NFPA

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1977

STANDARD FOR THE

INSTALLATION OF MOBILE HOMES

INCLUDING MOBILE HOME PARK REQUIREMENTS

Manufactured Housing Institute
14650 Lee Road, Chantilly, VA 22021

National Fire Protection Association
470 Atlantic Avenue, Boston, MA 02210

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Official Interpretations

The Committee responsible for this document will render official interpretations of the literal text and of the intent of the Committee when the text was adopted.

A request for an Official Interpretation shall be directed to the Chairman of the Committee concerned, at the National Fire Protection Association, 470 Atlantic Avenue, Boston, Massachusetts 02210, supplying five identical copies of a statement in which shall appear specific references to a single problem, and identifying the portion of the document (article, section, paragraph, etc.) for which the interpretation is requested. Such a request shall be on the business stationery of the requester and shall be duly signed. A request involving an actual field situation shall so state and all parties involved shall be named.

See Inside Back Cover for Official NFPA Definitions

Standard for the

Installation of Mobile Homes Including Mobile Home Park Requirements

NFPA 501A — 1977

1977 Edition of Standard for the Installation of Mobile Homes

This Standard was developed by the Sectional Committee on Mobile Home Installations and processed through the Correlating Committee on Mobile Homes and Recreational Vehicles. Listings of the membership of the Correlating Committee and the Sectional Committee are shown on the following pages as they were constituted during the balloting procedures for this 1977 edition.

This Edition of the Standard was approved by the National Fire Protection Association at its 1977 Annual Meeting held in Washington, D.C., May 16–19. The *only* substantive changes since the last previous (1975) edition are revisions to Part 8 on mobile home park electrical systems with the revisions thereto indicated by vertical marginal rules. Some editorial revisions were accomplished in other Parts and references to other Standards referenced herein were updated.

History and Development of the Standard

NFPA activity in this general area commenced in 1937 when the NFPA organized its first Committee on Trailers and Trailer Courts. The first 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 this text was revised in 1972, 1973, 1974, and 1975. This Edition replaces the 1975 and earlier NFPA documents.

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; and the 1975 NFPA edition on February 27, 1976. These earlier editions carried the ANSI designation A119.3 (followed by the year of ANSI approval). This edition is being submitted to ANSI and when and if approved the date of adoption will appear on the cover of the pamphlet edition of this text issued following the action.

Special Notice

The American National Standards Institute has previously designated this Standard as ANSI A119.3. In 1977 they discontinued using their own numerical designations. When and if this edition of this Standard is approved by ANSI it will be designated by them as ANSI/NFPA 501A (followed by the year of approval).

Committee on Mobile Homes and Recreational Vehicles

Listing as of Date of Balloting (March 1977)

Correlating Committee

Lloyd W. Garner, *Chairman*
Cobb County Fire Department, P.O. Box 649, Marietta, GA 30061

George H. Tryon,† *Administrative Secretary*
National Fire Protection Association, 470 Atlantic Ave., Boston, MA 02210

Delevan J. Arnold, Vesely Company

Russell R. Bahr, State of California, Department of Housing and Community Development (Chairman, Sectional Committee on Mobile Homes)

Artie O. Barker, Idaho State Electrical Board

C. E. Blome, American Association of Retired Persons

Willard E. Bryant, Maryland Dept. of Economic & Community Development (National Conference of States on Building Codes and Standards)

Walter N. Burke, Veterans Administration

H. William Ewig, Utica Mutual Insurance Company (Chairman, Sectional Committee on Recreational Vehicle Parks and Campgrounds)

Donald R. Fairman, U.S. Dept. of Housing & Urban Development, Federal Housing Administration (Chairman, Sectional Committee on Mobile Home Installations)

James G. Gross, Office of Building Standards and Codes Services, National Bureau of Standards, U. S. Department of Commerce

Jordan Heiman, American Society of Heating, Refrigerating and Air Conditioning Engineers, Inc.

Walter H. Johnson, National LP-Gas Association (Chairman, Sectional Committee on Recreational Vehicles)

Norman Latter, International Assn. of Plumbing & Mechanical Officials

W. J. Smith, Underwriters Laboratories Inc.

C. Pete Van Zandt, Familian Sierra Craft

Philip R. Wanroy, Kampgrounds of America

Vincent J. Wanzek, Fleetwood Enterprises

Nonvoting Members

Francis E. Greenleaf, Western Manufactured Housing Institute (Secretary, Sectional Committee on Mobile Home Installations)

Henry Omson, Manufactured Housing Institute (Secretary, Sectional Committee on Mobile Homes)

Philip N. Shrake, Recreation Vehicle Industry Association (Secretary, Sectional Committee on Recreational Vehicles and Sectional Committee on Recreational Vehicle Parks and Campgrounds)

†*Nonvoting*

Sectional Committee on Mobile Home Installations

Donald R. Fairman,† *Chairman*
U.S. Department of Housing & Urban Development,
Federal Housing Administration, Washington, DC 20410

Francis E. Greenleaf,† *Secretary*
Western Manufactured Housing Institute
3855 East LaPalma Ave., Anaheim, CA 92806

Ted Balter, Texas Mobile Home Association

A. O. Barker, Idaho State Electrical Board (rep. National Electrical Code Committee, International Association of Electrical Inspectors)

Richard H. Bast, Fire Marshals Association of North America

Herbert W. Behrend, American Society of Civil Engineers

Pat Bentz, National Association of Home Builders

Norman Busch, Western Mobilehome Association

Tom Collins, Manufactured Housing Institute

Jane Kathryn Conrad, American Mobile Home Association/Mobile Home Life

Tom S. Gable, National Sanitation Foundation

Lloyd W. Garner, Fire Marshals Association of North America

Hans R. Grigo, National Safety Council

James G. Gross, National Bureau of Standards, U.S. Dept. of Commerce

S. R. Harman, Mobile Home & Recreational Vehicle Division, State of Utah

Jordan Heiman, American Society of Heating, Refrigerating and Air Conditioning Engineers, Inc.

D. E. Hughes, American Gas Association

Walter H. Johnson, National LP-Gas Association

Charles W. Lane, Communities International

Norman J. Latter, International Association of Plumbing & Mechanical Officials

James E. Lewis, American Society of Sanitary Engineers

E. J. Orth, Jr., Electric Light & Power Group

Dr. Mary S. Pickett, Illuminating Engineering Society

Kenneth D. Rhoton, Gold Seal, Division of ETL, Inc.

Paul L. Solomon, Department of Housing and Community Development, State of California

Ted L. Strasser, Nebraska Mobile Housing Institute, Inc.

Victor Suben, American Society of Mechanical Engineers

J. Herbert Witte, American Assn. of Retired Persons

Alternates

S. L. Blachman, American Gas Association (Alternate to D. E. Hughes)

Robert J. Collins, National Sanitation Foundation (Alternate to Tom S. Gable)

James H. Pielert, National Bureau of Standards (Alternate to James G. Gross)

John Fleming, National Safety Council (Alternate to Hans R. Grigo)

Nicholas A. LaCourte, American Society of Heating, Refrigerating and Air Conditioning Engineers, Inc. (Alternate to Jordan Heiman)

Neil MacLean, International Association of Plumbing & Mechanical Officials (Alternate to Norman J. Latter)

Ronald B. Singer, Southern California Edison Company (Alternate to E. J. Orth, Jr.)

