NFPA 30A Automotive and Marine Service Station Code 1984

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Policy Adopted by NFPA Board of Directors on December 3, 1982

The Board of Directors reaffirms that the National Fire Protection Association recognizes that the toxicity of the products of combustion is an important factor in the loss of life from fire. NFPA has dealt with that subject in its technical committee documents for many years.

There is a concern that the growing use of synthetic materials may produce more or additional toxic products of combustion in a fire environment. The Board has, therefore, asked all NFPA technical committees to review the documents for which they are responsible to be sure that the documents respond to this current concern. To assist the committees in meeting this request, the Board has appointed an advisory committee to provide specific guidance to the technical committees on questions relating to assessing the hazards of the products of combustion.

Statement on NFPA Procedures

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Automotive and Marine Service Station Code

NFPA 30A-1984

1984 Edition of NFPA 30A

This edition of NFPA 30A, *Automotive and Marine Service Station Code*, was prepared by the Technical Committee on General Storage of Flammable Liquids, released by the Correlating Committee on Flammable Liquids, and acted on by the National Fire Protection Association, Inc. at its Annual Meeting held May 21-24, 1984 in New Orleans, LA. It was issued by the Standards Council on June 14, 1984, with an effective date of July 5, 1984.

Origin and Development of NFPA 30A

This is the first edition of NFPA 30A, but it does not constitute a totally new treatment of the subject. Prior to this edition, service stations were dealt with in Chapter 7 of NFPA 30, *Flammable and Combustible Liquids Code*. The reasons behind publishing it as a separate Code were twofold.

First, the chapter on service stations is an occupancy standard, vertical in nature, and it does not lend itself to being handled differently. An effort is underway to render all of NFPA 30 into a horizontal format, and if it succeeds, the service station chapter would not fit well into the format.

Second, there may be a need to develop a standard on service stations that deal with all types of automotive and marine fuels, including liquefied petroleum gas and compressed natural gas. A separate document is an appropriate first step in this direction.

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NOTE: Membership on a Committee shall not in and of itself constitute an endorsement of the Association or any document developed by the Committee on which the member serves.

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Foreword

This standard, known as the *Automotive and Marine Service Station Code,* is recommended for use as the basis of legal regulations. Its provisions are intended to reduce the hazard to a degree consistent with reasonable public safety, without undue interference with public convenience and necessity which requires the use of flammable and combustible liquids. Thus, compliance with this standard does not eliminate all hazard in the use of flammable and combustible liquids.

Chapter 1 General Provisions

1-1 Scope and Application.

1-1.1 This Code applies to automotive and marine service stations, and to service stations located inside buildings.

1-1.2 This Code shall not apply to those service stations, or portions of service stations, where liquefied petroleum gases, liquefied natural gases, or compressed natural gases are dispensed as automotive fuels.

1-1.3 Reference shall also be made to NFPA 302, *Standard on Fire Protection for Pleasure and Commercial Motor Craft,* for safety precautions while fueling at marine service stations; and to NFPA 303, *Fire Protection Standard for Marinas and Boatyards,* for additional requirements applicable to marine service stations.

1-2 Definitions.

Approved. Acceptable to the "authority having jurisdiction."

NOTE: The National Fire Protection Association does not approve, inspect or certify any installations, procedures, equipment, or materials nor does it approve or evaluate testing laboratories. In determining the acceptability of installations or procedures, equipment or materials, the authority having jurisdiction may base acceptance on compliance with NFPA or other appropriate standards. In the absence of such standards, said authority may require evidence of proper installation, procedure or use. The authority having jurisdiction may also refer to the listings or labeling practices of an organization concerned with product evaluations which is in a position to determine compliance with appropriate standards for the current production of listed items.

Authority Having Jurisdiction. The "authority having jurisdiction" is the organization, office or individual responsible for "approving" equipment, an installation or a procedure.

NOTE: The phrase "authority having jurisdiction" is used in NFPA documents in a broad manner since jurisdictions and "approval" agencies vary as do their responsibilities. Where public safety is primary, the "authority having jurisdiction" may be a federal, state, local or other regional department or individual such as a fire chief, fire marshal, chief of a fire prevention bureau, labor department, health department, building official, electrical inspector, or others having statutory authority. For insurance purposes, an insurance inspection department, rating bureau, or other insurance company representative may be the "authority having jurisdiction." In many circumstances the property owner or his designated agent assumes the role of the "authority having jurisdiction"; at government installations, the commanding officer or departmental official may be the "authority having jurisdiction."

Basement. A story of a building or structure having ½ or more of its height below ground level and to which access for fire fighting purposes is unduly restricted.

Bulk Plant or Terminal. That portion of a property where liquids are received by tank vessel, pipelines, tank car, or tank vehicle, and are stored or blended in bulk for the purpose of distributing such liquids by tank vessel, pipeline, tank car, tank vehicle, portable tank, or container.

Combustible Liquid. A liquid having a flash point at or above 100°F (37.8°C).

Combustible Liquids shall be subdivided as follows:

Class II liquids shall include those having flash points at or above 100°F (37.8°C) and below 140°F (60°C).

