

CHAPTER 22
MOTOR FUEL-DISPENSING FACILITIES AND REPAIR GARAGES

SECTION FC 2201
GENERAL

2201.1 Scope. This chapter shall govern the design, installation, operation and maintenance of fleet motor fuel-dispensing facilities, full-service motor fuel-dispensing facilities, self-service motor fuel-dispensing facilities, and repair garages.

2201.2 Permits. Permits shall be required as set forth in FC105.6.

2201.3 Design and installation documents. Design and installation documents shall be submitted to the department for review and approval prior to the installation, alteration, repair or construction of fleet motor fuel-dispensing facilities, full-service motor fuel-dispensing facilities and self-service motor fuel-dispensing facilities in accordance with FC105.4.

2201.3.1 Compliance with other codes. The installation or alteration of a liquid motor fuel storage and dispensing system regulated by this chapter shall not be approved by the department unless the design and installation documents demonstrate that the proposed work complies with the regulations of the United States Environmental Protection Agency, as set forth in 40 CFR Part 280, and the regulations of the New York State Department of Environmental Conservation, as set forth in 6 NYCRR Parts 612, 613 and 614, as applicable.

2201.4 General. All fleet motor fuel-dispensing facilities, full-service motor fuel-dispensing facilities, self-service motor fuel-dispensing facilities and repair garages shall be designed, installed, operated and maintained in accordance with this chapter, FC Chapter 34 and the construction codes, including the Building Code, the Fuel Gas Code and the Mechanical Code, and, as applicable, NFPA 30A.

2201.5 Electrical. Electrical wiring and equipment shall be suitable for the locations in which they are installed and shall comply with the requirements of FC605, NFPA 30A and the Electrical Code, as applicable. Upon request, proof of compliance with the Electrical Code shall be filed with the department.

2201.6 Heat-producing appliances. Heat-producing appliances shall be suitable for the locations in which they are installed and shall comply with the requirements of the construction codes, including the Building Code, the Mechanical Code and the Fuel Gas Code, and NFPA 30A, as applicable.

2201.7 Supervision of dispensing operations. The dispensing of motor fuel at fleet motor fuel-dispensing facilities, full-service motor fuel-dispensing facilities and self-service motor fuel-dispensing facilities shall be conducted by or under the personal supervision of a certified attendant, who shall be responsible for ensuring that dispensing operations are conducted and the facility is maintained in accordance with this chapter and the rules.

2201.8 Supervision of defueling operations. The defueling of liquid motor fuel from the fuel tank of a motor vehicle shall be conducted by or under the personal supervision of a person holding a certificate of fitness.

2201.9 Certificate of license. Persons who install, alter, test or repair any automotive or marine liquid motor fuel storage and dispensing systems shall hold a certificate of license or shall be employed by and perform such duties under the general supervision of a person holding such certificate.

2201.10 Records of inspections and testing. Records of all inspections and testing required by this chapter shall be kept in a bound log book or other approved recordkeeping, maintained on the premises for a minimum of 4 years, except that records of the required 5 year tests as set forth in FC 2206.9.4, 2206.9.6 and 2208.7.4.1 shall be maintained on the premises for a minimum of 6 years.

2201.11 Prohibition. It shall be unlawful to operate as a self-service motor fuel-dispensing facility any motor fuel-dispensing facility or a motor fuel dispenser installed and approved as a fleet or full-service motor fuel-dispensing facility or dispenser.

SECTION FC 2202 DEFINITIONS

2202.1 Definitions. The following terms shall, for the purposes of this chapter and as used elsewhere in this code, have the meanings shown herein.

ALCOHOL-BLENDED MOTOR FUEL. Gasoline blended with ethanol or other alcohol with an alcohol concentration greater than 15 percent by volume.

CERTIFIED ATTENDANT. A person holding a certificate of fitness for the supervision of a full-service motor fuel-dispensing facility or self-service motor fuel-dispensing facility.

CNG. Compressed natural gas.

DISPENSING DEVICE, OVERHEAD TYPE. A dispensing device mounted above a dispensing area, typically within a canopy structure, and characterized by the use of an overhead hose reel.

FLAMMABLE LIQUID MOTOR FUEL. Gasoline or other flammable liquids used as fuel in the operation of motor vehicles, motorcycles, watercraft and aircraft.

FLEET MOTOR FUEL-DISPENSING FACILITY. A motor fuel-dispensing facility wherein motor fuel is stored and/or dispensed into the fuel tank of a motor vehicle, motorcycle, marine vessel or watercraft owned or operated by or on behalf of the owner of the facility, and where such dispensing operations are conducted by persons employed by or on behalf of the owner of the facility. There are four approved types of fleet motor fuel-dispensing facilities:

Fleet automotive hydrogen motor fuel-dispensing facility (motor vehicles)

Fleet automotive liquid motor fuel-dispensing facility (motor vehicles and motorcycles)

Fleet CNG motor fuel-dispensing facility (motor vehicles, marine vessels and watercraft)
Fleet marine liquid motor fuel-dispensing facility (marine vessel and watercraft)

FULL-SERVICE MOTOR FUEL-DISPENSING FACILITY. A motor fuel-dispensing facility wherein motor fuel is dispensed into the fuel tank of motor vehicles, motorcycles, marine vessels or watercraft by a certified attendant or, when under the personal supervision of a certified attendant, by persons employed by or on behalf of the owner of the facility. There are four approved types of full-service motor fuel-dispensing facilities:

Full-service automotive hydrogen motor fuel-dispensing facility (motor vehicles)
Full-service automotive liquid motor fuel-dispensing facility (motor vehicles and motorcycles)
Full-service CNG motor fuel-dispensing facility (motor vehicles, marine vessels and watercraft)
Full-service marine liquid motor fuel-dispensing facility (marine vessel and watercraft)

LIQUEFIED NATURAL GAS (LNG). A fluid in the liquid state composed predominantly of methane and which may contain minor quantities of ethane, propane, nitrogen or other components normally found in natural gas.

LIQUID MOTOR FUEL. Gasoline, diesel fuel or other flammable or combustible liquids used as fuel in the operation of motor vehicles, motorcycles, marine vessels and watercraft.

LIQUID MOTOR FUEL STORAGE AND DISPENSING SYSTEM. A liquid motor fuel storage tank and all motor fuel storage and dispensing equipment associated with such tank, including the tank, piping, valves, fill connection catchment basins, vent lines, pumps, dispensing devices and any other ancillary equipment.

MOTOR VEHICLE. A vehicle or other conveyance having more than two running wheels and using liquid motor fuel or flammable gas as fuel for generating motive power, except such vehicles as have a storage tank with a maximum capacity for less than 2 gallons (7.6 L) of liquid motor fuel or flammable gas that generates energy that is equivalent to the energy generated by 2 gallons (7.6 L) of gasoline.

REPAIR GARAGE. A building, structure or portion thereof used for servicing or repairing motor vehicles or motorcycles.

SELF-SERVICE MOTOR FUEL-DISPENSING FACILITY. A motor fuel-dispensing facility wherein motor fuel is dispensed by customers of the facility from a motor fuel storage and dispensing system into the fuel tank of motor vehicles or motorcycles. There are two approved types of self-service motor fuel-dispensing facilities:

Self-service automotive liquid motor fuel-dispensing facility (motor vehicles and motorcycles)
Self-service CNG motor fuel-dispensing facility (motor vehicles)

SECTION FC 2203

LOCATION OF LIQUID MOTOR FUEL DISPENSING DEVICES

2203.1 Location of dispensing devices. Dispensing devices for liquid motor fuel storage and dispensing systems shall be located as set forth in FC 2203.1.1 and 2203.1.2.

2203.1.1 Outdoor dispensing devices. When installed outdoors, dispensing devices shall be located as follows:

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

Exception: Canopies constructed in accordance with the construction codes, including the Building Code, providing weather protection for the motor fuel dispensers.

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 or structure openings.
5. Twenty feet (6096 mm) or more from fixed sources of ignition.
6. Twenty-five feet (7620 mm) or more from the nearest subway grating, entrance or exit.

2203.1.2 Indoor dispensing devices. When installed indoors, the dispensing area shall be located at street level, with no dispenser located more than 50 feet (15 240 mm) from an exit or entrance to the building or structure used by motor vehicles.

SECTION FC 2204 DISPENSING OF LIQUID MOTOR FUEL

2204.1 General. The dispensing of liquid motor fuels at motor fuel-dispensing facilities, and the design, installation, operation and maintenance of liquid motor fuel storage and dispensing systems and facilities shall be in accordance with this section.

2204.1.1 Prohibition. It shall be unlawful to dispense motor fuel into a vehicle while:

1. smoking;
2. using or maintaining an open flame;
3. the engine of the vehicle being fueled is not shut down;

4. using any object to override, bypass or otherwise render the fuel dispensing nozzle's manual hold-open design feature inoperable.

2204.1.2 Emergency fuel shutoff. An approved, clearly identified and readily accessible emergency fuel shutoff switch shall be provided at an approved location to immediately shut down the transfer of fuel to the fuel dispensers in the event of a fuel spill or other emergency and activate an alarm audible in the dispensing area and any control booth. Such audible device may be the same device used to indicate activation of the fire extinguishing system installed to protect the fuel dispensers. An emergency fuel shutoff switch for outdoor fuel dispensers shall be located within 100 feet (30 480 mm) of, but not less than 20 feet (6096 mm) from, the fuel dispensers. For indoor fuel dispensers, the emergency fuel shutoff switch shall be installed at an approved location. An approved sign shall be posted on or immediately adjacent to the emergency fuel shutoff switch, which reads: EMERGENCY FUEL SHUTOFF. Such emergency fuel shutoff switches shall be of a type that must be reset manually.

2204.1.3 Lighting. Dispensing areas shall be well lighted whenever dispensing is being conducted.

2204.1.4 Dispensing area signage. Durable signs shall be conspicuously posted in dispensing areas in motor fuel-dispensing facilities in compliance with the requirements of FC 2204.1.4.1 through 2204.1.4.4.

2204.1.4.1 Operating instructions. A sign setting forth dispenser operating instructions shall be posted on every dispenser. Such sign shall also indicate the location of the emergency fuel shutoff switches required by FC2204.1.2.

2204.1.4.2 Fuel dispensing warning sign. A warning sign that reads as follows shall be posted on or immediately adjacent to each dispenser:

1. No smoking.
2. Shut off engine.
3. Before fueling, discharge any static electricity by touching a metal surface. Repeat before removing nozzle.
4. If a fire starts, do not remove nozzle—leave the area immediately.
5. It is unlawful and dangerous to dispense fuel into unapproved containers or to fill portable containers in or on a motor vehicle.
6. It is unlawful for anyone other than the certified attendant to fill portable containers.

2204.1.4.3 Alcohol-blended motor fuel notice. A sign or marking indicating the type and concentration of alcohol in the motor fuel being dispensed shall be posted on or affixed to each dispenser dispensing alcohol-blended motor fuel.

2204.1.4.4 Emergency procedures. A sign setting forth emergency procedures that reads as follows shall be posted in the dispensing area, or other location designated in this section:

IN CASE OF FIRE OR SPILL:

USE THE EMERGENCY FUEL SHUTOFF SWITCH
TO STOP THE FLOW OF FUEL

(for flammable fuel dispensers)

ACTIVATE THE FIRE EXTINGUISHING SYSTEM
PROTECTING THE DISPENSING AREA.

(SWITCH LOCATION:

(indicate location)

DIRECT VEHICLE OCCUPANTS TO EXIT VEHICLES
AND LEAVE AREA IMMEDIATELY

NOTIFY THE FIRE DEPARTMENT (CALL 911)
(FACILITY ADDRESS)

(indicate address, with cross-street reference).

KEEP ALL PERSONS AWAY FROM THE AREA.

2204.1.5 Emergency telephone. A telephone not requiring a coin to operate or another approved, clearly identified means to notify the department, shall be provided at the facility in an approved location.

2204.1.6 Dispensing on piers, docks or wharves. Flammable liquid motor fuel shall not be dispensed into the fuel tanks of motor vehicles imported by ship to this country while on any pier, dock or wharf.

