NFPA 513
Standard for Motor Freight Terminals

1998 Edition

National Fire Protection Association, 1 Batterymarch Park, PO Box 9101, Quincy, MA 02269-9101
An International Codes and Standards Organization

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NFPA 513

Standard for

Motor Freight Terminals

1998 Edition

This edition of NFPA 513, *Standard for Motor Freight Terminals,* was prepared by the Technical Committee on Motor Vehicle and Highway Fire Protection and acted on by the National Fire Protection Association, Inc., at its Annual Meeting held May 18–21, 1998, in Cincinnati, OH. It was issued by the Standards Council on July 16, 1998, with an effective date of August 5, 1998, and supersedes all previous editions.

Changes other than editorial are indicated by a vertical rule in the margin of the pages on which they appear. These lines are included as an aid to the user in identifying changes from the previous edition.

This edition of NFPA 513 was approved as an American National Standard on August 6, 1998.

Origin and Development of NFPA 513

The first edition of NFPA 513 was prepared by the NFPA Committee on Truck Transportation. It was tentatively adopted in 1958 and officially adopted by the Association as an NFPA standard in 1959. In 1967, the committee was reorganized as the Committee on Motor Vehicle and Highway Fire Protection.

The 1973 edition was a complete revision and reorganization of the 1971 edition. The 1973 edition was partially revised in 1975, 1978, and 1984. The 1990 edition contained minor changes, such as an update of Table 3-1.2, which is extracted from NFPA 30, *Flammable and Combustible Liquids Code.* Minor changes were incorporated in Chapters 3 and 6 of the 1994 edition, and in Chapters 1 and 4 of this 1998 edition.

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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.

Committee Scope: This Committee shall have primary responsibility for documents on motor vehicle fire prevention and protection measures to reduce loss of life and property damage in the operation and maintenance (repair) of such vehicles (except as specified herein); fire prevention and protection recommendations for motor freight terminals; protection for tunnels, air right structures and bridges; and to recommend protection facilities on limited-access highways. Included as motor vehicles are trucks, buses, taxicabs, limousines, and passenger cars; excluded are the design, fire protection, and operational procedures for fire apparatus, manufactured homes and recreational vehicles, tank vehicles of all kinds for handling flammable and combustible liquids and liquefied petroleum gases, and vehicles transporting explosives and other hazardous chemicals. The construction and protection of garages is handled by the NFPA Committee on Garages.

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NOTICE: An asterisk (*) following the number or letter designating a paragraph indicates that explanatory material on the paragraph can be found in Appendix A.

Information on referenced publications can be found in Chapter 7 and Appendix B.

Chapter 1 General Information

1-1 Application and Scope.

1-1.1 This standard shall apply to the prevention of loss of life and property damage from fires in motor freight terminals.

1-1.2 This standard shall apply to freight transfer areas, offices, employee facilities, and vehicle maintenance and service areas.

1-1.3 This standard shall apply to motor freight terminals that handle freight of various types, including ordinary combustible materials and materials classified as hazardous in accordance with the U.S. Department of Transportation, Title 49, *Code of Federal Regulations,* Parts 100–199.

1-1.3.1 Terminals for truck transportation of explosives shall be in accordance with NFPA 495, *Explosive Materials Code*, and NFPA 498, *Standard for Safe Havens and Interchange Lots for Vehicles Transporting Explosives.*

1-1.3.2 Terminals for bulk shipments of flammable and combustible liquids shall comply with NFPA 30, *Flammable and Combustible Liquids Code.*

1-1.3.3 Terminals for bulk shipments of LP-Gas shall comply with NFPA 58, *Liquefied Petroleum Gas Code.*

1-1.4* This standard shall not cover requirements for general storage.

1-1.5 Vehicle refueling facilities shall comply with NFPA 30A, *Automotive and Marine Service Station Code;* NFPA 52, *Compressed Natural Gas (CNG) Vehicular Fuel Systems Code;* NFPA 57, *Standard for Liquefied Natural Gas (LNG) Vehicular Fuel Systems;* and NFPA 58, *Liquefied Petroleum Gas Code*, as applicable.

1-1.6 Where existing buildings, structures, and installations meet the applicable requirements of the edition of this standard that is in effect at the time of construction or installation, they shall be permitted to be continued in use, except in those cases where it is determined by the authority having jurisdiction that the existing situation involves a distinct hazard to life or adjacent property.

1-2 Definitions.

Approved.* Acceptable to the authority having jurisdiction.

Authority Having Jurisdiction.* The organization, office, or individual responsible for approving equipment, an installation, or a procedure.

Class I Liquid. A liquid that has a flash point below 100°F (37.8°C).

Fire Area.* A portion of a building that is separated from other portions by construction that has sufficient fire resistance to prevent a fire of maximum anticipated severity from entering or leaving the area and with standard protection at all openings in the surrounding walls, floor, and ceiling.

