NFPA®

501A

Standard for Fire Safety Criteria for Manufactured Home Installations, Sites, and Communities

2017

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ISBN: 978-145591469-2 (Print)
ISBN: 978-145591470-8 (PDF)

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NFPA® 501A

Standard for

Fire Safety Criteria for Manufactured Home Installations, Sites, and Communities

2017 Edition

This edition of NFPA 501A, *Standard for Fire Safety Criteria for Manufactured Home Installations, Sites, and Communities*, was prepared by the Technical Committee on Manufactured Housing. It was issued by the Standards Council on June 7, 2016, with an effective date of June 22, 2016, and supersedes all previous editions.

This edition of NFPA was approved as an American National Standard on June 22, 2016.

Origin and Development of NFPA 501A

NFPA activity associated with manufactured homes began in 1937, when NFPA organized its first Committee on Trailers and Trailer Courts. The first NFPA standard covering trailer coach camps appeared in 1939, with revisions in 1940, 1952, 1960, and 1964. A completely new edition was adopted in 1971, and that text was revised in 1972, 1973, 1974, 1975, 1977, and 1982.

The American National Standards Institute (ANSI) approved the 1972 NFPA edition on May 8, 1973; the 1973 NFPA edition on December 28, 1973; the 1974 NFPA edition on January 30, 1975; the 1975 NFPA edition on February 27, 1976; and the 1977 NFPA edition on October 18, 1977.

The 1982 edition of *Standard for Firesafety Criteria for Mobile Home Installations, Sites, and Communities* superseded the 1977 edition and was adopted by NFPA at its Annual Meeting held in San Francisco in 1982. The 1982 edition was produced by the newly formed Committee for Firesafety for Mobile Homes (created June 1979), which was charged with the responsibility of developing documents for fire safety criteria for single-family mobile homes, including the installation, sites, and communities, and the maintenance of and improvements for existing mobile homes. Therefore, the 1982 edition excluded all sections of previous editions not considered within the committee scope. Notably excluded were stabilizing and anchoring systems, requirements for piers and footings, and plumbing, including sewage disposal systems. Requirements for park electrical systems were addressed by reference to *NFPA 70, National Electrical Code*. Modifications were also made in sections dealing with fuel supply, air conditioning, and life and fire safety.

Major revisions to the standard were made in the 1987 edition in an attempt to better coordinate the NFPA chapters in a joint publication with the National Conference of States on Building Codes and Standards (NCSBCS), ANSI A225.1/NFPA 501A. Major changes included substituting *manufactured home* for *mobile home* throughout; deleting Chapter 3, Air Conditioning; expanding Chapter 2, Fuel Supply; and combining three appendixes into two.

The standard was reconfirmed in 1992 with a plan to expand the scope of NFPA 501A to cover fire safety requirements for the design, construction, installation, alteration/rehabilitation, maintenance, use, and occupancy of manufactured homes, manufactured home sites, and manufactured home communities, including accessory buildings and structures. This was a major revision of the scope and the entire standard, and the committee targeted a complete revision of NFPA 501A for 1994.

The 1997 edition was a reconfirmation of the 1992 edition of NFPA 501A. The proposed expansion of the scope of the 1992 edition, as noted in the preceding paragraph, was discussed and acted on by the technical committee. The scope of NFPA 501A was not expanded; instead, a new document, NFPA 501, *Standard on Manufactured Housing*, was generated. NFPA 501 represented the reconstituted 1977 edition of NFPA 501B, *Standard for Mobile Homes*, which was the basis for the federal *Manufactured Home Construction and Safety Standards*.

The earlier editions of NFPA 501A were jointly developed and published by NFPA and NCSBCS as A225.1/NFPA 501A. The 1997 edition of NFPA 501A was published as a separate, stand-alone document in agreement with NCSBCS and contained only the fire safety requirements. The non–fire safety requirements were published by NCSBCS as A225.1 (1994 edition).

NFPA assumed responsibility for NCSBCS A225 standard in 2003, which was processed concurrently with the 2003 edition of NFPA 501A.

The 1999 edition was a reconfirmation of the 1997 edition. In June 1998, NFPA was selected by the U.S. Department of Housing and Urban Development (HUD) to update the federal standards (24 CFR 3280) for manufactured homes. As a result of this selection by HUD, the original technical committee for manufactured homes was expanded into six technical committees and a technical correlating committee. The expansion occurred during the Report on Comments phase of the 1999 edition.

The 2000 edition had only a few minor revisions. One revision, in 4.3.5, pertained to updating the water supplies for fire department operations. The other revisions were editorial in nature.

The 2003 edition was reformatted to meet the editorial and format-related requirements of the *Manual of Style for NFPA Technical Committee Documents*. Several definitions were deleted during that revision cycle.

The 2005 edition incorporated new requirements for fire separation distances between manufactured homes.

The 2009 edition of NFPA 501A updated extracted text where appropriate. In addition, revisions were made that clarified requirements and added new ones for water supplies that serve the site, and newly revised criteria were introduced for fire department access roads and paths.

The 2013 edition was revised to include requirements on retroactivity and equivalencies in Chapter 1. Provisions for storm shelters, community buildings, and emergency considerations such as windstorms were added. Several modifications were made to the organization of requirements within the document.

The 2017 edition includes the following revisions:

(1) The last two sentences of 7.1.4 have been removed — referencing the guidance document is sufficient without getting into the details of the document itself.
(2) Because Annex C in previous editions did not address recommendations for residential fire sprinkler systems in a manner similar to what is currently provided for home smoke alarms, language has been added to address maintenance and testing of NFPA 13D systems by directing the owner to the practices recommended in NFPA 13D.
(3) References have been appropriately updated.

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This list represents the membership at the time the Committee was balloted on the final text of this edition. Since that time, changes in the membership may have occurred. A key to classifications is found at the back of the document.

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 manufactured homes including the installation, sites and communities, and the maintenance of and improvements for existing manufactured homes.

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NFPA 501A

Standard for

Fire Safety Criteria for Manufactured Home Installations, Sites, and Communities

2017 Edition

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

A reference in brackets [ ] following a section or paragraph indicates material that has been extracted from another NFPA document. As an aid to the user, the complete title and edition of the source documents for extracts in mandatory sections of the document are given in Chapter 2 and those for extracts in informational sections are given in Annex D. Extracted text may be edited for consistency and style and may include the revision of internal paragraph references and other references as appropriate. Requests for interpretations or revisions of extracted text shall be sent to the technical committee responsible for the source document.

Information on referenced publications can be found in Chapter 2 and Annex D.

Chapter 1 Administration

1.1 Scope. This standard shall cover fire safety requirements for the installation of manufactured homes and manufactured home sites, including accessory buildings, structures, and communities.

1.2 Purpose. The purpose of this standard is to provide minimum requirements for the installation of manufactured homes and manufactured home sites, including accessory buildings, structures, and communities.

1.3 Application.

1.3.1 The standard shall apply to manufactured homes as described in 1.3.1.1.

1.3.1.1 Manufactured Home. A structure, transportable in one or more sections, that in the traveling mode is 8 body-ft (2.4 m) or more in width or 40 body-ft (12.2 m) or more in length or that on site is 320 ft^2 (29.7 m^2) or more, is built on a permanent chassis, is designed to be used as a dwelling with or without a permanent foundation, whether or not connected to the utilities, and includes plumbing, heating, air-conditioning, and electrical systems contained therein. Such terms shall include any structure that meets all the requirements of this paragraph except the size requirements and with respect to which the manufacturer voluntarily files a certification required by the regulatory agency. Calculations used to determine the number of square feet (square meters) in a structure are based on the structure's exterior dimensions, include all expandable rooms, cabinets, and other projections containing interior space, but do not include bay windows. [**501:**1.2.14]

1.3.2 The standard shall apply to new installations and where it is deemed a requirement by the regulatory agencies for existing installations.

1.3.3 The provisions of this standard shall not apply to recreational vehicles as defined in NFPA 1192 or to park trailers as defined in RVIA/ANSI A119.5, *Standard for Park Trailers*.

1.3.4 The provisions of this standard shall not apply to recreational vehicle parks and campgrounds as defined in NFPA 1194.

1.4 Units and Formulas.

1.4.1 Primary Values. The inch-pound value for a measurement and the SI value given in parentheses shall be acceptable for use as primary units for satisfying the requirements of this document.

1.4.2 SI Units. Metric units of measurement in this document are in accordance with the modernized metric system known as the International System of Units (SI).

1.5 Retroactivity. The provisions of this standard reflect a consensus of what is necessary to provide an acceptable degree of protection from the hazards addressed in this standard at the time the standard was issued.

1.5.1 Unless otherwise specified, the provisions of this standard shall not apply to facilities, equipment, structures, or installations that existed or were approved for construction or installation prior to the effective date of the standard. Where specified, the provisions of this standard shall be retroactive.

1.5.2 In those cases where the authority having jurisdiction determines that the existing situation presents an imminent danger, the authority having jurisdiction shall be permitted to apply retroactively any portions of this standard.

1.5.3 The retroactive requirements of this standard shall be permitted to be modified if their application clearly would be impractical in the judgment of the authority having jurisdiction and only where it is clearly evident that a reasonable degree of safety is provided.