Alan R. Trellis, National Association of Home Builders (Alternate to Pat Bentz)

Nonvoting

Walter N. Burke, Veterans Administration

Eric Kent, Canadian Standards Association

Wilford I. Summers, National Fire Protection Association

Chester L. Tate, Jr., U.S. Department of Health, Education & Welfare

George H. Tryon, National Fire Protection Association

Brian Weir, Canadian Standards Association

†*Nonvoting*

Contents

Standard for the

Installation of Mobile Homes Including Mobile Home Park Requirements

NFPA 501A — 1977

Part 1. Scope

1.1 General. This Standard covers the installation of mobile homes including mobile home park requirements. Mobile home parks are defined as contiguous parcels of land which have been so designated and improved that they contain two or more mobile home lots available to the general public for the placement thereon of mobile homes for occupancy. The requirements for mobile home parks are intended to apply to new mobile home park design and land use where no local regulations governing such design are in effect. The requirements are intended to give minimum guidance which is considered good practice. In addition, the Standard includes requirements for mobile home lot facilities (Part 4), mobile home accessory buildings and structures (Part 5), mobile home park permanent buildings (Part 6), mobile home park plumbing systems (Part 7), mobile home park electrical systems (Part 8), mobile home park fuel supply systems (Part 9), and mobile home park fire safety (Part 10).

NOTE: Many provisions of this Standard may be applied to the installation of mobile homes regardless of whether or not they are located in a mobile home park. Particular attention is called to the provisions applicable to stabilizing devices and anchoring systems which are applicable to any mobile home installation (*see particularly the applicable definitions in Part 2 and Sections 4.2, 4.3, 4.4, 4.5, 4.6, and 4.7, plus Appendix A*). Other pertinent references applicable to mobile home installations not in parks include: 4.1, most of Part 5, 7.1, 7.2.3, 8.4, 9.1.3, 9.1.4–9.1.8, 9.2.3, 10.1.2, 10.1.7, 10.4.2, and 10.5.4, 10.5.5, and 10.5.6.

1.2 Companion Standards. This Standard is designed as a companion document to the *Standard for Mobile Homes* [*NFPA 501B–1977* (ANSI)] and the *Mobile Home Construction and Safety Standards* (Code of Federal Regulations, Title 24, Part 280).

Part 2. Definitions

Anchoring Equipment. Straps, cables, turnbuckles, and chains, including tensioning devices, which are used with ties to secure a mobile home to ground anchors.

Anchoring System. A combination of ties, anchoring equipment, and ground anchors that will, when properly designed and installed, resist overturning and lateral movement of the mobile home from wind forces.

Approved. Means acceptable to the authority having jurisdiction.

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

Awning. A shade structure supported by posts or columns and partially supported by a mobile home installed, erected, or used on a mobile home site.

Awning, Free Standing. A shade structure supported entirely by columns or posts and not attached to or supported by a mobile home or other structure.

Awning Window. A shade structure supported wholly by the mobile home or building to which it is attached.

Baling. Baling is a method of "wrapping" a cross section (roof, walls, and floor) and the main frame (chassis) of a mobile home with straps.

Building. A roofed structure erected for permanent use.

Cabana. A room enclosure erected or constructed adjacent to a mobile home for residential use by the occupant of the mobile home.

Carport. An awning or shade structure for a vehicle or vehicles which may be free-standing or partially supported by a mobile home.

Diagonal Tie. A tie intended to primarily resist horizontal or shear forces and which may secondarily resist vertical, uplift, and overturning forces.

Feeder Assembly. The overhead or under-chassis feeder conductors, including the grounding conductor, together with the necessary fittings and equipment, or a power supply cord listed for mobile home use, designed for the purpose of delivering energy

from the source of electrical supply to the distribution panelboard within the mobile home.

Fence. A vertical structure designed and erected as a free-standing unit, the surface of which is more than 50 percent open.

Footing. That portion of the support system that transmits loads directly to the soil.

Ground Anchor. Any device at the mobile home stand designed to transfer mobile home anchoring loads to the ground.

Habitable Room. Any room meeting the requirements of these regulations for sleeping, living, cooking, or dining purposes, excluding such enclosed spaces as closets, pantries, bath or toilet rooms, service rooms, connecting corridors, laundries, unfinished attics, foyers, storage spaces, cellars, utility rooms, and similar spaces.

Hurricane Resistive Mobile Home. A mobile home which meets the wind design load requirements of Section 2-6.3.2 of the *Standard for Mobile Homes* [*NFPA 501B–1977 (ANSI)*] or of the *Mobile Home Construction and Safety Standards* (Code of Federal Regulations, Title 24, Part 280).

Listed. Equipment or materials included in a list published by a nationally recognized testing laboratory that maintains periodic inspection of production of listed equipment or materials and whose listing states either that the equipment or material meets nationally recognized standards or has been tested and found suitable for use in a specified manner.

Main Frame. The structural component on which is mounted the body of the mobile home.

Mobile Home. A structure, transportable in one or more sections, which is eight body feet (8 ft.) or more in width and thirty-two body feet (32 ft.) or more in length, and which is built on a permanent chassis, and designed to be used as a dwelling with or without a permanent foundation, when connected to the required utilities, and includes the plumbing, heating, air conditioning, and electrical systems contained therein.

Mobile Home Accessory Building or Structure. A building or structure which is an addition to or supplements the facilities provided a mobile home. It is not a self-contained, separate, habitable building or structure. Examples are awnings, cabanas, ramadas, storage structures, carports, fences, windbreaks, or porches.

Mobile Home Park. A parcel (or contiguous parcels) of land which has been so designated and improved that it contains two or more mobile home sites available to the general public for the placement thereon of mobile homes for occupancy.

Mobile Home Service Equipment. That equipment containing the disconnecting means, overcurrent protective devices, and receptacles or other means for connecting a mobile home feeder assembly.

Mobile Home Site. A designated parcel of land in a mobile home park designed for the accommodation of one mobile home, its accessory buildings or structures, and accessory equipment for the exclusive use of the occupants.

Mobile Home Stand. That area of a mobile home site which has been reserved for the placement of a mobile home.

Occupied Area. The total of all of the site area covered by a mobile home and roofed mobile home accessory buildings and structures on a mobile home site.

Park Electrical Wiring System. All of the electrical wiring, fixtures, equipment and appurtenances related to electrical installations within a mobile home park, including the mobile home service equipment.

Park Street. A private way which affords principal means of access to abutting individual mobile home sites and auxiliary buildings.

Permanent Building. Any building except a mobile home or a mobile home accessory building or structure.

Pier. That portion of the support system between the footing and the mobile home exclusive of caps and shims.

Porch. An outside walking area having the floor elevated more than eight inches above grade.

Ramada. Any free-standing roof, or shade structure, installed or erected above an occupied mobile home or any portion thereof.

Special Permission. The written consent of the authority having jurisdiction.

Stabilizing Devices. All components of the anchoring and support systems such as piers, footings, ties, anchoring equipment, ground anchors and any other equipment which supports the mobile home and secures it to the ground.

Stabilizing System. A combination of the anchoring system and the support system when properly installed.

Storage Structure. A structure located on a mobile home site which is designed and used solely for the storage and use of personal equipment and possessions of the mobile home occupants.

Structure. That which is built or constructed, an edifice or building of any kind, or any piece of work artificially built up or composed of parts joined together in some definite manner.

Support System. A combination of footings, piers, caps, and shims that will, when properly installed, support the mobile home.

Tie. Strap, cable or securing device used to connect the mobile home to ground anchors.

Vertical Tie. A tie intended to primarily resist the uplifting and overturning forces.