Freight Transfer Area (Freight Platform, Freight Dock). The area where freight is received, sorted, shipped, and held for distribution.

Hazardous Material. A substance or material that has been determined by the United States Secretary of Transportation to be capable of posing an unreasonable risk to health, safety, and property where transported in commerce and that is so designated in U.S. Department of Transportation, Title 49, *Code of Federal Regulations*, Parts 100–199.

Labeled. Equipment or materials to which has been attached a label, symbol, or other identifying mark of an organization that is 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, materials, or services included in a list published by an organization that is acceptable to the authority having jurisdiction and concerned with evaluation of products or services, that maintains periodic inspection of production of listed equipment or materials or periodic evaluation of services, and whose listing states that either the equipment, material, or service meets identified standards or has been tested and found suitable for a specified purpose.

Motor Freight Terminal. The area where the overall operation of freight transfer, vehicle repair and service, truck parking, and administrative functions are performed. The motor freight terminal might also include the following:

(a) Facilities for repair of crates
(b) Cases
(c) Barrels
(d) Cartons
(e) Storage of undelivered freight or damaged goods pending settlement of claims
(f) Rest rooms
(g) A dormitory for drivers
(h) Locker rooms
(i) Meal facilities

Office Area. The part of the motor freight terminal used for administrative and general offices.

Parking Area. The lot or areas of the motor freight terminals used to park motor vehicles.

Shall. Indicates a mandatory requirement.

Should. Indicates a recommendation or that which is advised but not required.

Standard. A document, the main text of which contains only mandatory provisions using the word ''shall'' to indicate requirements and which is in a form generally suitable for mandatory reference by another standard or code or for adoption into law. Nonmandatory provisions shall be located in an appendix, footnote, or fine-print note and are not to be considered a part of the requirements of a standard.

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Vehicle Maintenance Area. The area where vehicles are repaired.

Vehicle Service Area. The area where vehicles are serviced, including refueling facilities. The area can include a lane in which vehicles are inspected before being dispatched.

Chapter 2 Construction and Building Arrangement

2-1* Freight Transfer and Administration Buildings.

2-1.1 Where not located in separate buildings, freight transfer and office areas shall be cut off from vehicle maintenance and service facilities by walls that are constructed of noncombustible materials that have a fire resistance rating of not less than 2 hours.

Exception: The requirement of 2-1.1 shall not apply to offices of 600 ft^2 (54 m^2) or less that are located within the vehicle maintenance area.

2-1.2 The walls that are required by 2-1.1 shall be parapeted at least 3 ft (0.9 m) above the building roof.

Exception: The parapet shall be permitted to be omitted where the wall fits tightly to the underside of a fire-resistive roof deck that is constructed of noncombustible materials.

2-1.3 Door openings and other necessary openings in the walls required by 2-1.1 shall be protected by fire doors that have a fire protection rating of not less than $1^1/_2$ hours. Such doors shall be installed in accordance with NFPA 80, *Standard for Fire Doors and Fire Windows.*

2-1.4 Stairways and other vertical shafts shall be enclosed with construction specified in NFPA 220, *Standard on Types of Building Construction*, or shall be sealed off at each floor level with construction that has the same fire resistance rating as the floor.

2-1.5* Exits and other life safety features of freight transfer and administration buildings and sections of such buildings shall comply with the requirements of Chapters 29 and 27, respectively, of NFPA *101®, Life Safety Code®*.

2-1.6 Power-operated doors that are installed in the terminals shall be arranged so that they can be operated manually from the floor in case of power failure.

2-1.7 The floor of any freight transfer area shall be constructed of noncombustible materials without cracks or openings into which trash or other combustible material can fall. This provision shall not prohibit openings for integral freight-handling equipment and appurtenances such as slots for the operation of draglines and platform scales. Any open space beneath the floor shall be enclosed with noncombustible material.

2-1.8 Rooms for the storage, charging, and servicing of batteries shall comply with Article 480, NFPA 70, *National Electrical Code®*. Signs that read *no smoking* shall be posted at the entrance.

2-2* Vehicle Maintenance and Service Buildings.

2-2.1 Service areas that are not located in separate buildings shall be separated from other terminal operations by walls and fire doors in accordance with 2-1.1 through 2-1.3.

2-2.2 Maintenance and service area floors shall be constructed of noncombustible material. Floors shall be graded and equipped with drains to minimize the possibility of water or fuel collecting on the floor.

2-2.3 Floor drains shall be provided in areas where vehicles are maintained and serviced. Each floor drain shall be properly trapped and shall discharge through an oil separator to the sewer or outside vented sump.

2-2.4 Pits and subfloor work areas shall be constructed of masonry or concrete, and floors and piers shall be of suitable noncombustible material.