Class IIIA liquids shall include those having flash points at or above 140°F (60°C) and below 200°F (93°C).

Class IIIB liquids shall include those having flash points at or above 200°F (93°C).

Closed Container. A container as herein defined, so sealed by means of a lid or other device that neither liquid nor vapor will escape from it at ordinary temperatures.

Container. Any vessel of 60 US gal (227 L) or less capacity used for transporting or storing liquids.

Flammable Liquid. A liquid having a flash point below 100°F (37.8°C) and having a vapor pressure not exceeding 40 psi absolute (2,068 mmHg) at 100°F (37.8°C) shall be known as a Class I liquid.

Class I Liquids shall be subdivided as follows:

Class IA shall include those having flash points below 73°F (22.8°C) and having a boiling point below 100°F (37.8°C).

Class IB shall include those having flash points below 73°F (22.8°C) and having a boiling point at or above 100°F (37.8°C).

Class IC shall include those having flash points at or above 73°F (22.8°C) and below 100°F (37.8°C).

Labeled. Equipment or materials to which has been attached a label, symbol or other identifying mark of an organization acceptable to the "authority having jurisdiction" and concerned with product evaluation, that

maintains periodic inspection of production of labeled equipment or materials and by whose labeling the manufacturer indicates compliance with appropriate standards or performance in a specified manner.

Listed. Equipment or materials included in a list published by an organization acceptable to the "authority having jurisdiction" and concerned with product evaluation, that maintains periodic inspection of production of listed equipment or materials and whose listing states either that the equipment or material meets appropriate standards or has been tested and found suitable for use in a specified manner.

NOTE: The means for identifying listed equipment may vary for each organization concerned with product evaluation, some of which do not recognize equipment as listed unless it is also labeled. The "authority having jurisdiction" should utilize the system employed by the listing organization to identify a listed product.

Portable Tank. Any closed vessel having a liquid capacity over 60 US gal (227 L) and not intended for fixed installation.

Safety Can. An approved container, of not more than 5 gal capacity, having a spring-closing lid and spout cover and so designed that it will safely relieve internal pressure when subjected to fire exposure.

Service Stations.

Automotive Service Station. That portion of a property where liquids used as motor fuels are stored and dispensed from fixed equipment into the fuel tanks of motor vehicles or approved containers and shall include any facilities available for the sale and service of tires, batteries and accessories, and for minor automotive maintenance work. Major automotive repairs, painting, body and fender work are excluded.

Marine Service Station. That portion of a property where liquids used as fuels are stored and dispensed from fixed equipment on shore, piers, wharves, or floating docks into the fuel tanks of self-propelled craft, and shall include all facilities used in connection therewith.

Service Station Located Inside Buildings. That portion of an automotive service station located within the perimeter of a building or building structure that also contains other occupancies. The service station may be enclosed or partially enclosed by the building walls, floors, ceilings, or partitions, or may be open to the outside. The service station dispensing area shall mean that area of the service station required for dispensing of fuels to motor vehicles. Dispensing of fuel at manufacturing, assembly, and testing operations is not included within this definition.

Vapor Processing Equipment. Those components of a vapor processing system which are designed to process vapors or liquids captured during filling operations at service stations, bulk plants, or terminals.

Vapor Processing System. A system designed to capture and process vapors displaced during filling operations at service stations, bulk plants, or terminals by use of mechanical and/or chemical means. Examples are systems using blower-assist for capturing vapors, and refrigeration, absorption and combustion systems for processing vapors.

Vapor Recovery System. A system designed to capture and retain, without processing, vapors displaced during filling operations at service stations, bulk plants, or terminals. Examples are balanced-pressure vapor displacement systems and vacuum-assist systems without vapor processing.

Ventilation. As specified in this code, ventilation is for the prevention of fire and explosion. It is considered adequate if it is sufficient to prevent accumulation of significant quantities of vapor-air mixtures in concentration over one-fourth of the lower flammable limit.

Chapter 2 Storage

2-1 General Provisions.

2-1.1 Liquids shall be stored in:

(a) approved closed containers not exceeding 60 gal (227 L) capacity, or

(b) tanks in special enclosures inside buildings as described in 2-2, or

(c) aboveground tanks supplying marine service stations as provided in 2-1.6, or

(d) an approved tank that is part of a fuel dispensing system as provided for in 8-3.6, or

(e) tanks located underground as in Section 2-3 of NFPA 30, *Flammable and Combustible Liquids Code*, or

(f) tanks or containers inside service station buildings as provided for in 2-3.3 and 2-3.4.

2-1.2 Vent pipes on tanks storing gasoline shall be in accordance with NFPA 30, *Flammable and Combustible Liquids Code*, Sections 2-3.5.1, 2-3.5.2 and 2-3.5.6, as applicable, and shall discharge only upward in order to disperse vapors. (Also see 8-3.4, 8-3.5, and 8-3.6 of this Code.)

2-1.3 Aboveground tanks, located at a bulk plant, shall not be connected by piping to service station underground tanks. Apparatus dispensing Class I liquids into the fuel tanks of motor vehicles of the public shall not be located at a bulk plant unless separated by a fence or similar barrier from the area in which bulk operations are conducted.