2204.1.7 Dispensing into portable containers. The dispensing of liquid motor fuel into portable containers shall comply with the requirements of FC 2204.1.7.1 through 2204.1.7.5.

2204.1.7.1 Approved containers required. Liquid motor fuel shall not be dispensed into a portable container unless such container is of approved material and construction, and has a tight closure with screwed or spring-loaded cover so designed that the contents can be dispensed without spilling. Liquids shall not be dispensed into portable tanks or cargo tanks.

2204.1.7.2 Container capacity. Liquid motor fuel shall be dispensed into approved containers with an individual capacity not greater than 2½ gallons (9.5 L).

2204.1.7.3 Nozzle operation. When liquid motor fuel is being dispensed into a portable container the fuel dispensing nozzle shall be manually held open during the dispensing operation, whether or not the nozzle is provided with a latch-open device.

2204.1.7.4 Location of containers being filled. Portable containers shall not be filled while located inside the trunk, passenger compartment or truck bed of a motor vehicle or upon a marine vessel or watercraft.

2204.1.7.5 Certified attendant. Only a certified attendant shall dispense liquid motor fuel into portable containers.

2204.1.8 Dispensing from portable containers. No motor vehicle, motorcycle, marine vessel or watercraft shall be fueled from a portable container while indoors.

2204.1.9 Vegetation. Weeds, grass, vines, brush or other vegetation shall not be maintained within 10 feet (3048 mm) of any aboveground tank, tank fill connection or dispensing area.

2204.1.10 Combustible waste. Rubbish and other combustible waste shall not be stored within 10 feet (3048 mm) of any aboveground tank, tank fill connection or dispensing area, except in the dispensing area when in an approved waste container with a capacity not exceeding 40 gallons (0.15 m³).

2204.2 Self-service motor fuel-dispensing facilities. Self-service motor fuel-dispensing facilities shall be designed, installed, operated and maintained in compliance with the requirements of FC 2204.2.1 through 2204.2.5.

2204.2.1 Duties of certified attendant. The certified attendant's primary function shall be to supervise, observe and monitor the dispensing of fuel. The certified attendant shall prevent the dispensing of fuel into portable containers unless the dispensing is in compliance with the requirements of FC2204.1.7. The certified attendant shall control sources of ignition, take immediate action upon an accidental spill or release, be ready to use a portable fire extinguisher, and activate the fixed fire extinguishing system. Nothing in this section shall be construed to prohibit a certified attendant from engaging in other activities so long as such activities do not interfere with the certified attendant's ability to supervise, observe and monitor the dispensing of fuel and other requirements of this chapter.

2204.2.2 Self-service dispensers. Approved self-service devices, equipment and systems such as, but not limited to, card-operated and remote-preset types, are allowed at liquid motor fuel-dispensing facilities. The certified attendant shall set the dispensing devices in the "off" position when not in use if such dispensing device can be activated without the certified attendant's knowledge.

2204.2.3 Monitoring of dispensing. A control booth shall be located on the premises of every self-service automotive liquid motor fuel-dispensing facility. The control booth shall be an interior or exterior enclosure to which the public has no access. The certified attendant shall be present within the control booth while dispensing operations are conducted. The

control booth shall be designed and located so that the certified attendant stationed therein shall have a full, unobstructed clear view of dispensing operations, except that mirrors and/or an approved closed-circuit television installation may be provided to afford the certified attendant a clear view of dispensing operations when the view from the control booth is partially or temporarily obstructed. For purposes of this section, the “clear” view provided by a closed-circuit television installation shall mean that the image on the monitor shall be of such brightness and resolution as to allow ready identification of individuals and easy observation of activities at all times of day. Two properly labeled manual switches, one that activates the fire extinguishing system, and one that electrically disconnects the liquid motor fuel-dispensing pumps, shall be located adjacent to each other within the control booth. A console that controls the self-service liquid motor fuel dispensers shall be provided within the control booth and within 5 feet (1524 mm) of the manual switches.

2204.2.4 Communications. A two-way voice communication system shall be installed to provide contact between the control booth and each dispensing island.

2204.2.5 Signage. The signage required by FC2204.1.4 shall be posted in the dispensing area of a self-service motor fuel-dispensing facility, except that the emergency procedures sign required by FC2204.1.4.4 shall be posted in the control booth.

2204.3 Fleet motor fuel-dispensing facilities. Fleet motor fuel-dispensing facilities shall be designed, installed, operated and maintained in compliance with the requirements of FC 2204.3.1 through 2204.3.3.

2204.3.1 Inspection of dispensing area. The certified attendant responsible for supervision of the dispensing of liquid motor fuel at fleet motor fuel-dispensing facility shall inspect the dispensing area on a periodic basis in accordance with the rules to ensure that the facility is being maintained in accordance with this chapter and the rules. The certified attendant shall notify the owner and make any other notifications required by this code if there is any evidence that the facility is not in good working order. A record of such inspections and notifications shall be maintained at the premises in accordance with FC107.7.

2204.3.2 Duties of fleet personnel. Employees or other persons working for the owner of a fleet motor fuel-dispensing facility whose duties involve the dispensing of motor fuel shall be trained and knowledgeable in such dispensing in compliance with the requirements of this code and the rules.

2204.3.3 Quantity limits. Dispensing equipment used at fleet automotive liquid motor fuel-dispensing facilities shall comply with one of the following:

1. Dispensing devices shall be programmed or set to limit uninterrupted liquid motor fuel delivery to not more than 25 gallons (95 L) and require a manual action to resume delivery.
2. For other than flammable liquid motor fuel, the amount of liquid motor fuel being dispensed shall be limited in quantity by a preprogrammed card as approved.

2204.4 Full-service motor fuel-dispensing facilities. Full-service motor fuel-dispensing facilities shall be operated in compliance with the requirements of FC2204.4.1.

2204.4.1 Duties of certified attendant. The certified attendant at a full-service motor fuel-dispensing facility shall personally supervise the dispensing of motor fuel into vehicles by facility personnel. The certified attendant shall conduct a visual inspection of the dispensing area on a daily basis to monitor the condition of such installation. The certificate of fitness holder shall notify the owner and make any other notifications required by this code if there is any evidence that the installation is not in good working order. A record of such inspections and notifications shall be maintained at the premises in accordance with FC107.7.

SECTION FC 2205 OPERATION AND MAINTENANCE OF LIQUID MOTOR FUEL-DISPENSING FACILITIES

2205.1 Tank filling operations for liquid motor fuel. Delivery operations to tanks for liquid motor fuel shall comply with the requirements of FC 2205.1.1 through 2205.1.3 and the applicable requirements of FC Chapter 34.

2205.1.1 Delivery vehicle location. Where liquid delivery to a motor fuel storage tank is accomplished by positive-pressure operation, cargo tanks making delivery shall be positioned a minimum of 25 feet (7620 mm) from tanks receiving flammable liquids and 15 feet (4572 mm) from tanks receiving combustible liquids. During delivery, a cargo tank shall not obstruct a public street, private road, block motorists' view of roadways or impede the movement of vehicles or pedestrians.

2205.1.2 Tank capacity calculation. The driver, operator or attendant of a cargo tank shall, before making delivery to a tank, determine the unfilled, available capacity of such tank by an approved tank level-indicating device or method. A measuring stick shall not be used to measure the contents of the tank through the fill connection line, except where there is a direct fill connection.

2205.1.3 Tank connections. Delivery of liquid motor fuel shall be made by means of approved liquid- and vapor-tight connections between the delivery hose and tank fill pipe. Where tanks are equipped with any type of vapor recovery system, all connections required for the safe and proper functioning of the particular vapor recovery process shall be made. Such connections shall be made liquid- and vapor-tight and remain connected throughout the delivery process. Vapors shall not be discharged at grade level during delivery.

2205.2 Equipment maintenance. Liquid motor storage and dispensing systems shall be maintained in good working order at all times in accordance with FC 2205.2.1 through 2205.2.3.

2205.2.1 Dispensing devices. Where maintenance to dispensing devices becomes necessary and such maintenance could allow the accidental release or ignition of liquid, the following precautions shall be taken:

1. Only persons with a certificate of license and knowledgeable in performing the required maintenance shall perform the work.
2. Electrical power to the dispensing device and pump serving the dispenser shall be shut off at the main electrical disconnect panel before maintenance begins.
3. The emergency dispenser shutoff valve shall be closed before maintenance begins.
4. Vehicular traffic and unauthorized persons shall be prevented from coming within 12 feet (3658 mm) of the dispensing device before and during maintenance.

2205.2.2 Dispenser emergency shutoff valves. Dispenser emergency shutoff valves required by FC2206.7.4 shall be checked not less than once per year by manually tripping the hold-open linkage.

2205.2.3 Leak detection system. The leak detection system required by FC2206.7.7 shall be inspected monthly for proper operation and tested at least annually in accordance with the manufacturer's specifications to ensure that it is in good working order.

2205.3 Use of alcohol-blended motor fuel in existing liquid motor fuel storage and dispensing systems. Department approval shall be obtained prior to using a liquid motor fuel storage and dispensing system for alcohol-blended motor fuel when such system has previously been used to store and dispense another type of motor fuel. If approved, such system may be used alternatively for the various approved fuel types.

2205.4 Signage. Durable signs shall be conspicuously posted at motor fuel-dispensing facilities in accordance with this section.

2205.4.1 Tank overflow warning sign. A warning sign shall be posted on or immediately adjacent to tank overflow alarm panel that reads: "CAUTION: WHEN ALARM ACTIVATES, TANK IS FILLED TO CAPACITY. DO NOT OVERFILL."

2205.5 Portable fire extinguishers. Approved portable fire extinguishers complying with the requirements of FC906 with a minimum rating of 40-B:C shall be provided and located such that an extinguisher is not less than 20 feet (6096 mm) but not more than 75 feet (22 860 mm) from pumps, dispensers or storage tank fill connections.

SECTION FC 2206 DESIGN AND INSTALLATION REQUIREMENTS FOR LIQUID MOTOR FUEL-DISPENSING FACILITIES

2206.1 General. Liquid motor fuel storage and dispensing systems shall be designed and installed in accordance with FC Chapter 34 except as otherwise specified in this chapter, including the requirements of this section.

2206.2 Method of storage. Approved methods of storage for liquid motor fuel at motor fuel-dispensing facilities shall be in accordance with FC 2206.2.1 through 2206.2.4.

2206.2.1 Underground tanks. The installation of underground tanks for the storage of liquid motor fuel shall comply with the requirements of FC Chapter 34 except as otherwise specified in this chapter.

2206.2.1.1 Inventory control for underground tanks. Accurate daily inventory records shall be maintained and reconciled for underground liquid motor fuel storage tanks for indication of possible leakage from tanks and piping. Inventory reconciliation shall be in accordance with the regulations of the New York State Department of Environmental Conservation as set forth in 6 NYCRR Part 613. The records shall be maintained in accordance with FC107.7. Records shall include daily reconciliation between sales, use, receipts and inventory on hand. Where there is more than one system consisting of tanks serving separate pumps or dispensers for a product, the reconciliation shall be maintained separately for each tank system. A consistent or accidental loss of product shall be immediately reported to the commissioner.

2206.2.1.2 Listing and approval. Underground liquid motor fuel storage tanks shall be listed and approved.

2206.2.1.3 Tank design and construction. Underground liquid motor fuel storage tanks shall be designed and constructed in accordance with the following:

1. Tanks shall be completely double-walled and constructed of steel, fiberglass-reinforced plastic or a combination of both materials. The secondary tank shall be capable of containing any leakage from the primary tank.
2. Tanks shall be designed and constructed to withstand one and one-half times the maximum operating loads and stresses, regardless of the amount of liquid motor fuel contained in the tank. Such capabilities shall be established by buoyancy calculations and load and stress analyses.
3. Tanks shall be designed and constructed to withstand a pressure of 15 pounds per square inch gauge (psig)(103.4 kPa) or one and one-half times the maximum anticipated static head pressure, whichever is greater, for the primary tank and 5 pounds per square inch gauge (psig)(34.5 kPa) for the secondary tank.
4. The capacity of each individual tank shall not exceed 12,000 gallons (45 420 L) of liquid motor fuel.