2-2.4.1 Pits shall have adequate exits to prevent trapping of personnel in the event of fire. Steps shall be noncombustible, slipproof, and constructed with no accessible space underneath.

2-2.4.2 Ventilation and drainage of pits shall be in accordance with Section 5-3.

2-2.5* Exits from vehicle maintenance and service areas shall comply with the requirements of Section 29-2 of NFPA *101, Life Safety Code.*

2-3 Employee Facilities.

2-3.1 Walls and Partitions.

2-3.1.1 The fire resistance ratings of walls or partitions that separate rooms from surrounding areas shall be as follows:

(a) Employee locker rooms—1 hour
(b) Recreation rooms—1 hour
(c) Sleeping facilities — 2 hours

2-3.1.2 Door openings and other openings in the walls or partitions that are required by 2-3.1 shall be protected by self-closing fire doors that have a fire protection rating of not less than 1 hour. Such doors shall be installed in accordance with NFPA 80, *Standard for Fire Doors and Fire Windows.*

Exception: Door openings and other openings in walls or partitions that separate sleeping facilities from surrounding areas shall be protected by self-closing fire doors that have a fire protection rating of not less than 1½ hours.

2-3.2 Floors.

2-3.2.1 The fire resistance ratings of floors that separate employee locker rooms, recreation rooms, and sleeping facilities from surrounding areas shall be the same as those required for walls or partitions in 2-3.1.

2-3.2.2 Openings in floors that are located between separated areas shall be enclosed in shafts by means of enclosing walls or partitions that have the same fire resistance ratings as those required for the walls or partitions in 2-3.1.

Exception: Ducts for heating, ventilating, and air conditioning shall be installed in accordance with NFPA 90A, Standard for the Installation of Air Conditioning and Ventilating Systems.

2-3.3 Exits and other life safety features of dormitory buildings and dormitory sections of buildings shall comply with the requirements of Chapter 17 of NFPA *101, Life Safety Code.*

Chapter 3 Building Services

3-1 Electricity.

3-1.1 All electric installations shall be in accordance with the provisions of NFPA 70, *National Electrical Code.*

3-1.2 Table 3-1.2 (Table 5-9.5.3 in NFPA 30, *Flammable and Combustible Liquids Code*) shall be used for determining the

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Table 3-1.2 Electrical Area Classifications

Location	NEC Class I Division	Extent of Classified Area
Indoor equipment installed where flammable vapor-air mixtures can exist under normal operation	1	Area within 5 ft of any edge of such equipment, extending in all directions
	2	Area between 5 ft and 8 ft of any edge of such equipment, extending in all directions; also, area up to 3 ft above floor or grade level within 5 ft to 25 ft horizontally from any edge of such equipment[1]
Outdoor equipment of the type where flammable vapor-air mixtures can exist under normal operation	1	Area within 3 ft of any edge of such equipment, extending in all directions
	2	Area between 3 ft and 8 ft of any edge of such equipment, extending in all directions; also, area up to 3 ft above floor or grade level within 3 ft to 10 ft horizontally from any edge of such equipment
Tank—above ground	1	Area inside dike where dike height is greater than the distance from the tank to the dike for more than 50 percent of the tank circumference
Shell, ends, or roof and dike area	2	Within 10 ft from shell, ends, or roof of tank; area inside dikes to level of top of dike
Vent	1	Within 5 ft of open end of vent, extending in all directions
	2	Area between 5 ft and 10 ft from open end of vent, extending in all directions
Floating roof	1	Area above the roof and within the shell
Underground tank fill opening	1	Any pit, box, or space below grade level, if any part is within a 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
Drum and container filling outdoors or indoors, with adequate ventilation	1	Within 3 ft of vent and fill open ings, extending in all directions
	2	Area between 3 ft and 5 ft from vent or fill opening, extending in all directions; also, up to 18 in. above floor or grade level within a horizontal radius of 10 ft from vent or fill openings
Pumps, bleeders, withdrawal fittings, meters, and similar devices		
Indoors	2	Within 5 ft of any edge of such devices, extending in all directions; also up to 3 ft above floor or grade level within 25 ft horizontally from any edge of such devices
Outdoors	2	Within 3 ft of any edge of such devices, extending in all directions; also up to 18 in. above grade level within 10 ft horizontally from any edge of such devices
Pits		
Without mechanical ventilation	1	Entire area within pit if any part is within a Division 1 or 2 classified area
With adequate mechanical ventilation	2	Entire area within pit if any part is within a Division 1 or 2 classified area
Containing valves, fittings, or piping, and not within a Division 1 or 2 classified area	2	Entire pit

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Table 3-1.2 Electrical Area Classifications *(Continued)*