1.6 Equivalency. Nothing in this standard is intended to prevent the use of systems, methods, or devices of equivalent or superior quality, strength, fire resistance, effectiveness, durability, and safety over those prescribed by this standard.

1.6.1 Technical documentation shall be submitted to the authority having jurisdiction to demonstrate equivalency.

1.6.2 The system, method, or device shall be approved for the intended purpose by the authority having jurisdiction.

Chapter 2 Referenced Publications

2.1 General. The documents or portions thereof listed in this chapter are referenced within this standard and shall be considered part of the requirements of this document.

2.2 NFPA Publications. National Fire Protection Association, 1 Batterymarch Park, Quincy, MA 02169-7471.

NFPA 1, *Fire Code,* 2015 edition.

NFPA 10, *Standard for Portable Fire Extinguishers,* 2017 edition.

NFPA 13, *Standard for the Installation of Sprinkler Systems,* 2016 edition.

NFPA 24, *Standard for the Installation of Private Fire Service Mains and Their Appurtenances,* 2016 edition.

NFPA 25, *Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems,* 2017 edition.

NFPA 31, *Standard for the Installation of Oil-Burning Equipment,* 2016 edition.

NFPA 54, *National Fuel Gas Code,* 2015 edition.

NFPA 58, *Liquefied Petroleum Gas Code,* 2017 edition.

NFPA 70® , *National Electrical Code®,* 2017 edition.

NFPA 72® , *National Fire Alarm and Signaling Code,* 2016 edition.

NFPA 82, *Standard on Incinerators and Waste and Linen Handling Systems and Equipment,* 2014 edition.

NFPA *101®* , *Life Safety Code®,* 2015 edition.

NFPA 1142, *Standard on Water Supplies for Suburban and Rural Fire Fighting,* 2017 edition.

NFPA 1144, *Standard for Reducing Structure Ignition Hazards from Wildland Fire,* 2013 edition.

NFPA 1192, *Standard on Recreational Vehicles,* 2015 edition.

NFPA 1194, *Standard for Recreational Vehicle Parks and Campgrounds,* 2014 edition.

NFPA 1221, *Standard for the Installation, Maintenance, and Use of Emergency Services Communications Systems,* 2016 edition.

NFPA 1600® , *Standard on Disaster/Emergency Management and Business Continuity Programs,* 2016 edition.

NFPA 5000® , *Building Construction and Safety Code®,* 2015 edition.

2.3 Other Publications.

2.3.1 AASHTO Publications. American Association of State Highway and Transportation Officials, 444 N. Capitol Street NW, Suite 249, Washington, DC 20001.

A Policy on Geometric Design of Highways and Streets, 5th edition, 2004.

2.3.2 ASCE Publications. American Society of Civil Engineers, 1801 Alexander Bell Drive, Reston, VA 20191-4400.

ASCE/SEI 7, *Minimum Design Loads for Buildings and Other Structures*, 2010.

2.3.3 ASME Publications. American Society of Mechanical Engineers, Two Park Avenue, New York, NY 10016-5990.

ASME *Boiler and Pressure Vessel Code*, 2001, revised 2010.

2.3.4 ASTM Publications. ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959.

ASTM A254, *Standard Specification for Copper Brazed Steel Tubing*, 2002.

ASTM B88, *Specification for Seamless Copper Water Tube*, 1999.

ASTM B280, *Specification for Seamless Copper Tubing for Air Conditioning and Refrigeration Field Service*, 1999, revised 2008.

ASTM D2513, *Standard Specification for Polyethylene (PE) Gas Pressure Pipe, Tubing, and Fittings*, 2011.

ASTM D2517, *Reinforced Epoxy Resin Gas Pressure Pipe and Fittings*, 2000, revised 2006.

2.3.5 AWWA Publications. American Water Works Association, 6666 W. Quincy Ave., Denver, CO 80235.

ANSI/AWWA C502, *Dry-Barrel Fire Hydrants*, 2005.

ANSI/AWWA C503, *Wet-Barrel Fire Hydrants*, 2005.

2.3.6 FEMA Publications. Federal Emergency Management Agency, 500 C Street, SW, Washington, DC 20472.

FEMA P-320, *Taking Shelter From the Storm: Building a Safe Room For Your Home or Small Business*, 2008.

FEMA P-361, *Design and Construction Guidance for Community Safe Rooms*, 2008.

2.3.7 ICC Publications. International Code Council, 500 New Jersey Avenue, NW, 6th Floor, Washington, DC 20001.

ICC 500, *ICC/NSSA Standard for the Design and Construction of Storm Shelters*, 2008.

2.3.8 RVIA Publications. Recreation Vehicle Industry Association, 1896 Preston White Drive, P.O. Box 2999, Reston, VA 20191-2999.

RVIA/ANSI A119.5, *Standard for Park Trailers*, 1998, revised 2009.

2.3.9 UL Publications. Underwriters Laboratories Inc., 333 Pfingsten Road, Northbrook, IL 60062-2096.

UL 80, *Steel Inside Tank for Oil Burner Fuel*, 2007, revised 2014.

UL 1037, *Standard for Antitheft Alarms and Devices*, 1999, revised 2009.

2.3.10 U.S. Government Publications. U.S. Government Publishing Office, 732 North Capitol Street, NW, Washington, DC 20401-0001.

Title 49, Code of Federal Regulations, Part 191, "Transportation of Natural and Other Gas by Pipeline: Annual Reports, Incident Reports, and Safety-Related Condition Reports."

Title 49, Code of Federal Regulations, Part 192, "Transportation of Natural and Other Gas by Pipeline: Minimum Federal Safety Standards."

2.3.11 Other Publications.

Merriam-Webster's Collegiate Dictionary, 11th edition, Merriam-Webster, Inc., Springfield, MA, 2003.

2.4 References for Extracts in Mandatory Sections.

NFPA 1, *Fire Code,* 2015 edition.

NFPA 501, *Standard on Manufactured Housing,* 2017 edition.

NFPA 1144, *Standard for Reducing Structure Ignition Hazards from Wildland Fire,* 2013 edition.

Chapter 3 Definitions

3.1 General. The definitions contained in this chapter shall apply to the terms used in this standard. Where terms are not defined in this chapter or within another chapter, they shall be defined using their ordinarily accepted meanings within the context in which they are used. *Merriam-Webster's Collegiate Dictionary*, 11th edition, shall be the source for the ordinarily accepted meaning.

3.2 NFPA Official Definitions.

3.2.1* Approved. Acceptable to the authority having jurisdiction.

3.2.2* Authority Having Jurisdiction (AHJ). An organization, office, or individual responsible for enforcing the requirements of a code or standard, or for approving equipment, materials, an installation, or a procedure.

3.2.3 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.

3.2.4* 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 appropriate designated standards or has been tested and found suitable for a specified purpose.

3.2.5 Shall. Indicates a mandatory requirement.

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

3.2.7 Standard. An NFPA Standard, the main text of which contains only mandatory provisions using the word "shall" to indicate requirements and that is in a form generally suitable for mandatory reference by another standard or code or for adoption into law. Nonmandatory provisions are not to be considered a part of the requirements of a standard and shall be located in an appendix, annex, footnote, informational note, or other means as permitted in the NFPA Manuals of Style. When used in a generic sense, such as in the phrase "standards development process" or "standards development activities," the term "standards" includes all NFPA Standards, including Codes, Standards, Recommended Practices, and Guides.

3.3 General Definitions.

3.3.1 Awning. A shade structure, supported by posts or columns, or partially supported by a manufactured home, that is installed, erected, or used on a manufactured home site.

3.3.2 Cabana. A portable, demountable, or permanent room enclosure or other building erected or constructed for human occupancy.

3.3.3 Carport. An awning or shade structure for a vehicle or vehicles that is permitted to be either freestanding or partially supported by a manufactured home.

3.3.4 Community Building. Any nonresidential building used for manufactured home community purposes.

3.3.5 Community Management. The person or entity who owns a development or has charge, care, or control of a community (e.g., park, estate, or subdivision).

3.3.6 Community Street. A private way that affords principal means of access to abutting individual sites, homes, and buildings.

3.3.7 Habitable Room. A room or enclosed floor space arranged for living, eating, food preparation, or sleeping purposes that does not include bathrooms, toilet compartments, laundries, pantries, foyers, hallways, and other accessory floor space.

3.3.8 Imminent Danger. A condition or practice in an occupancy, structure, site, or community that poses a danger that could reasonably be expected to cause death, serious physical harm, or serious property loss.

3.3.9* Manufactured Home Accessory Building or Structure. A building or structure that is an addition to a manufactured home or that supplements the facilities provided in a manufactured home; it is not a self-contained, separate, habitable building or structure.

3.3.10 Manufactured Home Gas Supply Connector. A listed connector designed for connecting the manufactured home to the gas supply source.

3.3.11 Manufactured Home Site. A parcel of land for the accommodation of one manufactured home, its accessory building or structures, and accessory equipment for the exclusive use of the occupants.

3.3.12 New Manufactured Home. A manufactured home that has not been sold to a person/consumer for purposes other than retail sale.

3.3.13 Porch. An outside walking area having a floor that is elevated more than 203 mm (8 in.) above grade.

3.3.14 Ramada. Any freestanding roof or shade structure installed or erected above a manufactured home or any portion thereof.