Windbreak. A vertical wall structure designed and erected as a free-standing unit, the vertical surface of which is not more than 50 percent open.

Part 3. Mobile Home Park Design and Land Use

3.1 General. The material in this Part contains provisions for new mobile home park design and land use where local regulations governing such design and land use are not in effect. The criteria is intended to give minimum guidance which is considered good practice.

3.2 Setbacks. Each mobile home shall be located at least 25 feet from any park property boundary line abutting upon a public street or highway.

3.3. Space Utilization. Site coverage and building separation in a mobile home park for each mobile home and its accessory structures shall be in accordance with the following:

3.3.1 The occupied area of a mobile home site shall not exceed 75 percent of the site area.

3.3.2 A mobile home shall not be located closer than 10 feet from any other mobile home or permanent building within the mobile home park. A mobile home accessory building shall not be closer than 3 feet from a mobile home or building on an adjacent site.

3.4 Access to Park Streets. Each mobile home site within a mobile home park shall have direct access to a park street. The access shall be an unobstructed area, not less than 14 feet in width.

3.5 Park Streets. "Park Streets" shall be of adequate widths to accommodate the contemplated parking and traffic load in accordance with the type of street. Traffic lanes shall be 10 feet minimum width for collector streets, and 9 feet minimum width for minor streets. Lanes for parallel parking shall be 7 feet minimum width. Collector streets, with guest parking allowances, shall be 34 feet minimum width. Collector streets and all other streets, except minor streets without parking allowances, shall be 24 feet minimum width. Minor streets serving less than 40 sites (no parking) shall be minimum width 18 feet. One-way minor streets serving less than 20 sites (no parking) shall be 14 feet minimum width.

3.5.1 The street system shall have direct connection to a public way.

3.5.2 Streets and walkways designed for the general use of the mobile home park residents shall be lighted during the hours of darkness. Such lighting shall not be under the control of the mobile home occupant.

3.6 Vehicle Parking. Mobile home parks shall be designed to include two automobile parking spaces for each mobile home site.

Part 4. Mobile Home Site Facilities

4.1 Utility Connections. Utility connections serving each mobile home shall be located as specified in Paragraphs 7.1.5 (water), 7.2.3.4 (sewer), 8.4.4 (electrical) and 9.1.3.2 (gas) to properly service the mobile home when placed on a mobile home stand. The location of electrical cables, gas, water piping, and sewer lines buried underground along the periphery or within 4 feet of the mobile home stand shall be indicated by an aboveground sign (or signs) or by a ground-level marker (or markers).

NOTE: The use of ground anchors (see 4.5 and 4.6) necessitates marking to preclude possible damage to such underground services. (See Figure A-2, Appendix A.)

4.1.1 Mobile home utility services shall be connected to the mobile home park system by means of approved materials. No rigid utility connections shall be made.

4.2 Stabilizing Devices. Each mobile home, upon being installed on a mobile home stand, shall have stabilizing devices as

specified herein, except that the authority having jurisdiction may not require compliance with the provisions on anchoring systems where low design wind velocities do not justify such systems.

4.2.1 Manufacturer's Installation Instructions. Each mobile home shall have its stabilizing system installed in accordance with the mobile home manufacturer's installation instructions. These instructions shall be left with the mobile home following installation.

4.2.1.1 Footings shall be sized to support the loads shown in these instructions.

4.2.1.2 Stabilizing devices not provided with the mobile home shall meet or exceed the design and capacity requirements of the mobile home manufacturer and this Standard and shall be installed in accordance with the mobile home manufacturer's installation instructions.

4.2.2 Stabilizing System Design. Mobile homes *not* provided with manufacturer's instructions for stabilizing devices and their installation for the zone in which the mobile home is to be installed shall be provided with anchoring and support systems designed by a registered professional engineer or architect or shall comply with the following requirements:

4.2.2.1 Number, Spacing, and Location of Anchoring Ties.

(a) *Number of Ties.* The minimum number of ties per side for various lengths of mobile homes in hurricane and nonhurricane zones shall be in accordance with Table 4.2.2.1(a).

(b) *Spacing of Ties.* Ties shall be as evenly spaced as practicable along the length of the mobile home with not more than 8 feet open-end spacing on each end.

(c) *Location of Ties.* When continuous straps are provided as vertical ties, such ties shall be positioned at rafters and studs. Where a vertical tie and diagonal tie are located at the same place, both ties may be connected to a single ground anchor, provided that the anchor used is capable of carrying both loadings.

(d) *Special Ties.* Clerestory roofs and add-on sections of expandable mobile homes shall have provisions for vertical ties at the exposed ends.

4.2.2.2 Protection of Ties and Mobile Home Roofing and Siding. Protection shall be provided at sharp corners where the anchoring system requires the use of external cables or straps. Protection shall also be provided to minimize damage to roofing or siding by the cable or strap.

Table 4.2.2.1 (a)

Number of Ties Required Per Side of Single Wide[1] Mobile Homes[2]

This table is based on a minimum working load per anchor of 3,150 pounds with a 50 percent overload (4,725 pounds total).

1	2	3	4	5	6	7	8	9
	Hurricane Resistive				Nonhurricane Resistive			
		Alternate Method[4]					Alternate Method[4]	
Length of[3] Mobile Home (Feet)	No. of Vertical Ties	No. of Diagonal Ties[5]	No. of Baling Straps	No. of Diagonal Ties[6]	No. of Vertical Ties	No. of Diagonal Ties[5]	No. of Baling Straps	No. of Diagonal Ties[6]
up to 40	2	4	2	5	2	3	2	3
40–46	2	4	2	6	2	3	2	3
46–49	2	5	2	6	2	3	2	3
49–54	3	5	3	7	2	3	2	3
54–58	3	5	3	7	2	4	2	4
58–64	3	6	3	8	2	4	2	4
64–70	3	6	3	9	2	4	2	5
70–73	3	7	3	9	2	4	2	5
73–84	4	7	4	10	2	5	2	5

[1]Double-wide mobile homes require only the diagonal ties specified in column 3 or 7, and these shall be placed along the outer side walls.
[2]Except when the anchoring system is designed and approved by a registered professional engineer or architect.
[3]Length of mobile home (as used in this Table) means length excluding draw bar.
[4]Alternate Method. When this method is used, an approved reinforcement means shall be provided. If baling is used to accomplish this reinforcement, the provisions of Paragraph 4.2.2.3 shall apply.
[5]Diagonal ties in this method shall deviate at least 40° from a vertical direction.
[6]Diagonal ties in this method shall be 45° ± 5° from vertical and shall be attached to the nearest main frame member.

4.2.2.3 Alternate Method Using Strapping. If the alternate method incorporating baling straps specified in Table 4.2.2.1(a) is used, the baling straps shall be wrapped completely around the mobile home passing under the main steel frame, with both ends of each strap fastened together under tension. The straps shall be in accordance with Section 4.4. The method used to connect the ends of the strap shall not reduce the allowable working load and overload.

4.3 Support Systems. Each mobile home shall have a support system as specified herein. A minimum clearance of 12 inches should be maintained beneath the underside of the main frame (I-beam or channel beam) in the area of utility connections.

4.3.1 Mobile Homes with Installation Instructions. Individual footings and load-bearing piers or listed supports shall be sized and located to support the loads specified in the manufacturer's installation instructions to assure that the manufacturer's warranty remains valid.