Location	NEC Class I Division	Extent of Classified Area
Drainage ditches, separators, impounding basins		
Outdoors	2	Area up to 18 in. above ditch, separator, or basin; also up to 18 in. above grade within 15 ft horizontally from any edge
Indoors	—	Same classified area as pits
Tank vehicle and tank car[2] loading through open dome	1	Within 3 ft of edge of dome, extending in all directions
	2	Area between 3 ft and 15 ft from edge of dome, extending in all directions
Loading through bottom connections with atmospheric venting	1	Within 3 ft of point of venting to atmosphere, extending in all directions
	2	Area between 3 ft and 15 ft from point of venting to atmosphere, extending in all directions; also up to 18 in. above grade within a horizontal radius of 10 ft from point of loading connection
Office and rest rooms	Ordinary	If there is any opening to these rooms within the extent of an indoor classified area, the room shall be classified the same as if the wall, curb, or partition did not exist
Loading through closed dome with atmospheric venting	1	Within 3 ft of open end of vent, extending in all directions
	2	Area between 3 ft and 15 ft of open end of vent, extending in all directions; also within 3 ft of edge of dome, extending in all directions
Loading through closed dome with vapor control	2	Within 3 ft of point of connection of both fill and vapor lines, extending in all directions
Bottom loading with vapor control any bottom unloading	2	Within 3 ft of point of connections, extending in all directions; also up to 18 in. above grade within a horizontal radius of 10 ft from point of connections
Storage and repair garage for tank vehicles	1	All pits or spaces below floor level
	2	Area up to 18 in. above floor or grade level for entire storage or repair garage
Garages for other than tank vehicles	Ordinary	If there is any opening to these rooms within the extent of an outdoor classified area, the entire room shall be classified the same as the area classification at the point of the opening
Outdoor drum storage	Ordinary	
Indoor warehousing where there is no flammable liquid transfer	Ordinary	If there is any opening to these rooms within the extent of an indoor classified area, the room shall be classified the same as if the wall, curb, or partition did not exist
Piers and wharves		Figure 5-7.16 in NFPA 30, *Flammable and Combustible Liquids Code*, shall be used to determine the extent of classified areas.

Note: For SI units, 1 in. = 2.54 cm; 1 ft = 0.3048 m.
[1]The release of Class I liquids can generate vapors to the extent that the entire building, and possibly a zone surrounding it, should be considered a Class I, Division 2, location.
[2]When classifying extent of area, consideration shall be given to the fact that tank cars or tank vehicles may be spotted at varying points. Therefore, the extremeties of the loading or unloading positions shall be used.

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extent of the hazardous area where flammable liquids are stored or handled.

3-2 Heating.

3-2.1 Heating equipment shall be installed to conform with the following standards as applicable:

(a) NFPA 90A, *Standard for the Installation of Air Conditioning and Ventilating Systems*

(b) NFPA 31, *Standard for the Installation of Oil-Burning Equipment*

(c) NFPA 54, *National Fuel Gas Code*

(d) NFPA 82, *Standard on Incinerators and Waste and Linen Handling Systems and Equipment*

(e) NFPA 211, *Standard for Chimneys, Fireplaces, Vents, and Solid Fuel-Burning Appliances*

3-2.2 All heating equipment shall be of an approved type that is designed for the purpose. The use of makeshift or improvised heaters shall be prohibited.

3-2.3 The fuels that are used shall be of the type and quality specified by the manufacturer of the heating appliance.

3-2.4 Heating equipment shall be permitted to be installed in a room that is separated from an area classified as Class I, Division 1 or 2, by walls that have a fire resistance rating of at least 1 hour. The room shall have no openings in the wall that leads into the classified area within 8 ft (2.4 m) of the floor. Such a room shall not be used for combustible storage, and all air for combustion purposes shall come from outside the building. Table 3-1.2 shall be used to classify the areas. The area classifications shall be in accordance with Article 500 of NFPA 70, *National Electrical Code*.

3-2.5 Heating equipment that uses gas or oil fuel shall be permitted to be installed in maintenance service areas in which there is no dispensing or transferring of Class I liquids, provided the bottom of the combustion chamber is at least 18 in. (457 mm) above the floor and the heating equipment is protected from physical damage.

3-2.6 Gas-heating or oil-heating equipment that is approved for use in garages shall be permitted to be installed in the maintenance and service areas where Class I liquids are dispensed, provided the equipment is installed at least 8 ft (2.4 m) above the floor.

3-2.7 Electric heating equipment shall be installed in accordance with the provisions of NFPA 70, *National Electrical Code*.

3-3 Ventilation.

3-3.1 Vehicle Maintenance and Repair Areas. All vehicle maintenance and repair areas, when in operation, shall be continuously ventilated by a ventilating system that has positive means for exhausting indoor air at a rate of not less than ¾ ft^3 (0.0212 m^3) of air per minute for each square foot (square meter) of floor area. Exhaust duct openings for required ventilation shall be located in a manner to effectively remove vapor accumulations at floor level from all parts of the repair area. An approved means shall be provided for introducing an equal amount of outdoor air.