3.3.15 Severe Windstorms. Any windstorm that exceeds or is expected to exceed design level wind speeds as defined by ASCE/SEI 7-10, *Minimum Design Loads for Buildings and Other Structures.* Such storms may include straight line winds, microbursts, hurricanes, or tornadoes.

3.3.16 Storm Shelter. A building, structure or portion(s) thereof, constructed in accordance with the ICC 500, *ICC/NSSA Standard for the Design and Construction of Storm Shelters*, designated for use during a severe windstorm event such as hurricane or tornado.

3.3.16.1 ***Community Shelter.*** Any storm shelter not defined as a residential storm shelter and housing more than 16 persons.

3.3.16.2 ***Residential Storm Shelter.*** A storm shelter serving occupants of dwelling units and having an occupant load not exceeding 16 persons.

Chapter 4 Fuel Supply

4.1 Fuel Supply.

4.1.1* General.

4.1.1.1 All fuel gas piping systems serving manufactured homes, accessory buildings, or structures and communities shall be designed and constructed in accordance with any applicable provisions of NFPA 54 and NFPA 58.

4.1.1.2 NFPA 31 shall apply to oil fuel-burning systems and shall conform to the criteria of the authority having jurisdiction.

4.1.2 Gas Supply Connections.

4.1.2.1 Gas supply connections at sites, where provided from an underground gas supply piping system, shall be located and arranged to permit attachment to a manufactured home occupying the site.

4.1.2.2 For the installation of liquefied petroleum gas (LP-Gas) storage systems, the provisions of NFPA 58 shall be followed.

4.1.3 Location of Gas Supply Connection. The gas supply to the manufactured home shall be located within 4 ft (1.22 m) of the manufactured home stand.

Exception: The requirement of 4.1.3 shall not apply to gas supply connections for manufactured homes located on all-weather wood, concrete, or concrete block foundation systems or on foundations constructed in accordance with the local building code or, in the absence of a local code, with a recognized model building code.

4.2 Single and Multiple Manufactured Home Site Fuel Supply Systems.

4.2.1 Gas Piping Installations — Underground Gas Piping. Underground gas piping system installations shall comply with any applicable building code and 4.2.1.1 and 4.2.1.2.

4.2.1.1 Underground gas piping shall not be installed beneath that portion of a manufactured home site reserved for the location of a manufactured home or manufactured home accessory building or structure unless installed in the open-ended gastight conduit of 4.2.1.2.

4.2.1.2 The open-ended gastight conduit shall conform to the requirements in 4.2.1.2.1 through 4.2.1.2.4.

4.2.1.2.1 The conduit shall be not less than Schedule 40 pipe that is approved for underground installation beneath buildings.

4.2.1.2.2 The interior diameter of the conduit shall be not less than 0.5 in. (12.7 mm) larger than the outside diameter of the gas piping.

4.2.1.2.3 The conduit shall extend to a point not less than 4 in. (102 mm) beyond the outside wall of the manufactured home or accessory building or structure, and the outer ends shall not be sealed.

4.2.1.2.4 Where the conduit terminates within a manufactured home or accessory building or structure, it shall be accessible and the space between the conduit and the gas piping shall be sealed to prevent leakage of gas into the building.

4.2.2 Manufactured Home Site Gas Shutoff Valve. Gas shutoff valves shall conform to 4.2.2.1 through 4.2.2.4, except for manufactured homes located on foundations constructed in accordance with the local building code or, in the absence of a local code, with a recognized model building code.

4.2.2.1 Each manufactured home site shall have a listed gas shutoff valve installed upstream of the manufactured home site gas outlet.

4.2.2.2 The gas shutoff valve shall be located on the outlet riser at a height of not less than 6 in. (152 mm) above grade.

4.2.2.3 A gas shutoff valve shall not be located under any manufactured home.

4.2.2.4 The outlet shall be equipped with a cap or plug to prevent discharge of gas whenever the manufactured home site outlet is not connected to a manufactured home.

4.2.3 Gas Meters.

4.2.3.1 Support of Meters. Where installed, gas meters shall be supported by a post or bracket placed on a firm footing or other means providing equivalent support and shall not depend on the gas outlet riser for support.

4.2.3.2* Location of Meters.

4.2.3.2.1 Each gas meter shall be installed in an accessible location and shall be provided with unions or other fittings so that the meter can be removed easily and placed in an upright position.

4.2.3.2.2 Meters shall not be installed in unventilated or inaccessible locations or closer than 3 ft (0.91 m) to sources of ignition.

4.2.4 Meter Shutoff Valve or Cock.

4.2.4.1 All gas meter installations shall be provided with shutoff valves or cocks located adjacent to and on the inlet side of the meters.

4.2.4.2 In the case of a single meter installation utilizing an LP-Gas container, the container service valve shall be permitted to be used in lieu of the shutoff valve or cock.

4.2.4.3 All gas meter installations shall be provided with test tees located adjacent to and on the outlet side of the meters.

4.3 Multiple Manufactured Home Site Fuel Distribution and Supply Systems. See also Section 4.1 and Section 4.4.

4.3.1* Manufactured Home Community Natural Gas Distribution Systems. All underground metallic fuel piping systems shall comply with the cathodic protection requirements of 49 CFR 191, "Transportation of Natural and Other Gas by Pipeline: Annual Reports, Incident Reports, and Safety-Related Condition Reports," and 49 CFR 192, "Transportation of Natural and Other Gas by Pipeline: Minimum Federal Safety Standards."

4.3.2 Manufactured Home Community LP-Gas Supply Systems.

4.3.2.1 Where 10 or more customers are served by one LP-Gas supply system, the installation of the gas supply system shall be in accordance with 49 CFR 192, "Transportation of Natural and Other Gas by Pipeline: Minimum Federal Safety Standards."

4.3.2.2 Other types of liquefied petroleum gas supply systems and the storage and handling of LP-Gas shall be in accordance with NFPA 58. *(See also 4.3.8.)*

4.3.3 Installation of Cathodic Protection Systems. Where required by 49 CFR 191, "Transportation of Natural and Other Gas by Pipeline: Annual Reports, Incident Reports, and Safety-Related Condition Reports," and 49 CFR 192, "Transportation of Natural and Other Gas by Pipeline: Minimum Federal Safety Standards," cathodic protection shall be installed for corrosion control of buried or submerged metallic gas piping. *(See also 4.3.6.1 and 4.3.6.2.)*

4.3.4 Required Gas Supply.

4.3.4.1 The minimum hourly volume of gas required at each manufactured home site outlet or any section of the manufactured home community gas piping system shall be calculated as shown in Table 4.3.4.1.

Table 4.3.4.1 Demand Factors for Use in Calculating Gas Piping Systems in Manufactured Home Communities

Number of Manufactured Home Sites	Btu/hr per Manufactured Home Site
1	125,000
2	117,000
3	104,000
4	96,000
5	92,000
6	87,000
7	83,000
8	81,000
9	79,000
10	77,000
11–20	66,000
21–30	62,000
31–40	58,000
41–60	55,000
Over 60	50,000

For SI units, 1000 Btu/hr = 0.293 W.

4.3.4.2 In extreme climate areas, additional capacities other than those in Table 4.3.4.1 shall be considered.

4.3.5 Gas Pipe Sizing and Pressure.

4.3.5.1 The size of each section of a gas piping system shall be determined in accordance with NFPA 54 or by other standard engineering methods acceptable to the authority having jurisdiction.

4.3.5.2 Where all connected appliances are operated at their rated capacity, the gas supply pressure shall be not less than 7 in. water column (1743 Pa). The gas supply pressure shall not exceed 14 in. water column (3486 Pa).

4.3.6 Gas Piping Materials.

4.3.6.1 Metal.

4.3.6.1.1 Metal gas pipe shall be standard weight wrought iron or steel (galvanized or black), yellow brass containing not more than 75 percent copper, or internally tinned or treated copper of iron pipe size.

4.3.6.1.2 Galvanizing shall not be considered protection against corrosion.

4.3.6.1.3 Seamless copper or steel tubing shall be permitted to be used with gases not corrosive to such material.

4.3.6.1.4 Steel tubing shall comply with ASTM A254, *Standard Specification for Copper Brazed Steel Tubing*.

4.3.6.1.5 Copper tubing shall comply with ASTM B88, *Specification for Seamless Copper Water Tube* (Type K or Type L), or ASTM B280, *Specification for Seamless Copper Tubing for Air Conditioning and Refrigeration Field Service*.

4.3.6.1.6 Copper tubing (unless tin-lined) shall not be used if the gas contains more than an average of 0.3 grains of hydrogen sulfide per 100 scf of gas (0.7 mg/100 L).

4.3.6.2 Protection Coatings for Metal Gas Piping.

4.3.6.2.1 All buried or submerged metallic gas piping shall be protected from corrosion by approved coatings or wrapping materials.

4.3.6.2.2 All gas pipe protective coatings shall be approved types, shall be machine applied, and shall conform to recognized standards.

4.3.6.2.3 Field wrapping shall provide equivalent protection and is restricted to those short sections and fittings that are necessarily stripped for threading or welding.