4.3.2 Mobile Homes for Which Installation Instructions Are Not Available. Unless the entire support system is designed by a registered professional engineer or architect, supports shall be spaced not more than 10 feet apart for mobile homes 12 feet wide or less, and not more than 8 feet apart for mobile homes over 12 feet wide, beginning from the front wall of the mobile home, with not more than 2 feet open-end spacing at the area of the main frame. Supports shall be installed directly under the main frame (or chassis) of the mobile home. Methods other than those specified herein may be approved by the authority having jurisdiction.

4.3.3 Footings. The required load-bearing capacity of individual load-bearing supports and their footings shall be calculated at not less than a combined live and dead load of 55 PSF for the Middle Zone or 65 PSF for the North and Hurricane Zones. Footings shall be adequate in size to withstand the tributary live and dead loads of the mobile home and any concentrated loads.

4.3.3.1 Footings shall be at least 16-inch by 16-inch by 4-inch solid concrete blocks or other product approved for the use intended. As an alternate, two 8-inch by 16-inch by 4-inch solid concrete blocks can be used as footings provided the joint between the blocks is parallel to the steel I-beam frame.

4.3.3.2 Footings or pier foundations, when required, shall be placed level on firm undisturbed soil or on controlled fill which is free of grass and organic materials, compacted to a minimum load-bearing capacity of 2000 PSF (unless otherwise approved by a registered professional engineer). Where unusual soil conditions exist as determined by the authority having jurisdiction, footings shall be designed specifically for such conditions.

NOTE: In areas subject to frost heave, see Paragraph 4.7.1.

4.3.4 Piers. Piers or load-bearing supports or devices shall be designed and constructed to evenly distribute the loads. Piers shall be securely attached to the frame of the mobile home or shall extend at least 6 inches from the centerline of the frame member. Load-bearing supports or devices shall be listed and labeled, shall be designed by a registered professional engineer or architect, shall be approved for the use intended, or piers shall be constructed as follows:

4.3.4.1 Piers less than 40 inches in height shall be constructed of open or closed cell, 8-inch by 8-inch by 16-inch concrete blocks (with open cells vertically placed upon the footer). Single-stacked block piers shall be installed with the 16-inch dimension perpendicular to the main (I-beam) frame. The piers shall be covered with a 2-inch by 8-inch by 16-inch wood or concrete cap. (*See Figure A-4.3.4.1 in the Appendix.*)

4.3.4.2 Subject to the limitations of 4.3.5, piers between 40 and 80 inches in height and all corner piers over three blocks high shall be double blocked with blocks interlocked and capped with a 4-inch by 16-inch by 16-inch solid concrete block, or equivalent. (*See Figure A-4.3.4.2 in the Appendix.*)

4.3.4.3 Subject to the limitations of 4.3.5, piers over 80 inches in height shall be constructed as per 4.3.4.2 and they shall be laid in concrete mortar and steel reinforcing bars inserted in block cells with the block cells filled with concrete. (*See Figures A-4.3.4.3*(a) *and* (*b*) *in the Appendix.*)

4.3.5 Elevated Mobile Homes. When more than one-fourth of the area of a mobile home is installed so that the bottom of the main frame members are more than 3 feet above ground level, the mobile home stabilizing system shall be designed by a qualified registered professional engineer or architect and the installation shall be approved.

4.3.6 Plates and Shims. A cushion of wood plate not exceeding 2 inches in thickness and shims not exceeding 1 inch in thickness may be used to fill any gap between the top of the pier and the main frame. Two-inch or 4-inch solid concrete blocks may be used to fill the remainder of any gap. Shims shall be at least 4 inches wide and 6 inches long and shall be fitted and driven tight between the wood plate or pier and main frame.

4.4 Anchoring Equipment. Anchoring equipment, when installed, shall be capable of resisting an allowable working load equal to or exceeding 3,150 pounds and shall be capable of withstanding a 50 percent overload (4,725 pounds total) without failure of either the anchoring equipment or the attachment point on the mobile home. When the stabilizing system is designed by a qualified registered professional engineer or architect, alternative working loads may be used providing the anchoring equipment is capable of withstanding a 50 percent overload.

4.4.1 Resistance to Weather Deterioration. Anchoring equipment exposed to weathering shall have a resistance to weather deterioration at least equivalent to that provided by a coating of zinc on steel of not less than 0.625 ounces per square foot on each side of the surface coated as determined by ASTM Standard Methods of Test for Weight of Coating on Zinc-coated (galvanized) Iron or Steel Articles [ASTM A90–69 (1973)].

NOTE: Slit or cut edges of zinc-coated steel strapping do not need to be zinc coated.

4.4.2 Permanency of Connections. Anchoring equipment shall be designed to prevent self-disconnection when ties are slack. Hook ends shall not be used in any part of the anchoring system.

4.4.3 Tensioning Device Design. Tensioning devices such as turnbuckles or yoke-type fasteners shall be ended with clevis or forged or welded eyes.

4.4.4 Ties. Cable or strapping or other approved methods or materials shall be used for ties. All ties shall be fastened to ground anchors and drawn tight with turnbuckles or other adjustable tensioning devices or devices listed with the ground anchor.

4.4.4.1 Tie materials shall be capable of resisting an allowable working load of 3,150 pounds with no more than 2 percent elonga-

tion and shall withstand a 50 percent overload (4,725 pounds total). Ties shall comply with the weathering requirements of Paragraph 4.4.1.

NOTE: Type 1, Class B, Grade 1 steel strapping, 1¼ inches wide and 0.035 inch thick, conforming with Federal Specification QQ-S-781G, is capable of meeting the working load and 50 percent overload specified herein.

4.4.4.2 Ties shall connect the ground anchor and the main structural steel frame (I-beam or other shape) which runs lengthwise under the mobile home. Ties shall not connect to steel outrigger beams which fasten to and intersect the main structural frame unless specifically stated in the manufacturer's installation instructions.

4.4.4.3 Connection of the cable frame tie to the mobile home I-beam or equivalent main structural frame member shall be by a ⅝-inch drop forged closed eye bolt through a hole drilled in the center of the I-beam web or other approved methods. The web shall be reinforced if necessary to maintain the I-beam strength.

4.4.4.4 Cable ends shall be secured with at least three U-bolt type cable clamps with the U portion of the clamp installed on the short (dead) end of the cable to assure strength at least equal to that required by 4.4.4.1.

4.5 Ground Anchors. Ground anchors, including means for attaching ties, shall be located to effectively match the anchoring system instructions provided by the mobile home manufacturer, or, if there are no instructions, in accordance with the requirements of Section 4.2 herein, and shall be designed and installed to transfer the anchoring loads to the ground.

4.5.1 Capacity of Anchors. Each ground anchor, when installed, shall be capable of resisting an allowable working load at least equal to 3,150 pounds in the direction of the tie plus a 50 percent overload (4,725 pounds total) without failure. Failure shall be considered to have occurred when the point of connection between the tie and anchor moves more than 2 inches at 4,725 pounds in the direction of the vertical tie when the anchoring equipment is installed in accordance with the manufacturer's instructions. Those ground anchors which are designed to be installed so that the loads on the anchor are other than direct withdrawal shall be designed and installed to resist an applied design load of 3,150 pounds at 45° from horizontal without displacing the anchor more than 4 inches horizontally at the point where the tie attaches to the anchor.

Anchors designed for connection of multiple ties shall be capable of resisting the combined working load and overload consistent with the intent expressed herein.

4.5.2 Anchor Design and Installation. Each manufactured ground anchor shall be listed and installed in accordance with the terms of its listing and the anchor manufacturer's instructions and shall include means of attachment of ties meeting the requirements of 4.4.4. Ground anchor manufacturer's installation instructions shall include the amount of preload required, the methods of adjustment after installation, and the load capacity in various types of soils. These instructions shall include tensioning adjustments which may be needed to prevent damage to the mobile home, particularly damage that can be caused by frost heave.

