suzanne Fuller <[sfuller@harrison-ny.gov](mailto:sfuller@harrison-ny.gov)>  
**Subject:** Message from Sue Building 4050