

# Amendment A-3

## 2015 International Fire Code

### Part 5 – BUILDING REGULATIONS AND CODES

#### International Fire Code®, 2015 Edition (IFC®, 2015)

#### Part 5, Chapter 3 “*International Fire Code*”

The following sections, paragraphs, and sentences of the *2015 International Existing Building Code* are hereby amended as follows: Standard type is text from the IFC. Underlined type is text inserted. ~~Lined through type is deleted text from IFC.~~

**R101.1 Referenced codes and standards.** These regulations shall be known as Fire Code of the City of Choctaw, hereinafter referred to as “this code”.

#### Section R202 – Definitions;

**AUTHORITY HAVING JURISDICTION.** Means an organization, office, or individual responsible for enforcing the requirements of the City of Choctaw Codes, including the prior authorization or approval of any equipment, materials, installations or procedures used in all or part of the construction of a new, or alteration or renovation of an existing building or structure, including integral finishes, fixtures and building system therein.

**DISPENSING AREA.** The appropriate hazardous (classified) locations for the fuel being dispensed in accordance with the National Electrical Code® – NFPA® 70.

**MAIN RAILROAD TRACK.** That part of the railway, exclusive of switch tracks, branches, yards, and terminals upon which trains are operated by timetable or train order or both.

**SELF-SERVICE STORAGE FACILITY.** Real property designed and used for the purpose of renting or leasing individual storage spaces to customers for the purpose of storing and removing personal property on a self-service basis.

**308.1.6.3 Sky lanterns.** A person shall not release or cause to be released a sky lantern in the State of Oklahoma per Title 68 O.S. § 1624.1.

**503.2.1 Dimensions.** Fire apparatus access roads shall have an unobstructed width of not less than 20 feet (6096 mm) 7315 mm, exclusive of shoulders, except for approved security gates in accordance with Section 503.6, and an unobstructed vertical clearance of not less than 13 feet 6 inches (4115 mm) 14 feet (4267 mm).

**Exception:** Vertical clearance may be reduced; provided such reduction does not impair access by fire apparatus and approved signs are installed and maintained indicating the established vertical clearance when approved.

**503.2.2 Authority.** The *fire code official* shall have the authority to require or permit ~~modifications to the required access widths~~ an increase in the minimum access widths and vertical clearances where they are inadequate for fire or rescue operations.

**503.2.3 Surface.** Fire apparatus access roads shall be designed and maintained to support imposed loads of 80,000 Lbs for fire apparatus and shall be surfaced so as to provide all-weather driving capabilities.

**503.3 Marking.** ~~Where required by the fire code official, approved signs or other approved notices or markings that include the words NO PARKING — FIRE LANE~~ Striping, signs, or other markings, when approved by the *fire code official*, shall be provided for fire apparatus access roads to identify such roads or prohibit the obstruction thereof. The means by which fire lanes are designated Striping, signs and other markings shall be maintained in a clean and legible condition at all times and be replaced or repaired when necessary to provide adequate visibility.

1. **Striping** – Fire apparatus access roads shall be continuously marked by painted lines of red traffic paint six inches (6”) in width to show the boundaries of the lane. The words “NO PARKING FIRE LANE” or “FIRE LANE NO PARKING” shall appear in four inch (4”) white letters at 25 feet intervals on the red border markings along both sides of the fire lanes. Where a curb is available, the striping shall be on the vertical face of the curb.
2. **Signs** – Signs shall read “NO PARKING FIRE LANE” or “FIRE LANE NO PARKING” and shall be 12” wide and 18” high. Signs shall be painted on a white background with letters and borders in red, using not less than 2” lettering. Signs shall be permanently affixed to a stationary post and the bottom of the sign shall be six feet, six inches (6’6”) above finished grade. Signs shall be spaced not more than fifty feet (50’) apart along both sides of the fire lane. Signs may be installed on permanent buildings or walls or as approved by the Fire Chief.

**503.4 Obstruction of Fire Apparatus Access Roads.** Fire apparatus access roads shall not be obstructed in any manner, including the parking of vehicles. The minimum widths and clearances established in Section 503.2.1, ~~and 503.2.2~~ and any area marked as a fire lane as described in Section 503.3 shall be maintained at all times.

**Section 508.1.3 Size.** The fire command center shall be a minimum of 200 square feet (19 square meters) in area with a minimum dimension of 10 feet (3048 mm).

