

NFPA[®]

501

Standard on Manufactured Housing

2017



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NFPA® 501

Standard on

Manufactured Housing

2017 Edition

This edition of NFPA 501, *Standard on Manufactured Housing*, was prepared by the Technical Committee on Manufactured Housing. It was issued by the Standards Council on November 11, 2016, with an effective date of December 1, 2016, and supersedes all previous editions.

This document has been amended by one or more Tentative Interim Amendments (TIAs) and/or Errata. See “Codes & Standards” at www.nfpa.org for more information.

This edition of NFPA 501 was approved as an American National Standard on December 1, 2016.

Origin and Development of NFPA 501

The 1997 edition of NFPA 501, *Standard on Manufactured Housing*, was based on the 1977 edition of NFPA 501B, *Standard for Mobile Homes*. The 1977 criteria were updated to include current technology and references, and the format was updated to conform with the NFPA *Manual of Style*.

NFPA 501 was also based on the federal Manufactured Home Construction and Safety Standards, which, when originally established by the U.S. Department of Housing and Urban Development (HUD), were based on the 1977 edition of NFPA 501B. The scope of NFPA 501 was to establish the minimum criteria for manufactured housing. Additional criteria were derived from earlier editions of NFPA 501B and the then-current HUD regulations to address future application for manufactured homes in the international marketplace. HUD regulations at that time addressed only those structures sold within the United States. Information from NFPA 501 had already been used to update the federal Manufactured Housing Construction and Safety Standards as administered by HUD.

The majority of the revisions to the 1999 edition were minor in nature and pertained to editorial clarification and revisions. There were significant revisions in the provisions on smoke detectors and smoke alarms. The revisions updated those provisions to recognize the requirements of NFPA 72, *National Fire Alarm Code*. Revisions were also made to the electrical chapter so that it was in agreement with the provisions of NFPA 70, *National Electrical Code*.

The 2000 edition was the first complete edition to be revised following HUD’s selection of NFPA to develop revisions to the federal regulations (24 CFR 3280) for manufactured homes. Approximately 100 changes were accepted for that edition. Revisions updated the reference standards, updated plumbing provisions, revised load testing for trusses, and added requirements for smoke detection installations for multistory units and those with basements.

The 2003 edition continued the document’s improvement, focused on NFPA’s suite of manufactured housing documents, and was reviewed and revised based on changes expected to emanate from the Manufactured Housing Improvement Act (MHIA) of 2000. Changes were incorporated that further reflected the desire to provide a more responsible approach to consumer concerns, such as ensuring that consumer manual criteria reflected the proper reference in the Code of Federal Regulations, that labels were attached to clearly visible locations, and that issues as diverse as the accessibility of manufactured housing units and the strengthening of criteria for handrails and guards were addressed. Other changes included improvements to the requirement for multistory and multisection homes, including the addition of an entirely new chapter on special construction considerations.

The 2005 edition incorporated a number of technical changes, including new requirements for stairs, materials of construction, energy conservation, water heaters, and supply ducts.

The 2010 edition of NFPA 501 incorporated revisions at a number of levels. Several of the referenced standards were updated where appropriate, and various definitions were revised and updated. New requirements and revised performance criteria dealing with cellular plastic materials and foam plastic materials were also added. These newly added provisions addressed flame spread indices, radiant panel indices, performance with the room corner test, or some combination of the three.

Enhancements to fire safety systems included a standing requirement to provide smoke alarm systems that comply with the requirements of NFPA 72. A significant change in the systems area included a mandate for residential sprinkler systems in all new manufactured homes. This established parity with similar provisions for other types of single-family homes that are governed by NFPA 101, *Life Safety Code*; NFPA 5000, *Building Construction and Safety Code*; and the ICC *International Residential Code*.

Finally, a series of changes to several energy efficiency provisions were included. Revisions to the U_0 values coupled with changes to the design climate map and certain glazing provisions moved the manufactured housing energy efficiency targets closer to those recommended by the U.S. Department of Energy.

