Chapter 8 Heat-Producing Appliances

8-1 Heat-producing appliances shall be installed as provided in Sections 8-2 through 8-6.

8-2 Heat-producing appliances shall be permitted to be installed in the conventional manner except as provided in Sections 8-3, 8-4, 8-5, or 8-6.

8-3 Heat-producing appliances shall be permitted to be installed in a special room that is separated from an area that is classified as Division 1 or Division 2, in accordance with Table 7, by walls that are constructed so as to prevent the transmission of vapors, that have a fire resistance rating of at least 1 hr, and that have no openings in the walls within 8 ft (2.4 m) of the floor that lead to a classified area. Specific small openings through the wall, such as for piping and electrical conduit, shall be permitted, provided the gaps and voids are filled with a fire-resistant material to resist transmission of vapors. This room shall not be used for storage of combustible material. All air for combustion purposes shall be taken from outside the building.

8-4 Heat-producing appliances using gas or oil fuel shall be permitted to 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 heat-producing appliances are protected from physical damage.

8-4.1 Solid fuel stoves shall not be permitted in any lubrication room or service room.

8-5 Heat-producing appliances using gas or oil fuel listed for use in garages shall be permitted to 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.

8-6 Electrical heat-producing appliances shall conform to Chapter 7.

Chapter 9 Operational Requirements

9-1 Fuel Delivery Nozzles.

9-1.1 A listed automatic-closing type hose nozzle valve, with or without latch-open device, shall be provided for the dispensing of motor fuels.

9-1.2 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 meet the applicable requirements of UL 842, *Standard for Valves for Flammable Fluids.* (*See also 9-4.4.*)

9-1.2.1 At any installation where the normal flow of product may be 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.

9-1.3 Overhead-type dispensing devices 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 shall be permitted to 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.

9-1.4 Dispensing nozzles used at marine service stations shall be of the automatic-closing type without a latch-open device.

9-1.5 A hose nozzle valve used to dispense a liquid into a container shall be manually held open during the dispensing operation.

9-2 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 a spout or so designed that the contents can be poured without spilling. (*See NFPA 30, Flammable and Combustible Liquids Code, 4-2.1, for further information.*)

9-2.1 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.

9-2.2 Portable containers of 12 gal (45 L) capacity or less shall not be filled while they are in or on a motor vehicle or marine craft.

9-3 Attendance or Supervision of Dispensing.

9-3.1 Each service station shall have an attendant or supervisor on duty whenever the station is open for business, who shall dispense liquids into fuel tanks or into containers, except as covered in Sections 9-4 and 9-5.

9-3.2 Listed self-service dispensing devices are permitted at service stations provided that all dispensing of Class I liquids by a person other than the service station attendant is under the supervision and control of an attendant.

Exception: See Section 9-5.

9-3.3 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 authority having jurisdiction. The approval shall include a definite time limit.

9-3.4 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 located at commercial, industrial, governmental, or manufacturing establishments and intended for fueling vehicles used in connection with their businesses. Such dispensing shall 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 hose does not exceed 50 ft (15 m) in ngth.

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

(e) Nighttime deliveries shall only be made in adequately ghted areas.

(f) The tank vehicle flasher lights shall be in operation hile dispensing.

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

3-5 The provisions of 2-1.1 shall not prohibit the dispens- ig of Class I and Class II liquids in the open from a fuel dis- ensing system supplied by an existing aboveground tank, not exceed 6000 gal (22,710 L), located at commercial, indus- rial, governmental, or manufacturing establishments, and ntended for fueling vehicles used in connection with their usiness. Such dispensing shall be permitted provided:

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

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

(c) The tank system is listed or approved for such above- ground use.

(d) The tank complies with requirements for emergency relief venting, the tank and dispensing system meet the elec- trical classification requirements of this code, and the tank complies with the provisions of 2-1.7.

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

9-4 Attended Self-Service Stations.