2-1.4 Class I liquids shall not be stored or handled within a building having a basement or pit into which flammable vapors can travel, unless such area is provided with ventilation which will prevent the accumulation of flammable vapors therein.

2-1.5 Accurate daily inventory records shall be maintained and reconciled on all Class I liquid and diesel fuel storage tanks for indication of possible leakage from tanks or piping. The records shall be kept at the premises or made available for inspection by the enforcing author-

ity within 24 hrs of a written or verbal request. The records shall include, as a minimum, records showing by product, daily reconciliation between sales, use, receipts, and inventory on hand. If there is more than one system consisting of a tank(s) serving separate pump(s) or dispenser(s) for any product, the reconciliation shall be maintained separately for each tank system. API Publication 1621, *Recommended Practice for Bulk Liquid Stock Control at Retail Outlets*, provides information on this subject.

2-1.6 Tanks supplying marine service stations and pumps not integral with the dispensing unit shall be on shore or on a pier of the solid-fill type, except as provided in (a) and (b).

(a) Where shore location would require excessively long supply lines to dispensers, the authority having jurisdiction may authorize the installation of tanks on a pier provided that applicable portions of NFPA 30, *Flammable and Combustible Liquids Code*, Chapter 2, relative to spacing, diking and piping are complied with and the quantity so stored does not exceed 1,100 gal (4164 L) aggregate capacity.

(b) Shore tanks supplying marine service stations may be located aboveground where rock ledges or high water tables make underground tanks impractical.

2-1.7 Where tanks are at an elevation which produces a gravity head on the dispensing unit, the tank outlet shall be equipped with a device, such as a solenoid valve, positioned adjacent to and downstream from the valve specified in Section 2-2.7.1 of NFPA 30, *Flammable and Combustible Liquids Code*, so installed and adjusted that liquid cannot flow by gravity from the tank in case of piping or hose failure when the dispenser is not in use.

2-2 Special Enclosures.

2-2.1 When installation of tanks in accordance with NFPA 30, *Flammable and Combustible Liquids Code*, Section 2-3 is impractical because of property or building limitations, tanks for liquids may be installed in buildings if enclosed as described in 2-2.2 and upon specific approval of the authority having jurisdiction.

2-2.2 Enclosure shall be substantially liquid- and vapor-tight without backfill. Sides, top and bottom of the enclosure shall be of reinforced concrete at least 6 in. (15 cm) thick, with openings for inspection through the top only. Tank connections shall be so piped or closed that neither vapors nor liquid can escape into the enclosed space. Means shall be provided to use portable equipment to discharge to the outside any liquid or vapors which might accumulate should leakage occur.

2-2.3 At automotive service stations provided in connection with tenant or customer parking facilities in large buildings of commercial, mercantile or residential occupancy, tanks containing Class I liquids installed in accordance with 2-2.2 shall not exceed 6,000 gal (22 710 L) individual or 18,000 gal (68 130 L) aggregate capacity.

2-3 Inside Buildings.

2-3.1 Except where stored in tanks as provided in 2-2, no Class I liquids shall be stored within any service station building except in closed containers of aggregate capacity not exceeding 120 gal (454.2 L). One container not exceeding 60 gal (227 L) capacity equipped with a listed pump is permitted.

2-3.2 Class I liquids may be transferred from one container to another in lubrication or service rooms of a service station building provided the electrical installation complies with Table 6 and provided that any heating equipment complies with Chapter 7. See also 8-6 for other possible sources of ignition.

2-3.3 Class II and Class IIIA liquids may be stored and dispensed inside service station buildings from approved tanks of not more than 120 gal (454 L) for each class, with an aggregate capacity not exceeding 240 gal (908 L).

2-3.4 Class IIIB liquids may be stored and dispensed inside service station buildings in tanks or containers, subject to approval of the authority having jurisdiction.

Chapter 3 Piping, Valves and Fittings

3-1 The design, fabrication, assembly, test and inspection of the piping system shall be in accordance with NFPA 30, *Flammable and Combustible Liquids Code*, Chapter 3, except that, where dispensing is from a floating structure, suitable lengths of oil-resistant flexible hose may be employed between the shore piping and the piping on the floating structure as made necessary by change in water level or shoreline.

3-2 Where excessive stray currents are encountered, piping handling Class I and Class II liquids at marine service stations shall be electrically insulated from the shore piping.

3-3 Piping shall be located so as to be protected from physical damage.

3-4 A readily accessible valve to shut off the supply from shore shall be provided in each pipeline at or near the approach to the pier and at the shore end of each marine pipeline adjacent to the point where a flexible hose is attached.

3-5 After completion of the installation, including any paving, that section of the pressure piping system between the pump discharge and the connection for the dispensing facility shall be tested for at least 30 minutes at the maximum operating pressure of the system.

Chapter 4 Fuel Dispensing System

4-1 Location of Dispensing Devices and Emergency Power Cutoff.

4-1.1 Dispensing devices at an automotive service station shall be so located that all parts of the vehicle being served will be on the premises of the service station.