The 2013 edition incorporated new requirements for safe rooms and updated referenced documents.

The 2017 edition includes the following changes:

- (1) A requirement for total smoke released has been added as an optional measurement where smoke limitations are desired.
- (2) Because it has now been shown that cellulose loose-fill insulation cannot be tested appropriately using ASTM E84 (or UL 723), that test has been replaced by CAN/ULC S102.2.
- (3) The requirements in 5.8.2.3.1 and 5.8.2.3.2 have been removed because they are already included in NFPA 275.
- (4) NFPA 750 was removed as a reference because it is not an approved automatic sprinkler system and has not been proved to be equivalent to any of the NFPA 13 systems.
- (5) References and extracts have been appropriately updated.

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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 501

Standard on

Manufactured Housing

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Information on referenced publications can be found in Chapter 14 and Annex D.

Chapter 1 General

1.1 Scope. This standard shall cover all the equipment and installations used in the design, construction, transportation, fire safety, plumbing, heat-producing, and electrical systems of manufactured homes that are designed to be used as dwelling units. This standard shall, to the maximum extent possible, establish performance requirements. In certain instances, however, the use of specific requirements is necessary.

1.2 Definitions. The following definitions are common to all chapters of this standard and are in addition to the definitions provided in individual chapters.

1.2.1 Administrative Regulations. Regulations promulgated by the regulatory agency for administration and enforcement of the provisions of this standard.

1.2.2* Approved. Acceptable to the authority having jurisdiction.

1.2.3* 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.

1.2.4 Bay Window. A window assembly whose maximum horizontal projection is no more than 24 in. (610 mm) from the plane of an exterior wall and is elevated above the floor level of the home, or a window supported on a foundation extending beyond the main walls of a building. [5000, 2015]

1.2.5 Certification Label. The approved form of manufacturer certification that is permanently affixed to each transportable section of each manufactured home that is subject to this standard. (See Section 1.11.)

1.2.6 Dwelling Unit. One or more rooms arranged for complete, independent housekeeping purposes, with space for eating, living, and sleeping; facilities for cooking; and provisions for sanitation. [5000, 2015]

1.2.7 Equipment. A general term including material, fittings, devices, appliances, luminaires, apparatus, machinery, and the like used as a part of, or in connection with, an electrical installation. [70:100]

1.2.8 Federal Manufactured Home Construction and Safety Standard. A standard either promulgated or adopted under authority of the *National Manufactured Housing Construction and Safety Standards Act of 1974* (PL 93-383, as amended).

1.2.9 Installations. All arrangements and methods of construction, as well as fire safety, plumbing, heat-producing, and electrical systems used in manufactured homes.

1.2.10 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.

1.2.11 Length of a Manufactured Home. A manufactured home's largest overall length in the traveling mode, including cabinets and other projections that contain interior space. Length does not include bay windows, roof projections, overhangs, or eaves under which there is no interior space, nor does it include drawbars, couplings, or hitches.

1.2.12* 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.

1.2.13 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 ft² (29.7 m²) 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 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.

1.2.14 Manufactured Home Construction. All activities relating to the assembly and manufacture of a manufactured home, including but not limited to those relating to durability, quality, and safety.

1.2.15 Manufactured Home Safety. The performance of a manufactured home in such a manner that the public is protected against any unreasonable risk of the occurrence of accidents or any unreasonable risk of death or injury to the user or to the public if such accidents do occur due to the design or construction of the manufactured home.

1.2.16 Manufacturer. Any person engaged in manufacturing or assembling manufactured homes, including any person engaged in importing manufactured homes for resale.

1.2.17 Modular Home. A home constructed, all or in part, in accordance with a standard adopted, administered, and enforced by the regulatory agency, or under reciprocal agreement with the regulatory agency, for conventional site-built dwellings.