2206.2.1.4 Tank connections. Tank connections shall be designed and located so as to:

1. Minimize the maneuvering necessary to position a cargo tank to make the delivery.
2. Minimize any obstructions of a public right of way or motorists' view of roadways, or any impediment to the movement of motor vehicles or pedestrians, during delivery.

3. Provide connections by means of approved liquid- and vapor-tight connections.
4. Comply with the requirements of FC2205.1.3.

2206.2.1.5 Liquid level-indicating devices. Tanks shall be provided with an approved liquid level-indicating device. The quantity of fuel in the tank as indicated on the liquid level-indicating device shall be accessible to the delivery operator. Liquid level-indicating devices shall be designed, constructed and installed to be vapor- and liquid-tight.

2206.2.1.6 Tank overfill alarm. Tanks shall be provided with an approved overfill alarm designed to activate a local audible and visual alarm in an area supervised by the cargo tank delivery operator. Such alarms shall activate when the quantity of fuel in the tank exceeds a designated level, which shall not be more than 95 percent of capacity.

2206.2.2 Prohibited aboveground storage. The storage of motor fuel in aboveground tanks shall be prohibited as set forth in FC 2206.2.2.1, 2206.2.2.2 and 2206.2.2.3.

2206.2.2.1 Storage of flammable liquid motor fuel. It shall be unlawful to store flammable liquid motor fuel in aboveground tanks.

2206.2.2.2 Storage of combustible liquid motor fuel. It shall be unlawful to store combustible liquid motor fuel in aboveground tanks, except outdoors at a fleet motor fuel-dispensing facility complying with the requirements of this chapter.

2206.2.2.3 Indoor storage. It shall be unlawful to store liquid motor fuel in aboveground tanks indoors.

2206.2.3 Aboveground tanks located outdoors, at grade. Outdoor storage of combustible liquid motor fuel in aboveground tanks at a fleet motor fuel-dispensing facility shall comply with the requirements set forth in FC 2206.2.3.1 through 2206.2.3.6.

2206.2.3.1 Tank design and construction. Only protected aboveground tanks shall be used.

2206.2.3.2 Tank capacity. The capacity of each tank shall not exceed 4,000 gallons (15 140 L). Not more than a total of 4,000 gallons (15 140 L) of liquid motor fuel shall be stored aboveground at any facility. The total storage capacity at a facility in both aboveground and underground tanks shall not exceed 40,000 gallons (15 140 L) of liquid motor fuel. Each tank shall have a separate fill line and a separate vent line that are separate from the fill and vent lines of other tanks.

Exception: When approved, individual tanks may exceed 4,000 gallons (15 140 L) but shall not exceed 12,000 gallons (45 420 L).

2206.2.3.3 Tank base support. Tanks shall be placed on an approved base slab. The surface of such base slab shall be a minimum of 6 inches (152 mm) above the level of the

surrounding area to permit visual inspection. Tanks shall be adequately supported and anchored to the base slab to withstand uplifting by surface water and flooding.

2206.2.3.4 Tank connections. Tank connections shall be designed and located in accordance with FC2206.2.1.4.

2206.2.3.5 Liquid level-indicating devices. Tanks shall be provided with an approved liquid level-indicating device in accordance with FC2206.2.1.5.

2206.2.3.6 Tank overfill alarm. Tanks shall be provided with an approved overfill alarm in accordance with FC2206.2.1.6.

2206.2.4 Location requirements for aboveground tanks at fleet motor fuel-dispensing facilities. Tanks shall be located in accordance with FC Table 2206.2.4 and as follows:

1. A minimum of 25 feet (7620 mm) from a subway grating, entrance or exit.
2. At a location that will not obstruct or interfere with any means of egress or department access.
3. Tanks shall not be installed under electrical transmission lines, bridges, or public highways.

**FC TABLE 2206.2.4
MINIMUM SEPARATION REQUIREMENTS FOR ABOVEGROUND TANKS AT FLEET MOTOR FUEL-DISPENSING FACILITIES**

CLASS OF LIQUID AND TANK TYPE	INDIVIDUAL TANK CAPACITY (gallons)	MINIMUM DISTANCE FROM NEAREST BUILDING (feet)	MINIMUM DISTANCE FROM LOT LINE (feet)	MINIMUM DISTANCE FROM PUBLIC STREET OR PRIVATE ROAD (feet)	MINIMUM DISTANCE BETWEEN TANKS (feet)
Liquid motor fuel tanks	4000	15	15	15	3
	Greater than 4000	25	25	15	3

For SI: 1 foot = 304.8 mm, 1 gallon = 3.785 L.

2206.3 Security. Aboveground tanks for the storage of liquid motor fuel shall be safeguarded in an approved manner from public access or unauthorized entry.

2206.4 Physical protection. Posts complying with the requirements of FC312 or other approved means shall be provided to protect aboveground tanks against impact by a motor vehicle unless the tank is listed as a protected aboveground tank with vehicle impact protection.

2206.5 Secondary containment. Aboveground tanks shall be provided with diking in accordance with FC Chapter 34. Diking is not required for listed secondary containment tanks. The secondary containment systems shall be monitored either visually or automatically. Enclosed secondary containment systems shall be provided with emergency venting in accordance with FC2206.6.2.5.

2206.6 Piping, valves, fittings and ancillary equipment for use with liquid motor fuel. The design, fabrication, assembly, testing and inspection of piping, valves, fittings and ancillary equipment for use with liquid motor fuel shall be in accordance with FC Chapter 34 except as otherwise specified in FC 2206.6.1 through 2206.6.3, and FC 2206.9 and 2206.10.

2206.6.1 Protection from damage. Piping shall be located such that it is protected from physical damage and designed to accommodate settlement, vibration, expansion or contraction.

2206.6.2 Piping, valves, fittings and ancillary equipment for aboveground tanks. Piping, valves, fittings and ancillary equipment for aboveground tanks shall comply with the requirements of FC 2206.6.2.1 through 2206.6.2.11.

2206.6.2.1 Tank openings. Tank openings for aboveground tanks shall be through the top only. There shall be no openings except those necessary to inspect, fill, empty and vent the tank.

2206.6.2.2 Fill-pipe connections. The fill-pipe for aboveground tanks shall be provided with a means for making a direct connection to the cargo tank's fuel-delivery hose so that liquid motor fuel is not exposed to the open air during the filling operation. Operator safety equipment for the filling operation shall be provided in accordance with OSHA regulations. Where any portion of the fill-pipe exterior to the tank extends below the level of the top of the tank, a check valve, a dry break coupling and a quick closing valve shall be installed at the fill connection. Tank fill connections from a remote location are prohibited.

2206.6.2.3 Overfill protection. Overfill protection shall be provided for aboveground storage tanks. Overfill prevention devices shall be designed to withstand the pressure generated by the cargo tank discharge pump and shall automatically shut off the flow into the tank when the tank is not more than 95 percent full.

2206.6.2.4 Siphon prevention. An approved antisiphon method shall be provided in the piping system to prevent flow of liquid motor fuel by siphon action.

2206.6.2.5 Emergency relief venting. Aboveground storage tanks, tank compartments and enclosed secondary containment spaces shall be provided with emergency relief venting in accordance with FC Chapter 34.

2206.6.2.6 Spill containers. Aboveground tank spill containers having a capacity of not less than 5 gallons (19 L) shall be provided for each fill connection. Spill containers shall be noncombustible and shall be fixed to the tank and equipped with a manual drain valve that drains into the primary tank.

2206.6.2.7 Piping material construction. Piping shall be of a minimum Schedule 40 steel construction.

2206.6.2.8 Compatibility. Piping, fittings, components and joint compounds shall be mutually compatible, and compatible with diesel fuel and other commonly-used combustible liquid motor fuels, including the additives commonly used in such combustible motor fuels. Joint compounds shall be listed and approved.

2206.6.2.9 Pressure relief devices. Where liquid motor fuel may become trapped between shutoff valves and/or check valves, affected piping sections shall be provided with pressure-relief devices that will discharge the pressure generated by thermal expansion back into the tank.

2206.6.2.10 Vent piping. Each tank shall be provided with a separate unobstructed vent line, without any trap or device that causes excessive back pressure, and shall be maintained unobstructed at all times.

2206.6.2.11 Vent termination. Vent outlets shall discharge outdoors and upward. The discharge point shall be no less than 15 feet (4572 mm) above the adjacent ground level and no less than 10 feet (3048 mm) from the nearest building opening.

2206.6.3 Piping, valves, fittings and ancillary equipment for underground tanks. Piping, valves, fittings and ancillary equipment for underground tanks shall comply with the requirements of FC Chapter 34 and NFPA 30A, except as otherwise provided in FC 2206.6.3.1, 2206.6.3.2 and 2206.10.

2206.6.3.1 Piping design and construction. Piping, including vent piping, shall be of a minimum Schedule 40 steel construction. Approved nonmetallic piping, such as fiberglass-reinforced plastic or other equivalent corrosion-resistant material, may be installed underground.

2206.6.3.2 Underground tank piping. Piping shall be installed underground, except for the vertical riser of the vent.

2206.6.3.3 Compatibility. Piping, fittings, components and joint compounds shall be mutually compatible, and compatible with gasoline, diesel fuel, methanol and other commonly-used liquid motor fuels, including the additives commonly used in such liquid motor fuels. Joint compounds shall be listed and approved.

2206.7 Fuel-dispensing systems for liquid motor fuel. The design and installation of liquid motor fuel-dispensing systems shall be in accordance with FC 2206.7.1 through 2206.7.9.2.4. Alcohol-blended motor fuel-dispensing systems shall additionally comply with FC2206.7.10.

2206.7.1 Listed equipment. Electrical equipment, dispensers, hose, nozzles and submersible or subsurface pumps used in liquid motor fuel storage and dispensing systems shall be listed and approved.

2206.7.2 Fixed pumps required. Liquid motor fuel shall be transferred only from the top of the tank by means of fixed pumps designed and equipped to allow control of the flow and prevent leakage or accidental discharge.

2206.7.2.1 Aboveground tank dispenser. Only one vehicle may be fueled at a time. Fuel dispensing from a location remote from the tank may be allowed when approved by the commissioner.

2206.7.2.2 Pump sumps. Pump sumps shall be compatible with the liquid motor fuel, liquid-tight, and accessible for inspection. Prefabricated pump sumps shall be approved.

2206.7.3 Mounting of dispensers. Dispensing devices, except those installed on top of a protected aboveground tank that qualifies as vehicle-impact resistant, shall be protected against physical damage by mounting on a concrete island 6 inches (152 mm) or more in height, or shall otherwise be suitably protected in accordance with FC312. Dispensing devices shall be installed and securely fastened to their mounting surface in accordance with the dispenser manufacturer's instructions. Dispensing devices installed indoors shall be located in an approved position not in a direct line with vehicular traffic.

2206.7.3.1 Protection of floor openings in indoor facilities. Openings in floors beneath liquid motor fuel-dispensing facilities located indoors shall be sealed.

2206.7.3.2 Dispenser pans. An approved dispenser pan that is compatible with the liquid motor fuel shall be installed beneath a dispenser. The dispenser pan shall be liquid-tight, accessible for inspection, no larger than necessary, and installed solely for the purpose of collecting any liquid motor fuel leaking from the dispenser. The dispenser pan shall not be used to collect liquid motor fuel discharged from defective piping. The dispenser pan shall be backfilled up to not less than 6 inches (152 mm) above any nonmetallic piping and shall not interfere with the operation of any safety device.

2206.7.4 Dispenser emergency valve. An approved automatic emergency shutoff valve designed to close in the event of a fire or impact shall be properly installed in the liquid supply line at the base of each dispenser supplied by a remote pump. The valve shall be installed so that the shear groove is flush with or within ½ inch (12.7 mm) of the top of the concrete dispenser island and there is clearance provided for maintenance purposes around the valve body and operating parts. The valve shall be installed at the liquid supply line inlet of each overhead-type dispenser. Where installed, a vapor return line located inside the dispenser housing shall have a shear section or approved flexible connector for the liquid supply line emergency shutoff valve to function. Emergency shutoff valves shall be installed and maintained in accordance with the manufacturer's instructions, tested at the time of initial installation and tested at least yearly thereafter in accordance with FC2205.2.2.