Openings beneath enclosures shall be sealed to prevent the flow of leaking fuel to lower building spaces.

Dispensing devices at marine service stations may be located on open piers, wharves, floating docks, or on shore, or on piers of the solid fill type, and shall be located apart from other structures so as to provide room for safe ingress and egress of craft to be fueled. Dispensing units shall be in all cases at least 20 ft (6 m) from any activity involving fixed sources of ignition. Dispensing devices located inside buildings shall comply with Chapter 5.

4-1.2 A clearly identified and easily accessible switch(es) or circuit breaker(s) shall be provided at a location remote from dispensing devices, including remote pumping systems, to shut off the power to all dispensing devices in the event of an emergency.

4-2 Fuel Dispensing Units.

4-2.1 Class I liquids shall be transferred from tanks by means of fixed pumps designed and equipped to allow control of the flow and prevent leakage or accidental discharge.

4-2.2 Dispensing devices for Class I liquids shall be listed. Existing listed or labeled dispensing devices may be modified provided that the modifications made are "Listed by Report" by an approved testing laboratory or as otherwise approved by the authority having jurisdiction. Modification proposals shall contain a description of the component parts used in the modification and the recommended methods of installation on specific dispensers and it shall be made available to the authority having jurisdiction upon request.

4-2.3 A control shall be provided that will permit the pump to operate only when a dispensing nozzle is removed from its bracket or normal position with respect to the dispensing unit, and the switch on this dispensing unit is manually actuated. This control shall also stop the pump when all nozzles have been returned, either to their brackets or to the normal nondispensing position.

4-2.4 Liquids shall not be dispensed by applying pressure to drums, barrels and similar containers. Listed pumps taking suction through the top of the container or listed self-closing faucets shall be used.

4-2.5 The dispensing unit and its piping, except those attached to containers, shall be mounted on a concrete island or protected against collision damage by suitable means. If located indoors, the dispenser shall also be mounted either on a concrete island or protected against collision damage by suitable means and shall be located in a position where it cannot be struck by a vehicle that is out of control descending a ramp or other slope.

4-2.6 Hose length at service stations shall not exceed 18 ft (5.5 m) unless approved by the authority having jurisdiction. All hose shall be listed. When not in use, hose shall be so secured as to protect it from damage.

4-3 Remote Pumping Systems.

4-3.1 This section shall apply to systems for dispensing Class I liquids where such liquids are transferred from storage to individual or multiple dispensing units by pumps located elsewhere than at the dispensing units.

4-3.2 Pumps shall be designed or equipped so that no part of the system will be subjected to pressures above its allowable working pressure.

4-3.3 Each pump shall have installed on the discharge side a listed leak detection device which will provide an indication if the piping and dispensers are not essentially liquidtight. Each leak detecting device shall be checked and tested at least annually according to the manufacturer's specifications to ensure proper installation and operation.

4-3.4 Pumps installed above grade, outside of buildings, shall be located not less than 10 ft (3 m) from lines of adjoining property which can be built upon, and not less than 5 ft (1.5 m) from any building opening. When an outside pump location is impractical, pumps may be installed inside buildings as provided for dispensers in 4-1, or in pits as provided in 4-3.5. Pumps shall be substantially anchored and protected against physical damage.

4-3.5 Pits for subsurface pumps or piping manifolds of submersible pumps shall withstand the external forces to which they can be subjected without damage to the pump, tank or piping. The pit shall be no larger than necessary for inspection and maintenance, and shall be provided with a fitted cover.

4-3.6 A listed rigidly anchored emergency shutoff valve, incorporating a fusible link or other thermally actuated device, designed to close automatically in event of severe impact or fire exposure shall be properly installed in the supply line at the base of each individual island-type dispenser or at the inlet of each overhead dispensing unit. An emergency shutoff valve incorporating a slip-joint feature shall not be used. The automatic closing feature of this valve shall be checked at the time of initial installation and at least once a year thereafter by manually tripping the hold-open linkage.

4-3.7 A vapor return pipe inside the dispenser housing shall have a shear section or flexible connector so that the liquid emergency shutoff valve will function as described in 4-3.6.

4-4 Vapor Recovery Systems.

4-4.1 Dispensing devices incorporating provisions for vapor recovery shall be listed.

4-4.2 Hose nozzle valves used on vapor recovery systems shall be listed.

4-4.3 Means shall be provided in the vapor return path from each dispensing outlet to prevent the discharge of vapors when the hose nozzle valve is in its normal nondispensing position.

4-5 Vapor Processing Systems.

4-5.1 Vapor processing system components consisting of hose nozzle valves, blowers or vacuum pumps, flame arresters or systems for prevention of flame propagation, controls, and vapor processing equipment shall be individually listed for use in a specified manner.

4-5.2 Dispensing devices used with a vapor processing system shall be listed. Existing listed or labeled dispensing devices may be modified for use with vapor processing systems provided they are "Listed by Report" as specified in 4-2.2.

4-5.3 Means shall be provided in the vapor return path from each dispensing outlet to prevent the discharge of vapors when the hose nozzle valve is in its normal non-dispensing position.