3-3.2 Mechanical ventilating systems shall be installed in accordance with NFPA 90A, *Standard for the Installation of Air Conditioning and Ventilating Systems*. Where blower and exhaust systems are installed for vapor removal, the system shall be installed in accordance with NFPA 91, *Standard for Exhaust Systems for Air Conveying of Materials*.

Chapter 4 Freight-Handling Operation

4-1 Freight Transfer.

4-1.1 Aisles shall be provided to keep all portions of freight-handling areas readily accessible for fire fighting and to minimize the spread of fire.

4-1.2* Hazardous materials shall be handled in accordance with the U.S. Department of Transportation, Title 49, *Code of Federal Regulations,* Parts 100–199.

4-1.3* Combustible contents shall not be piled so that they are in contact with columns that are not of fire-resistive construction.

4-1.4 In sprinklered buildings, at least 18 in. (457 mm) of clearance shall be maintained between sprinkler deflectors and the top of storage. In nonsprinklered buildings, at least 36 in. (914 mm) of clearance shall be maintained between the top of the storage and the underside of the roof or ceiling in order to allow sufficient space for effective use of hose streams.

4-1.5* Clearance shall be maintained between heat-producing appliances and combustible stock in accordance with NFPA 211, *Standard for Chimneys, Fireplaces, Vents, and Solid Fuel-Burning Appliances*. Adequate clearance shall be maintained between incandescent lamps and combustible stock.

4-1.6 A clearance of 24 in. (610 mm) shall be maintained around the path of travel of fire doors.

Exception: Where a barricade is provided, no additional clearance shall be required.

4-1.7 Commodities shall not be stored within 36 in. (914 mm) of a fire door opening.

4-2 Mechanical Handling Equipment.

4-2.1 Power-operated industrial trucks shall be of a type specified in Chapter 1 of NFPA 505, *Fire Safety Standard for Powered Industrial Trucks Including Type Designations, Areas of Use, Conversions, Maintenance, and Operation*, in accordance with the hazards of the location in which they are used.

4-2.2 Industrial trucks, powered either by liquid or gaseous fuels, or by electricity, shall be inspected and maintained in accordance with Chapters 4 and 5 of NFPA 505, *Fire Safety Standard for Powered Industrial Trucks Including Type Designations, Areas of Use, Conversions, Maintenance, and Operation.*

4-2.3 Storage areas for LP-Gas that are located in the freight transfer area shall comply with NFPA 58, *Liquefied Petroleum Gas Code.*

4-3 Motor Vehicles at Docks.

4-3.1* Vehicle parking in terminals shall be in compliance with applicable local, state, and federal regulations.

4-3.2 Accessibility to terminals and vehicle parking areas for fire-fighting purposes shall be provided at all times. Vehicles shall be parked so that they do not block fire department access.

4-3.3 An emergency plan shall provide for the removal of vehicles from the dock to a safe area to minimize fire exposure and loss and to ensure improved accessibility for fire-fighting equipment.

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Chapter 5 Vehicle Maintenance and Service

5-1 General. Major maintenance and servicing of motor vehicles shall not be performed on floors that are below grade level.

Exception: Pits shall be permitted to be used for such maintenance and servicing.

5-2 Spray Painting and Undercoating. Spray painting, drying, and undercoating of motor vehicles shall conform to NFPA 33, *Standard for Spray Application Using Flammable or Combustible Materials*, and NFPA 86, *Standard for Ovens and Furnaces*.

5-3* Inspection and Repair Pits.

5-3.1 The use of approved portable lights shall be minimized by the installation of fixed lighting fixtures of approved types in all pits in accordance with Article 511 of NFPA 70, *National Electrical Code*.

Exception: Article 514 of NFPA 70, National Electrical Code, shall apply where gasoline is dispensed.

5-3.2 Drainage from inspection or repair pits shall not enter a storm or sanitary sewer system.

Exception: Such drainage shall be permitted where it has passed through a separator to prevent flammable and combustible liquids from entering the sewer.

5-3.3 Smoking in pits shall be prohibited.

5-3.4 A scheduled maintenance program for the collection and removal of oil separators and traps shall be initiated to prevent flammable and combustible liquids from entering the sewer.

5-4 Repair of Fuel Tanks.

5-4.1 Repairs to vehicle fuel tanks shall be in accordance with NFPA 327, *Standard Procedures for Cleaning or Safeguarding Small Tanks and Containers Without Entry*, and NFPA 58, *Liquefied Petroleum Gas Code*.

5-4.2 Fuel that is drained from vehicle tanks and not discarded shall be stored in approved safety cans or returned to standard underground storage tanks.

5-5 Cleaning of Parts. Parts shall be cleaned with nonflammable solvent.

Exception: A combustible liquid that has a closed-cup flash point at or above 100°F (37.8°C) shall be permitted to be used for cleaning, provided adequate ventilation is supplied and no sources of ignition are present in the cleaning area.