2206.7.5 Dispenser hose. Dispenser hoses shall be a maximum of 18 feet (5486 mm) in length unless otherwise approved. Dispenser hoses shall be listed and approved. When not in use, hoses shall be reeled, racked or otherwise protected from damage. The length of the dispensing hose shall be such that at least 1 inch (25 mm) clearance between the hose and the ground is maintained when the nozzle is rested on its bracket. Dispensing hoses installed at aviation facilities, marine liquid motor fuel-dispensing facilities, and fleet liquid motor fuel-dispensing facilities shall be of an approved length.

2206.7.5.1 Breakaway devices. Dispenser hoses shall be equipped with a listed emergency breakaway device designed to retain liquid on both sides of a breakaway point. Such devices shall be installed and maintained in accordance with the manufacturer's instructions. Where hoses are attached to hose-retrieving mechanisms, the emergency breakaway device shall be located between the hose nozzle and the point of attachment of the hose-retrieval mechanism to the hose.

2206.7.6 Fuel delivery nozzles. A listed automatic-closing-type hose nozzle valve without a latch-open device shall be provided for dispensers used for dispensing liquid motor fuel, except that a nozzle valve with a latch-open device may be installed and used at the following automotive liquid motor fuel-dispensing facilities:

1. Full-service automotive liquid motor fuel-dispensing facilities.
2. Fleet automotive liquid motor fuel-dispensing facilities.
3. Dispensing of diesel fuel at self-service automotive liquid motor fuel-dispensing facilities.

2206.7.6.1 Special requirements for nozzles. Where dispensing of liquid motor fuel is performed, a listed automatic-closing-type hose nozzle valve shall be used that incorporates all of the following features:

1. When the flow of product is normally controlled by devices or equipment other than the hose nozzle valve, the hose nozzle valve shall not be capable of being opened unless the delivery hose is pressurized. If pressure to the hose is lost, the nozzle shall close automatically.

Exception: Vapor recovery nozzles incorporating insertion interlock devices designed to achieve shutoff on disconnect from the vehicle fill pipe.

2. The hose nozzle shall be designed such that the nozzle is retained in the fill pipe during the filling operation.
3. The system shall include listed equipment with a feature that causes or requires the closing of the hose nozzle valve before the product flow can be resumed or before the hose nozzle valve can be replaced in its normal position in the dispenser.

2206.7.6.2 Control device. A control device shall be provided that will allow a liquid motor fuel pump to operate only when the dispensing nozzle is removed from its bracket on the dispenser and the switch on the dispenser is manually activated. The flow of liquid motor fuel shall automatically stop when the switch is deactivated or the nozzle returned to its bracket.

2206.7.7 Leak detection. Underground liquid motor fuel storage and dispensing systems shall be provided with a leak detection system in accordance with the following:

1. The leak detection system shall provide continuous monitoring of the tank's interstitial space.
2. The leak detection system shall provide continuous monitoring of liquid motor fuel pump sumps. Activation of the leak detection system shall cause shutdown of the liquid motor fuel pumps.
3. The leak detection system shall provide continuous monitoring of dispenser pans. Activation of the leak detection system shall cause shutdown of the affected dispenser or liquid motor fuel pump supplying such dispenser.
4. Primary discharge piping shall be provided with an automatic line leak detector. Activation of such leak detector shall cause shutdown of the liquid motor fuel pump or significantly restrict the product flow.
5. The leak detection system shall have an alarm panel in a supervised location on the premises; trigger both an audible and visible local alarm; be capable of producing hardcopy printouts of all tests and/or leak notification reports; operate on low voltage; and be intrinsically safe for a liquid motor fuel environment.
6. Leak detection systems shall be listed and approved.

2206.7.8 Gravity and pressure dispensing. Liquid motor fuel shall not be dispensed by gravity from tanks, drums, barrels or similar containers. Liquid motor fuel shall not be dispensed by a device operating through pressure within a storage tank, drum or container.

2206.7.9 Vapor-recovery and vapor-processing systems. Vapor-recovery and vapor-processing systems, when required by the New York State Department of Environmental Conservation, shall be installed in accordance with FC2206.7.9 and the regulations of the New York State Department of Environmental Conservation, and shall be approved.

2206.7.9.1 Vapor-balance systems. Vapor-balance systems shall comply with the requirements of FC 2206.7.9.1.1 through 2206.7.9.1.5.

2206.7.9.1.1 Dispensing devices. Dispensing devices incorporating provisions for vapor recovery shall be listed and labeled. When existing listed or labeled dispensing devices are modified for vapor recovery, such modifications shall be listed by report by a nationally recognized testing laboratory. The listing by report shall contain a description of the component parts used in the modification and the recommended method of installation on specific dispensers. Such report shall be made available for inspection by any department representative. Means shall be provided to shut down fuel dispensing in the event the vapor return line becomes blocked.

2206.7.9.1.2 Vapor-return line closeoff. An approved method shall be provided to close off the vapor return line from dispensers when the product is not being dispensed.

2206.7.9.1.3 Piping. Piping in vapor-balance systems shall be in accordance with FC 3403.6 and 3404.2. Nonmetallic piping shall be installed in accordance with the manufacturer's installation instructions. Vapor return piping shall be installed in a manner that drains back to the tank, without sags or traps in which liquid can become trapped. If necessary, because of grade, condensate tanks are allowed in vapor return piping. Condensate tanks shall be designed and installed so that they can be drained without opening.

2206.7.9.1.4 Flexible joints and shear joints. Flexible joints shall be installed in accordance with FC3403.6.9. An approved shear joint shall be rigidly mounted and connected by a union in the vapor return piping at the base of each dispensing device. The shear joint shall be mounted flush with the top of the surface on which the dispenser is mounted.

2206.7.9.1.5 Testing. Vapor return lines and vent piping shall be tested in accordance with FC2206.9.

2206.7.9.2 Vapor-processing systems. Vapor-processing systems shall comply with the requirements of FC 2206.7.9.2.1 through 2206.7.9.2.4.

2206.7.9.2.1 Equipment. Equipment in vapor-processing systems, including hose nozzle valves, vapor pumps, flame arresters, fire checks or systems for prevention of flame propagation, controls and vapor-processing equipment, shall be individually listed for the intended use in a specified manner. Vapor-processing systems that introduce air into the underground piping or storage tanks shall be provided with equipment for prevention of flame propagation that has been tested and listed as suitable for the intended use.

2206.7.9.2.2 Location. Vapor-processing equipment shall be located at or above grade. Sources of ignition shall be located not less than 50 feet (15 240 mm) from fuel-transfer areas and not less than 18 inches (457 mm) above tank fill openings and tops of dispenser islands. Vapor-processing units shall be located not less than 10 feet (3048 mm) from the nearest building or structure or lot line.

Exception: Where the required distances to buildings or structures, lot lines or fuel-transfer areas cannot be obtained, means shall be provided to protect equipment against fire exposure. Acceptable means shall include:

1. Approved protective enclosures, which extend at least 18 inches (457 mm) above the equipment, constructed of fire-resistant or noncombustible materials; and
2. Fire protection using an approved water-spray system.

2206.7.9.2.2.1 Location and safeguards. Vapor-processing equipment shall be located a minimum of 20 feet (6096 mm) from dispensing devices. Processing equipment shall be protected against physical damage by guardrails, curbs,

protective enclosures or fencing. Where approved protective enclosures are used, approved means shall be provided to ventilate the volume within the enclosure to prevent pocketing of flammable vapors. Where a downslope exists toward the location of the vapor-processing unit from a fuel-transfer area, the commissioner may require additional separation by distance and height.

2206.7.9.2.3 Installation. Vapor-processing units shall be securely mounted on concrete, masonry or structural steel supports on concrete or other noncombustible foundations. Vapor-recovery and vapor-processing equipment is allowed to be installed on roofs when approved.

2206.7.9.2.4 Piping. Piping in a mechanical-assist system shall be in accordance with FC3403.6.

2206.7.10 Alcohol-blended motor fuel-dispensing equipment. Dispensers, hoses, nozzles, breakaway fittings, swivels, flexible connectors, dispenser emergency shutoff valves, vapor recovery systems and pumps used in alcohol-blended motor fuel storage and dispensing systems shall be compatible with such fuels and shall be listed or approved for such purpose.

2206.8 Fire extinguishing system for dispensing area. Where flammable liquid motor fuel is dispensed at an automotive liquid motor fuel-dispensing facility, the dispensing area shall be provided with a dry chemical fire extinguishing system designed and installed in accordance with FC904.6, and the following requirements:

1. The fire extinguishing system shall be designed to provide overhead protection of the dispenser area encompassed by a circle formed by the fully extended hose and nozzle on each fuel dispenser and both ends of the dispenser island.
2. The extinguishing agent containers shall be equipped with indicators to show whether the system is fully charged. Indicators shall be positioned to be easily read from grade.
3. The installation, alteration, testing and repair of the fire extinguishing system, including any maintenance or modification of the system, shall be performed by a person possessing a master fire suppression piping contractor license issued by the Department of Buildings and trained and knowledgeable in the installation, operation and maintenance of the specific fire extinguishing system.
4. Dispensers shall not be operated when the fire extinguishing system has discharged or is inoperative, except as authorized in writing by the department. The motor fuel-dispensing facility certified attendant shall immediately notify the department of system discharge or inoperability.
5. Fire extinguishing systems shall be inspected and tested in accordance with FC2206.9.
6. Fire extinguishing systems at fleet automotive liquid motor fuel-dispensing facilities shall be monitored by an approved central station company.

2206.9 Inspection and testing. Inspection and testing required by FC 2206.9.1 through 2206.9.7 shall be conducted at the owner's risk by his or her representative before a representative of the department.

2206.9.1 Initial tank test. Underground and aboveground tanks shall be tested hydrostatically at 15 pounds per square inch (psig)(103.4 kPa), or one and one-half times the maximum anticipated static head pressure, whichever is greater, for the inner tank, and pneumatically or hydrostatically at 5 pounds per square inch (psig)(34.5 kPa) for the annular space (secondary containment tank). When a pneumatic test is allowed, an inert gas shall be used; however, air may be used if the tank or piping system does not contain any liquid motor fuel or combustible vapor. Test pressure shall be maintained for a sufficient time to complete visual inspection, but not less than 1 hour. A tank shall be deemed to have passed the test if it shows no evidence of leakage or permanent deformation.

2206.9.2 Initial piping test. Prior to backfill, primary piping shall be tested hydrostatically to one and one-half times the maximum anticipated operating pressure, but not less than 15 pounds per square inch (psig)(103.4 kPa). After backfill and installation of the top slab, discharge piping shall be tested hydrostatically at one and one-half times the maximum anticipated pressure, but not less than 50 pounds per square inch (psig)(345 kPa). Secondary containment piping (annular space) shall be tested pneumatically at 5 pounds per square inch (psig)(34.5 kPa) utilizing an inert gas; however, air may be used if the tank system or piping system does not contain any liquid motor fuel or combustible vapor. Hydrostatic test pressure shall be maintained for sufficient time to complete visual inspection but not less than 1 hour. The test shall show that there is no evidence of leakage. Test pressure for aboveground tank piping shall be at one and one-half times the maximum anticipated operating pressure but not less than 100 pounds per square inch (psig)(690 kPa).

2206.9.3 Leak detection functionality test. Leak detection systems shall be inspected and tested at the time of installation in accordance with the rules. Leak detection systems monitoring liquid motor fuel storage systems shall be tested at least once every 2 years by a person holding a certificate of license. Such test shall confirm that all leak detection equipment and associated alarms are in good working order.

2206.9.4 Fire extinguishing system test. A performance test of the fire extinguishing system shall be performed at the time of installation in accordance with the approved design and installation documents, and such procedures as may be prescribed by the commissioner. Fire extinguishing systems shall be tested at least once every 5 years. The test shall be in accordance with procedures prescribed by the commissioner.

2206.9.5 Emergency tank and piping system test. The commissioner may require that a tank and piping system be precision tested or pressure tested in accordance with this section to determine the condition of the tank or piping. Storage systems that may contain liquid motor fuel or combustible vapor shall not be tested pneumatically.