1.2.18 Multi-Wide. A manufactured home that is made up of two or more transportable sections.

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

1.2.20 Registered Engineer or Architect. A person licensed to practice engineering or architecture in a state, subject to all laws and limitations imposed by the state's Board of Engineering and Architecture Examiners. A registered engineer or architect is engaged in the professional practice of rendering service or creative work that requires education, training, and experience in engineering sciences and special knowledge of mathematical, physical, and engineering sciences for the purpose of securing compliance with specifications and design in such professional or creative work as consultation, investigation, evaluation, planning or design, and supervision of construction.

1.2.21 Regulatory Agency. The agency adopting, administering, and enforcing this standard.

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

1.2.23 Safe Rooms (Storm Shelters). A building, structure, or portion(s) thereof constructed in accordance with ICC 500, *Standard for the Design and Construction of Storm Shelters*; FEMA

320, *Taking Shelter From the Storm: Building a Safe Room For Your Home or Small Business*; or FEMA 361, *Design and Construction Guidance for Community Safe Rooms*, and designated for use during a severe wind storm event such as a hurricane or tornado.

1.2.24 Shall. Indicates a mandatory requirement.

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

1.2.26 Single-Wide. A manufactured home that is made up of a single, transportable section.

1.2.27 State. Includes all 50 individual states that make up the United States, the District of Columbia, the Commonwealth of Puerto Rico, Guam, the U.S. Virgin Islands, and American Samoa.

1.2.28 Width of a Manufactured Home. A manufactured home's largest overall width in the traveling mode, including cabinets and other projections that contain interior space. Width does not include bay windows, roof projections, overhangs, or eaves under which there is no interior space.

1.3 Consumer Manual Requirements. Consumer manuals shall be in accordance with 24 CFR 3282, "Manufactured Home Procedural and Enforcement Regulations," Section 3282.207, "Manufactured Home Consumer Manual Requirements."

1.4 Incorporation by Reference. The specifications, standards, and codes, or portions thereof, of the following organizations, where they are specified in this standard, shall be incorporated by reference. Where two or more referenced standards are equivalent in application, manufacturers shall have the option to incorporate into the manufactured home design and construction the referenced standard of their choosing.

Exception: When reference standards and this standard are inconsistent, the requirements of this standard shall prevail to the extent of the inconsistency.

AA — Aluminum Association, 1525 Wilson Boulevard, Suite 600, Arlington, VA 22209.

AAMA — American Architectural Manufacturers Association, 1827 Walden Office Square, Suite 550, Schaumburg, IL 60173.

AF&PA — American Forest & Paper Association, 1101 K Street NW, Suite 700, Washington, DC 20005 [previously named National Forest Products Association (NFPA)].

AGA — American Gas Association, 400 N. Capitol Street NW, Washington, DC 20001.

AISC — American Institute of Steel Construction, One East Wacker Drive, Suite 3100, Chicago, IL 60601.

AISI — American Iron and Steel Institute, 25 Massachusetts Avenue NW, Suite 800, Washington, DC 20001.

AITC — American Institute of Timber Construction, 7012 S. Revere Parkway, Suite 140, Centennial, CO 80112.

ANSI — American National Standards Institute, 25 West 43rd Street, New York, NY 10036.

APA — The Engineered Wood Association, 7011 South 19th Street, Tacoma, WA 98466-5333.

AHRI — Air Conditioning, Heating, and Refrigeration Institute, 2111 Wilson Boulevard, Suite 500, Arlington, VA 22201.

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

ASHRAE — ASHRAE, 1791 Tullie Circle NE, Atlanta, GA 30329.

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

ASSE — American Society of Sanitary Engineering, 18927 Hickory Creek Drive, Suite 220, Mokena, Illinois 60448.

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

CISPI — Cast Iron Soil Pipe Institute, 2401 Fieldcrest Drive, Mundelein, IL 60060.

CSA America — Canadian Standards Association, 8501 East Pleasant Valley Road, Independence, OH 44131.

DOC — U.S. Department of Commerce, National Institute of Standards and Technology, Office of Engineering Standards, One Bureau Drive, Stop 2100, Gaithersburg, MD 20899.