4.3.6.2.4 Risers shall be coated or wrapped to a point at least 6 in. (152 mm) above ground.

4.3.6.3 Plastic. Plastic piping shall only be used underground and shall meet the requirements of ASTM D2513, *Standard Specification for Polyethylene (PE) Gas Pressure Pipe, Tubing, and Fittings*, or ASTM D2517, *Reinforced Epoxy Resin Gas Pressure Pipe and Fittings*, as well as the design pressure and design limitations of 49 CFR 192, "Transportation of Natural and Other Gas by Pipeline: Minimum Federal Safety Standards," Section 192.123, "Design Limitations for Plastic Pipe," and shall otherwise conform to the installation requirements thereof.

4.3.7 Gas Piping Installations.

4.3.7.1 Minimum Burial Below Ground Level and Clearances. All gas piping installed below ground level shall have a minimum earth cover of 18 in. (457 mm) and shall be installed with at least 12 in. (305 mm) of clearance in any direction from any other underground utility system.

4.3.7.2 Metallic Gas Piping.

4.3.7.2.1 All metallic gas piping systems shall be installed in accordance with approved plans and specifications, including provisions for cathodic protection.

4.3.7.2.2 Each cathodic protection system shall be designed and installed to conform to the provisions of 49 CFR 192, "Transportation of Natural and Other Gas by Pipeline: Minimum Federal Safety Guidelines."

4.3.7.2.3 Where the cathodic protection system is designed to protect only the gas piping system, the gas piping system shall be electrically isolated from all other underground metallic systems or installations.

4.3.7.2.4 Where only the gas piping system is cathodically protected against corrosion, a dielectric fitting shall be used in the manufactured home gas connection to insulate the manufactured home from the underground gas piping system.

4.3.7.2.5 Where a cathodic protection system is designed to provide all underground metallic systems and installations with protection against corrosion, all such systems and installations shall be electrically bonded together and protected as a whole.

4.3.7.3 Plastic Gas Piping.

4.3.7.3.1 Plastic gas piping shall be used only underground and shall be installed with an electrically conductive wire for locating the pipe.

4.3.7.3.2 The wire used to locate the plastic pipe shall be copper, not smaller in size than 18 AWG, with insulation approved for direct burial.

4.3.7.3.3 Every portion of a plastic gas piping system consisting of metallic pipe shall be cathodically protected against corrosion.

4.3.7.4 Gas Piping System Shutoff Valve. An accessible and identifiable shutoff valve controlling the flow of gas to the entire manufactured home community gas piping system shall be installed in a location acceptable to the authority having jurisdiction and near the point of connection to the service piping or to the supply connection of an LP-Gas container.

4.3.8* LP-Gas Equipment. LP-Gas equipment shall be installed in accordance with the applicable provisions of NFPA 58.

4.3.9 Oil Supply. The following three methods of supplying oil to an individual manufactured home site shall be permitted:

(1) Supply from an outside underground tank *(see 4.4.6)*
(2) Supply from a centralized oil distribution system designed and installed in accordance with accepted engineering practices and in compliance with NFPA 31
(3) Supply from an outside aboveground tank *(see 4.4.6)*

4.3.10* Minimum Oil Supply Tank Size. Oil supply tanks shall have a minimum capacity equal to 20 percent of the average annual oil consumption.

4.3.11 Oil Supply Connections — General.

4.3.11.1 Oil supply connections at manufactured home sites, where provided from a centralized oil distribution system, shall be located and arranged to permit attachment to a manufactured home utilizing the stand.

4.3.11.2 The installation of such facilities shall meet the provisions of NFPA 31 particularly Section 9.2 thereof.

4.4 Fuel Supply Systems Installation.

4.4.1* Flexible Gas Connector. Except for manufactured homes located on an all-weather wood, concrete, or concrete block foundation system or on a foundation constructed in accordance with the local building code or, in the absence of a local code, with a recognized model building code, each gas supply connector shall be listed for outside manufactured home use, shall be not more than 6 ft (1.83 m) in length, and shall have a capacity rating to supply the connected load.

4.4.2 Use of Approved Pipe and Fittings of Extension. Where it is necessary to extend a manufactured home inlet to permit connection of the 6 ft (1.83 m) listed connector to the site gas outlet, the extension shall be of approved materials of the same size as the manufactured home inlet and shall be adequately supported at no more than 4 ft (1.22 m) intervals to the manufactured home.

4.4.3* Mechanical Protection. All gas outlet risers, regulators, meters, valves, and other exposed equipment shall be protected against accidental damage.

4.4.4 Special Rules on Atmospherically Controlled Regulators.

4.4.4.1 Atmospherically controlled regulators shall be installed in such a manner that moisture cannot enter the regulator vent and accumulate above the diaphragm.

4.4.4.2 Where the regulator vent is obstructed due to snow and icing conditions, shields, hoods, or other suitable devices shall be provided to guard against closing of the vent opening.

4.4.5 Fuel Gas Piping Test. The manufactured home fuel gas piping system shall be tested only with air before it is connected to the gas supply. The manufactured home gas piping system shall be subjected to a pressure test with all appliance shutoff valves in their closed positions.

4.4.5.1 Fuel gas piping shall comply with 4.4.5.1.1 through 4.4.5.1.6.

4.4.5.1.1 The fuel gas piping test shall consist of air pressure at not less than 10 in. water column or more than 14 in. water column (2490 Pa to 3486 Pa).

4.4.5.1.2 The fuel gas piping system shall be isolated from the air pressure source and shall maintain this pressure for not less than 10 minutes without perceptible leakage.

4.4.5.1.3 Upon satisfactory completion of the fuel gas piping test, the appliance valves shall be opened and the gas appliance connectors shall be tested with soapy water or bubble solution while under the pressure remaining in the piping system.

4.4.5.1.4 Solutions used for testing for leakage shall not contain corrosive chemicals.

4.4.5.1.5 Pressure shall be measured with a manometer, slope gauge, or gauge that is calibrated in either water in. (mm) or psi (kPa) with increments of either 0.1 in. (2.5 mm) or 0.1 psi (0.6 kPa) gauge, as applicable.

4.4.5.1.6 Upon satisfactory completion of the fuel gas piping test, the manufactured home gas supply connector shall be installed and the connections shall be tested with soapy water or bubble solution.

4.4.5.2 The following warning shall be supplied to the installer:

WARNING: Do not overpressurize the fuel gas piping system. Damage to valves, regulators, and appliances can occur due to pressurization beyond the maximums specified.

4.4.5.3 Gas appliance vents shall be visually inspected to ensure that they have not been dislodged in transit and are connected securely to the appliance.

4.4.6 Oil Tanks. Oil tank capacities shall comply with the following:

(1) No more than one 660 gal (2500 L) tank or two tanks with an aggregate capacity of 660 gal (2500 L) or less shall be connected to one oil-burning appliance.
(2) Two supply tanks, where used, shall be cross-connected and provided with a single fill and single vent, as described in NFPA 31 and shall be on a common slab and rigidly secured, one to the other.
(3) Tanks having a capacity of 660 gal (2500 L) or less shall be securely supported by rigid, noncombustible supports to prevent settling, sliding, or lifting.

4.4.6.1* Oil supply tanks shall be installed in accordance with the applicable provisions of NFPA 31.

4.4.6.2 Tank Construction.

4.4.6.2.1 A tank with a capacity no larger than 60 gal (230 L) shall be permitted to be a DOT-5 shipping container (drum), and so marked, or a tank meeting the provisions of UL 80, *Steel Inside Tank for Oil Burner Fuel*.

4.4.6.2.2 Tanks other than DOT-5 shipping containers having a capacity of not more than 660 gal (2500 L) shall meet the provisions of UL 80, *Steel Inside Tank for Oil Burner Fuel*. Pressure tanks shall be built in accordance with Section VIII, Pressure Vessels, of the ASME *Boiler and Pressure Vessel Code*.

4.4.6.3 Tanks, as described in 4.4.6 and 4.4.6.2, that are adjacent to buildings shall be located not less than 10 ft (3.05 m) from a property line that is permitted to be built upon.

4.4.6.4 Tanks with a capacity no larger than 660 gal (2500 L) shall be equipped with an open vent no smaller than 1.5 in. (38 mm) iron pipe size; tanks with a 500 gal (1900 L) or less capacity shall have a vent of 1.25 in. (32 mm) iron pipe size.

4.4.6.5* Tanks shall be provided with a means of determining the liquid level.

4.4.6.6 The fill opening shall be a size and in a location that permits filling without spillage.

4.5 Manufactured Home Accessory Building Fuel Supply Systems.

4.5.1 Fuel gas supply systems installed in a manufactured home accessory building or structure shall comply with the applicable provisions of NFPA 54 and NFPA 58.

4.5.2 Fuel oil supply systems shall comply with the applicable provisions of NFPA 31.

4.6 Community Building Fuel Supply Systems in Manufactured Home Communities.

4.6.1 Fuel Gas Piping and Equipment Installations.

4.6.1.1 Fuel gas piping and equipment installed within a permanent building in a manufactured home community shall comply with nationally recognized appliance and fuel gas piping codes and standards adopted by the authority having jurisdiction.

4.6.1.2 Where the state or other political subdivision does not assume jurisdiction, such fuel gas piping and equipment installations shall be designed and installed in accordance with the applicable provisions of NFPA 54 or NFPA 58.