2206.9.6 Periodic tank and piping test. Any existing underground single-walled liquid motor fuel storage tanks previously approved by the department or any existing underground

tanks that is not provided with a leak detection system meeting the requirements of FC2206.7.7 shall be precision tested at least once every 5 years.

2206.9.7 Pouring concrete and backfilling. The pouring of concrete for the base and top slab, the backfilling of tank and piping, and the construction of the top slab support shall be witnessed by a representative of the department at time of installation.

2206.10 Installation of underground tank and piping systems. The installation of tank and piping systems shall be in accordance with FC Chapter 34, except as otherwise specified in this section.

1. Tanks shall be located so that the forces from building foundations and support loads are not transmitted to the tanks. The distance from any part of a tank to the nearest wall of any basement, pit, cellar or any property line shall not be less than 3 feet (914 mm). Tanks shall not be placed less than 20 feet (6096 mm) from a subway wall.
2. Tanks shall be installed so that the highest point of the tank is not less than 2 feet (609.6 mm) below the level of the lowest cellar floor of any building within a radius of 10 feet (3048 mm) from the tank. No tank shall be located under a sidewalk or beyond the property line of the liquid motor fuel-dispensing facility.
3. Tanks shall be placed on a 12-inch (305-mm) thick base slab approved by the Department of Buildings, or installed in such other manner as may be approved by the Commissioner of Buildings, and secured against flotation. The system used for anchoring the tank shall not damage the tank or its coating.
4. Tanks shall be placed on a bed of approved backfill material in accordance with manufacturer's specifications. The backfill material shall evenly and completely support the bottom quadrant of the tank. The backfill material shall be carefully placed along the bottom, under the sides and under the end caps or heads of the tank, by shoveling and tamping. Backfilling shall then be completed in 12-inch (305-mm) lifts placed uniformly around the tank. Provision shall be made, consistent with site conditions, to prevent the migration of backfill.
5. Tanks shall be covered with a reinforced concrete slab not less than 8 inches (203 mm) thick, which shall extend not less than 12 inches (305 mm) beyond the horizontal outlines of the tank. The support of the top slab shall be of a design approved by the Department of Buildings.
6. Fill, suction and discharge piping shall be encased in 4 inches (102 mm) of concrete or covered by a minimum of 18 inches (457 mm) of manufacturer-approved backfill, or covered by 4 inches (102 mm) of manufacturer-approved backfill and an 8-inch (203-mm) reinforced concrete slab.
7. Not more than 40,000 gallons (151 400 L) of liquid motor fuel shall be stored at any facility, including liquid motor fuel stored in aboveground tanks.

8. Tanks containing identical products may be wet-manifolded provided that the total aggregate capacity of such tanks does not exceed 12,000 gallons (45 420 L) of liquid motor fuel, and each tank is provided with its own submersible pump.
9. Tank connections shall be designed and located so as to:
 - 9.1. Minimize the maneuvering necessary to position a cargo tank to make the delivery.
 - 9.2. Minimize obstructing a public right of way or motorists' view of roadways, or impeding the movement of motor vehicles or pedestrians, during deliveries.
 - 9.3. Provide connections by means of approved liquid- and vapor-tight connections.
10. Tanks installed underground indoors shall be provided with an approved liquid level-indicating device. Liquid level-indicating devices shall be designed and constructed to prevent the escape of liquid or vapor and shall be approved.
11. Test wells shall be prohibited in tanks located underground indoors. Unused tank openings shall be permanently sealed at the tank to prevent removal of plugs or covers.
12. Secondary containment piping shall be required on all nonmetallic product-carrying pipes except direct fill lines, suction lines or siphon lines containing only one check valve located at the highest point of the line.
13. Underground piping shall have a slope of not less than $\frac{1}{8}$ inch per foot (10.4 mm per meter) pitched toward the tank and shall be installed so as to facilitate initial and periodic testing.
14. Flexible joints shall be installed in accordance with FC3403.6.9.
15. Each underground motor fuel storage tank shall be provided with a separate unobstructed vent line without any trap or device that causes excessive back pressure.
16. Vent piping shall be installed not less than 12 inches (305 mm) below the finished surface measured from the point where the piping rises vertically and shall slope toward the tank.
17. Vent outlets shall discharge outdoors and upward. The discharge point shall be no less than 15 feet (4572 mm) above the adjacent ground level and no less than 10 feet (3048 mm) from the nearest building opening.
18. An approved overflow prevention device shall be provided to prevent overflowing. When installed in diesel fuel tanks, such overflow prevention device shall be designed to withstand the pressure generated by the cargo tank discharge pump and shall automatically shut off the flow into the tank when the tank is not more than 95 percent full.
19. Each tank shall be provided with one fill connection only, unless approved. Each tank fill connection shall be provided with a catchment basin with a capacity of at least 15 gallons (56.8 L). The contents of the catchment basin shall be automatically drained into the tank

without overfilling the tank after the transfer from the cargo tank is completed provided, however, that if the Stage II vapor recovery system approved for the tank does not allow for the installation of an automatic drain, a manual drain may be installed.

20. Where the discharging piping leak detector required by FC2206.7.7(4) does not cause shutdown of the liquid motor fuel pump, secondary containment piping shall be provided.

2206.11 Spill control. Provision shall be made to prevent liquids spilled during dispensing operations from flowing into buildings, by grading driveways, raising doorsills or other approved means.

SECTION FC 2207 RESERVED

SECTION FC 2208 COMPRESSED NATURAL GAS MOTOR FUEL-DISPENSING FACILITIES

2208.1 General. CNG motor fuel-dispensing facilities shall be designed, installed, operated and maintained in accordance with NFPA 52 except as otherwise specified in this section and FC2201.

2208.1.1 Prohibitions. It shall be unlawful to:

1. Operate a self-service marine CNG motor fuel-dispensing facility.
2. Fill a portable container, other than permanently mounted fuel containers on CNG-powered vehicles, except outdoors at a utility-operated facility.

2208.1.2 Supervision of dispensing operations. The dispensing of CNG at CNG motor fuel-dispensing facilities shall be supervised by a certified attendant as set forth in FC2201.7.

2208.1.3 Maintenance. Maintenance of CNG motor fuel-dispensing systems shall be conducted under the personal supervision of a person holding a CNG fueling facility maintenance certificate of fitness.

2208.1.4 Lighting. Dispensing areas shall be well lighted whenever dispensing is being conducted.

2208.1.5 Dispensing area signage. Durable signs shall be conspicuously posted in dispensing areas in CNG motor fuel-dispensing facilities in compliance with the requirements of FC 2208.1.5.1 through 2208.1.5.3.

2208.1.5.1 Operating instructions. A sign setting forth dispenser operating instructions shall be posted on every dispenser. Such sign shall also indicate the location of the emergency shutdown switches required by FC2208.7.

2208.1.5.2 CNG dispensing warning sign. A warning sign that reads as follows shall be posted on or immediately adjacent to each dispenser:

1. No smoking.
2. Shut off engine.

2208.1.5.3 Emergency procedures. A sign setting forth emergency procedures that reads as follows shall be posted in the dispensing area, or other location designated in this section:

IN CASE OF FIRE, LEAK OR EMERGENCY:

ACTIVATE EMERGENCY CNG SHUTDOWN

DIRECT VEHICLE OCCUPANTS TO EXIT VEHICLES
AND LEAVE AREA IMMEDIATELY

KEEP ALL PERSONS AWAY FROM THE AREA.

NOTIFY THE FIRE DEPARTMENT (CALL 911)

(FACILITY ADDRESS)

(indicate address, with cross-street reference).

2208.1.6 Emergency telephone. A telephone not requiring a coin to operate or another approved, clearly identified means to notify the department, shall be provided at the facility in an approved location.

2208.1.7 Electrical equipment. Electrical wiring and equipment shall be suitable for the location in which they are installed and shall be in accordance with FC605, NFPA 52 and the Electrical Code.

2208.1.8 Audible and visible alarms. All audible and visible alarms required by this section shall actuate at a supervised location on the premises that assures immediate response.

2208.1.9 Smoking and open flames. It shall be unlawful to smoke or use or maintain an open flame in any area where CNG motor fuel is compressed, stored or dispensed.

Exception: Welding, cutting or similar hot work may be conducted for emergency repair, alteration or installation work, providing that all necessary safety precautions are taken, and all required department permits and authorization from the holder of a certificate of fitness for CNG station maintenance have been obtained.

2208.1.10 Records of incidents. Records shall be kept of all incidents including fire, leak, device, equipment or system failure, out-of-service fire protection, alarm, or safety system, and of all equipment maintenance. Such records shall be kept in a bound log book or other

recordkeeping approved by the department, maintained on the premises for a minimum of 4 years.

2208.1.11 Self-service CNG motor fuel-dispensing facilities. Self-service CNG motor fuel-dispensing facilities shall be designed, installed, operated and maintained in compliance with the requirements of FC 2208.1.11.1 through 2208.1.11.5.

2208.1.11.1 Duties of certified attendant. The certified attendant's primary function shall be to supervise, observe and monitor the dispensing of CNG. The certified attendant shall prevent the dispensing of CNG into portable containers, control sources of ignition, take immediate action upon a fire, leak or other emergency and be ready to use a portable fire extinguisher. Nothing in this section shall be construed to prohibit a certified attendant from engaging in activities directly related to the sale of CNG motor fuel, such as the collection of money or processing of credit cards.

2208.1.11.2 Self-service dispensers. Approved self-service devices, equipment and systems such as, but not limited to, card-operated and remote-preset types, are allowed at CNG motor fuel-dispensing facilities. The certified attendant shall set the dispensing devices in the "off" position when not in use if such dispensing device can be activated without the certified attendant's knowledge.

2208.1.11.3 Monitoring of dispensing. A control booth shall be located on the premises of every self-service CNG motor fuel-dispensing facility. The control booth shall be an interior or exterior enclosure to which the public has no access. The certified attendant shall be present within the control booth while dispensing operations are conducted. The control booth shall be designed and located so that the certified attendant stationed therein shall have a full, unobstructed clear view of dispensing operations, except that mirrors and/or an approved closed-circuit television installation may be provided to afford the certified attendant a clear view of dispensing operations when the view from the control booth is partially or temporarily obstructed. For purposes of this section, the "clear" view provided by a closed-circuit television installation shall mean that the image on the monitor shall be of such brightness and resolution as to allow ready identification of individuals and easy observation of activities at all times of day. Audible and visible alarms required by this section shall actuate within the control booth. A properly labeled manual switch that activates the emergency shut down device shall be located within the control booth. A console that controls the self-service CNG motor fuel dispensers shall be provided within the control booth and within 5 feet (1524 mm) of the emergency shutdown device manual switch.

2208.1.11.4 Two-way voice communication. A two-way voice communication system shall be installed to provide contact between the control booth and each dispensing island.

2208.1.11.5 Signage. The signage required by FC2208.1.5 shall be posted in the dispensing area of a self-service motor fuel-dispensing facility, except that the emergency procedures sign required by FC2208.1.5.3 shall be posted in the control booth.

2208.1.12 Fleet CNG motor fuel-dispensing facilities. Fleet CNG motor fuel-dispensing facilities shall be designed, installed, operated and maintained in compliance with the requirements of FC 2208.1.12.1 through 2208.1.12.3.

2208.1.12.1 Inspection of dispensing areas. The certified attendant responsible for supervision of the dispensing of CNG at a fleet motor fuel-dispensing facility shall inspect the dispensing area on a periodic basis in accordance with the rules to ensure that the facility is being maintained in accordance with this chapter and the rules. The certified attendant shall notify the owner and make any other notifications required by this code if there is any evidence that the facility is not in good working order. A record of such inspections and notifications shall be maintained at the premises in accordance with FC107.7.

2208.1.12.2 Duties of fleet personnel. Employees or other persons working for the owner of a fleet CNG fuel-dispensing facility whose duties involve the dispensing of CNG shall be trained and knowledgeable in such dispensing in compliance with the requirements of this code and the rules.

2208.1.12.3 Quantity limits. Dispensing equipment used at fleet CNG motor fuel-dispensing facilities shall be programmed or set to limit uninterrupted CNG delivery to an approved amount and require a manual action to resume delivery.