4.5.2.1 Each ground anchor shall have the manufacturer's identification and listed model identification number marked thereon so that the number is visible after installation. Instructions shall accompany each listed ground anchor specifying the types of soil for which the anchor is suitable under the requirements of 4.5.1.

NOTE: The following data gives information relative to soil types with blow counts and torque values:

Types of Soils	Blow Count (ASTM D1586)	Test Probe[1] Torque Value[2]
Sound hard rock	NA	NA
Very-dense and/or cemented sands, coarse gravel and cobbles, preloaded silts, clays, and corals	40–up	more than 550 lbs. inch
Medium-dense coarse sands, sandy gravels, very-stiff silts and clays	24–39	350–549 lbs. inch
Loose to medium dense sands, firm to stiff clays and silts, aluvian fill	14–23[3]	200 to 349 lbs. inch

[1]The test probe is a device for measuring the torque value of soils to assist in evaluating the holding capability of the soils in which the anchor is placed. The test probe has a helix on it. The overall length of the helical section is 10.75 inches; the major diameter is 1.25 inches; the minor diameter is 0.81 inches; the pitch is 1.75 inches. The shaft must be of suitable length for anchor depth.

[2]A measure synonymous with moment of a force when distributed around the shaft of the test probe.

[3]Below these values, a professional engineer sould be consulted.

4.5.3 Use of Concrete Slabs or Continuous Footings. If concrete slabs or continuous footings are used to transfer the anchoring loads to the ground, the following shall be required.

4.5.3.1 Steel rods cast in concrete shall be capable of resisting loads as specified in 4.5.1.

4.5.3.2 Deadman concrete anchors may be used in place of listed anchors if they meet the requirements of Paragraph 4.5.1.

4.5.3.3 Concrete slabs may be used in place of ground anchors provided the slab is so constructed that it provides holding strength equal to the requirements of Paragraph 4.5.1.

4.5.4 Other Anchoring Devices. Other anchoring devices meeting the requirements of this section shall be permitted if acceptable to the authority having jurisdiction.

4.6 Anchor Installation.

4.6.1 Specifications for Anchors. Each type anchor suitable for this purpose shall have specification data showing the soil classification(s) for which it qualifies.

4.6.2 Selection of Anchors. Anchor selection shall be based on a determination of the soil class at the depth the anchor helical plate will be installed.

4.6.3 Depth of Anchors. All anchors shall be installed to the full depth shown in the anchor manufacturer's installation instructions.

4.7 Maintaining Anchoring Systems. Tie tension should be checked and adjusted when necessary to prevent damage to the mobile home from settling or other unforeseen movements (such as frost heave).

4.7.1 Frost Heave. Frost heave can have an adverse effect on the mobile home through displacement of the mobile home anchoring and blocking systems. If a mobile home is located in an area subjected to frost heave, one of the following additional steps should be considered:

(a) Footings and the load-carrying portion of the ground anchors should extend below the frost line, or

(b) The mobile home should be placed on a reinforced concrete slab as specified in 4.5.3.3.

Part 5. Mobile Home Accessory Buildings and Structures

5.1 General. Because of variable conditions encountered in different areas of the United States, it is impractical to develop detailed requirements for mobile home accessory buildings and structures. The requirements set forth in this Part are basic standards applicable to the type of structures defined.

5.2 Scope. When mobile home accessory buildings and structures are erected, constructed or occupied on a mobile home site, they shall comply with this standard.

5.3 Construction, General. Every mobile home accessory building or structure shall be designed and constructed in accordance with the applicable provisions of nationally recognized building codes and shall conform to the criteria of the authority having jurisdiction.

5.4 Electrical Systems, General. Electrical equipment installed in a mobile home accessory building or structure shall comply with the applicable provisions of the *National Electrical Code* [*NFPA 70–1978 (ANSI)*].

5.5 Plumbing Systems, General. Plumbing equipment, materials, and installations in a mobile home accessory building or structure shall comply with the applicable provisions of the nationally recognized plumbing codes.

5.6 Site Area Usage. The area of a mobile home site occupied by a mobile home and accessory buildings and structures shall not exceed 75 percent of the site area (see Paragraph 3.3.1).

5.7 Clearance. Under no conditions shall a mobile home accessory building or structure be closer than 3 feet from any adjacent mobile home or mobile home accessory building or structure (see Paragraph 3.3.2).

5.8 Cabanas

5.8.1 General. A cabana may be erected, constructed, occupied or maintained on a mobile home site only as an accessory to a mobile home.

5.8.2 Design and Construction. A cabana shall be designed and constructed as a free-standing structure. A cabana may be attached to a mobile home with appropriate flashing or sealing materials to provide a weather seal.

5.8.3 Dimensions

5.8.3.1 The height of a cabana shall not exceed one story or the height of the mobile home, except when constructed in conjunction with a ramada.

5.8.3.2 A cabana shall have a minimum ceiling height of 7 feet 6 inches from the finished floor to the finished ceiling, or, if there is no finished ceiling, to the roof. If the ceiling or roof is sloped, one-half of the sloped ceiling area shall meet the minimum ceiling height. No portion of any room having a ceiling height of less than 5 feet shall be considered as contributing to the minimum area prescribed in 5.8.3.4.

5.8.3.3 Habitable rooms shall be not less than 7 feet in any horizontal dimension and toilet compartments shall be not less than 30 inches in width, and there shall be not less than 21 inches clear space in front of each toilet.

5.8.3.4 Each habitable room in a cabana shall have a superficial floor area of not less than 90 square feet, excluding a private toilet and bath compartment or other enclosed area.

5.8.4 Foundation. A cabana may be set on piers and girders in lieu of continuous footings. Piers and girders shall be designed and constructed to support the live and dead loads imposed on them in accordance with standard engineering practice and the criteria established by the authority having jurisdiction.

5.8.5 Floors. Floors shall be designed and constructed to support the live and dead loads to which they may be subjected in accordance with criteria established by the authority having jurisdiction.

5.8.6 Walls. Walls shall be designed and constructed to withstand horizontal and lateral forces in accordance with design criteria established by the authority having jurisdiction.

5.8.7 Roofs. Roofs of cabanas shall be designed and constructed to withstand vertical and horizontal forces to which they may be subjected in accordance with criteria established by the authority having jurisdiction.

5.8.8 Exits. Every room in a cabana shall have access to at least one exterior door opening directly to the outside without passing through the mobile home. The opening shall be not less than 28 inches in width nor less than 6 feet 2 inches in height. When the cabana encloses two doors of the mobile home, an additional exterior door shall be installed which provides an alternate route of exit in the event the other exit becomes blocked.

5.8.9 Light and Ventilation

5.8.9.1 Habitable Rooms. Habitable rooms shall be provided with windows or doors having a total glazed area of not less than 10 percent of the floor area. An area equivalent to not less than 5 percent of the floor area shall be available for unobstructed ventilation. Glazed areas need not be openable where a mechanical ventilation system is provided and is capable of producing a change of air in the room(s) every thirty minutes with not less than 1/5 of the air supply taken from outside the cabana.

Exception: Kitchens may be provided with artificial light and mechanical ventilation capable of producing a change of air in the room every 30 minutes.