FS — Federal Specifications, General Services Administration, Specifications Branch, Room 6039, GSA Building, Seventh and D Streets SW, Washington, DC 20407.

HPVA — Hardwood Plywood and Veneer Association, 1825 Michael Faraday Drive, Reston, VA 20190 [previously named Hardwood Plywood Manufacturers Association (HPMA)].

HUD-FHA — Department of Housing and Urban Development, 451 Seventh Street SW, Washington, DC 20410.

HUD USER, Department of Housing and Urban Development, P.O. Box 23268, Washington, DC 20026-3268.

IAPMO — International Association of Plumbing and Mechanical Officials, 4755 E. Philadelphia St., Ontario, CA 91761 USA.

IITRI — IIT Research Institute, 10 West 35th Street, Chicago, IL 60616.

MIL — Military Specifications and Standards, Naval Publications and Forms Center, 5801 Tabor Avenue, Philadelphia, PA 19111.

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

NFRC — National Fenestration Rating Council, 6305 Ivy Lane, Suite 140, Greenbelt, MD 20770.

SAE — Society of Automotive Engineers, 400 Commonwealth Drive, Warrendale, PA 15096

SJI — Steel Joist Institute, 234 W. Cheves Street, SC 29501.

TPI — Truss Plate Institute, 218 N. Lee Street, Suite 312, Alexandria, VA 22314

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

WDMA — Window and Door Manufacturers Association, 330 N. Wabash Avenue, Suite 2000, Chicago, IL 60611.

1.5 Data Plate. Each manufactured home shall bear a data plate affixed in a permanent manner near the main electrical panel or in another readily accessible and visible location. Each data plate either shall be made of a material that will receive typed information, as well as preprinted information, that can be cleaned of ordinary smudges or household dirt without removing information contained on the data plate; or shall be covered in a permanent manner with materials that will make it possible to clean the data plate of ordinary dirt and smudges without obscuring the information. (See 6.5.3.5.) Each data plate shall contain not less than the following information:

- (1) Name and address of the manufacturing plant where the manufactured home was manufactured
- (2) Serial number and model designation of the unit and the date the unit was manufactured
- (3) The statement: "This manufactured home is designed to comply with the NFPA Standard 501 in effect at the time of manufacture."
- (4) A list of the certification label(s) number(s) affixed to each transportable manufactured section in accordance with Section 1.11
- (5) A list of major factory-installed equipment, including the manufacturer's name and the model designation of each appliance
- (6) Reference to the roof load zone and wind load zone for which the home is designed and duplicates of the wind zone and roof load zone maps shown in Figure 6.5.3.1(a) and Figure 6.5.3.3.1. (This information shall be permitted to be combined with the heating and cooling certificates and the insulation zone map required by Sections 8.10 and 8.11.)
- (7) The statement: "This home has _____ has not _____ (appropriate blank to be checked by manufacturer) been equipped with storm shutters or other protective coverings for windows and exterior door openings. For homes designed to be located in Wind Zones II, III, and IV that have not been provided with shutters or equivalent covering devices, it is strongly recommended that the home be made ready to be equipped with these devices in accordance with the method recommended in the manufacturer's printed instructions."
- (8) The statement: "Design approval by . . ." followed by the name of the agency that approved the design

1.6 Serial Number. A serial number that identifies the manufacturer and the state where the manufactured home was manufactured shall be stamped into the foremost cross member. Letters and numbers shall be $\frac{3}{8}$ in. (9.5 mm) minimum in height. Numbers shall not be stamped into the hitch assembly or drawbar.

1.7 Excluded Structures. Certain structures shall be permitted to be exempted from this standard by the regulatory agency as modular homes under 24 CFR 3282, "Manufactured Home Procedural and Enforcement Regulations," Section 3282.12, "Excluded Structures — Modular Homes."

1.8 Waivers.

1.8.1 Where any material piece of equipment or system does not meet precise requirements or specifications defined in this standard, the manufacturer shall be permitted to submit a written application to the regulatory agency for a waiver of the precise requirement or specification.