2208.1.13 Full-service CNG motor fuel-dispensing facilities. Full-service CNG motor fuel-dispensing facilities shall be operated and maintained in compliance with the requirements of FC2208.1.13.1.

2208.1.13.1 Duties of certified attendant. The certified attendant at a full-service CNG motor fuel-dispensing facility shall personally supervise the dispensing of motor fuel into vehicles by facility personnel. The certified attendant shall conduct a visual inspection of the dispensing area on a daily basis to monitor the condition of such installation. The certificate of fitness holder shall notify the owner and make any other notifications required by this code if there is any evidence that the installation is not in good working order. A record of such inspections and notifications shall be maintained at the premises in accordance with FC107.7.

2208.2 Design, installation and testing requirements. Devices, equipment and systems used for the compression, storage and dispensing of CNG shall be designed, approved, listed and/or tested in accordance with FC 2208.2.1 through 2208.2.7.

2208.2.1 Approved equipment. Containers, vessels, compressors, pressure regulators, pressure relief valves and other pressure relief devices and piping used for CNG shall be approved.

2208.2.2 Listed equipment. Hoses, hose connections, dispensers, gas detection systems and electrical equipment used for CNG shall be listed. Vehicle-fueling connections shall be listed and labeled.

2208.2.3 Vehicle fueling hose. Vehicle fueling hose shall be compatible with CNG and shall withstand a pressure of at least four times the service pressure. Hoses shall be of retractable design and shall be protected against physical damage. Hoses shall be tested for leaks with a noncorrosive solution or equivalent leak detection method at least annually by a certified attendant and shall be replaced if damaged. Records of required inspections and testing shall be kept in a bound log book or other approved recordkeeping, maintained on the premises for a minimum of 4 years.

2208.2.4 Initial container testing. Prior to placing containers and pressure vessels in CNG service, evidence of container and pressure vessel pressure tests shall be submitted to the department demonstrating compliance with the requirements of NFPA 52.

2208.2.5 Gas piping. All CNG system gas piping shall be tested by a qualified person in accordance with NFPA 52 at the owner's risk and before a representative of the department prior to placing the system in service. Required tests shall begin at the downstream side of the remote manual shutdown valve.

2208.2.6 Filters and dryers. Filters and dryers used at CNG motor fuel-dispensing facilities shall be rated for the service and pressure intended and shall be tested in accordance with the gas piping test requirements set forth in FC2208.2.5.

2208.2.7 Safety devices. Upon installation, all automatic safety devices intended to cause equipment shutdown shall be tested at the owner's risk by his or her representative before a representative of the department.

2208.3 Location of dispensing operations and equipment. CNG motor fuel-dispensing facilities shall be located at a site operated by a natural gas utility, or other approved location.

2208.3.1 Location on property. In addition to the requirements of FC2203.1 and NFPA 52, compression, storage and dispensing devices, equipment and systems shall be installed as follows:

1. Aboveground, and not beneath power lines.
2. At least 10 feet (3048 mm) from the nearest building, lot line, public street, private road, sidewalk, or source of ignition.

Exception: Dispensing equipment need not be separated from canopies that are constructed in accordance with the construction codes, including the Building Code, and which provide weather protection for the dispensing equipment.

3. At least 25 feet (7620 mm) from the nearest rail of any railroad track and 50 feet (15 240 mm) or more from the nearest rail of any railroad main track or any railroad or transit line where power for train propulsion is provided by an outside electrical source such as third rail or overhead catenary.

4. At least 50 feet (15 240 mm) from the vertical plane below the nearest overhead wire of a trolley bus line.

2208.3.2 Rooftop operations. Rooftop dispensing shall be in accordance with FC 2208.3.2.1 through 2208.3.2.3.

2208.3.2.1 Roof construction. The roof of the building or structure shall be of noncombustible construction.

2208.3.2.2 Compressor and discharge piping. The compressor shall be located on the roof and the discharge piping shall not enter the building or structure.

2208.3.2.3 Height. The building or structure shall be 75 feet (22 860 mm) or less in height.

2208.4 Reserved.

2208.5 Pressure regulators. Pressure regulators shall be designed and installed or protected so that their operation will not be affected by the elements (freezing rain, sleet, snow or ice), mud or debris. The protection is allowed to be an integral part of the regulator.

2208.6 Manual valves. Gas supply piping to equipment shall be provided with a remote, readily accessible manual shutoff valve of the fast-closing, quarter-turn type. Manual valves shall be located so as to minimize the risk of physical damage and minimize being rendered inoperable as a result of freezing.

2208.6.1 Location. Manual valves shall be located within the boundary of the facility and as follows:

1. Not less than 25 feet (7620 mm) from the compressor for compressors rated for 300 standard cubic feet per minute ($8.5 \text{ m}^3/\text{min}$) or less.
2. Not less than 75 feet (22 860 mm) from the compressor for compressors rated for greater than 300 standard cubic feet per minute ($8.5 \text{ m}^3/\text{min}$).

2208.7 Emergency shutdown switches. An approved, clearly identified and readily accessible emergency shutdown switch shall be provided at an approved location. The switch, upon activation, shall automatically and immediately shut off the power supply to the compressor and close valves between the gas supply and the compressor and between the storage tanks and the dispensers. Such emergency shutdown switches for outdoor CNG dispensers shall be located within 75 feet (22 860 mm) of, but not less than 25 feet (7620 mm) from, the fuel dispensers. For interior fuel-dispensing operations, such emergency shutdown switches shall be installed at an approved location. An additional automatic emergency shutdown switch shall be provided in the compressor area for both indoor and outdoor compressors. An approved sign shall be posted on or immediately adjacent to such switches and shall read: EMERGENCY CNG SHUTOFF. Such emergency shutdown switch shall be of a type that is manually resettable.

2208.7.1 Compressor shutdown devices. Each compressor shall be equipped with an automatic shutdown device that will shut down the compressor in the event of low suction pressure, high suction pressure, high motor temperature, high discharge pressure or high discharge temperature.

2208.7.2 Gas detection system. Indoor compressing, storage and dispensing areas shall be provided with a combustible gas detection alarm system meeting the standards of the construction codes, including the Building Code. Such system shall activate a local audible and visible alarm at 20 percent of the LEL and automatically shut off gas supply at 50 percent of the LEL, with simultaneous transmission of an alarm to the department by an approved central station company. The automatic shutoff valve shall be located upstream from the confined high-pressure piping and shall be installed underground or otherwise protected from exposure to fire in an approved manner.

2208.7.3 Heat detection system. Indoor compressing, storage and dispensing areas shall be provided with a closed-circuit heat detection system utilizing approved heat detection devices and equipment designed to automatically activate a local audible and visible alarm with simultaneous transmission to an approved central station, activate a fire extinguishing system over the area or enclosure, and shut off the gas supply to the compressor and dispenser. The automatic shutoff valve shall be installed underground or be otherwise protected from exposure to fire in an approved manner.

2208.7.3.1 Outdoor heat detection system. Outdoor compressing, storage and dispensing shall be provided with a closed-circuit heat detection system designed utilizing approved heat detection devices and equipment designed to automatically activate a local audible and visible alarm and shut off the gas supply to the compressor and dispenser. The automatic shutoff valve shall be installed underground or otherwise protected from exposure to fire in an approved manner.

2208.7.3.2 Outdoor storage exceeding 35,000 SCF (991.2 m³). For outdoor CNG storage exceeding 35,000 SCF (991.2 m³) located within 25 feet (7620 mm) of a building or structure, activation of the heat detection system shall simultaneously transmit an alarm to an approved central station.

2208.7.4 Fire extinguishing systems and appliances. Indoor compressing, storage and dispensing areas shall be protected throughout by a fire extinguishing system.

2208.7.4.1 Fire extinguishing system periodic testing. A performance test of the non-water fire extinguishing system and the dispensing facility emergency shutdown system shall be conducted at least once every 5 years. The test shall be conducted at the owner's risk by his or her representative before a representative of the department.

2208.7.4.2 Portable fire extinguishers. Portable fire extinguishers shall be provided adjacent to the CNG motor fuel-dispensing facility in the number and size specified by NFPA 52 and FC906.

2208.8 Discharge of CNG from motor vehicle fuel storage containers. The discharge of CNG from motor vehicle fuel containers for the purposes of maintenance, container certification, calibration of dispensers or other activities shall be in accordance with FC 2208.8.1 through 2208.8.1.2.

2208.8.1 Methods of discharge. The discharge of CNG from motor vehicle fuel containers shall be accomplished through a closed transfer system in accordance with FC2208.8.1.1 or an approved method of atmospheric venting in accordance with FC2208.8.1.2.

2208.8.1.1 Closed transfer system. Documentation of the procedure for discharging the container shall be provided to the commissioner for approval. The procedure shall include the actions the operator will take in the event of a low-pressure or high-pressure natural gas release during the discharging activity. A schematic design document illustrating the arrangement of piping, regulators and equipment settings, and their relation to the location of the compressor, storage vessels and emergency shutdown devices, shall be provided to the commissioner for approval.

2208.8.1.2 Atmospheric venting. Atmospheric venting of CNG shall comply with the requirements of FC 2208.8.1.2.1 through 2208.8.1.2.6.

2208.8.1.2.1 Plans and specifications. A schematic design document illustrating the location of the vessel support, piping, the method of grounding and bonding, and other requirements specified herein or requested by the department shall be provided to the commissioner for approval.

2208.8.1.2.2 Container stability. A method of rigidly supporting the container during the venting of CNG shall be provided. The selected method shall provide not less than two points of support and shall prevent the horizontal and lateral movement of the container. The system shall be designed to prevent the movement of the container based on the highest gas-release velocity through valve orifices at the container's rated pressure and volume. The structure or appurtenance shall be constructed of noncombustible materials.

2208.8.1.2.3 Separation. The structure or appurtenance used for stabilizing the container shall be separated from other equipment or features as set forth in FC Table 2208.8.1.2.3.

**FC TABLE 2208.8.1.2.3
SEPARATION DISTANCE FOR ATMOSPHERIC VENTING OF CNG**

EQUIPMENT OR FEATURE	MINIMUM SEPARATION (feet)
Buildings	25
Building openings	25
Lot lines	15
Public street or private roads	15
Vehicles	25
CNG compressor and storage containers	25
CNG dispensers	25

For SI: 1 foot = 304.8 mm.

2208.8.1.2.4 Grounding and bonding. The structure or appurtenance used for supporting the container shall be grounded in accordance with the Electrical Code. The container valve shall be bonded prior to the commencement of venting operations.

2208.8.1.2.5 Vent tube. A vent tube that will divert the gas flow to the atmosphere shall be installed on the container prior to commencement of the venting and purging operation. The vent tube shall be constructed of pipe or tubing materials approved for use with CNG in accordance with FC Chapter 30. The vent tube shall be capable of dispersing the gas a minimum of 10 feet (3048 mm) above grade level. The vent tube shall not be provided with a rain cap or other feature that would limit or obstruct the gas flow. At the connection fitting of the vent tube and the CNG container, a listed bi-directional detonation flame arrester shall be provided.

2208.8.1.2.6 Signage. Approved “No Smoking” signs complying with the requirements of FC310 shall be conspicuously posted within 10 feet (3048 mm) of the container support structure or appurtenance. Approved CONTAINER SHALL BE BONDED signs shall be posted on the container support structure or appurtenance.

2208.9 Residential and other vehicle fueling appliance facilities. The compressing and dispensing of CNG by a vehicle fueling appliance shall be in accordance with FC 2208.9.1 through 2208.9.4.

2208.9.1 Residential fueling appliance facilities. The compressing and dispensing of CNG at a residential fueling appliance facility shall be in accordance with NFPA 52 and this chapter, except that such facilities shall be exempt from the requirements of FC2208.3.1(2) with regard to the distance to the nearest building, and FC 2208.7 through 2208.7.4.

2208.9.2 Nonresidential fueling appliance facilities. The compressing and dispensing of CNG at a nonresidential fueling appliance facility shall be in accordance with NFPA 52 and this chapter, except that such facilities shall be exempt from FC2208.3.1(2) with regard to the distance to the nearest building, and FC 2208.7 through 2208.7.4.

