

Errata	IFC Chapter 6
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Code/Standard: 2024 International Fire Code

Applies to following Printings: 1st Printing

Section/Table/Figure Number: Section 608

Posted: January 19, 2024

Correction:

[M] 608.1 Scope. Refrigeration systems shall comply be installed in accordance with the International Mechanical Code and this section, as specified in Sections 608.1.1 and 608.1.2.

608.1.1 Refrigerants other than ammonia. Refrigeration systems using a refrigerant other than ammonia shall comply with Section 608 and Where a refrigerant other than ammonia is used, refrigeration systems and the buildings in which such systems are installed shall be in accordance with ASHRAE 15. Refrigeration systems containing carbon dioxide as the refrigerant shall also comply with IIAR CO2.

608.1.2 Ammonia refrigeration. Refrigeration systems using ammonia refrigerant ~~and the buildings in which such systems are installed~~ shall comply with IIAR 2 for system design; IIAR 6 for inspection, testing and maintenance; ~~and IIAR 7 for operating procedures ; IIAR 8 for decommissioning.~~ Decommissioning of ammonia refrigeration systems shall comply with IIAR 8, and IIAR 9 for engineering practices for existing systems. Refrigeration systems using ammonia refrigerant shall not be required to comply with Section 608 ammonia refrigeration systems shall be in accordance with IIAR 9.

608.9 Refrigerant detection. Machinery rooms shall be provided with a refrigerant detector with an audible and visible alarm. ~~Where ammonia is used as the refrigerant, detection shall comply with IIAR 2. For refrigerants other than ammonia, refrigerant detection shall comply with Section 608.9.1.~~ **608.9.1 Refrigerants other than ammonia.** A detector, or a sampling tube that draws air to a detector, shall be provided at an approved location where refrigerant from a leak is expected to accumulate. The system shall be designed to initiate audible and visible alarms inside of and outside each entrance to the refrigerating machinery room and transmit a signal to an approved location where the concentration of refrigerant detected exceeds the lesser of the following:

- 1.The corresponding TLV-TWA values shown in the International Mechanical Code for the refrigerant classification.
- 2.Twenty-five percent of the lower flammable limit (LFL).

Detection of a refrigerant concentration exceeding the upper detection limit or 25 percent of the lower flammable limit (LFL), whichever is lower, shall stop refrigerant equipment in the machinery room in accordance with Section 608.10.1.

608.11 Emergency pressure control system. Permanently installed refrigeration systems in machinery rooms containing more than 6.6 pounds (3 kg) of flammable, toxic or highly toxic refrigerant ~~or ammonia~~ shall be provided with an emergency pressure control system in accordance with Sections 608.11.1 and 608.11.2.

608.12 Storage, use and handling. Flammable and combustible materials shall not be stored in machinery rooms for refrigeration systems having a refrigerant circuit containing more than 220 pounds (100 kg) of Group A1 or 30 pounds (14 kg) of any other group refrigerant. Storage, use or handling of extra refrigerant or refrigerant oils shall be as required by Chapters 50, 53, 55 and 57.

Exceptions: ~~Exception:~~ This provision These provisions shall not apply to:

1. Spare ~~spare~~ parts, tools and incidental materials necessary for the safe and proper operation and maintenance of the system.
2. Refrigerant removed from equipment during a repair or replacement and temporarily stored in a pressure vessel complying with ASME BPVC Section VIII, for reuse after the repair or replacement has been completed.

608.13 Discharge and termination of pressure relief and purge systems. Pressure relief devices, fusible plugs and purge systems discharging to the atmosphere from refrigeration systems containing flammable, toxic or highly toxic refrigerants ~~or ammonia~~ shall comply with Sections 608.13.2 and 608.13.3 through ~~608.13.4~~.