4-5.4 Vapor processing systems employing blower-assist shall not be used unless the system is designed to prevent flame propagation through system piping, processing equipment and tanks.

4-5.5 If a component is likely to contain a flammable vapor-air mixture under operating conditions, and can fail in a manner to ignite the mixture, it shall be designed to withstand an internal explosion without failure to the outside.

4-5.6 Vapor processing equipment shall be located outside of buildings at least 10 ft (3 m) from adjacent property lines which can be built upon, except as provided for in 4-5.7. Vapor processing equipment shall be located a minimum of 20 ft (6 m) from dispensing devices. Processing equipment shall be protected against physical damage by the provision of guardrails, curbs, or fencing.

4-5.7 Where the required distance to adjacent property lines which can be built upon as specified in 4-5.6 cannot be obtained, means shall be provided to protect vapor processing equipment against fire exposure. Such means may include protective enclosures which extend at least 18 in. (45.7 cm) above the equipment, constructed of fire resistant or noncombustible materials, installation in below-grade spaces, or protection with an approved water spray system. If protective enclosures or below-grade spaces are used, positive means shall be provided to ventilate the volume within the enclosure to prevent pocketing of flammable vapors. In no case shall vapor processing equipment so protected be located within 5 ft (1.5 m) of adjacent property lines which can be built upon.

4-5.8 Electrical equipment shall be in accordance with Table 6.

4-5.9 Vents on vapor processing systems shall be not less than 12 ft (3.6 m) above adjacent ground level, with outlets so directed and located that flammable vapors will not accumulate or travel to an unsafe location or enter buildings.

4-5.10 Combustion or open flame-type devices shall not be installed in a classified area. See Table 6.

Chapter 5 Service Stations Located Inside Buildings

5-1 General.

5-1.1 A service station is permitted inside a building subject to approval of the authority having jurisdiction.

5-1.2 The service station shall be separated from other portions of the building by wall, partition, floor, or floor-ceiling assemblies having a fire resistance rating of not less than 2 hr.

5-1.3 Interior finish of service stations shall be constructed of noncombustible or approved limited-combustible materials.

5-1.4 Door and window openings in interior walls shall be provided with listed 1 1/2-hr (B) fire doors. Doors shall be self-closing, or may remain open during normal operations if they are designed to close automatically in a fire emergency by provision of listed closure devices. Fire doors shall be installed in accordance with NFPA 80, *Standard for Fire Doors and Windows.*

5-1.5 Fire doors shall be kept unobstructed at all times. Appropriate signs and markings shall be used.

5-1.6 Openings in interior partitions and walls for ducts shall be protected by listed fire dampers. Openings in floor or floor-ceiling assemblies for ducts shall be protected with enclosed shafts. Enclosure of shafts shall be with wall or partition assemblies having a fire resistance rating of not less than 2 hr. Openings in enclosed shafts, for ducts, shall be protected with listed fire dampers.

5-2 Dispensing Area.

5-2.1 The dispensing area shall be located at street level, with no dispenser located more than 50 ft (15 m) from the vehicle exit to, or entrance from, the outside of the building.

5-2.2 Dispensing shall be limited to the area required to serve not more than four vehicles at one time.

5-3 Ventilation.

5-3.1 Forced air heating, air conditioning, and ventilating systems serving the service station area shall not be interconnected with any such systems serving other parts of the building. Such systems shall be installed in accordance with the provisions of NFPA 90A, *Standard for the Installation of Air Conditioning and Ventilating Systems.*

5-3.2 A mechanical exhaust system shall be provided to serve only the dispensing area. This system shall be interlocked with the dispensing system such that air flow is established before any dispensing unit can operate. Failure of air flow shall automatically shut down the dispensing system.

5-3.3 The exhaust system shall be designed to provide air movement across all portions of the dispensing area floor, and to prevent the flow of flammable vapors beyond the dispensing area. Exhaust inlet ducts shall not

be less than 3 in. (7.6 cm) nor more than 12 in. (0.30 m) above the floor. Exhaust ducts shall not be located in floors, or penetrate the floor of the dispensing area, and shall discharge to a safe location outside the building.

5-3.4 The exhaust system shall provide ventilation at a rate of not less than 1 cu ft per minute per sq ft ($1m^3$ per $3m^2$) of dispensing area.

5-3.5 Exhaust system shall be installed in accordance with the provisions of NFPA 91, *Standard for the Installation of Blower and Exhaust Systems for Dust, Stock and Vapor Removal or Conveying*.

5-3.6 The provisions of 5-3.2, 5-3.3, 5-3.4 and 5-3.5 do not apply to a service station located inside a building if 2 or more sides of the dispensing area are open to the building exterior such that natural ventilation can normally be expected to dissipate flammable vapors.

5-4 Piping.

5-4.1 Piping systems shall comply with the provisions of NFPA 30, *Flammable and Combustible Liquids Code*, Chapter 3.

5-4.2 All fuel and flammable vapor piping inside buildings but outside the service station area shall be enclosed within a horizontal chase or a vertical shaft used only for this piping. Vertical shafts and horizontal chases shall be constructed of materials having a fire resistance rating of not less than 2 hr.