Exception: When approved by the fire code official the fire command center can be reduced in size to not less than a minimum of 96 square feet (9 square meters) with a minimum dimension of 8 feet (2438 mm).

**Section 903.2.7 Group M.** An automatic sprinkler system shall be provided throughout buildings containing a Group M occupancy where one of the following conditions exists:

1. A Group M fire area exceeds 12,000 square feet (1115 square meters).

2. A Group M fire area is located more than three stories above grade plane.
3. The combined area of all Group M fire areas on all floors, including any mezzanines, exceeds 24,000 square feet (2230 square meters).
4. A Group M occupancy where the cumulative area used for the display and sale of upholstered furniture or mattresses exceeds 5,000 square feet (464 square meters).

**903.2.9 Group S-1.** An automatic sprinkler system shall be provided throughout all buildings containing a Group S-1 occupancy where one of the following conditions exists:

1. A Group S-1 fire area exceeds 12,000 square feet (1115 square meters).
2. A Group S-1 fire area is located more than three stories above grade plane.
3. The combined area of all Group S-1 fire areas on all floors, including any mezzanines, exceeds 24,000 square feet (2230 square meters).
4. A Group S-1 fire area used for the storage of commercial motor vehicles where the fire area exceeds 5,000 square feet (464 square meters).
5. A Group S-1 occupancy used for the storage of upholstered furniture or mattresses exceeds 2,500 square feet (232 square meters). Exception: Self-service storage facility where the fire area is less than 5,000 square feet (464 square meters).

**[F] 903.3.1.4 Freeze protection.** Freeze protection systems for automatic fire sprinkler systems shall be in accordance with the requirements of the applicable referenced NFPA standard and this section.

**903.3.1.4.1 Attics.** Only dry-pipe, preaction, or listed antifreeze automatic fire sprinkler systems shall be allowed to protect attic spaces.

**Exception:** Wet-pipe fire sprinkler systems shall be allowed to protect non-ventilated attic spaces where:

1. The attic sprinklers are supplied by a separate floor control valve assembly to allow ease of draining the attic system without impairing sprinklers throughout the rest of the building, and
2. Adequate heat shall be provided for freeze protection as per the applicable referenced NFPA standard, and
3. The attic space is a part of the building's thermal, or heat, envelope, such that insulation is provided at the roof deck, rather than at the ceiling level.

**903.3.1.4.2 Heat trace/insulation.** Heat trace/insulation shall only be allowed where approved by the fire code official for small sections of large diameter water-filled pipe.

**Section 907.2.3 Group E.** A manual fire alarm system that ~~initiates~~ activates the occupant notification signal ~~utilizing an emergency voice/alarm communication system meeting the requirements of in accordance with~~ Section 907.5 and installed in accordance with 907.6 shall be installed in Group E occupancies. When automatic sprinkler systems or smoke detectors are installed such systems or detectors shall be connected to the building fire alarm system.

Exceptions:

1. A manual fire alarm system is not required in Group E occupancies with an occupant load of 50 or less.
2. ~~Emergency voice/alarm ... in accordance with Section 907.5~~
3. Manual fire alarm boxes are not required in Group E occupancies where all of the following apply:
  - (i.) Interior corridors are protected by smoke detectors.
  - (ii.) Auditoriums, cafeterias, gymnasiums and similar areas are protected by heat detectors or other approved detection devices.
  - (iii.) Shops and laboratories involving dusts or vapors are protected by heat detectors or other approved detection devices.
  - (iv.) The capability to activate the evacuation signal from a central point is provided.
  - (v.) In buildings where normally occupied spaces are provided with a two-way communication system between such spaces and a constantly attended receiving station from where a general evacuation alarm can be sounded, except in locations specifically designated by the fire code official.
4. Manual fire alarm boxes shall not be required in Group E occupancies where all of the following apply:
  - (i.) The building is equipped throughout with an approved automatic sprinkler system installed in accordance with Section 903.3.1.1.
  - (ii.) ~~The emergency voice/alarm communication system will activate on sprinkler water-flow~~ fire alarm system will activate on sprinkler water-flow.
  - (iii.) Manual activation is provided from a normally occupied location.

**Section 1010.1.10 Panic and fire exit hardware.** Doors serving a Group H occupancy and doors serving rooms or spaces with an occupant load of 50 or more in a group A or E occupancy shall not be provided with a latch or lock other than panic hardware or fire exit hardware.