4.6.2 Oil Supply Systems.

4.6.2.1 Oil-burning equipment and installation within a manufactured home community shall be designed and constructed in accordance with the applicable codes and standards adopted by the authority having jurisdiction.

4.6.2.2 Where the state or other political subdivision does not assume jurisdiction, such installations shall be designed and constructed in accordance with the applicable provisions of NFPA 31.

4.6.3 Oil-Burning Equipment and Installation.

4.6.3.1 Oil-burning equipment and installation within a building constructed in a manufactured home community in accordance with the local building code or a nationally recognized building code shall comply with nationally recognized codes and standards adopted by the authority having jurisdiction.

4.6.3.2 Where the state or other political subdivision does not assume jurisdiction, such oil-burning equipment and installations shall be designed and installed in accordance with the applicable provisions of NFPA 31.

Chapter 5 Electrical System

5.1 Manufactured Home Site and Community Electrical Equipment and Installations. Sites and communities provided with electrical service shall have all electrical equipment and installations designed, constructed, and maintained in accordance with the applicable provisions of *NFPA 70* .

Chapter 6 Life Safety and Fire Safety

6.1 General. Responsibility for life safety and fire safety within manufactured home communities shall be that of the owners and operators of the community.

6.1.1 Site Plan.

6.1.1.1 Proposed manufactured home communities shall submit a site plan design to the authority having jurisdiction for approval prior to construction.

6.1.1.2 Arrangement of manufactured homes and accessory buildings or structures on the site shall not restrict reasonable access to the site by emergency personnel.

6.1.1.3 Each community operator shall maintain a community site plan for review by agencies responsible for emergency services.

6.1.1.4 The site plan shall include, but not be limited to, the following information:

(1) Street names
(2) Site separation lines
(3) Site numbers or addresses
(4) Water supplies for fire protection personnel
(5) Fire alarms
(6) Utility disconnects
(7) Fire sprinkler systems and fire department connections for community buildings

6.1.2 Each street name in the manufactured home community shall be clearly marked with signs, and each manufactured home site shall be marked for identification in a uniform manner that is clearly visible from the street serving the site.

6.1.3 Incinerators, Fireplaces, and Rubbish Burning within Wildland/Urban Interface Areas.

6.1.3.1 The burning of rubbish within a community shall not be permitted unless specifically permitted by the authority having jurisdiction.

6.1.3.2 Temporary or permanent incinerators, outdoor fireplaces, barbecues, and grills shall not be built, installed, or maintained in hazardous fire areas without prior approval of the authority having jurisdiction.

6.1.3.3 Incinerators, where permitted by the authority having jurisdiction, shall be constructed in accordance with NFPA 82.

6.1.3.4 Incinerators, where permitted by the authority having jurisdiction, shall meet the applicable standards of the environmental protection agency having jurisdiction.

6.1.3.5 Openings in incinerators, outdoor fireplaces, barbecues, and grills shall be provided with an approved spark arrester, screen, or door. [**1144:**5.11.3]

6.1.4 Outdoor Hazards. All areas and individual sites within the manufactured home community shall be maintained so as to be free of dry brush, leaves, weeds, and other debris that could contribute to the spread of fire within the site or community.

6.1.5 Each community building shall be marked for identification with an approved address number placed in a position to be plainly legible and visible from the street or road fronting the property.

6.1.6 In the absence of a locally adopted fire code, the provisions of NFPA 1 shall apply.

6.1.7 Minimum Water Supply Requirements.

6.1.7.1 At a minimum, every building shall be provided with a water supply meeting the requirements of NFPA 1142 or NFPA 1 for the purposes of fire fighting.

6.1.7.2 Where provided, private fire service mains and hydrants shall be installed to meet the requirements of NFPA 24.

6.1.7.3 Threads on all fire hydrant outlets shall be American National Fire Hose Connection Screw Threads and shall be equipped with thread adapters where local fire department thread is different.

6.1.7.4 Fire hydrants shall meet the requirements of ANSI/AWWA C502, *Dry-Barrel Fire Hydrants*, or ANSI/AWWA C503, *Wet-Barrel Fire Hydrants*.

6.1.7.5 Dry fire hydrants shall meet the requirements of NFPA 1142.

6.1.7.6 Acceptance. The contractor or installer of water supply systems shall demonstrate by actual test that the capacity of the water system will meet fire protection design requirements.

6.2 Manufactured Home Site Fire Safety Requirements.

6.2.1 Fire Safety Separation Requirements.

6.2.1.1 Fire separation distances shall comply with the jurisdiction's adopted building code, local rules, or regulations. In their absence, *NFPA 5000* shall apply.

6.2.1.2 Vertical Positioning of Manufactured Homes. Manufactured homes shall not be positioned vertically, stacked with one over the other, in whole or in part, unless the structure is designed and approved for such installation and permitted by the authority having jurisdiction.

6.2.2* Marking of Underground Utility Lines.

6.2.2.1 The location of underground electrical cables, gas piping, water piping, and sewer lines that are buried within 4 ft (1.2 m) of the perimeter of the site's largest planned manufactured home shall be indicated by an aboveground sign(s) or underground marker tapes identifying the proximity of the lines.

6.2.2.2 A plot plan showing the “as built” location of underground utility lines shall be available for installations in multiple-site facilities.

6.2.3 Manufactured Home Installations.

6.2.3.1 Installation of all manufactured homes, including the installation of the support system and the connection of structural, electrical, mechanical, and plumbing systems to the site utilities or between sections in the case of multiple-section homes, shall be performed in accordance with printed installation instructions provided by the manufacturer of the home.

6.2.3.2 For installations where printed instructions by the manufacturer are not available, the installation shall be performed in a manner that satisfies the intent of this standard as determined by the authority having jurisdiction.

6.2.3.3 The design of support systems shall consider the climatic and geological conditions present at the manufactured home site.

6.2.3.4 All manufactured home utility services shall be connected to the supply sources only with approved materials.

6.2.3.5 All manufactured homes, accessory buildings, structures, and community buildings shall be located and maintained in such a manner that required egress windows or doors are not blocked.

6.3 Manufactured Home Community Buildings.

6.3.1 Construction.

6.3.1.1* Every community building shall be designed and constructed in accordance with the locally adopted building code, the adopted fire code, and NFPA *101* as referenced.

6.3.1.1.1 In the absence of an adopted building code, community buildings shall comply with *NFPA 5000* .

6.3.1.1.2 In the absence of an adopted fire code, community buildings shall comply with NFPA 1.

6.3.1.2 Materials, fixtures, devices, fittings, and the installation of such shall conform to nationally recognized standards.

6.3.2 Fire Detection and Alarm Systems.

6.3.2.1* Where provided, fire detection and alarm systems in community buildings shall be installed in accordance with *NFPA 72* .

6.3.2.2 Where provided, street fire alarm services for the community shall be in accordance with NFPA 1221.

6.3.2.3 Where street fire alarm services are not provided, alarm procedures shall be posted as required by the local fire service.

6.3.3 Fire Sprinkler Systems.

6.3.3.1 Where provided, fire sprinkler systems in community buildings shall be installed in accordance with NFPA 13.

6.3.3.2 Where installed, fire sprinkler systems in community buildings shall be maintained in accordance with NFPA 25.

6.3.4 Manufactured Home and Community Fire Safety Requirements.

6.3.4.1 The space under manufactured homes and accessory buildings and structures shall not be used for the storage of combustible materials or for the storage or placement therein of flammable liquids, gases, or liquid or gas fuel–powered equipment. *(See Annex B.)*

6.3.4.1.1* Where installed within Wildland/Urban Interface Areas, manufactured homes with an open space beneath shall have a skirt of ignition-resistive material, fire-retardant-treated wood, or have a minimum fire resistance of 20 minutes, as defined in NFPA 1144.

6.3.4.1.2* Any enclosed space beneath the mobile or manufactured home shall be vented according to 5.3.3 of NFPA 1144. [**1144:**5.9.2]

6.3.4.1.3 Vents shall be screened with a corrosion-resistant, noncombustible wire mesh, with the mesh opening not to exceed nominal ¼ in. (6.3 mm) in size. [**1144:**5.3.3]

6.3.4.2 The following emergency information shall be printed and posted in conspicuous places in the manufactured home community:

(1) Telephone numbers for the following:
   (a) Fire department
   (b) Police department or sheriff's office
   (c) Community office
   (d) Person responsible for operation and maintenance of the manufactured home community
   (e) Emergency medical services
(2) Locations of the following:
   (a) Nearest fire alarm box, where available
   (b) Nearest public telephone
   (c) Address of the manufactured home community

6.3.4.3* Portable fire extinguishers, where required or installed, shall be of the type and size required by NFPA 10.

6.4 Accessory Building or Structure Fire Safety Requirements.

6.4.1 Setback Requirements.

6.4.1.1 Accessory buildings or structures shall be permitted to be located immediately adjacent to a site line when constructed entirely of materials that do not support combustion and provided that such buildings or structures are not less than 3 ft (0.9 m) from an accessory building or structure on an adjacent site.

6.4.1.2 An accessory building or structure constructed of combustible materials shall be located no closer than 5 ft (1.5 m) from the site line of an adjoining site.