9-4.1 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 shall include facilities available for sale of other retail products.

9-4.2 Listed dispensing devices such as, but not limited to, coin-operated, card-operated, and remote-controlled types shall be permitted at self-service stations.

9-4.3 All attended self-service stations shall have at least one attendant on duty while the station is open for business. 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.

9-4.4 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 9-2, (2) prevent the use of hose nozzle valve latch-open devices that do not comply with 9-1.2, (3) control sources of ignition, and (4) immediately activate emergency controls and 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.

9-4.5 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.

9-4.6 Operating instructions shall be conspicuously posted in the dispensing area.

9-4.7 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.

9-5 Unattended Self-Service Stations.

9-5.1 Unattended self-service shall be permitted, subject to the approval of the authority having jurisdiction.

9-5.2 Listed dispensing devices shall be used. Coin- and currency-type devices shall only be permitted with the approval of the authority having jurisdiction.

9-5.3 Emergency controls specified in 4-1.2 shall be installed at a location acceptable to the authority having jurisdiction, but the controls shall be more than 20 ft (7 m) but less than 100 ft (30 m) from the dispensers. Additional emergency controls shall be installed on each group of dispensers or the outdoor equipment used to control the dispensers. Emergency controls shall shut off power to all dispensing devices at the station. Controls shall be manually reset only in a manner approved by the authority having jurisdiction.

9-5.4 Operating instructions shall be conspicuously posted in the dispensing area and shall include location of emergency controls and a requirement that the user shall stay outside of his/her vehicle, in view of the fueling nozzle during dispensing.

9-5.5 In addition to those warning signs specified in Section 9-9, emergency instructions shall be conspicuously posted in the dispenser area incorporating the following or equivalent wording:

Emergency Instructions

In case of fire or spill:

1. Use emergency stop button.
2. Report accident by calling (specify local fire number) on the phone. Report location.

9-5.6 A listed, automatic-closing-type hose nozzle valve with latch-open device shall be provided. 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.

9-5.7 A telephone or other approved, clearly identified means to notify the fire department shall be provided on the site in a location approved by the authority having jurisdiction.

9-5.8 Additional fire protection shall be provided where required by the authority having jurisdiction. Additional fire protection considerations include such items as fixed suppression systems, automatic fire detection, manual fire alarm stations, transmission of alarms to off-site locations, and limiting gallonage delivered per transaction.

9-6 Drainage and Waste Disposal.

9-6.1 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 shall be made by grading driveways, raising door sills, or other equally effective means.

3-7.1 Piping within the same trench shall be separated as follows:

(a) Two pipe diameters between steel lines;

(b) Two pipe diameters between fiberglass-reinforced plastic lines; and

(c) Piping need not be separated by more than 9 in. (23 cm).

3-7.2 Two or more levels of pipes within the same trench shall be separated by a minimum 6 in. (15 cm) of well-compacted backfill.

3-8 Valves. Piping systems shall contain a sufficient number of valves to operate the system properly and to protect the plant. Piping systems in connection with pumps shall contain a sufficient number of valves to control properly the flow of liquid in normal operation and in the event of physical damage. Each connection to piping by which equipment such as tank cars, tank vehicles, or marine vessels discharge liquids into storage tanks shall be provided with a check valve for automatic protection against back-flow if the piping arrangement is such that back-flow from the system is possible. (*See also 2-3.8.1.*)

3-8.1 If loading and unloading is done through a common pipe system, a check valve is not required. However, a block valve shall be provided. This valve shall be located so that it is readily accessible or shall be remotely operable.

3-9 Testing. Unless tested in accordance with the applicable sections of ANSI B31, *American National Standard Code for Pressure Piping*, all piping, before being covered, enclosed, or placed in use, shall be hydrostatically tested to 150 percent of the maximum anticipated pressure of the system, or pneumatically tested to 110 percent of the maximum anticipated pressure of the system but not less than 5 psi (34.5 kPa) gauge at the highest point of the system. This test shall be maintained for a sufficient time to complete visual inspection of all joints and connections, but for at least 10 minutes.