5-6 Welding and Open-Flame Operations.

5-6.1 All operations that involve open flame or electric arcs, including oxy-fuel gas welding and electric arc welding, shall be restricted to the designated repair area. This restriction includes, but is not limited to, fuel tank and radiator repairs. Safe cutting, welding operations and related fire prevention precautions shall be in accordance with the requirements of NFPA 51B, *Standard for Fire Prevention in Use of Cutting and Welding Processes*.

5-6.2 Welding equipment shall conform to Article 630 of NFPA 70, *National Electrical Code*, and welding operations shall conform to NFPA 51, *Standard for the Design and Installation of Oxygen-Fuel Gas Systems for Welding, Cutting, and Allied Processes*.

5-7 Storage and Handling of Flammable and Combustible Liquids. The storage and handling of flammable and combustible liquids shall be in accordance with NFPA 30, *Flammable and Combustible Liquids Code*. The storage and handling of liquefied petroleum gas shall be in compliance with NFPA 58, *Liquefied Petroleum Gas Code*.

5-8 Fueling of Vehicles.

5-8.1* Gasoline-dispensing units shall be of an approved type and shall be located at least 20 ft (6 m) horizontally from any activity that involves fixed sources of ignition.

5-8.2 Approved dispensing units shall be permitted to be located inside buildings where specifically allowed by the authority having jurisdiction. The dispensing area shall be separated from other areas in a manner that is approved by the authority having jurisdiction. The dispensing area shall be provided with an approved mechanical or gravity ventilation system.

5-8.3 Class I liquids shall be transferred from tanks by means of fixed pumps that are designed and equipped to allow control of the flow and to prevent leakage or accidental discharge.

5-8.4 The dispensing unit and its piping shall be mounted on a concrete island or shall be protected against collision damage by suitable means. Where located indoors, the dispenser also shall be mounted on a concrete island or shall be protected against collision damage by suitable means and shall be located in a position where it cannot be struck by an out-of control vehicle that is descending a ramp or another slope.

Exception: Dispensing units that are attached to containers shall not be required to be mounted as specified by this requirement.

5-8.5 Where Class I liquids are dispensed by a person other than the attendant, the hose nozzle valve shall be a listed automatic-closing type without a hold-open latch.

5-8.6 One or more clearly identified and easily accessible switches or circuit breakers shall be provided at a location that is remote from dispensing devices, including remote pumping systems, to shut off the power to all dispensing devices in the event of an emergency. Controls shall not be located more than 100 ft (30 m) from dispensers.

5-8.7 Operating instructions and signs that read *no smoking* shall be conspicuously posted in the dispensing area.

5-8.8 The storage and handling of flammable and combustible liquids shall be in accordance with NFPA 30, *Flammable and Combustible Liquids Code*.

5-8.9* Facilities for filling LP-Gas fuel tanks shall be located outside any terminal building.

Chapter 6 Fire Protection

6-1* Automatic Sprinklers. Where automatic sprinklers are provided, they shall be installed in accordance with NFPA 13, *Standard for the Installation of Sprinkler Systems*.

6-2 Portable Fire Extinguishers. Portable fire extinguishers shall be installed, inspected, maintained, and used in accordance with NFPA 10, *Standard for Portable Fire Extinguishers*.

6-3 Standpipes. Where standpipe and hose systems are provided, they shall conform to NFPA 14, *Standard for the Installation of Standpipe and Hose Systems*.

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6-4* Alarm Service. Where alarm service is provided, it shall be installed and maintained in accordance with NFPA 72, *National Fire Alarm Code®*.

6-5 Outside Protection.

6-5.1* The fire-fighting needs associated with terminal buildings and with fire fighting that involves loaded and unloaded vehicles shall be considered when determining water supply and hydrant needs.

6-5.2 Where private underground supply mains and hydrants are necessary, they shall be installed in accordance with NFPA 24, *Standard for the Installation of Private Fire Service Mains and Their Appurtenances*.

Chapter 7 Referenced Publications

7-1 The following documents or portions thereof are referenced within this standard as mandatory requirements and shall be considered part of the requirements of this standard. The edition indicated for each referenced mandatory document is the current edition as of the date of the NFPA issuance of this standard. Some of these mandatory documents might also be referenced in this standard for specific informational purposes and, therefore, are also listed in Appendix B.

7-1.1 NFPA Publications. National Fire Protection Association, 1 Batterymarch Park, P.O. Box 9101, Quincy, MA 02269-9101.

NFPA 10, *Standard for Portable Fire Extinguishers*, 1998 edition.

NFPA 13, *Standard for the Installation of Sprinkler Systems*, 1996 edition.

NFPA 14, *Standard for the Installation of Standpipe and Hose Systems*, 1996 edition.