Exceptions:

1. A main exit of a Group A occupancy shall be permitted ~~to be locking~~ to have locking hardware in accordance with Section 1010.1.9.3, Item 2.
2. Doors serving a Group A or E occupancy shall be permitted to be electromagnetically locked in accordance with Section 1010.1.9.9.

Electrical rooms and working spaces with equipment operating at more than 600 volts, nominal, and equipment operating at 600 volts or less, nominal and rated 800 amperes or more and that contain overcurrent devices, switching devices or control devices with exit or exit access doors, shall be equipped with panic hardware or fire exit hardware. The doors shall swing in the direction of egress travel. Exception: Personnel entrance to and egress from doors of the electrical equipment working spaces that are greater than 25 feet (7.6 m) from the nearest edge of the electrical equipment.

**Section 1015.6 Mechanical equipment, systems and devices.** Guards shall be provided where various components that require services are located ~~within 10 feet (3048 mm) or a roof edge or open side of~~

~~a walking surface and such edge or open side is located more than 30 inches (762 mm) above the floor, roof or grade below. The guard shall extend not less than 30 inches (762 mm) beyond each end of such components on a roof or elevated structure and have a condition as set forth in Sections 1015.6.1 through 1015.6.3. The guard shall be constructed so as to prevent the passage of a sphere 21 inches (533 mm) in diameter.~~

**Exception:** When approved by the authority having jurisdiction, guards are not required where permanent fall arrest/restraint anchorage connector devices that comply with ANSI/ASSE Z 359.1 are affixed for use during the entire roof covering lifetime. The devices shall be reevaluated for possible replacement when the entire roof covering is replaced. The devices shall be placed not more than 10 feet (3048 mm) on center along hip and ridge lines and placed not less than 10 feet (3048 mm) from roof edges and the open sides of walking surfaces.

**Section 1015.6.1 Roof edge.** Guards shall be provided when components are located within 10 feet (3048 mm) of a roof edge or open side of a walking surface or elevated structure and such edge or open side is located more than 30 inches (762 mm) above the floor, roof, or grade below. The guard shall extend not less than 30 inches (762 mm) beyond each end of the component that requires service.

**Section 1015.6.2 Skylights.** Guards shall be provided when a skylight is within 10 feet (3048 mm) of the component that requires service. The guard shall extend 30 inches (762 mm) beyond the edge of the skylight.

**Exceptions:**

1. Guards are not required when the skylight is located at least 42 inches (1067 mm) above the highest point of the walking surface adjacent to the skylight or component.
2. Guards are not required if some other provision for skylight fall-thru protection is provided and approved by the authority having jurisdiction.

**Section 1015.6.3 Roof hatch.** Guards shall be provided when a roof hatch is within 10 feet (3048 mm) of the component that requires service. The guard shall extend 30 inches (762 mm) beyond the edge of the roof hatch. If the component is within 10 feet (3048 mm) of the ladder access side of the roof hatch, the guard shall incorporate a self-closing, self-latching gate. The gate shall have a top edge of not less than 42 inches (1067 mm) above the elevated surface adjacent to the gate and shall not allow the passage of a 21 inch (533 mm) sphere.

**Section 1015.7 Roof access.** 1015.7 Roof access. Guards shall be provided where the roof hatch opening is located within 10 feet (3048 mm) of a roof edge or open side of a walking surface and such edge or open side ~~of a walking surface and such edge or open side~~ is located more than 30 inches (762 mm) above the floor, roof or grade below. The guard shall be constructed so as to prevent the passage of a sphere 21 inches (533 mm) in diameter.

**Exception:** When approved by the authority having jurisdiction, guards are not required where permanent fall arrest/restraint anchorage connector devices that comply with ANSI/ASSE Z 359.1 are affixed for use during the entire roof covering lifetime. The devices shall be

reevaluated for possible replacement when the entire roof covering is replaced. The devices shall be placed not more than 10 feet (3048 mm) on center along hip and ridge lines and placed not less than 10 feet (3048 mm) from roof edges and the open sides of the walking surfaces.

**Section 1103.4.2 Three to five stories.** In other than Group I-2 and I-3 occupancies, interior vertical openings connecting three to five stories shall be protected by either 1-hour fire-resistant-rated construction or an automatic sprinkler system shall be installed throughout the building in accordance with Section 903.3.1.1 or 903.3.1.2.