5.8.9.2 Windows and Doors Used for Light and Ventilation. Such windows and doors shall open directly to the outside.

5.8.9.3 Bathroom. Each bathroom shall be provided with windows or doors having a total glazed area of not less than one and one-half (1 1/2) square feet of full openable window except where artificial light and an approved mechanical ventilation system is provided and capable of producing a change of air every twelve (12) minutes.

5.8.9.4 Cabana Windows. Required windows of a cabana shall open on a court, yard or street either directly or through a porch or awning having a minimum clear height of not less than 7 feet. Such porch or awning shall be at least 50 percent open on the side opposite the windows.

5.9 Awnings or Carports

5.9.1. General. An awning or carport may be erected, constructed or maintained on a mobile home site only as an accessory to a mobile home located on the same site. An awning shall not be enclosed with rigid materials or walls or converted for use as a habitable room or cabana unless the completed construction complies with all the requirements for a cabana (see Section 5.8).

5.9.2 Location. An awning or carport may be erected on a site line provided the awning or carport is constructed of material which does not support combustion and is not less than 3 feet from a mobile home or mobile home accessory building or structure on an adjacent site.

5.9.3 Dimensions

5.9.3.1 An awning or carport supported in part by a mobile home shall not exceed 12 feet in width (projection) as measured from the wall of the mobile home to the outer edge of the awning or carport roof.

5.9.3.2 A free-standing awning or carport is not limited as to width or length, except that the occupied area of a mobile home site shall not exceed 75 percent of the site area (see Paragraph 3.3.1).

5.9.4 Exits from Awning Enclosures. An awning with enclosures of nonrigid materials shall have at least one door in the enclosure opening directly to the outside of the enclosure. The opening shall be not less than 28 inches in width nor less than 6 feet 2 inches in height. Two such door openings shall be provided from the enclosure when the enclosure encloses two doors of the mobile home.

5.10 Ramadas

5.10.1 General. A ramada may be erected, constructed or maintained on a mobile home site only as an accessory to a mobile home located on the same site.

5.10.2 Location. A ramada or any portion thereof shall have a clearance of not less than 18 inches in a vertical direction above any fuel-burning appliance vent or plumbing vent extending through the roof of a mobile home and not less than 6 inches in a horizontal direction from each side of a mobile home. Cross braces, architectural appurtenances or structural ties, shall not obstruct movement of any mobile home.

5.10.3 Design and Construction. A ramada shall be designed and erected as a free-standing self-supporting structure meeting structural requirements for cabanas.

5.10.4 Enclosure Prohibited. A ramada shall not be enclosed or partially enclosed on any side or end, except that one side may be enclosed when the ramada roof is continuous with the roof of a cabana constructed on one side only of the mobile home.

5.10.5 Roof Venting. A ventilating opening shall be installed at the highest point in the ramada roof to relieve products of combustion from vents or ducts of fuel-burning equipment. Vent openings shall have a minimum cross-sectional area of 28 square inches. Chimneys or vents of appliances burning solid or liquid fuel shall extend through the ramada roof surface and shall terminate in an approved roof jack and cap.

5.11 Porches

5.11.1 General. A porch erected, constructed or maintained on a mobile home site for the use of the occupants of the mobile home located on the same site shall comply with all the requirements herein.

5.11.2 Design and Construction. The design and construction of all structural elements of a porch, stairs leading thereto, and rails shall be in accordance with the applicable provisions of nationally recognized dwelling codes. Live loads applicable to porch floors shall be not less than 40 pounds per square foot.

5.11.3 Foundation. A porch foundation may be precast concrete piers when placed on undisturbed or compacted earth, provided the bearing surface is adequate for the designed load and no wood is placed within 6 inches of any earth.

5.11.4 Railings. Railings shall be provided around the perimeter of porches which are 30 inches or more above grade. Railings shall be not less than 42 inches in height above the floor. Intermediate rails in open-type railings shall be spaced not more than 9 inches apart. Railings shall be designed and constructed to withstand a horizontal force of 20 pounds per lineal foot applied at the top of the railing.

5.11.5 Handrails. Stairways serving porches having the finished floor 30 inches or more above grade shall be equipped with handrails. Handrails shall be not less than 30 inches nor more than 34 inches as measured vertically from the nosing of stair treads.

5.12 Storage Structures

5.12.1 General. Not more than two individual storage structures may be located or maintained on one mobile home site.

5.12.2 Location. A storage structure may be located on a site line or adjacent to a mobile home or mobile home accessory building or structure, or beneath an awning or carport, provided that it does not obstruct openings for light and ventilation of the mobile home, required open space or screening of mobile home accessory building or structure, or prevent inspection of mobile home equipment and utility connections.

5.13 Fences and Windbreaks

5.13.1 General. If a fence or windbreak is located on a mobile home site, it shall not exceed 6 feet in height, except where such fence or windbreak is on the park property line.

5.13.2 Location. A fence or windbreak exceeding 42 inches in height shall not be located closer than 3 feet to any mobile home or mobile home accessory building or structure. A fence or windbreak shall not be used to form an enclosure of any part of an awning or carport.

Part 6. Mobile Home Park Permanent Buildings

6.1 Construction. Every permanent building shall be designed and constructed in accordance with the applicable provisions of nationally recognized building codes.

6.2 Electrical Installations. Electrical wiring, fixtures and equipment installed in a permanent building in a mobile home park shall comply with the applicable provisions of the *National Electrical Code* [*NFPA 70–1978 (ANSI)*].

6.3 Fuel Gas Piping and Equipment Installations. Fuel gas piping and equipment installations installed within a permanent building in a mobile home park shall comply with nationally recognized appliance and fuel gas piping codes and standards adopted by the authority having jurisdiction. 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 appropriate provisions of the *National Fuel Gas Code* [*NFPA 54–1974 (ANSI)*] or the *Standard for the Storage and Handling of Liquefied Petroleum Gases* [*NFPA 58–1976 (ANSI)*].

6.4 Oil-Burning Equipment and Installation. Oil-burning equipment and installations within a permanent building in a mobile home park shall comply with nationally recognized codes and standards adopted by the authority having jurisdiction. Where the state or other political subdivision does not assume jurisdiction, such oil-burning equipment and installation shall be designed and installed in accordance with the appropriate provisions of the *Standard for the Installation of Oil Burning Equipment* [*NFPA 31–1974 (ANSI)*].

6.5 Plumbing Installation. Plumbing equipment, materials and installations in a permanent building within a mobile park home shall comply with the applicable provisions of nationally recognized plumbing codes.

6.6 Materials, Fixtures, Devices, Fittings. Materials, fixtures, devices and fittings and their installation, shall conform to nationally recognized standards.

Part 7. Mobile Home Park Plumbing Systems

7.1 Water Supply

7.1.1 General Requirements. An accessible, adequate, safe and potable supply of water shall be provided in each mobile home park. The water supply treatment shall provide water of a quality which shall meet the chemical and bacteriological requirements of the health authority having jurisdiction but in no case shall the water quality be less than that to be specified under the provisions of the Safe Drinking Water Act of 1974 (Public Law 93–523 dated December 16, 1974) and the National Primary Drinking Water Regulations. Where a public supply of water of satisfactory quantity, quality, and pressure is available at or within the boundary of the park site, connection shall be made thereto and its supply used exclusively. When a satisfactory public water supply is not available, a private water supply system shall be developed.

7.1.2 Source of Supply

7.1.2.1 The water supply shall be capable of supplying a minimum of 150 gallons per day per mobile home site.

7.1.2.2 Every well or suction line of the water supply system shall be located and constructed in such a manner that neither underground nor surface contamination will reach the water supply from any source. Minimum distances between wells and various sources of contamination shall be 50 feet for building sewers, septic tanks and dry wells, 100 feet for disposal fields and seepage pits, and 150 feet for cesspools.