NFPA 24, *Standard for the Installation of Private Fire Service Mains and Their Appurtenances*, 1995 edition.

NFPA 30, *Flammable and Combustible Liquids Code*, 1996 edition.

NFPA 30A, *Automotive and Marine Service Station Code,* 1996 edition.

NFPA 31, *Standard for the Installation of Oil-Burning Equipment*, 1997 edition.

NFPA 33, *Standard for Spray Application Using Flammable or Combustible Materials*, 1995 edition.

NFPA 51, *Standard for the Design and Installation of Oxygen-Fuel Gas Systems for Welding, Cutting, and Allied Processes*, 1997 edition.

NFPA 51B, *Standard for Fire Prevention in Use of Cutting and Welding Processes*, 1994 edition.

NFPA 52, *Compressed Natural Gas (CNG) Vehicular Fuel Systems Code,* 1998 edition.

NFPA 54, *National Fuel Gas Code*, 1996 edition.

NFPA 57, *Standard for Liquefied Natural Gas (LNG) Vehicular Fuel Systems,* 1996 edition.

NFPA 58, *Liquefied Petroleum Gas Code*, 1998 edition.

NFPA 70, *National Electrical Code®*, 1999 edition.

NFPA 72, *National Fire Alarm Code®*, 1996 edition.

NFPA 80, *Standard for Fire Doors and Fire Windows*, 1995 edition.

NFPA 82, *Standard on Incinerators and Waste and Linen Handling Systems and Equipment*, 1994 edition.

NFPA 86, *Standard for Ovens and Furnaces*, 1995 edition.

NFPA 90A, *Standard for the Installation of Air Conditioning and Ventilating Systems*, 1996 edition.

NFPA 91, *Standard for Exhaust Systems for Air Conveying of Materials*, 1995 edition.

NFPA *101®*, *Life Safety Code®*, 1997 edition.

NFPA 211, *Standard for Chimneys, Fireplaces, Vents, and Solid Fuel-Burning Appliances*, 1996 edition.

NFPA 220, *Standard on Types of Building Construction*, 1995 edition.

NFPA 327, *Standard Procedures for Cleaning or Safeguarding Small Tanks and Containers Without Entry*, 1993 edition.

NFPA 495, *Explosive Materials Code,* 1996 edition.

NFPA 498, *Standard for Safe Havens and Interchange Lots for Vehicles Transporting Explosives*, 1996 edition.

NFPA 505, *Fire Safety Standard for Powered Industrial Trucks Including Type Designations, Areas of Use, Conversions, Maintenance, and Operation*, 1996 edition.

7-1.2 Other Publication.

7-1.2.1 U.S. Department of Transportation, 400 7th Street SW, Washington, DC 20590.

Title 49, *Code of Federal Regulations,* Parts 100–199, as amended.

Appendix A Explanatory Material

Appendix A is not a part of the requirements of this NFPA document but is included for informational purposes only. This appendix contains explanatory material, numbered to correspond with the applicable text paragraphs.

A-1-1.4 For general storage buildings, see NFPA 231, *Standard for General Storage*.

A-1-2 Approved. 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, 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 that is concerned with product evaluations and is thus in a position to determine compliance with appropriate standards for the current production of listed items.

A-1-2 Authority Having Jurisdiction. 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, or 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 or her 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.

A-1-2 Fire Area. For further information, see NFPA 80, *Standard for Fire Doors and Fire Windows*.

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A-1-2 Listed. The means for identifying listed equipment may vary for each organization concerned with product evaluation; some organizations 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.

A-2-1 Freight transfer and administration buildings should be of fire-resistive or noncombustible construction as defined in NFPA 220, *Standard on Types of Building Construction*. Consideration should be given to the limitation of undivided fire areas in freight transfer facilities.

Factors that should be considered when determining maximum sizes of undivided fire areas are as follows:

(a) Type of fire protection provided
(b) Mechanical conveying equipment such as dragline operations
(c) Surveillance of goods to prevent possible theft
(d) Adequacy of fire department access

A-2-1.5 Chapters 27 and 29 of NFPA *101, Life Safety Code*, include requirements for the following:

(a) Types and capacities of exits
(b) Travel distances to exits
(c) Access to exits
(d) Exit lighting and signs
(e) Protection of vertical openings
(f) Interior finish
(g) Alarms
(h) Air-conditioning equipment

A-2-2 Vehicle maintenance and service buildings should be of fire-resistive or noncombustible construction.