6.4.2 Exits.

6.4.2.1 Every habitable room in an accessory building or structure shall have access to at least one exterior opening suitable for exiting directly to the outside without passing through the manufactured home.

6.4.2.2 Where a building or structure encloses two doors of the manufactured home or an emergency exit window, an additional exterior door shall be installed.

6.4.2.3 The exterior door shall not be less than 28 in. (0.7 m) in width and 6 ft 2 in. (1.9 m) in height.

6.5 Access, Ingress, Egress, and Evacuation.

6.5.1 Means of access for emergency responders shall consist of roadways, fire lanes, parking lot lanes, or a combination thereof and shall be provided to all structures.

6.5.2 Roads shall be designed, constructed, and maintained to accommodate the load and turning radius of the largest apparatus typically used to respond to that location *(see Figure 6.5.2)*.

6.5.2.1 Fire Apparatus Access. Plans for fire apparatus access roads shall be submitted to the fire department for review and approval prior to construction.

6.5.2.2 Multiple Access Roads. More than one fire department access road shall be provided when it is determined by the authority having jurisdiction that access by a single road could be impaired by vehicle congestion, condition of terrain, climatic conditions, or other factors that could limit access.

6.5.2.3 Surface. Fire department access roads shall be designed and maintained to support the imposed loads of fire apparatus and shall be provided with an all-weather driving surface.

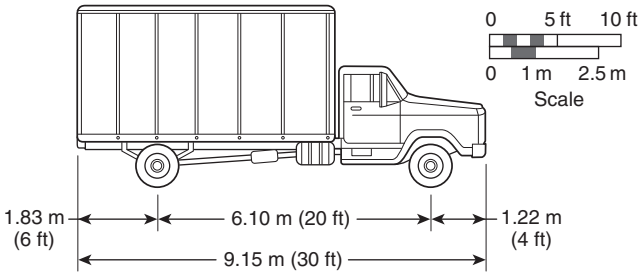
6.5.2.4 Width and Clearance.

6.5.2.4.1 Fire department access roads shall have an unobstructed width of not less than 20 ft (6.1 m).

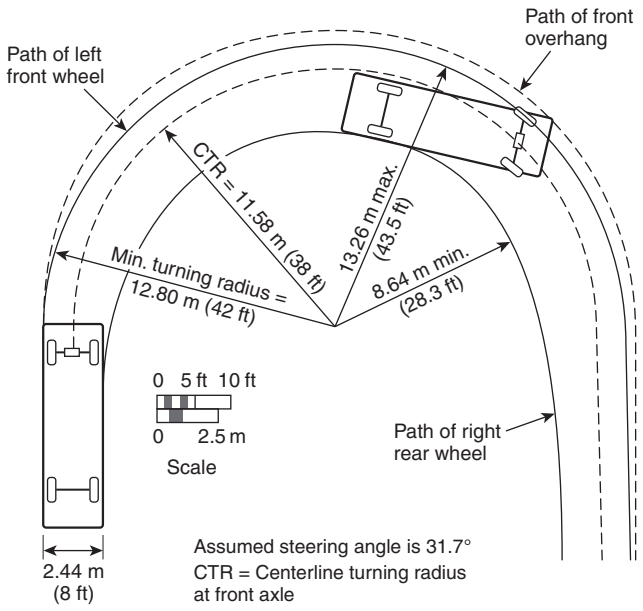
6.5.2.4.2 Fire department access roads shall have an unobstructed vertical clearance of not less than 13 ft 6 in. (4.1 m).

6.5.2.4.3 Vertical clearance shall be permitted to be reduced, provided such reduction does not impair access by fire apparatus, and approved signs are installed and maintained indicating the established vertical clearance when approved.

6.5.2.4.4 Vertical clearances or widths shall be increased when vertical clearances or widths are not adequate to accommodate fire apparatus.



(a) Single-Unit Truck



(b) Minimum Turning Path

FIGURE 6.5.2 Minimum Turning Path (b) for Single-Unit Truck Design Vehicle (a). [Courtesy of American Association of State Highway and Transportation Officials (AASHTO), *A Policy on Geometric Design of Highways and Streets* .]

6.5.2.5 Turning Radius. The turning radius of a fire department access road shall be as approved by the authority having jurisdiction. [**1:**18.2.3.4.3.1]

6.5.2.6 Dead Ends. Dead-end fire department access roads in excess of 150 ft (46 m) in length shall be provided with approved provisions for the turning around of fire apparatus no greater than every 500 ft (150 m) and at the closed end *(see Figure 6.5.2.6)*.

6.5.3 Roads shall be designed and constructed to allow evacuation simultaneously with emergency response operations.

6.5.4 Grade.

6.5.4.1 The gradient for a fire department access road shall not exceed the maximum approved. [**1:**18.2.3.4.6.1]

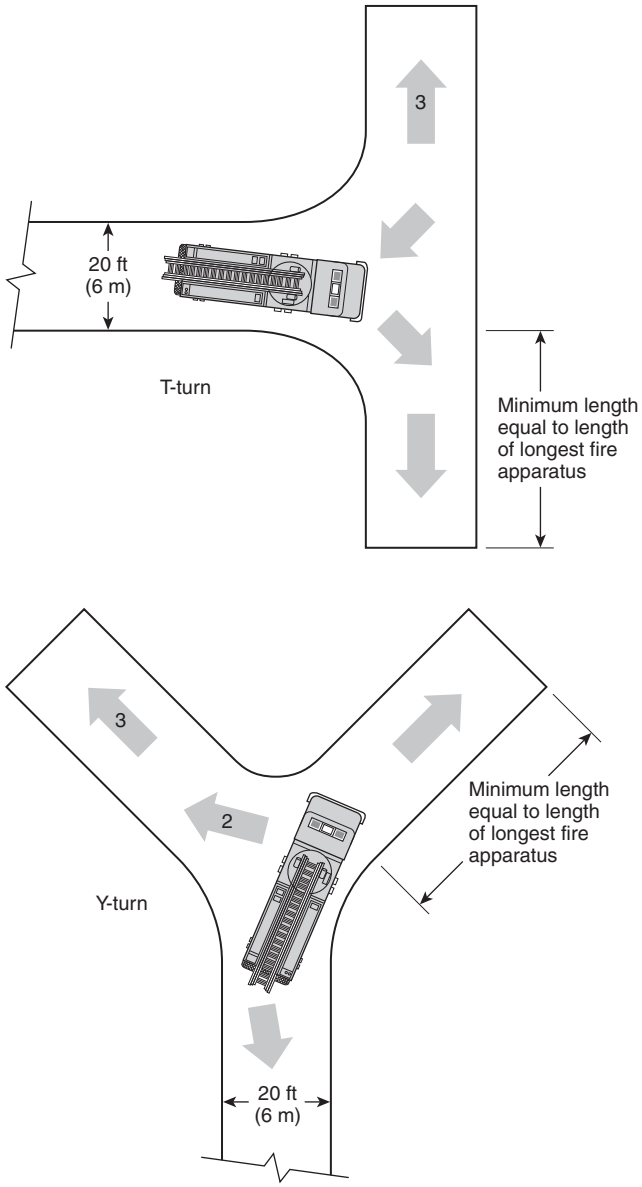


FIGURE 6.5.2.6 T-Turnaround and Y-Turnaround Arrangements.

6.5.4.2* The angle of approach and departure for any means of fire department access shall not exceed 1 ft drop in 20 ft (0.3 m drop in 6 m), or the design limitations of the fire apparatus of the fire department, and shall be subject to approval by the authority having jurisdiction. [**1:**18.2.3.4.6.2]

6.5.5* Marking of Fire Apparatus Access Road. Where required by the authority having jurisdiction, approved signs, approved roadway surface markings, or other approved notices shall be provided and maintained to identify fire department access roads or to prohibit the obstruction thereof or both. [**1:**18.2.3.5.1] *[See Figure 6.5.5(a) and Figure 6.5.5(b).]*

6.5.6 Bridges.

6.5.6.1 When a bridge is required to be used as part of a fire department access road, it shall be constructed and maintained in accordance with nationally recognized standards. [**1:**18.2.3.4.5.1]

6.5.6.2 The bridge shall be designed for a live load sufficient to carry the imposed loads of fire apparatus. [**1:**18.2.3.4.5.2]

6.5.6.3 Vehicle load limits shall be posted at both entrances to bridges where required by the authority having jurisdiction. [**1:**18.2.3.4.5.3]

6.5.7 Signs.

6.5.7.1* Roads, fire service access, dwellings, and commercial structures shall be identified by a consistent identification system that provides for sequenced or patterned numbering and nonduplicated naming within each jurisdiction.

6.5.7.1.1 In cases where the authority having jurisdiction is not a fire department, the fire department shall be consulted prior to the issuance of the name and/or number.

6.5.7.1.2 All letters, numbers, and symbols shall be a minimum of 4 in. (102 mm) in height, with a 0.5 in. (12.7 mm) stroke, and shall be reflectorized and contrasting with the background color of the sign.

6.5.7.1.3 Signs shall be visible from the road and mounted not less than 6 ft (1.8 m) nor more than 6 ft to 8 ft (1.8 m to 2 m) above the surface of the road, unless local conditions or existing standards prescribe otherwise.

FIGURE 6.5.5(a) Fire Department Access Road.