608.13.2 Flammable refrigerants. Systems containing more than 6.6 pounds (3 kg) of flammable refrigerants having a density equal to or greater than the density of air shall discharge vapor to the atmosphere only through an approved treatment system in accordance with Section ~~608.13.4~~ 608.13.5 or a flaring system in accordance with Section ~~608.13.5~~ 608.13.6. Systems containing more than 6.6 pounds (3 kg) of flammable refrigerants having a density less than the density of air shall be permitted to discharge vapor to the atmosphere provided that the point of discharge is located outside of the structure at not less than 15 feet (4572 mm) above the adjoining grade level and not less than 20 feet (6096 mm) from any window, ventilation opening or exit.

608.13.3 Toxic and highly toxic refrigerants. Systems containing more than 6.6 pounds (3 kg) of toxic or highly toxic refrigerants shall discharge vapor to the atmosphere only through an approved treatment system in accordance with Section ~~608.13.4~~ 608.13.5 or a flaring system in accordance with Section ~~608.13.5~~ 608.13.6.

~~608.13.4 Ammonia refrigerant.~~ ~~Systems containing more than 6.6 pounds (3 kg) of ammonia refrigerant shall discharge vapor to the atmosphere in accordance with one of the following methods:~~

- ~~1. Directly to atmosphere where the fire code official determines, on review of an analysis prepared in accordance with Section 104.2.2, that a health hazard would not result from atmospheric discharge of ammonia.~~
- ~~2. Through an approved treatment system in accordance with Section 608.13.5.~~
- ~~3. Through a flaring system in accordance with Section 608.13.6.~~
- ~~4. Through an approved ammonia diffusion system in accordance with Section 608.13.7.~~
- ~~5. By other approved means.~~

~~**Exception:** Ammonia/water absorption systems containing less than 22 pounds (10 kg) of ammonia and for which the ammonia circuit is located entirely outdoors.~~

608.13.4 608.13.5 Treatment systems. Treatment systems shall be designed to reduce the allowable discharge concentration of the refrigerant gas to not more than 50 percent of the IDLH at the point of exhaust. Treatment systems shall be in accordance with Chapter 60.

608.13.5 608.13.6 Flaring systems. Flaring systems for incineration of flammable refrigerants shall be designed to incinerate the entire discharge. The products of refrigerant incineration shall not pose health or environmental hazards. Incineration shall be automatic upon initiation of discharge, shall be designed to prevent blowback and shall not expose structures or materials to threat of fire. Standby fuel, such as LP-gas, and standby power shall have the capacity to operate for one and one-half the required time for complete incineration of refrigerant in the system. Standby electrical power, where required to complete the incineration process, shall be in accordance with Section 1203.

~~**608.13.7 Ammonia diffusion systems.** Ammonia diffusion systems shall include a tank containing 1 gallon of water for each pound of ammonia (8.3 L of water for each 1 kg of ammonia) that will be released in 1 hour from the largest relief device connected to the discharge pipe. The water shall be prevented from freezing. The discharge pipe from the pressure relief device shall distribute ammonia in the bottom of the tank, but not lower than 33 feet (10 058 mm) below the maximum liquid level. The tank shall contain the volume of water and ammonia without overflowing.~~

608.14 Mechanical ventilation exhaust. Exhaust from mechanical ventilation systems serving refrigeration machinery rooms containing flammable, toxic or highly toxic refrigerants, ~~other than ammonia~~, capable of exceeding 25 percent of the LFL or 50 percent of the IDLH shall be equipped with approved treatment systems to reduce the discharge concentrations to those values or lower.

Exception: Refrigeration systems containing Group A2L complying with Section 608.18.

[M] 608.17 Electrical equipment. Where refrigerant of Groups A2, A3, B2 and B3, as defined in the International Mechanical Code, are used, refrigeration machinery rooms shall conform to the Class I, Division 2, hazardous location classification requirements of NFPA 70.

~~**Exception:** Ammonia machinery rooms that are provided with ventilation in accordance with Section 1101.1.2 of the International Mechanical Code.~~

IIAR

Errata	IFC Chapter 80 REFERENCED STANDARDS
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Correction:

BSR/IIAR CO2-2021 Safety Standard for Closed-Circuit Carbon Dioxide Refrigeration Systems