Exceptions:

1. Vertical opening protection is not required for Group R-3 occupancies.
2. Vertical opening protection is not required for open parking garages.
3. Vertical opening protection for escalators shall be in accordance with Section 1103.4.5, 1103.4.6 or 1103.4.7.
4. Exit access stairways and ramps shall be in accordance with Section 1103.4.8.
5. Vertical openings that comply with the requirements of Section 803.2.1 of the IEBC®.

**Section 1104.1 General.** Means of egress in existing buildings shall comply with the minimum egress requirements when specified in Table 1103.1 as further enumerated in Section 1104.2 through 1104.25 ~~and or the building code that applied at the time of construction, Where the provisions of this chapter conflict with the building code that applied at the time of construction, the most restrictive provision shall apply~~ if, in the opinions of the building official and the fire code official, they do not constitute a distinct hazard to life. Existing buildings that were not required to comply with a building code at the time of construction shall comply with the minimum egress requirements when specified in Table 1103.1 as further enumerated in Sections 1104.2 through 1104.25.

**1104.18 Dead ends.** Where more than one exit or exit access doorway is required, the exit access shall be arranged such that dead ends do not exceed the limits specified in Table 1104.18. In Group I-2, in smoke compartments containing patient sleeping rooms and treatment rooms, dead end corridors shall be in accordance with Section 1105.5.6.

Exceptions: A dead-end passageway or corridor shall not be limited in length where the length of the dead-end passageway or corridor is less than 2.5 time the least width of the dead-end passageway or corridor. (B) Dead ends that comply with the requirements of Section 805.6 of the IEBC®.

**2301.7 Liquid natural gas motor fuel-dispensing facilities.** Motor fuel-dispensing facilities utilizing liquid natural gas (LNG) fuel shall comply with the requirements of Section 2303 and Chapter 55.

**2302.1 Definitions.** The following terms are defined in Chapter 2:

1. AIRCRAFT MOTOR-VEHICLE FUEL-DISPENSING FACILITY.
2. ALCOHOL-BLENDED FUELS.
3. AUTOMOTIVE MOTOR FUEL-DISPENSING FACILITY.
4. DISPENSING AREA.
5. DISPENSING DEVICE, OVERHEAD TYPE.

6. FLEET VEHICLE MOTOR FUEL-DISPENSING FACILITY.
7. LIQUEFIED NATURAL GAS (LNG).
8. MAIN RAILROAD TRACK.
9. MARINE MOTOR FUEL-DISPENSING FACILITY.
10. REPAIR GARAGE.
11. SELF-SERVICE MOTOR FUEL-DISPENSING FACILITY.

**2303.1 Location of dispensing devices.** Dispensing devices shall be located as follows:

1. Ten feet (3048 mm) or more from lot lines.
2. Ten feet (3048 mm) or more from buildings having combustible exterior wall surfaces or buildings having noncombustible exterior wall surfaces that are not part of a 1-hour-fire-resistance-rated assembly or buildings having combustible overhangs.

Exception: Canopies constructed in accordance with the International Building Code® providing weather protection for the fuel islands.

3. Such that all portions of the vehicle being fueled will be on the premises of the motor fuel-dispensing facility.
4. Such that the nozzle, when the hose is fully extended, will not reach within 5 feet (1524 mm) of building openings.
5. Twenty feet (6096 mm) or more from fixed sources of ignition.
6. Where compressed natural gas (CNG), LNG, or Hydrogen motor fuel-dispensing devices are installed beneath a canopy or within an enclosure, either the canopy or enclosure shall be designed to prevent the accumulation or entrapment of ignitable vapors, including provisions for natural or mechanical ventilation means, or all electrical equipment installed beneath the canopy or within the enclosure shall be suitable for Class I, Division 2 hazardous (classified) locations. Tank vents that are installed within or attached to the canopy or enclosure shall extend a minimum of 5 feet (1524 mm) above the highest projection of the canopy. Compression and storage equipment located on top of the motor fuel-dispensing facility canopies shall be in accordance with current State of Oklahoma adopted International Fire Code®, Section 2309 and International Building Code®, Section 406.

**2303.2.1 Local emergency disconnect switches.** A local emergency disconnect switch, provided within 20 feet (6096 mm) of any dispensing unit shall be interlocked with all other dispensing units of the same fuel type and all other dispensing devices located within 20 feet (6096 mm) of the local emergency disconnect switch.