5-5 Drainage Systems.

5-5.1 Floors shall be liquidtight. Emergency drainage systems shall be provided to direct flammable or combustible liquid leakage and fire protection water to a safe location. This may require curbs, scuppers, or special drainage systems.

5-5.2 Emergency drainage systems, if connected to public sewers or discharged into public waterways, shall be equipped with traps or separators.

Chapter 6 Electrical Equipment

6-1 Chapter 6 shall apply to areas where Class I liquids are stored, handled or dispensed. For areas where Class II or Class III liquids are stored, handled or dispensed, the electrical equipment may be installed in accordance with the provisions of NFPA 70, *National Electrical Code®*, for nonclassified locations.

6-2 All electrical equipment and wiring shall be of a type specified by and shall be installed in accordance with NFPA 70, *National Electrical Code*. All electrical equipment integral with the dispensing hose or nozzle shall be suitable for use in Division 1 locations.

6-3 Table 6 shall be used to delineate and classify areas for the purpose of installation of electrical equipment under normal circumstances. A classified area shall not extend beyond an unpierced wall, roof or other solid partition. The designation of classes and divisions is defined in Chapter 5, Article 500, of NFPA 70, *National Electrical Code*.

6-4 The area classifications listed in Table 6 shall be based on the premise that the installation meets the applicable requirements of this Code in all respects. Should this not be the case, the authority having jurisdiction shall have the authority to determine the extent of the classified area.

Table 6 Electrical Equipment Classified Areas — Service Stations

Location	NEC Class I, Group D Division	Extent of Classified Area
Underground Tank		
Fill Opening	1	Any pit, box or space below grade level, any part of which is within the Division 1 or 2 classified area.
	2	Up to 18 in. above grade level within a horizontal radius of 10 ft from a loose fill connection and within a horizontal radius of 5 ft from a tight fill connection.
Vent — Discharging Upward	1	Within 3 ft of open end of vent, extending in all directions.
	2	Area between 3 ft and 5 ft of open end of vent, extending in all directions.
Dispensing Units (except overhead type)*		
Pits	1	Any pit, box or space below grade level, any part of which is within the Division 1 or 2 classified area.
Dispenser	1	The area within a dispenser enclosure up to 4 ft vertically above the base except that area defined as Division 2. Any area within a nozzle boot.
	2	Areas within a dispenser enclosure above the Division 1 area. Areas within a dispenser enclosure isolated from Division 1 by a solid partition or a solid nozzle boot but not completely surrounded by Division 1 area. Within 18 in. horizontally in all directions extending to grade from the Division 1 area within the dispenser enclosure. Within 18 in. horizontally in all directions extending to grade from the opening of a nozzle boot not isolated by a vapor-tight partition, except that the classified area need not be extended around a 90° or greater corner.

Table 6 Electrical Equipment Classified Areas — Service Stations (cont.)

Location	NEC Class I, Group D Division	Extent of Classified Area
Outdoor	2	Up to 18 in. above grade level within 20 ft horizontally of any edge of enclosure.
Indoor		
with Mechanical Ventilation	2	Up to 18 in. above grade or floor level within 20 ft horizontally of any edge of enclosure.
with Gravity Ventilation	2	Up to 18 in. above grade or floor level within 25 ft horizontally of any edge of enclosure.
Dispensing Units,		
Overhead Type*	1	Within the dispenser enclosure and 18 in. in all directions from the enclosure where not suitably cut off by ceiling or wall. All electrical equipment integral with the dispensing hose or nozzle.
	2	An area extending 2 ft horizontally in all directions beyond the Division 1 area and extending to grade below this classified area.
	2	Up to 18 in. above grade level within 20 ft horizontally measured from a point vertically below the edge of any dispenser enclosure.
Remote Pump — Outdoor	1	Any pit, box or space below grade level if any part is within a horizontal distance of 10 ft from any edge of pump.
	2	Within 3 ft of any edge of pump, extending in all directions. Also up to 18 in. above grade level within 10 ft horizontally from any edge of pump.
Remote Pump — Indoor	1	Entire area within any pit.
	2	Within 5 ft of any edge of pump, extending in all directions. Also up to 3 ft above floor or grade level within 25 ft horizontally from any edge of pump.
Lubrication or Service Room		
— with Dispensing	1	Any pit within any unventilated area.
	2	Any pit with ventilation.
	2	Area up to 18 in. above floor or grade level and 3 ft horizontally from a lubrication pit.
Dispenser for Class I Liquids	2	Within 3 ft of any fill or dispensing point, extending in all directions.
Lubrication or Service Room		
— without Dispensing	2	Entire area within any pit used for lubrication or similar services where Class I liquids may be released.
	2	Area up to 18 in. above any such pit, and extending a distance of 3 ft horizontally from any edge of the pit.
Special Enclosure Inside Building Per 2-2	1	Entire enclosure.
Sales, Storage and Rest Rooms	Nonclassified	If there is any opening to these rooms within the extent of a Division 1 area, the entire room shall be classified as Division 1.
Vapor Processing Systems Pits	1	Any pit, box or space below grade level, any part of which is within a Division 1 or 2 classified area or which houses any equipment used to transport or process vapors.
Vapor Processing Equipment Located within Protective Enclosures (see 4-5.7)	2	Within any protective enclosure housing vapor processing equipment.
Vapor Processing Equipment Not within Protective Enclosures (excluding piping and combustion devices)	2	The space within 18 in. in all directions of equipment containing flammable vapor or liquid extending to grade level. Up to 18 in. above grade level within 10 ft horizontally of the vapor processing equipment.
Equipment Enclosures	1	Any area within the enclosure where vapor or liquid is present under normal operating conditions.
	2	The entire area within the enclosure other than Division 1.
Vacuum-Assist Blowers	2	The space within 18 in. in all directions extending to grade level. Up to 18 in. above grade level within 10 ft horizontally.