A-2-2.5 Chapter 29 of NFPA *101, Life Safety Code*, includes requirements for the following:

(a) Types and capacity of exits
(b) Travel distances to exits
(c) Access to exits
(d) Exit lighting and signs
(e) Protection of vertical openings
(f) Interior finish
(g) Alarms

A-4-1.2 Certain commodities have characteristics that classify them as hazardous materials. Such commodities are subject to special regulations that govern packaging, storage, and transportation. Failure to comply with such requirements increases the danger of explosion, fire, the release of noxious or toxic fumes, damage to other freight, or other dangerous conditions. Title 49, *Code of Federal Regulations,* Section 177.848, specifies the combinations of hazardous materials that should not be loaded or stored together, or loaded or stored with certain other types of freight, in the same vehicle. Title 49, Section 177.848, does not prohibit the storage of such combinations of commodities in the same motor freight terminal, provided they are not stored adjacent to each other.

A-4-1.3 The requirement of 4-1.3 is necessary to allow the application of water to wet columns during fire suppression operations for the purpose of preventing column failure.

A-4-1.5 The surface temperature of lamps is discussed in the NFPA *Fire Protection Handbook*.

A-4-3.1 During a fire, the potential for exposure exists between the terminals and the vehicles that are parked adjacent to them. Consideration that is consistent with operating conditions and security requirements should be given to minimizing the potential exposure by parking vehicles at the dock for periods that are only as long as necessary. Priority should be given to loading, unloading, and dispatching vehicles that transport hazardous materials so that such cargoes remain within the terminal only as long as necessary.

A-5-3 Pits that are used to service gasoline-fueled vehicles should be provided with individual ventilating systems that are capable of providing 4 ft^3 (0.1132 m^3) of air per minute per square foot (square meter) of floor area. Such pits should have a floor that is pitched 1 in. (25.4 mm) for each 10 ft (3.05 m), and the exhaust air opening should terminate in an air opening that is perpendicular to the floor, with the bottom of the opening extending to the floor at the lowest end of the pit.

A-5-8.1 Where fuel is dispensed, consideration should be given to the vapor recovery requirements of the U.S. Environmental Protection Agency, Title 40, *Code of Federal Regulations*.

A-5-8.9 For requirements for LP-Gas fueling, see NFPA 58, *Liquefied Petroleum Gas Code*.

A-6-1 Consideration should be given to sprinkler protection for the following:

(a) Freight transfer buildings and vehicle maintenance and service buildings
(b) Truck-loading areas. An open-head deluge system or a closed-head dry pipe system or nonfreeze-solution wet system should be provided for truck-loading areas in colder regions to protect against the fire exposure that can exist between terminals and vehicles that are parked adjacent to them. *(See Chapter 3, of NFPA 13, Standard for the Installation of Sprinkler Systems.)*

A-6-4 Freight transfer facilities should be provided with one of the following types of alarm service:

(a) Central station supervision of sprinkler system waterflow
(b) Central station supervision of automatic fire detection system
(c) Central station supervision of guard service

Details for the installation, maintenance, and use of guard, fire alarm, and sprinkler supervisory systems are provided in NFPA 72, *National Fire Alarm Code®*. Information on the selection and training of guard service personnel are provided in NFPA 601, *Standard for Security Services in Fire Loss Prevention*.

A-6-5.1 Where an adequate water supply for fire hydrants and sprinkler protection cannot be made available from public water mains, NFPA 20, *Standard for the Installation of Centrifugal Fire Pumps*, and NFPA 22, *Standard for Water Tanks for Private Fire Protection*, should be consulted.

Appendix B Referenced Publications

B-1 The following documents or portions thereof are referenced within this standard for informational purposes only and are thus not considered part of the requirements of this standard unless also listed in Chapter 7. The edition indicated here for each reference is the current edition as of the date of the NFPA issuance of this standard.

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B-1.1 NFPA Publications. National Fire Protection Association, 1 Batterymarch Park, P.O. Box 9101, Quincy, MA 02269-9101.

NFPA 13, *Standard for the Installation of Sprinkler Systems,* 1996 edition.

NFPA 20, *Standard for the Installation of Centrifugal Fire Pumps,* 1996 edition.

NFPA 22, *Standard for Water Tanks for Private Fire Protection,* 1998 edition.

NFPA 72, *National Fire Alarm Code®,* 1996 edition.

NFPA 80, *Standard for Fire Doors and Fire Windows,* 1995 edition.

NFPA 101®, *Life Safety Code®,* 1997 edition.

NFPA 220, *Standard on Types of Building Construction,* 1995 edition.

NFPA 231, *Standard for General Storage,* 1998 edition.

NFPA 601, *Standard for Security Services in Fire Loss Prevention,* 1996 edition.

Fire Protection Handbook, 18th edition, 1997.

B-1.2 Other Publications.

B-1.2.1 U.S. Department of Transportation Publication. U.S. Department of Transportation, 400 7th Street SW, Washington, DC 20590

Title 49, *Code of Federal Regulations,* Parts 100–199.

B-1.2.2 U.S. Environmental Protection Agency Publication. U.S. Environmental Protection Agency, Waterside Mall, 401 M Street SW, Washington, DC 20460.

Title 40, *Code of Federal Regulations,* Section 50.

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