7.1.2.3 Well-casing, pumping machinery or suction pipes shall not be placed in any pit, room or space extending below ground level, nor in any room or space above ground which is walled in or otherwise enclosed, unless such rooms, whether above or below ground, have free drainage by gravity to the surface of the ground.

7.1.2.4 The treatment of a private water supply shall be in accordance with applicable laws and regulations of the authority having jurisdiction.

7.1.3 Water Storage Facilities. All water storage reservoirs shall be covered, watertight and constructed of impervious material.

Overflows and vents of such reservoirs shall be effectively screened. Manholes shall be constructed with overlapping covers, so as to prevent the entrance of contaminated material. Reservoir overflow pipes shall discharge through an acceptable air gap.

7.1.4 Water Distribution Systems

7.1.4.1 All water piping, fixtures and other equipment shall be constructed and maintained in accordance with state and local regulations and requirements and shall be of a type and in locations approved by the authority having jurisdiction.

7.1.4.2 The water piping system shall not be connected with nonpotable or questionable water supplies, and where necessary, shall be protected against the hazards of backflow or back siphonage.

7.1.4.3 The water supply system shall be so designed and maintained as to provide a pressure of not less than 20 pounds per square inch under all normal operating conditions at each mobile home stand. Also, the system shall be capable of supplying up to 50 mobile homes with a demand load of 100 gpm, 100 mobile homes with 180 gpm, and 300 mobile homes with 370 gpm. Greater design values may be required when the system is to provide fire protection.

7.1.5 Individual Water-Riser Pipes and Connections. Each mobile home stand shall be provided with a water-riser pipe and connection located and arranged to permit attachment in a workmanlike manner to the mobile home utilizing the stand. The water supply connection shall be located not less than forty (40) feet nor more than fifty (50) feet from the front of the stand, and shall be within two (2) feet of the left line of the mobile home stand. (See also Section 4.1.)

NOTE 1: Forty-five (45) feet represents the optimum location for stands designed for mobile homes fifty (50) to seventy (70) feet in length.

NOTE 2: Placement of the water-riser pipe and connection two feet toward the centerline of the mobile home stand from the left line to place it within the periphery of the mobile home may be desired for aesthetic reasons, to limit tampering or accidental breakage, and to assist in protecting the pipes and connections from exposure to the weather (low temperatures, snow, atmospheric particulates, etc.). Placement outside the area of the mobile home stand within two feet of the left line may be preferred to permit more ready connections and to make more convenient visual observation of the tightness of the connections.

NOTE 3: See Figure A-2, Appendix A.

7.1.5.1 Water-riser pipes shall extend at least 4 inches above ground elevation. The pipe diameter shall be at least ¾ inch.

The water outlet shall be capped when a mobile home does not occupy the site.

7.1.5.2 Adequate provisions shall be made to prevent freezing of service lines, valves and riser pipes and to protect risers from the heaving and thawing actions of ground during freezing weather. Surface drainage shall be diverted from the location of the riser pipe.

7.1.5.3 When used, heat tapes shall be of the listed type.

7.1.5.4 A shutoff valve shall be provided on the water-riser pipe on each mobile home site. Where frost conditions occur, the shutoff valve shall be located below the frost line.

7.1.5.5 Underground stop and waste valves shall not be installed on any water service.

7.1.5.6 Each mobile home shall be connected to the park water service outlet by semi-rigid tubing (such as copper tubing) or by a flexible connector not less than the size of the mobile home water supply inlet.

7.2 Sewage Disposal

7.2.1 General

7.2.1.1 An adequate and safe sewage collection system shall be provided in all mobile home parks for conveying and disposing of all sewage. Wherever feasible, connection shall be made to a public system. All new improvements shall be designed, constructed and maintained in accordance with applicable laws and regulations.

7.2.1.2 Where the sewage collection lines of the mobile home park are not connected to a public sewer, all proposed sewage disposal facilities shall be approved by the authority having jurisdiction prior to construction.

7.2.2 Sewage Collection Lines. All sewage collection lines shall be located in trenches of sufficient depth to be free of breakage from traffic or other movements and shall be separated from the park water supply system at a safe distance. Sewage collection lines shall be at a grade which will insure a velocity of two feet per second when flowing full. The system shall be designed for a minimum flow of 200 gallons per day per mobile home site.

7.2.3 Mobile Home Site Sewage Collection-Inlet and Lateral

7.2.3.1 The sewage collection inlet shall have a nominal inside diameter of at least 3 inches.

7.2.3.2 The lateral line from the inlet to the sewage collection line shall slope at least ¼ inch per foot. All joints shall be watertight.

7.2.3.3 All materials used for sewer connections between a mobile home and the inlet shall be semirigid, approved pipe (not less than Schedule 40), corrosive resistant, non-absorbent and durable. The inner surface shall be smooth.

7.2.3.4 The sewer drain inlet shall be positioned *either* within the area of the mobile home stand towards the centerline of the mobile home stand not less than four (4) feet nor more than seven (7) feet from the left line of the stand, *or* outside the area of the mobile home stand within four (4) feet of the left line. It shall be not less than forty (40) feet nor more than fifty (50) feet from the front of the stand. Surface drainage shall be diverted away from the inlet. The rim of the inlet shall extend not more than four (4) inches above the ground elevation. Provisions shall be made for sealing the sewer drain inlet when not connected in accordance with 7.2.3.3.

NOTE 1: For the sewer drain inlet, forty-five (45) feet represents the optimum location for stands designed for mobile homes fifty (50) to seventy (70) feet in length.

NOTE 2: Placement of the sewer drain inlet four to seven feet towards the centerline of the mobile home stand from the left line may be desired for aesthetic reasons, to limit tampering or accidental breakage, and to assist in protecting the pipes and connections from exposure to the weather (low temperatures, snow, atmospheric particulates, etc.). Placement outside the area of the mobile home stand within four feet of the left line may be preferred to permit more ready connections and to make more convenient visual observation of the tightness of the connections.

NOTE 3: See Figure A-2, Appendix A.

Part 8. Mobile Home Park Electrical Systems

8.1 Application and Scope. This Part applies to electrical distribution systems in mobile home parks. It does not apply to the electrical systems of mobile homes or the feeder assembly used to connect them to the mobile home service equipment. Except as otherwise permitted or required by this Standard, all electrical installations in mobile home parks shall be designed and constructed in accordance with the applicable provisions of the *National Electrical Code* [*NFPA 70–1978 (ANSI)*].

8.2 Distribution System. The mobile home park secondary electrical distribution system to mobile home sites shall be single phase 115/230 volts nominal. Where the park service exceeds 240 volts, transformers and secondary distribution panelboards shall be treated as services.

NOTE: See Table 8.3.1 for calculation of load.

8.3 Calculated Load

8.3.1 Park electrical wiring systems shall be calculated on the basis of not less than 16,000 watts (at 115/230 volts) per each mobile home service. The demand factors which are set forth in Table 8.3.1 shall be considered the minimum allowable demand factors which shall be permitted in calculating load on feeders and service. No demand factor shall be allowed for any other load, except as provided herein.