* Ceiling mounted hose reel.

For SI Units: 1 in. = 2.5 cm; 1 ft = 0.30 m.

Chapter 7 Heating Equipment

7-1 Heating equipment shall be installed as provided in 7-2 through 7-6.

7-2 Heating equipment may be installed in the conventional manner except as provided in 7-3, 7-4, 7-5, or 7-6.

7-3 Heating equipment may be installed in a special room separated from an area classified as Division 1 or Division 2 in Table 6 by walls having a fire resistance rating of at least 1 hr and without any openings in the walls within 8 ft (2.4 m) of the floor into an area classified as Division 1 or Division 2 in Table 6. This room shall not be used for combustible storage, and all air for combustion purposes shall come from outside the building.

7-4 Heating equipment using gas or oil fuel may be installed in the lubrication or service room where there is no dispensing or transferring of Class I liquids, including the open draining of automotive gasoline tanks, provided the bottom of the combustion chamber is at least 18 in. (46 cm) above the floor and the heating equipment is protected from physical damage.

7-5 Heating equipment using gas or oil fuel listed for use in garages may be installed in the lubrication or service room where Class I liquids are dispensed or transferred, provided the equipment is installed at least 8 ft (2.4 m) above the floor.

7-6 Electrical heating equipment shall conform to Chapter 6.

Chapter 8 Operational Requirements

8-1 Fuel Delivery Nozzles.

8-1.1 A listed automatic-closing type hose nozzle valve, with or without latch-open device, shall be provided on island-type dispensers used for the dispensing of Class I liquids.

8-1.2 If a hose nozzle valve is provided with a latch-open device other than recommended by the valve manufacturer, the latch-open device shall be an integral part of the valve assembly, and such valve latch-open device combination shall conform to the applicable requirements of Section 19 of UL 842-1980, *Standard for Valves for Flammable Fluids.*

8-1.2.1 At any installation where the flow of product normally is stopped other than by the hose nozzle valve, such as at pre-pay stations, the system shall include listed equipment with a feature that causes or requires the closing of the hose nozzle valve before product flow can be resumed or before the hose nozzle valve can be replaced in its normal position in the dispenser; or the hose nozzle valve shall not be equipped with a latch-open device.

8-1.3 Overhead-type dispensing units shall be provided with a listed automatic-closing type hose nozzle valve without a latch-open device.

Exception: A listed automatic-closing type hose nozzle valve with latch-open device may be used if the design of the system is such that the hose nozzle valve will close automatically in the event the valve is released from a fill opening or upon impact with a driveway.

8-1.4 Dispensing nozzles used at marine service stations shall be of the automatic-closing type without a latch-open device.

8-1.5 A hose nozzle valve used for dispensing Class I liquids into a container shall be manually held open during the dispensing operation.

8-2 Dispensing into Portable Containers. No delivery of any Class I or Class II liquid shall be made into portable containers unless the container is constructed of metal or is approved by the authority having jurisdiction, has a tight closure and is fitted with spout or so designed that the contents can be poured without spilling. (*See NFPA 30, Flammable and Combustible Liquids Code, Section 4-2.1, for further information.*)

8-2.1 No sale or purchase of any Class I, Class II or Class III liquids shall be made in containers unless such containers are clearly marked with the name of the product contained therein.

8-2.2 Portable containers shall not be filled while located inside the trunk or passenger compartment of a vehicle.

8-3 Attendance or Supervision of Dispensing.

8-3.1 Each service station open to the public shall have an attendant or supervisor on duty whenever the station is open for business.

8-3.2 Listed "self-service" dispensing devices are permitted at service stations available and open to the public provided that all dispensing of Class I liquids by a person other than the service station attendant is under the supervision and control of a qualified attendant.

8-3.3 Dispensing of liquids at private locations, where the dispensing equipment is not open to the public, does not require an attendant or supervisor. Such locations may include card or key controlled dispensers.

8-3.4 The provisions of 2-1.1 shall not prohibit the temporary use of movable tanks in conjunction with the dispensing of flammable or combustible liquids into the fuel tanks of motor vehicles or other motorized equipment on premises not normally accessible to the public. Such installations shall only be made with the approval of the enforcing authority. The approval shall include a definite time limit.

8-3.5 The provisions of 2-1.1 shall not prohibit the dispensing of Class I and Class II liquids in the open from a tank vehicle to a motor vehicle. Such dispensing may be permitted provided:

(a) An inspection of the premises and operations has been made and approval granted by the authority having jurisdiction.