**2303.2.2 Emergency disconnect switch lighting.** Permanent lighting shall be provided during hours of operation in times of darkness at all dispensing devices, required signage, emergency disconnects and emergency shutdown controls. The lighting shall be designed to provide illumination such that all

dispensing devices, required signage, emergency disconnect switches and emergency shutdown controls are visible to the operator.

**2304.3.7 Quantity limits.** Dispensing equipment used at unsupervised locations shall comply with one of the following:

1. Dispensing devices shall be programmed or set to limit uninterrupted fuel delivery to 25 gallons (95 L) and require a manual action to resume delivery.

Exception: Dispensing devices that are equipped with a listed breakaway device or equal approved by the Authority Having Jurisdiction. Such emergency breakaway device shall be installed, maintained and replaced in accordance with the manufacturer's instructions.

2. The amount of fuel being dispensed shall be limited in quantity by a preprogrammed card as approved.

**2307.3 Attendants.** Motor fuel-dispensing operations for LP-gas shall be conducted by qualified attendants or in accordance with Section 2307.7 by persons trained in the proper handling of LP-gas.

Exception: When the dispensing equipment meets the guidelines of NFPA® 58 for "Low emission transfer" an attendant is not required.

**2307.4.1 Low emission transfer.** When the dispensing equipment is installed in accordance with Section 6.28.5 of NFPA® 58 for "Low emission transfer," the transfer distance requirements in Table 6.5.2.1 and Section 6.25.4.3(1) of NFPA® 58 shall be reduced by one-half.

**2307.7 Public fueling of motor vehicles.** Self-service LP-gas dispensing systems, including key, code and card lock dispensing systems, shall be limited to the filling of permanently mounted containers providing fuel to the LP-gas powered vehicle.

The requirements for self-service LP-gas dispensing systems shall be in accordance with the following:

1. The arrangement and operation of the transfer of product into a vehicle shall be in accordance with this section and Chapter 61.
2. The system shall be provided with an emergency shut-off switch located within 100 feet (30 480 mm) of, but not less than 20 feet (6096 mm) from dispensers.
3. The owner of the LP-gas motor fuel-dispensing facility or the owner's designee shall provide for the safe operation of the system and the training of users.

Exception: If the LP-gas motor fuel-dispensing facility meets the requirements of a low emission transfer station per NFPA® 58, then training of the users is not the responsibility of the facility.



4. The dispenser and hose-end valve shall release not more than 1/8 fluid ounce (4 cc) of liquid to the atmosphere upon breaking the connection with the fill valve on the vehicle.
5. Portable fire extinguishers shall be provided in accordance with Section 2305.5.
6. Warning signs shall be provided in accordance with Section 2305.6.
7. The area around the dispenser shall be maintained in accordance with Section 2305.7.

2308.3.2 Warning signs. Warning signs complying with Section 310 shall be posted as follows:

1. Warning sign(s) shall be conspicuously posted within sight of each dispenser in the fuel dispensing area and shall state the following:
  - (i) No smoking
  - (ii) Shut off motor
  - (iii) Flammable Gas
  - (iv) Natural gas vehicle fuel cylinders shall be inspected at intervals not exceeding 3 years or 36,000 miles to ensure safe operation of the vehicle
  - (v) Natural gas fuel cylinders past their end-of-life date shall not be refueled and shall be removed from service.
2. A warning sign with the words "No smoking, flammable gas" shall be posted in all compressor and storage areas.
3. The lettering on the sign shall be legible and large enough to be visible from each point of transfer.
4. The service pressure of each dispenser shall be posted in view of the operator.

**2308.4 Private fueling of motor vehicles.** Self-service CNG dispensing systems, including key, code and card lock dispensing systems, shall be limited to the filling of approved, permanently mounted fuel containers on CNG-Powered vehicles.