2208.9.3 Prohibitions. It shall be unlawful to:

1. Fill or store any containers, other than permanently mounted fuel containers on CNG-powered vehicles.
2. Compress and dispense CNG indoors.

2208.9.4 Supervision. The operation of a vehicle fueling appliance facility shall be under the personal supervision of a certified attendant.

2208.10 Mobile CNG motor fuel compression, storage and dispensing. A mobile CNG motor fuel compression, storage and/or dispensing system may be used to fuel vehicle-mounted containers as approved by the commissioner and subject to such conditions as the commissioner may prescribe consistent with public safety.

**SECTION FC 2209
HYDROGEN MOTOR FUEL-DISPENSING
AND GENERATING FACILITIES**

2209.1 General. Hydrogen motor fuel-dispensing and generating facilities shall be designed, installed, operated and maintained in accordance with this section and FC Chapters 30, 32 and 35, as applicable.

2209.1.1 Prohibition. It shall be unlawful to:

1. Maintain or operate a self-service hydrogen motor fuel-dispensing facility.
2. Maintain or operate a marine hydrogen motor fuel-dispensing facility.
3. Fill a container with hydrogen, other than containers permanently mounted on a powered industrial truck or a hydrogen-powered motor vehicle and used for motive power as set forth in FC3501.5(1).
4. Generate, compress, store or dispense hydrogen indoors.

2209.1.2 Supervision. The dispensing of hydrogen at hydrogen motor fuel-dispensing facilities shall be conducted by or under the personal supervision of a certified attendant in accordance with FC2201.7.

2209.1.2.1 Inspection of dispensing area. The certified attendant at a hydrogen motor fuel-dispensing facility responsible for supervision of the dispensing of hydrogen shall inspect the dispensing area on a daily basis to ensure that the facility is being maintained in accordance with this chapter and the rules. The certified attendant shall notify the owner and make any other notifications required by this code if there is any evidence that the facility is not in good working order. A record of such inspections and notifications shall be maintained at the premises in accordance with FC107.7.

2209.1.2.2 Duties of fleet personnel. Employees or other persons working for the owner of a fleet hydrogen motor fuel-dispensing facility whose duties involve the dispensing of hydrogen shall be trained and knowledgeable in such dispensing in compliance with the requirements of this code and the rules.

2209.1.3 Maintenance. Maintenance of hydrogen motor fuel-dispensing facilities shall be conducted under the personal supervision of a person holding a hydrogen fueling-facility maintenance certificate of fitness.

2209.1.4 Lighting. Dispensing areas shall be well lighted whenever dispensing is conducted.

2209.1.5 Dispensing area signage. Durable signs shall be conspicuously posted in dispensing areas in hydrogen motor fuel-dispensing facilities in compliance with the requirements of FC 2209.1.5.1 through 2209.1.5.4.

2209.1.5.1 Operating instructions. A sign setting forth dispenser operating instructions shall be posted on every dispenser. Such sign shall also indicate the location of the emergency shutdown valves and emergency shutdown controls required by FC 2209.7.3 and 2209.7.4.

2209.1.5.2 Hydrogen dispensing warning sign. A warning sign that reads as follows shall be posted on or immediately adjacent to each dispenser:

1. No smoking.
2. Shut off engine.

2209.1.5.3 Emergency procedures. A sign setting forth emergency procedures that reads as follows shall be posted in the dispensing area, or other location designated in this section:

IN CASE OF FIRE, LEAK OR EMERGENCY:

ACTIVATE EMERGENCY SHUTDOWN

DIRECT VEHICLE OCCUPANTS TO EXIT VEHICLES
AND LEAVE AREA IMMEDIATELY

KEEP ALL PERSONS AWAY FROM THE AREA

NOTIFY THE FIRE DEPARTMENT (CALL 911)

(FACILITY ADDRESS)

(indicate address, with cross-street reference).

2209.1.5.4 Canopy top hydrogen storage. An approved sign having 2-inch (51-mm) block letters shall be conspicuously posted at approved locations on the exterior of any canopy structure when gaseous hydrogen compression and storage equipment is located on top of such canopy reading “CANOPY TOP HYDROGEN STORAGE.”

2209.1.6 Emergency telephone. A telephone not requiring a coin to operate or another approved, clearly identified means to notify the department, shall be provided on the site in an approved location.

2209.2 Equipment. Equipment used for the generation, compression, storage or dispensing of hydrogen shall be designed for hydrogen motor fuel in accordance with this section.

2209.2.1 Approved equipment. Containers and tanks; pressure relief devices, including pressure valves, hydrogen vaporizers, pressure regulators, and piping used for gaseous

hydrogen systems shall be designed and constructed in accordance with FC Chapters 30, 32 and 35.

2209.2.2 Listed or approved equipment. Hoses, hose connections, compressors, hydrogen generators, dispensers, detection systems and electrical equipment used for hydrogen shall be listed or approved for use with hydrogen. Hydrogen motor fueling connections shall be listed and labeled or approved for use with hydrogen.

2209.2.3 Electrical equipment. Electrical wiring and equipment shall be suitable for the location in which they are installed and shall be in accordance with the Electrical Code.

2209.3 Location. In addition to the requirements of FC2203.1, generation, compression, storage and dispensing equipment shall be located in accordance with this section.

2209.3.1 Outdoors. Generation, compression, storage or dispensing equipment shall be allowed outdoors only in accordance with FC Chapter 35.

2209.3.2 Gaseous hydrogen storage. Storage of gaseous hydrogen shall be in accordance with FC Chapters 30 and 35.

2209.3.3 Liquefied hydrogen storage. Storage of liquefied hydrogen shall be in accordance with FC Chapters 32 and 35.

2209.3.4 Canopy tops. Gaseous hydrogen compression and storage equipment located on top of motor fuel-dispensing facility canopies shall be in accordance with FC Chapters 30 and 35, the Fuel Gas Code and this section.

2209.3.4.1 Construction. Canopies shall be constructed in accordance with the motor fuel-dispensing facility canopy requirements of Chapter 4 of the Building Code and the following:

1. The canopy shall meet or exceed Type I construction requirements.
2. Operations located under canopies shall be limited to fueling only.
3. The canopy shall be constructed in a manner that prevents the accumulation of hydrogen gas.

2209.3.4.2 Fire extinguishing systems. Fuel-dispensing areas under canopies shall be protected throughout by a sprinkler system. The design of the sprinkler system shall not be less than that required for Extra Hazard Group 2 occupancies. Operation of the sprinkler system shall activate the emergency functions of this section.

2209.3.4.3 Emergency discharge. Operation of the sprinkler system shall activate an automatic emergency discharge system, which will discharge the hydrogen gas from the equipment on the canopy top through the vent pipe system.

2209.3.4.4 Emergency shutdown control. Operation of the sprinkler system shall activate the emergency shutdown control required by FC2209.7.4.

2209.4 Canopies. Dispensing equipment need not be separated from canopies of Type I or II construction that are constructed in a manner that prevents the accumulation of hydrogen gas and in accordance with Chapter 4 of the Building Code.

2209.5 Weather protection. Generation, compression, storage or dispensing equipment shall be allowed under weather protection in accordance with the requirements of Chapter 4 of the Building Code and FC2704.13. The weather protection shall be constructed in a manner that prevents the accumulation of hydrogen gas.

2209.6 Overpressure protection. Dispensing systems shall be equipped with an overpressure protection device set at 140 percent of the service pressure of the fueling nozzle it supplies.

2209.7 Safety precautions. Safety precautions at hydrogen motor fuel-dispensing and generating facilities shall be in accordance with this section.

2209.7.1 Protection from vehicles. Guard posts or other approved means shall be provided to protect hydrogen storage systems and use areas subject to vehicular damage in accordance with FC312.

2209.7.2 Vehicle fueling pad. The motor vehicle shall be fueled on noncoated concrete or other approved paving material having a resistance not exceeding 1 megohm as determined by the methodology specified in EN 1081.

2209.7.3 Emergency shutoff valves. A manual emergency shutoff valve shall be provided at a clearly visible, accessible and approved location, to shut down the flow of gas from the hydrogen supply to the piping system.

2209.7.4 Emergency shutdown controls. In addition to the manual emergency shutoff valve required by FC2209.7.3, a remotely located, manually activated emergency shutdown control shall be provided. 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 hydrogen generators.

2209.7.5 System requirements. Activation of the emergency shutdown control shall automatically shut down the power supply to all hydrogen storage, compression and dispensing equipment; shut off natural gas or other fuel supply to the hydrogen generator; and close valves between the main supply and the compressor and between the storage containers and dispensing equipment.

SECTION FC 2210 MARINE LIQUID MOTOR FUEL-DISPENSING FACILITIES

2210.1 General. The construction of marine liquid motor fuel-dispensing facilities shall be in accordance with the construction codes, including the Building Code, and NFPA 30A. The installation, inspection, testing, maintenance and operation of a liquid motor fuel storage and dispensing system at marine liquid motor fuel-dispensing facilities shall be in accordance with this chapter governing automotive liquid motor fuel-dispensing facilities, except that full-service marine liquid motor fuel-dispensing facilities do not require a fire extinguishing system for the dispensing area.

2210.1.1 Prohibited facility. It shall be unlawful to operate a self-service marine liquid motor fuel-dispensing facility.

2210.2 Storage and handling. The storage and handling of liquid motor fuel at marine liquid motor fuel-dispensing facilities shall be in accordance with FC 2210.2.1 through 2210.2.3.

2210.2.1 Class I, II or IIIA liquid storage. Class I, II or IIIA liquids stored indoors used for marine liquid motor fuel-dispensing facilities shall be stored in approved containers. Storage of Class I liquids shall not exceed 10 gallons (38 L).

2210.2.2 Dispensing from portable containers. No marine vessel or watercraft shall be fueled from a portable container while indoors.

2210.2.3 Heating equipment. Heating equipment installed in liquid motor fuel storage or dispensing areas shall comply with the requirements of FC2201.6.

2210.3 Dispensing. The dispensing of liquid motor fuel at marine liquid motor fuel-dispensing facilities shall comply with the requirements of FC 2210.3.1 through 2210.3.4.

2210.3.1 General. Unless another use has been approved, piers, docks or wharves at marine liquid motor fuel-dispensing facilities shall be used exclusively for the dispensing or transfer of liquid motor fuel to or from marine vessel, watercraft, except that transfer of essential ship stores is allowed.

2210.3.1.1 Flexible metallic piping. Where there is a need to provide flexibility in piping to allow for motion of a pier or dock, flexible metallic piping of an approved length and design may be installed and used in compliance with NFPA 30A. All flexible metallic piping or other flexible hose connections authorized by this section shall be inspected for proper operation at least once a year by a certificate of license holder. A record of such inspection shall be kept in a bound log book or other approved form of recordkeeping, and maintained on the premises for a minimum of 4 years.

2210.3.2 Supervision. The dispensing of liquid motor fuel at marine liquid motor fuel-dispensing facilities shall be conducted by or under the personal supervision of a certified attendant as set forth in FC2201.7.

2210.3.3 Hoses and nozzles. Dispensing of liquid motor fuel into the fuel tanks of marine vessels and watercraft shall be by means of an approved-type hose equipped with a listed automatic-closing nozzle without a latch-open device. Hoses used for dispensing or

transferring liquid motor fuel, when not in use, shall be reeled, racked or otherwise protected from mechanical damage.

2210.3.4 Portable containers. Liquid motor fuel dispensing into portable containers shall be performed in accordance with FC2204.1.7, except that portable containers that are approved and used as the fuel tank for marine vessels or watercraft may be of a capacity not greater than 5½ gallons (20.8 L).

2210.4 Fueling of marine vehicles at other than approved marine liquid motor fuel-dispensing facilities. It shall be unlawful to fuel floating marine vessels and watercraft with liquid motor fuel at other than a marine liquid motor fuel-dispensing facility, except fueling of marine vessels and watercraft performed by off-shore fueling vessels approved by the United States Coast Guard.

2210.5 Fire prevention. Marine liquid motor fuel-dispensing facilities shall comply with the requirements of FC 2210.5.1 through 2210.5.7.