(b) The tank vehicle complies with the requirements covered in NFPA 385, *Standard for Tank Vehicles for Flammable and Combustible Liquids.*

(c) The dispensing is done on premises not open to the public.

(d) The dispensing hose does not exceed 50 ft (15 m) in length.

(e) The dispensing nozzle is a listed automatic-closing type without a latch-open device.

(f) Nighttime deliveries shall only be made in adequately lighted areas.

(g) The tank vehicle flasher lights shall be in operation while dispensing.

(h) Fuel expansion space shall be left in each fuel tank to prevent overflow in the event of temperature increase.

8-3.6 The provisions of 2-1.1 shall not prohibit the dispensing of Class I and Class II liquids in the open from a fuel dispensing system supplied by an aboveground tank, not to exceed 6000 gal (22 710 L), located at commercial, industrial, governmental or manufacturing establishments, and intended for fueling vehicles used in connection with their business. Such dispensing may be permitted provided:

(a) An inspection of the premises and operations has been made and approval granted by the authority having jurisdiction.

(b) The dispensing is done on premises not open to the public.

(c) The tank is safeguarded against collision, spillage, and overfill, to the satisfaction of the authority having jurisdiction.

(d) The tank system is listed or approved for such aboveground use.

(e) The tank complies with requirements for emergency relief venting, and the tank and dispensing system meet the electrical classification requirements of the Code.

(f) The tank storage shall comply with NFPA 30, *Flammable and Combustible Liquids Code*, Chapter 2.

8-4 Self-Service Stations.

8-4.1 Self-service station shall mean that portion of property where liquids used as motor fuels are stored and subsequently dispensed from fixed approved dispensing equipment into the fuel tanks of motor vehicles by persons other than the service station attendant, and may include facilities available for sale of other retail products.

8-4.2 Listed dispensing devices such as, but not limited to, coin-operated, card-operated and remote controlled types are permitted at self-service stations.

8-4.3 All self-service stations shall have at least one attendant on duty while the station is open to the public. The attendant's primary function shall be to supervise, observe and control the dispensing of Class I liquids while said liquids are actually being dispensed.

8-4.4 It shall be the responsibility of the attendant to (1) prevent the dispensing of Class I liquids into portable containers not in compliance with Section 8-2; (2) prevent the use of hose nozzle valve latch-open devices that do not comply with 8-1.2; (3) control sources of ignition; and (4) immediately handle accidental spills and fire extinguishers if needed. The attendant or supervisor on duty shall be mentally and physically capable of performing the functions and assuming the responsibility prescribed in this section.

8-4.5 Emergency controls specified in 4-1.2 shall be installed at a location acceptable to the authority having jurisdiction, but controls shall not be more than 100 ft (30 m) from dispensers.

8-4.6 Operating instructions shall be conspicuously posted in the dispensing area.

8-4.7 The dispensing area shall at all times be in clear view of the attendant, and the placing or allowing of any obstacle to come between the dispensing area and the attendant control area shall be prohibited. The attendant shall at all times be able to communicate with persons in the dispensing area.

8-4.8 Warning signs shall be conspicuously posted in the dispensing area incorporating the following or equivalent wording: (a) WARNING — It is unlawful and dangerous to dispense gasoline into unapproved containers; (b) No Smoking; and (c) Stop Motor.

8-5 Drainage and Waste Disposal.

8-5.1 Provision shall be made in the area where Class I liquids are dispensed to prevent spilled liquids from flowing into the interior of service station buildings. Such provision may be made by grading driveways, raising door sills, or other equally effective means.

8-5.2 Crankcase drainings and liquids shall not be dumped into sewers, streams or adjoining property, but shall be stored in tanks or drums outside any building until removed from the premises.

8-6 Sources of Ignition.

8-6.1 In addition to the previous restrictions of this chapter, the following shall apply: There shall be no smoking or open flames in the areas used for fueling, servicing fuel systems for internal combustion engines, or receiving or dispensing of Class I liquids. Conspicuous and legible signs prohibiting smoking shall be posted within sight of the customer being served. The motors of all equipment being fueled shall be shut off during the fueling operation except for emergency generators, pumps, etc., where continuing operation is essential.

8-7 Fire Control.

8-7.1 Each service station shall be provided with at least one listed fire extinguisher having a minimum classification of 5B:C located so that an extinguisher will be within 100 ft (30 m) of each pump, dispenser, underground fill pipe opening, and lubrication or service room.

Chapter 9 Mandatory Referenced Publications

9-1 This chapter lists publications referenced within this document which, in whole or in part, are part of the requirements of this document.

9-1.1 NFPA Publications. The following publications are available from the National Fire Protection Association, Batterymarch Park, Quincy, MA 02269.

NFPA 30-1984, *Flammable and Combustible Liquids Code*

NFPA 70-1984, *National Electrical Code*

NFPA 80-1981, *Standard for Fire Doors and Windows*

NFPA 90A-1981, *Standard for the Installation of Air Conditioning and Ventilating Systems*