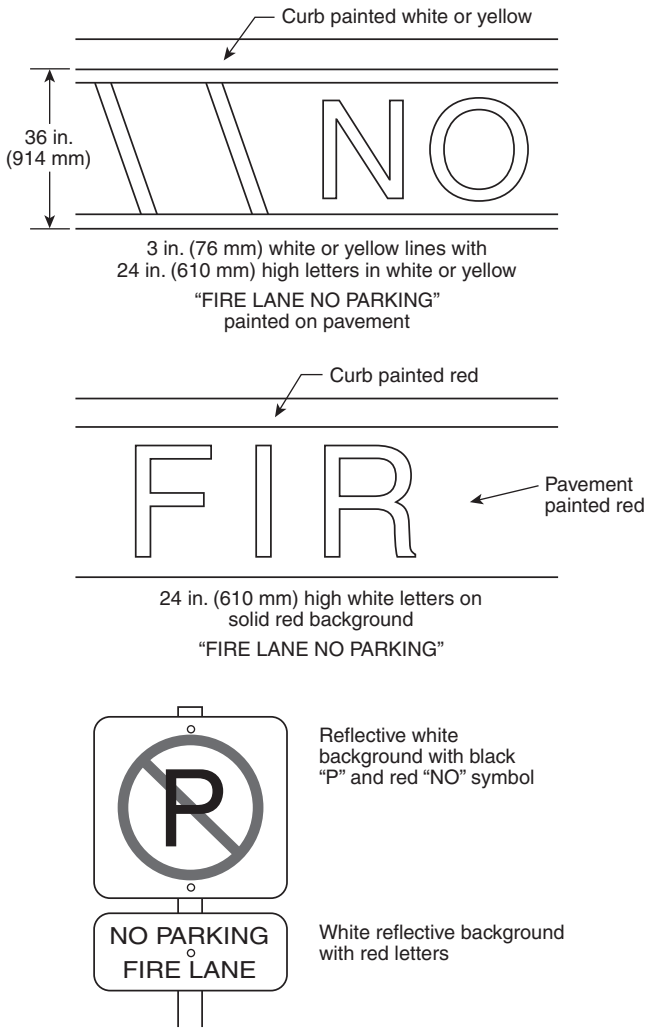


FIGURE 6.5.5(b) Examples of Fire Lane Markings.

6.5.7.1.4 Street and road name signs and supporting structures shall be of noncombustible materials.

6.5.8* Access to Structures or Areas. Provisions for access to a structure or area shall be in accordance with 6.5.8.1 through 6.5.8.3.

6.5.8.1 Access Box(es). The authority having jurisdiction shall have the authority to require an access box(es) to be installed in an accessible location where access to or within a structure or area is difficult because of security. The access box(es) shall be of an approved type listed in accordance with UL 1037. [**1:**18.2.2.1] *(See Figure 6.5.8.1.)*

6.5.8.2 Access to Gated Subdivisions or Developments. The authority having jurisdiction shall have the authority to require fire department access be provided to gated subdivisions or developments through the use of an approved device or system. [**1:**18.2.2.2]

FIGURE 6.5.8.1 Typical Access Box.

6.5.8.3 Access Maintenance. The owner or occupant of a structure or area, with required fire department access as specified in 6.5.8.1 or 6.5.8.2, shall notify the authority having jurisdiction when the access is modified in a manner that could prevent fire department access. [**1:**18.2.2.3]

6.6 General.

6.6.1 In areas not governed by codes that address wildland/urban intermix or interface issues, NFPA codes or standards, as they apply for the intended occupancy of the structure, shall be the minimum requirement applied to structures threatened by wildland fire. Assessing wildland fire hazards in the structure zone shall be based on Chapter 4 of NFPA 1144.

6.6.2* In cases in which the authority having jurisdiction determines that existing improved property is, or a planned property improvement will be, located in a wildland/urban interface or intermix area, the authority having jurisdiction shall perform, or cause to be performed, a wildland fire hazard assessment of each structure ignition zone in the development to determine relative risk, the extent of wildland fire hazard, and applicable mitigation measures. [**1144:**4.1.1]

6.6.3 The wildland fire hazard assessment shall be the basis for recommended mitigation measures relative to the vegetation, other combustibles, and structures on the site. [**1144:**4.1.3]

Chapter 7 Emergency Considerations

7.1 Severe Windstorms.

7.1.1 Manufactured home parks shall develop an emergency plan consistent with *NFPA 1600* which includes monitoring the approach of severe windstorms, provides methods of notification of residents, and provides a means of evacuating residents, or sheltering. This plan should be exercised upon a "Storm Warning" notice being issued by the National Weather Service.

7.1.2 When the manufacturer provides shelters for park residents, such shelter(s) shall be constructed and compliant with FEMA P-320, *Taking Shelter From the Storm: Building a Safe Room For Your Home or Small Business*/FEMA P-361, *Design and Construction Guidance for Community Safe Rooms*, and/or ICC 500, *ICC/NSSA Standard for the Design and Construction of Storm Shelters.*

7.1.3 Where small storm shelters are provided to accommodate residents of multiple housing units, they shall be classified as residential storm shelters and shall comply with FEMA P-320, *Taking Shelter From the Storm: Building a Safe Room For Your Home or Small Business*, and/or ICC 500, *ICC/NSSA Standard for the Design and Construction of Storm Shelters.* Such shelters shall remain open and unlocked at all times.

7.1.4 Where large storm shelters are provided in a single location or multiple locations, they shall be compliant with FEMA P-361, *Design and Construction Guidance for Community Safe Rooms*, and/or ICC 500, *ICC/NSSA Standard for the Design and Construction of Storm Shelters.*

Annex A Explanatory Material

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

A.3.2.1 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.3.2.2 Authority Having Jurisdiction (AHJ). The phrase "authority having jurisdiction," or its acronym AHJ, 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.3.2.4 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.3.3.9 Manufactured Home Accessory Building or Structure. Examples include awnings, cabanas, garages, ramadas, storage structures, carports, fences, windbreaks, or porches.

A.4.1.1 Gas piping systems (e.g., natural gas, manufactured gas, LP-Gas in the vapor phase, LP-Gas–air mixtures, or mixtures of these gases) that are owned, operated, and maintained by a public utility are exempt from the provisions of this standard but are required to conform to 49 CFR 192, "Transportation of Natural and Other Gas by Pipeline: Minimum Federal Safety Standards." *(See 4.3.1.)*

A.4.2.3.2 Electrical service equipment for a manufactured home should not be considered a source of ignition where it is not enclosed in the same compartment with a gas meter.

A.4.3.1 The *Natural Gas Pipeline Safety Act of 1968* requires that all gas distribution system operators adhere to the referenced title. Any master-metered gas distribution system that supplies a manufactured home community with gas and that, in turn, distributes the gas to the ultimate users (i.e., tenants) is defined as a gas distribution system within the context of the federal regulations. Owners of master-metered housing projects or manufactured home communities accordingly are defined as *gas distribution system operators*.

Title 49 CFR 191, "Transportation of Natural and Other Gas by Pipeline: Annual Reports, Incident Reports, and Safety-Related Condition Reports," provides requirements for the reporting of gas leaks that are not intended by the operator. The American Society of Mechanical Engineers publishes ASME B 31.8, *Guide for Gas Transmission and Distribution Piping Systems*, which contains 49 CFR 192, "Transportation of Natural and Other Gas by Pipeline: Minimum Federal Safety Standards," along with other useful technical information.

The *Handbook on Natural Gas Pipeline Safety in Residential Areas Served by Master Meters* was developed under contract for the U.S. Department of Housing and Urban Development (HUD-PDR-124) and is specifically aimed at providing "a timely and comprehensive safety guide for architects and engineers involved in the planning and design phases of multifamily projects and manufactured home parks."

A.4.3.8 NFPA 58 includes provisions on the following:

(1) Location of containers
(2) Installation of containers
(3) Installation of container appurtenances
(4) Regulator installations
(5) Piping system service limitations
(6) Installation of pipe, tubing, pipe and tubing fittings, valves, and hose
(7) Hydrostatic relief valve installation

A.4.3.10 ICC-5 shipping containers or drums of 60 gal (230 L) are not recommended, except for areas with less than 1800 degree-days.

A.4.4.1 A flexible gas connector should be installed to provide some slack.

A.4.4.3 Such protection against accidental damage can consist of posts, fencing, or other permanent barriers.

A.4.4.6.1 The provisions of 4.4.6.1 do not apply to centralized oil distribution systems *(see 4.3.11 and 4.6.2)*. See also NFPA 31. Chapter 7 of NFPA 31 icludes provisions on the design and construction of tanks, installation of underground tanks, outside aboveground tanks no larger than 660 gal (2500 L), and location with respect to adjacent buildings and adjoining property lines.

A.4.4.6.5 Additional information can be found in NFPA 31.

A.6.2.2 These requirements are intended to prevent possible damage to underground electrical cables, gas and water piping, and sewer lines caused by the use of ground anchors, the installation of skirting (underfloor enclosures), plantings, foundations for steps at access doors, and so forth.

A.6.3.1.1 The provisions of NFPA *101* regarding construction, protection, and occupancy features of community buildings shall be followed, as applicable, to minimize danger to life from fire, smoke, or panic. Special attention shall be given to the number, size, and arrangement of exit facilities in community buildings used as places of public assembly.