2210.5.1 Housekeeping. Marine motor fuel-dispensing facilities shall be maintained in a neat and orderly manner. Accumulations of rubbish or waste oils in excessive amounts are prohibited. Rubbish and other combustible waste shall be regularly removed from the premises and disposed of lawfully.

2210.5.2 Spills. Spills of liquid motor fuel near or in the water shall be reported immediately to the department and other governmental agencies requiring such reporting.

2210.5.3 Rubbish containers. Metal containers with tight-fitting or self-closing metal lids shall be provided for the temporary storage of rubbish or other combustible waste.

2210.5.4 Marine vessel and watercraft mooring. When marine vessels and watercraft are being fueled at a fuel dock, no other marine vessel or watercraft shall be made fast to the marine vessel or watercraft being fueled or to the fuel dock. The dispensing hose shall not cross one marine vessel or watercraft to reach another.

2210.5.5 Sources of ignition. Any activity or operation involving the use of open flames, arc- or spark-producing devices shall not be performed at marine motor fuel-dispensing facilities or within 50 feet (15 240 mm) of the dispensing facilities, including piers, docks or wharves, except where approved by the commissioner. Dispensing shall not be conducted at such pier, dock or wharf during the course of such emergency repairs.

2210.5.5.1 Smoking. It shall be unlawful to smoke, use or maintain an open flame within 50 feet (15 240 mm) of fueling operations. “No Smoking” signs complying with the requirements of FC310 shall be conspicuously posted throughout the premises. Such signs shall have letters of not less than 4 inches (102 mm) in height with a background of contrasting color.

2210.5.6 Preparation of tanks for fueling. Marine vessel and watercraft owners and operators shall not offer their marine vessel or watercraft for fueling unless the tanks being filled are properly vented to dissipate fumes to the outdoors.

2210.5.7 Warning signs. Warning signs shall be prominently displayed at the face of each pier, dock or wharf at such elevation as to be clearly visible from the decks of marine vessels and watercraft being fueled. Such signs shall have letters not less than 3 inches (76 mm) in height on a background of contrasting color bearing the following or approved equivalent wording:

WARNING
NO SMOKING—STOP ENGINE WHILE
FUELING, SHUT OFF ELECTRICITY.
DO NOT START ENGINE UNTIL AFTER
BELOW DECK SPACES ARE VENTILATED.

2210.6 Fire protection. Marine liquid motor fuel-dispensing facilities shall comply with the requirements of FC 2210.6.1 through 2210.6.4, and the construction codes, including the Building Code.

2210.6.1 Standpipe hose stations. Fire hose, when required, shall be provided and enclosed within a cabinet, and hose stations shall be labeled: FIRE HOSE—EMERGENCY USE ONLY.

2210.6.2 Obstruction of fire protection equipment. Materials shall not be placed or stored on a pier, dock or wharf in such a manner as to obstruct access to firefighting equipment or piping system control valves.

2210.6.3 Access. Where the pier, dock or wharf is accessible to vehicular traffic, an unobstructed roadway to the shore end of the pier, dock or wharf shall be maintained for access by fire apparatus.

2210.6.4 Portable fire extinguishers. One portable fire extinguisher in accordance with FC906 having a minimum rating of 40-B:C shall be provided on the pier, dock or wharf within 25 feet (7620 mm) of the head of the gangway to the pier, dock or wharf. If the certified attendant's office is within 25 feet (7620 mm) of the gangway or is on the pier, dock or wharf, the fire extinguisher may be provided therein.

SECTION FC 2211 REPAIR GARAGES

2211.1 General. Repair garages shall comply with the requirements of this section and the construction codes, including the Building Code. Repair garages for vehicles that use more than one type of fuel shall comply with the applicable requirements of this section for each type of fuel used. Where a repair garage also includes a motor fuel-dispensing facility, the fuel-dispensing operation shall comply with the requirements of this chapter for motor fuel-dispensing facilities.

2211.1.1 Supervision of defueling operations. The defueling of liquid motor fuel from the fuel tank of a motor vehicle shall be conducted by or under the personal supervision of a person holding a certificate of fitness.

2211.2 Storage and use of flammable and combustible liquids. The storage and use of flammable and combustible liquids in repair garages shall comply with the requirements of FC Chapter 34 and FC 2211.2.1 through 2211.2.4.

2211.2.1 Cleaning of parts. Cleaning of parts shall be conducted in listed and approved parts-cleaning machines in accordance with FC Chapter 34.

2211.2.2 Waste oil, motor oil and other Class IIIB liquids. Waste oil, motor oil and other Class IIIB liquids, including crankcase drainings shall be stored in approved tanks or containers, which are allowed to be stored and dispensed from inside repair garages.

2211.2.2.1 Tanks storing waste oil. For tanks of a capacity of 500 gallons (1893 L) or less, the fill connection may be located indoors provided that discharge of vapor from the fill port is prevented from entering the building or structure during and after filling. An automatic spring-loaded vertical check valve in the fill line or other device designed to prevent vapors from escaping shall be provided. The fill line shall be capped immediately after filling.

2211.2.3 Drainage and disposal of liquids and oil-soaked waste. Garage floor drains, where provided, shall drain to approved oil separators or traps discharging to a sewer in accordance with the construction codes, including the Plumbing Code. Contents of oil separators, traps and floor drainage systems shall be collected at sufficiently frequent intervals and removed from the premises to prevent oil from being carried into the sewers. Crankcase drainings and liquids shall not be dumped into sewers, streams or on the ground, but shall be stored in approved tanks or containers in accordance with FC Chapter 34 until removed from the premises. Self-closing metal cans shall be used for oily waste.

2211.2.4 Spray finishing. Spray finishing with flammable or combustible liquids shall comply with the requirements of FC Chapter 15.

2211.3 Sources of ignition. Sources of ignition shall not be located within 18 inches (457 mm) of the floor and shall comply with the requirements of FC Chapters 3 and 26.

2211.3.1 Equipment. Appliances and equipment installed in a repair garage shall comply with the requirements of the construction codes, including the Building Code, the Mechanical Code and the Electrical Code.

2211.3.2 Smoking. Smoking is prohibited in repair garages.

2211.4 Below grade areas. Pits and other work areas below grade in repair garages shall comply with the requirements of FC 2211.4.1 through 2211.4.3.

2211.4.1 Construction. Pits and other work areas below grade shall be constructed in accordance with the construction codes, including the Building Code.

2211.4.2 Means of egress. Pits and other work areas below grade shall be provided with means of egress in accordance with the Building Code.

2211.4.3 Ventilation. Where Class I liquids 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 construction codes, including the Mechanical Code, at a minimum rate of 1.5 cubic feet per minute per square foot $0.008 \text{ m}^3/\text{s}/\text{m}^2$ to prevent the accumulation of flammable vapors.

2211.5 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.

2211.5.1 Drainage of liquid motor fuel tanks. Portable equipment used for defueling and refueling shall be listed and labeled and shall have fuel storage tanks not exceeding 65 gallons (246 L). Systems for defueling and refueling, other than by use of portable equipment, shall be approved.

2211.6 Portable fire extinguishers. Portable fire extinguishers shall be provided in accordance with FC906.

2211.7 Repair garages for vehicles fueled by lighter-than-air fuels. Repair garages for the conversion and/or repair of vehicles which use CNG, liquefied natural gas (LNG), hydrogen or other lighter-than-air motor fuels shall be designed, installed, operated and maintained in accordance with FC 2211.7.1 and 2211.7.2, and, as applicable, FC2211.

Exception: Repair garages where work is not performed on the fuel system and is limited to exchange of parts and maintenance requiring no open flame or welding.

2211.7.1 Ventilation. Repair garages used for the repair of CNG, LNG or hydrogen-fueled vehicles shall be provided with an approved mechanical ventilation system. The mechanical ventilation system shall be in accordance with the construction codes, including the Mechanical Code.

2211.7.2 Gas detection system. Repair garages used for repair of vehicles fueled by CNG, LNG or hydrogen shall be provided with an approved flammable gas detection system meeting the requirements of the construction codes, including the Building Code.

2211.8 Defueling of hydrogen from motor vehicle fuel storage containers. Discharge or defueling of hydrogen from motor vehicle fuel storage containers for the purpose of maintenance, container certification or other purposes shall be performed in accordance with FC2211.8.1.

2211.8.1 Methods of discharge. The discharge of hydrogen from motor vehicle fuel storage containers shall be accomplished through a closed transfer system in accordance with FC2211.8.1.1 or an approved method of atmospheric venting in accordance with FC2211.8.1.2.

2211.8.1.1 Closed transfer system. A documented procedure that explains the logic sequence for discharging the storage container shall be provided to the commissioner for review and approval. The procedure shall include the actions the operator is required to take in the event of a low-pressure or high-pressure hydrogen release during discharging activity. Schematic design documents shall be provided illustrating the arrangement of piping, regulators and equipment settings. The design and installation documents shall illustrate the piping and regulator arrangement and shall be shown in spatial relation to the location of the compressor, storage vessels and emergency shutdown devices.

2211.8.1.2 Atmospheric venting of hydrogen from motor vehicle fuel storage containers. When atmospheric venting is used for the discharge of hydrogen from motor vehicle fuel storage containers, such venting shall be performed in accordance with FC 2211.8.1.2.1 through 2211.8.1.2.4.

2211.8.1.2.1 Defueling equipment required at vehicle maintenance and repair facilities. All facilities for repairing hydrogen systems on hydrogen-fueled vehicles shall have equipment to defuel vehicle storage containers. Equipment used for defueling shall be listed and labeled for the intended use.

2211.8.1.2.1.1 Manufacturer's equipment required. Equipment supplied by the vehicle manufacturer shall be used to connect the vehicle storage containers to be defueled to the vent pipe system.

2211.8.1.2.1.2 Vent pipe maximum diameter. Defueling vent pipes shall have a maximum inside diameter of 1 inch (25 mm) and be installed in an approved manner.

2211.8.1.2.1.3 Maximum flow rate. The maximum rate of hydrogen flow through the vent pipe system shall not exceed 1,000 SCF/min (28.3 m³/min) and shall be controlled by means of the manufacturer's equipment, at low pressure and without adjustment.

2211.8.1.2.1.4 Isolated use. The vent pipe used for defueling shall not be connected to a venting system used for another purpose.

2211.8.1.2.2 Design and installation documents. Design and installation documents shall be provided illustrating the defueling system to be utilized. Plan details shall be of sufficient detail and clarity to allow for evaluation of the piping and control systems to be utilized and include the method of support for containers to be used as part of a closed transfer system, the method of grounding and bonding, and other requirements set forth in this section.

2211.8.1.2.3 Stability of containers. A method of rigidly supporting containers used during defueling of hydrogen shall be provided. The method shall provide not less than two points of support and shall be designed to resist lateral movement of the receiving container. The system shall be designed to resist movement of the receiver based on the highest gas-release velocity through valve orifices at the receiver's rated service pressure and volume. Supporting structures or appurtenances used to support containers shall be constructed of noncombustible materials in accordance with the construction codes, including the Building Code.

2211.8.1.2.4 Grounding and bonding. Containers and piping systems used for defueling shall be bonded and grounded. Structures or appurtenances used for supporting the containers shall be grounded in accordance with the Electrical Code. The valve of the vehicle storage container shall be bonded with the defueling system prior to the commencement of discharge or defueling operations.

2211.8.2 Repair of hydrogen piping. Piping systems containing hydrogen shall not be opened to the atmosphere for repair without first purging the piping with an inert gas to achieve 1 percent hydrogen or less by volume. Defueling operations and exiting purge flow shall be vented in accordance with FC2211.8.1.2.

2211.8.3 Purging. Each individual component of a hydrogen defueling system shall have a label affixed as well as a description in the installation and owner's manuals describing the procedure for purging air from the system during startup, regular maintenance and for purging hydrogen from the system prior to disassembly (to admit air). For the interconnecting piping between the individual manufactured components, the pressure rating must be at least twenty times the absolute pressure present in the piping when any hydrogen meets any air.

2211.8.3.1 System purge required. After installation, repair or maintenance, the hydrogen piping system shall be purged of air in accordance with the manufacturer's specifications.