3-10* Identification. Each loading and unloading riser for liquid storage shall be identified by color code or marking to identify the product for which the tank is used.

Chapter 4 Container and Portable Tank Storage

4-1 General.

4-1.1 Scope.

4-1.1.1 This chapter shall apply to the storage of liquids in drums or other containers that do not exceed 60 gal (227 L) individual capacity and in portable tanks that do not exceed 660 gal (2498 L) individual capacity and to limited transfers incidental thereto. For portable tanks that exceed 660 gal (2498 L), Chapter 2 shall apply.

4-1.1.2 This chapter shall not apply to the following:

(a) Storage of containers in bulk plants, service stations, refineries, chemical plants, and distilleries;

(b) Liquids in the fuel tanks of motor vehicles, aircraft, boats, or portable or stationary engines;

(c) Beverages, where packaged in individual containers that do not exceed 1 gal (3.8 L) capacity;

(d) Medicines, foodstuffs, cosmetics, and other consumer products that contain not more than 50 percent by volume of water-miscible liquids, with the remainder of the solution not being flammable where packaged in individual containers that do not exceed 1 gal (3.8 L) capacity;

(e) Liquids that have no fire point when tested by ASTM D 92, *Standard Test Method for Flash and Fire Points by Cleveland Open Cup*, up to the boiling point of the liquid or up to a temperature at which the sample being tested shows an obvious physical change;

(f) Liquids with a flash point greater than 95°F (35°C) in a water-miscible solution or dispersion with a water and inert (noncombustible) solids content of more than 90 percent by weight;

(g) Distilled spirits and wines in wooden barrels or casks.

4-1.2 General Provision.

4-1.2.1 For the purpose of this chapter, unstable liquids shall be treated as Class IA liquids.

4-1.2.2 For the purposes of this chapter, protected storage installed after January 1, 1997, shall mean storage installed after January 1, 1997, that is protected in accordance with Section 4-8. All other storage shall be considered to be unprotected storage unless an alternate means of protection has been approved by the authority having jurisdiction. (*See 4-8.2.3 and 4-8.2.6.*)

Exception: As provided for in Section 4-5.

4-2 Design, Construction, and Capacity of Containers.

4-2.1 Only approved containers, intermediate bulk containers (IBCs), and portable tanks shall be used.

(a) Metal containers, metal intermediate bulk containers, and metal portable tanks meeting the requirements of, and containing products authorized by, Chapter I, Title 49, of the *Code of Federal Regulations* (U.S. Department of Transportation Hazardous Materials Regulations), Chapter 9 of the United Nations *Recommendations for the Transport of Dangerous Goods*, or NFPA 386, *Standard for Portable Shipping Tanks for Flammable and Combustible Liquids*, shall be acceptable. Any metal container larger than 60 gal (228L) and meeting the requirements of NFPA 386 shall be considered a portable tank for purposes of this chapter.

(b) Plastic containers meeting the requirements of, and used for petroleum products within the scope of, one or more of the following specifications shall be acceptable:

1. ASTM F 852, *Standard for Portable Gasoline Containers for Consumer Use*;

2. ASTM F 976, *Standard for Portable Kerosene Containers for Consumer Use*;

3. ANSI/UL 1313, *Nonmetallic Safety Cans for Petroleum Products*.

(c) Plastic drums meeting the requirements of and containing products authorized by Title 49 of the *Code of Federal Regulations* or by Chapter 9 of the United Nations *Recommendations on the Transport of Dangerous Goods* shall be acceptable.

(d) Fiber drums that:

1. Meet the requirements of Item 296 of the National Motor Freight Classification (NMFC) or Rule 51 of the Uniform Freight Classification (UFC) for Types 2A, 3A, 3B-H, 3B-L, or 4A, and