A.6.3.2.1 See *NFPA 72* for other suitable types of fire protection signaling systems.

A.6.3.4.1.1 If the home is installed in a Flood Hazard Area classified as a V Zone, the skirt should also meet the breakaway requirements of 12.4.2.1 of NFPA 1144.

A.6.3.4.1.2 If the home is installed in a Flood Hazard Area classified as an A Zone, the skirt should also meet the flood venting requirements of 12.4.2.2 of NFPA 1144.

A.6.3.4.3 It is recommended that each building owner provide a listed portable fire extinguisher that is suitable for handling incipient fire in the building. A listed extinguisher labeled as suitable for Class A, Class B, and Class C fires (i.e., multipurpose dry chemical type) is recommended. A 0.75 in. (19 mm) nominal valved water outlet designed for connecting a 0.75 in. (19 mm) nominal female swivel hose connection for fire suppression use is recommended on each site where practical and if protected against freezing.

A.6.5.4.2 The design limits of fire department apparatus should take into account mutual aid companies and other response agencies that might respond to emergencies. [**1:**A.18.2.3.4.6.2]

A.6.5.5 Fire department access roads should be kept clear of obstructions such as parked vehicles, fences and other barriers, dumpsters, and excess vegetation. However, it should be understood that a severe snowstorm can make these roads temporarily inaccessible. In many parts of the country, the annual snowfall is of such magnitude that alternative arrangements such as temporary roads over the snow accumulation could be necessary. [**1:**A.18.2.4]

A.6.5.7.1 The United States Postal Service and regional "911" emergency services systems could have requirements for these signs. All such signs should be coordinated with 6.5.7.

A.6.5.8 Access control devices take many forms such as remote opening devices, card keys, key codes, keys, and so forth. [**1:**A.18.2.2]

A.6.6.2 Any person assigned to conduct structure assessments should meet the qualifications of Wildland/Urban Interface Coordinator in accordance with Chapter 10 of NFPA 1051. Information about the course is available at www.firewise.org.

Annex B Manufactured Home Community Action for Fire Safety

This annex is not a part of the requirements of this NFPA document but is included for informational purposes only.

B.1 Purpose. The purpose of this annex is to give fire safety guidance for the manufactured home community.

B.2 Responsibilities of the Manufactured Home Community Management. The manufactured home community management's objective should be to give information to the community's manufactured home owners/occupants and to encourage their cooperation in the protection of life and property from fire. The community management also should be responsible for instructing staff in the use of fire protection equipment and defining specific duties in the event of fire. The community management should prepare the type of material detailed in B.2.1 through B.2.5 with the cooperation of the responsible local fire protection authority.

B.2.1 How to Report a Fire. Specific instructions should be given to owners on how to report a fire and to provide the following information:

(1) Name of manufactured home community
(2) Location of community
(3) Identification of the manufactured home site involved

B.2.2 Utility Services. The connecting and disconnecting of water, fuel, and electrical services should be performed only by authorized persons, as determined by community management. The names of those persons and their telephone numbers should be posted.

B.2.3 Fire-Fighting Equipment. Portable fire extinguishers and/or other fire-fighting equipment should be maintained on the premises. Full directions should be given as to the location of the nearest emergency equipment.

B.2.4 Laundry Rooms. Clothes dryers should be cleaned periodically by management to remove combustible material, including lint. A sign should be located in a conspicuous place, warning of the fire hazard in placing plastics in dryers and warning against the use of flammable liquids as cleaning agents.

B.2.5 Recreation Buildings. Management should instruct staff and community residents in the proper use of appliances located in community buildings and provide a list of these instructions near each appliance.

Annex C Responsibilities of the Manufactured Home Resident

This annex is not a part of the requirements of this NFPA document but is included for informational purposes only.

C.1 Responsibilities. The manufactured home resident should comply with all applicable requirements of this standard and should maintain his or her manufactured home site, its facilities, and its equipment in good repair and in a fire-safe condition.

C.1.1 Procedures in Case of Fire. In case of a fire in a manufactured home, the home owner should do the following in the order listed:

(1) Get all occupants out of the home
(2) Call the fire department or sound the alarm, with the main goal of getting professional fire fighters to the fire as promptly as possible

C.1.2 Maintenance and Testing of Manufactured Home Smoke Alarms. The manufactured home resident should maintain and routinely test smoke alarms at least once a month following the procedures recommended by the smoke alarm manufacturer. Smoke alarms should be replaced when they fail to respond to tests. Smoke alarms should not remain in service longer than 10 years from the date of installation.

C.1.3 Maintenance and Testing of Residential Fire Sprinkler Systems. The manufactured home resident should maintain and test the residential fire sprinkler system following recommended procedures outlined in NFPA 13D.

C.1.4 Family Escape Plan. To assist in the escape from a manufactured home in the event of fire conditions, the home resident should develop and practice a family escape plan.

C.1.5 Fire Conditions. Home owners/occupants should assist community management in keeping the area free of fire hazards by notifying management when unsafe conditions exist. Constant vigilance is necessary to maintain the premises free from fire at all times.

C.1.6 LP-Gas Containers. In addition to mounted LP-Gas containers, a home can have two additional vessels installed on the lot. The home can be served either by the vehicle containers or by the vessels on the lot, but not by both at the same time. LP-Gas containers should be installed in accordance with the applicable provisions of NFPA 58.

C.1.7 Charging of Vessels. LP-Gas vessels should be charged in accordance with the applicable provisions of NFPA 58.

C.1.8 Location of Vessels. LP-Gas vessels should not be stored or located inside or beneath any storage cabinet, cabana, awning, carport, ramada, home, or any other structure in a community.

C.1.9 Empty LP-Gas Containers. Owners/occupants should not place empty LP-Gas containers under their homes. If there is more than one container, empty containers should be left in place. If the manufactured home's LP-Gas supply is limited to one container and a replacement has been secured, any empty fuel container should be stored in the area designated for such storage.

C.1.10 Home Inspections. A manufactured home owner should notify the fire department if the owner wishes to have a voluntary home inspection performed.

C.1.11 Traffic Regulations. Operators of vehicles should observe the posted signs and keep all designated fire lanes and access to fire hydrants open at all times.

C.1.12 Marking. Each home site should be marked for identification. Such a marker should be easily readable from the street servicing the site.

C.2 Periodic Inspections. Periodic inspections of the enclosed space are recommended to ensure that all utility and other connections are secure and that no fire hazards exist.

Annex D Informational References

D.1 Referenced Publications. The documents or portions thereof listed in this annex are referenced within the informational sections of this standard and are not part of the requirements of this document unless also listed in Chapter 2 for other reasons.

D.1.1 NFPA Publications. National Fire Protection Association, 1 Batterymarch Park, Quincy, MA 02169-7471.

NFPA 13D, *Standard for the Installation of Sprinkler Systems in One- and Two-Family Dwellings and Manufactured Homes*, 2016 edition.

NFPA 31, *Standard for the Installation of Oil-Burning Equipment*, 2016 edition.

NFPA 58, *Liquefied Petroleum Gas Code*, 2017 edition.

NFPA 72 ®, *National Fire Alarm and Signaling Code*, 2016 edition.

NFPA *101 ®*, *Life Safety Code ®*, 2015 edition.

NFPA 1051, *Standard for Wildland Fire Fighter Professional Qualifications*, 2016 edition.

NFPA 1144, *Standard for Reducing Structure Ignition Hazards from Wildland Fire*, 2013 edition.

D.1.2 Other Publications.

D.1.2.1 ASME Publications. American Society of Mechanical Engineers, Two Park Avenue, New York, NY 10016-5990.

ASME B31.8, *Guide for Gas Transmission and Distribution Piping Systems*, 2010.

D.1.2.2 U.S. Government Publications. U.S. Government Publishing Office, 732 North Capitol Street, NW, Washington, DC 20401-0001.

Title 49, Code of Federal Regulations, Part 191, "Transportation of Natural and Other Gas by Pipeline: Annual Reports, Incident Reports, and Safety-Related Condition Reports."

Title 49, Code of Federal Regulations, Part 192, "Transportation of Natural and Other Gas by Pipeline: Minimum Federal Safety Standards."

HUD-PDR-124, *Handbook on Natural Gas Pipeline Safety in Residential Areas Served by Master Meters,* 1975.

D.2 Informational References. The following documents or portions thereof are listed here as informational resources only. They are not a part of the requirements of this document.

D.2.1 ISO Publications. Insurance Services Office, Inc., Customer Service, 545 Washington Blvd., Jersey City, NJ 07310-1686.

Fire Suppression Rating Schedule, Table 340, "Calculation of Needed Fire Flow," 6th edition, 1988.

D.2.2 UL Publications. Underwriters Laboratories Inc., 333 Pfingsten Road, Northbrook, IL 60062-2096.

UL 2258, *Outline of Investigation for Nonmetallic Tanks for Oil-Burner Fuels and Other Combustible Liquids*, 2010.

ANSI/UL 142, *Steel Aboveground Tanks for Flammable and Combustible Liquids*, 2006, revised 2010.

D.3 References for Extracts in Informational Sections.

NFPA 1, *Fire Code*, 2015 edition.