In addition to the requirements in Section 2305, the owner of a self-service CNG motor fuel-dispensing facility shall ensure the safe operation of the system ~~and the training of users.~~

**2308.7 Emergency shutdown control Device.** ~~An emergency shutdown control shall be located within 75 feet (22 860 mm) of, but not less than 25 feet (7620 mm) from dispensers and shall also be provided in the compressor area. Upon activation, the emergency shutdown system shall automatically shut off the power supply to the compressor and close valves between the main gas supply and the compressor and between the storage containers and dispensers. A remote and local emergency manual shutdown control shall be provided. Upon activation, the emergency shutdown system shall automatically close valves between the main gas supply and the compressor and between the storage containers and dispensers, and automatically shut off the power supply to the compressor and the following associated devices: dispensing enclosures; remote pumps; power, control, and signal circuits; and electrical equipment in the hazardous (classified) locations surrounding the fuel dispensing enclosures.~~

All labeled emergency shutdown devices shall be interconnected, whether required or not. Resetting from an emergency shutoff condition shall require manual intervention and the manner of resetting shall be approved by the City of Choctaw.

**Exception:** In time-fill applications, in lieu of a defined remote and local emergency manual shutdown device, an emergency manual shutdown device shall be provided within 50 feet (15 240 mm) of each fixed point of dispensing hose attachment and located inside and outside the compressor area within 10 feet (3048 mm) of the main access to the compressor area.

**2308.7.1 Remote emergency shutdown device.** A remote emergency manual shutdown device shall be located within 100 feet (30 480 mm) of, but not less than 20 feet (6096 mm) from all dispensing enclosures and shall be provided inside and outside the compressor area within 10 feet (3048 mm) of the main access to the compressor area. Exception: A remote emergency shutdown device may be located greater than 100 feet (30 480 mm) from one or more dispensing enclosures when within line of sight of the dispensing enclosures and approved by the Authority Having Jurisdiction.

**2308.7.2 Local emergency shutdown device.** A local emergency manual shutdown device shall be located within 15 feet (4572 mm) of each dispensing enclosure.

**2311.4.3. Ventilation.** Where class I liquids or LP-gas are stored or used within a building having a basement or pit wherein flammable vapors could accumulate, the basement or pit shall be provided with mechanical ventilation in accordance with the International Mechanical Code®, at a minimum rate of 1 1/2 cubic feet per minute per square foot (cfm/square foot) [0.0008 cubic meters per (second meter squared)] taken from a point within 12 inches (305 mm) of the floor to prevent the accumulation of flammable vapors.

**2311.5 Preparation of vehicles for repair.** For vehicles powered by gaseous fuels, the fuel shutoff valves shall be closed prior to repairing any portion of the vehicle fuel system.

Vehicles powered by gaseous fuels in which the fuel system has been damaged shall be inspected and evaluated for fuel system integrity prior to being brought into the repair garage. The inspection shall include testing of the entire fuel delivery system for leakage. Liquefied Natural Gas (LNG) vehicles shall comply with Section 2311.5.1 as applicable.

**2311.5.1 Liquefied Natural Gas.** Liquefied Natural Gas (LNG) vehicle fuel system pressure shall be measured and recorded prior to entering the repair facility and at least every third day the vehicle remains in the building. Records shall be posted on the windshield of the vehicle. The maximum allowable system pressure shall be no more than 170 psig. Pressure above 170 psig shall be reduced by operating the vehicle, or limited venting outdoors as required.

**2311.7 Repair garages for vehicles fueled by lighter-than-air fuels.** Repair garages for the conversion and repair of vehicles that use CNG, liquefied natural gas (LNG), hydrogen or other lighter-than-air motor fuels shall be in accordance with Sections 2311.7 through 2311.7.2.3 in addition to the other requirements of Section 2311.

Exceptions:

1. Repair garages where work is conducted only on vehicles that have been defueled and their systems purged with nitrogen gas, and where standard operating procedures to document and maintain the fueling status throughout the repair operations has been approved.
2. Repair garages where work is not performed on the fuel system and is limited to exchange of parts and maintenance not requiring open flame or welding on the CNG-, LNG-, hydrogen- or other lighter than-air-fueled motor vehicle.
3. Repair garages for hydrogen-fueled vehicles where work is not performed on the hydrogen storage tank and is limited to the exchange of parts and maintenance not requiring open flame or welding on the hydrogen-fueled vehicle. During the work, the entire hydrogen fuel system shall contain a quantity that is less than 200 cubic feet (5.6 cubic meters) of hydrogen.

**2311.7. 1.1 Design.** Indoor locations shall be ventilated utilizing air supply inlets and exhaust outlets arranged to provide uniform air movement to the extent practical. Inlets shall be uniformly arranged on exterior walls near floor level. Outlets shall be located at within 18 inches (457 mm) of the high point of the room in exterior walls or the roof.

Ventilation shall be by a continuous mechanical ventilation system or by a mechanical ventilation system activated by a continuously monitoring natural gas detection system or, for hydrogen, a continuously monitoring flammable gas detection system, each activating at a gas concentration of not more than 25 percent of the lower flammable limit (LFL). In all cases, the system shall shut down the fueling system in the event of failure of the ventilation system.

The ventilation rate shall be not less than 1 cubic foot per minute per ~~12 cubic feet [0.00139 m<sup>3</sup> × (s—m<sup>3</sup>)]~~ one (1) square foot [0.0051 cubic meters per (second square meter)] of room area.

**5501.1 Scope.** Storage, use and handling of cryogenic fluids shall comply with this chapter and NFPA® 55. Cryogenic fluids classified as hazardous materials shall also comply with the general requirements of Chapter 50. Partially full containers containing residual *cryogenic fluids* shall be considered as full for the purposes of the controls required.

Exceptions:

1. Fluids used as refrigerants in refrigeration systems (see Section 606).
2. Liquefied natural gas (LNG), which shall comply with NFPA® 59 A.
3. LNG facilities for LNG vehicular applications, which shall comply with Chapter 23 and NFPA® 52.

Oxidizing *cryogenic fluids*, including oxygen, shall comply with Chapter 63, as applicable.

Flammable *cryogenic fluids*, including hydrogen, methane, and carbon monoxide, shall comply with Chapters 23 and 58, as applicable.

Inert *cryogenic fluids*, including argon, helium and nitrogen, shall comply with ANSI/CGA P-18.

**5705.5 Alcohol-based hand rubs classified as Class I or II liquids.** The use of wall-mounted dispensers containing alcohol-based hand rubs classified as Class I or II liquids shall be in accordance with all of the following:

1. The maximum capacity of each dispenser shall be 68 ounces (2 L).
2. The minimum separation between dispensers shall be 48 inches (1219 mm).
3. The dispensers shall not be installed above, below, or closer than 1 inch (25 mm) to an electrical receptacle, switch, appliance, device or other ignition source. The wall space between the dispenser and the floor or intervening counter top shall be free of electrical receptacles, switches, appliances, devices or other ignition sources.
4. Dispensers shall be mounted so that the bottom of the dispenser is not less than 42 inches (1067 mm) and not more than 48 inches (1219 mm) above the finished floor.
5. Dispensers shall not release their contents except when the dispenser is manually activated. Facilities shall be permitted to install and use automatically activated "touch free" alcohol-based hand-rub dispensing devices with the following requirements:
  - 5.1. The facility or persons responsible for the dispensers shall test the dispensers each time a new refill is installed in accordance with the manufacturer's care and use instructions.
  - 5.2. Dispensers shall be designed and must operate in a manner that ensures accidental or malicious activations of the dispensing devices are minimized. At a minimum, all devices subject to or used in accordance with this section shall have the following safety features:
    - 5.2.1. Any activations of the dispenser shall only occur when an object is placed within 4 inches (98 mm) of the sensing device.
    - 5.2.2. The dispenser shall not dispense more than the amount required for hand hygiene consistent with label instructions as regulated by the United States Food and Drug Administration (USFDA).
    - 5.2.3. An object placed within the activation zone and left in place will cause only one activation.
6. Storage and use of alcohol-based hand rubs shall be in accordance with the applicable provisions of Sections 5704 and 5705.

7. ~~Dispensers when installed in occupancies with carpeted floors shall only be allowed in smoke compartments or fire areas equipped throughout the approved automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.3.1.2 over a carpeted area shall have a guard or shield to prevent alcohol-based hand rub product from dispensing onto the floor.~~

**6106.1 Attendants.** Dispensing of LP-gas shall be performed by a qualified attendant.

Exception: When the dispensing equipment meets the guidelines of NFPA® 58 for "Low emission transfer" an attendant is not required.

**6106.2 Overfilling.** LP-gas containers shall not be filled or maintained with LP-gas in excess of either the volume determined using the fixed liquid-level gauge installed in accordance with the manufacturer's specifications and in accordance with Section 5.7.5 of NFPA® 58, the volume determined by the overfilling prevention device installed on the container, or the weight determined by the required percentage of water capacity marked on the container. Portable LP-gas containers shall not be refilled unless equipped with an overfilling prevention device (OPD) where required by Section 5.7.3 of NFPA® 58.