Table 8.3.1

Demand Factors and Watts per Mobile Home Site (Minimum) for Feeders and Service-Entrance Conductors

Number of Mobile Homes	Demand Factor (Percent)	Watts Per Mobile Home Site (Min.)
1	100	16,000
2	55	8,800
3	44	7,040
4	39	6,240
5	33	5,280
6	29	4,640
7–9	28	4,480
10–12	27	4,320
13–15	26	4,160
16–21	25	4,000
22–40	24	3,840
41–60	23	3,680
61 and over	22	3,520

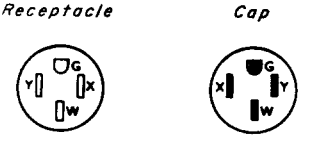
8.3.2 The demand factor for a given number of sites shall apply to all sites indicated.

Example: 20 sites calculated at 25 percent of 16,000 watts results in a permissible demand of 4,000 watts per site or a total of 80,000 watts for 20 sites.

8.3.3 Mobile home site feeder circuit conductors shall have adequate capacity for the loads supplied, and shall be rated at not less than 100 amperes at 115/230 volts.

8.4 Mobile Home Service Equipment

8.4.1 Mobile home service equipment shall be rated at not less than 100 amperes, and provision shall be made for connecting a mobile home feeder assembly by a permanent wiring method. Power outlets used as mobile home service equipment shall also be permitted to contain receptacles rated up to 50 amperes with appropriate overcurrent protection. Fifty-ampere receptacles shall conform to Figure 8.4.1.



125 / 250-volt, 50-amp, 3-pole, 4-wire, grounding type

Figure 8.4.1

NOTE: Complete details on the 50-ampere attachment plug cap configuration can be found in American National Standard C73.17 — 1972.

8.4.2 Mobile home service equipment shall also contain a means for connecting a mobile home accessory building or structure or additional electrical equipment located outside a mobile home by a fixed wiring method.

8.4.3 Additional receptacles shall be permitted for connection of electrical equipment located outside the mobile home, and all such 120-volt, single-phase, 15- and 20-ampere receptacles shall be protected by approved ground-fault circuit protection for personnel.

NOTE: See Section 210-8.(a) of the *National Electrical Code* [*NFPA 70–1978 (ANSI)*].

8.4.4 Mobile home service equipment shall be located not more than 30 feet from the point of entry of the feeder assembly into the mobile home it serves.

NOTE: See Figure A-2, Appendix A.

8.4.5 Each mobile home service equipment shall be grounded in accordance with Article 250 of the *National Electrical Code* [*NFPA 70–1978 (ANSI)*].

8.4.6 Electrical equipment installed in a mobile home accessory building or structure shall comply with the applicable provisions of the *National Electrical Code* [*NFPA 70–1978 (ANSI)*].

Part 9. Mobile Home Park Fuel Supply Systems

9.1 Mobile Home Park Gas Systems

9.1.1 General. Gas equipment and installations within a mobile home park shall be designed and constructed in accordance with the applicable codes adopted by the authority having jurisdiction. Where the state or other political subdivision does not assume jurisdiction, such installations shall be designed and constructed in accordance with the appropriate provisions of the *National Fuel Gas Code* [*NFPA 54–1974 (ANSI)*] as referenced in Section 6.3 herein.

9.1.2 Required Gas Supply. The minimum hourly volume of gas required at each mobile home site outlet or any section of the mobile home park gas piping system shall be calculated as shown in Table 9.1.2.

Table 9.1.2

Demand Factors for Use in Calculating Gas Piping Systems in Mobile Home Parks

No. of Mobile Home Sites	BTU Per Hour Per Mobile 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

9.1.3 Installation. Underground piping shall be buried a sufficient depth or covered in a manner so as to protect the piping from physical damage. Consideration should be given to protect the piping from physical damage when it passes through flower beds, shrub beds, and other such cultivated areas. (See also Section 4.1 herein.)

9.1.3.1 Gas piping shall not be installed underground beneath a mobile home stand unless it is installed in an approved gas-tight conduit. Gas piping installed underground within mobile home parks shall otherwise comply with the provisions of the *National Fuel Gas Code* [*NFPA 54–1974 (ANSI)*].

9.1.3.2 The point for connecting the gas supply to the mobile home shall be located not less than forty-five (45) feet nor more than sixty-five (65) feet from the front of the mobile home stand, and shall be *outside* of the mobile home stand not more than two (2) feet from the left line of the stand.

NOTE 1: Fifty (50) feet represents the optimum location for stands designed for mobile homes fifty (50) feet to seventy (70) feet in length.

NOTE 2: See Figure A-2, Appendix A.

9.1.4 System Shutoff Valve. A readily accessible and identified shutoff valve controlling the flow of gas to the entire gas piping system shall be installed near to the point of connection to the service piping or supply connection of the liquefied petroleum gas container.

9.1.5 Site Shutoff Valve. Each mobile home site shall have an accessible, listed gas shutoff valve installed. Such valve shall not be located under a mobile home. Whenever the mobile home site outlet is not in use, the shutoff valve shall be plugged to prevent accidental discharge.

9.1.6 Connector. Each mobile home utilizing gas shall be connected to the mobile home site outlet by a listed flexible mobile home connector of sufficient capacity to supply gas to the connected load. Approved rigid pipe and fittings shall be used between the flexible connector and the mobile home site gas outlet when the distance between the mobile home site gas outlet and the mobile home gas service connection exceeds 6 feet. (See also Sections 4.1, 9.1.3.2, 9.1.5 and 9.1.7.)

9.1.7 Protection from Physical Damage. All gas outlet risers, regulators, meters, valves or other exposed equipment shall be protected from physical damage by vehicles or other causes.

9.1.8 Maximum Pressure Permitted. Gas supplied into the mobile home shall not exceed ½ pound per square inch gage or 14 inches water-column.

9.2 Mobile Home Park Oil Supply Systems

9.2.1 General. Oil-burning equipment and installations within a mobile home park shall be designed and constructed in accordance with the applicable codes adopted by the authority having jurisdiction. 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 the Standard referenced in Paragraph 6.4.

9.2.2 Oil Supply. The following three methods of supplying oil to an individual mobile home site are permitted:

9.2.2.1 Supply from an outside underground tank (see 9.2.3).

9.2.2.2 Supply from a centralized oil distribution system designed and installed in accordance with accepted engineering practice and in compliance with Section 370 of the *Standard for the Installation of Oil Burning Equipment* [*NFPA 31–1974 (ANSI)*].

9.2.2.3 Supply from an outside aboveground tank (see 9.2.3).

9.2.3 Recommended Minimum Oil Supply Tank Size. Oil supply tanks shall have a minimum capacity equal to 20 percent of the average annual oil consumption. Except for areas with mild winters (less than 1,800 degree days), 60 gallon ICC-5 shipping containers (drums) are not recommended.

Part 10. Mobile Home Park Fire Safety

10.1 General Park Fire Safety Considerations

10.1.1 Park Location and Arrangement. The location and arrangement of each mobile home park shall meet the approval of the chief of the fire department responsible for providing the necessary fire protection services. Where there could be possible time response delays for emergency equipment (fire, police, or ambulance services) occasioned by a single access to a mobile home park (such as might be caused by railroad crossings, limited access highways, one-way streets, grades which can become impassable under snow or icing conditions), a second access or emergency access roadway should be provided. A site plan shall be supplied to the fire and law enforcement agencies having jurisdiction.

NOTE: Such a "site plan" shall show the numerical designation or street name and number of each mobile home site in the park.

10.1.2 Access to Mobile Homes for Fire Protection Services. Access to a mobile home for fire protection services shall be such as to permit fire apparatus to approach within 100 feet of each mobile home.

10.1.3 Clearance from Mobile Homes to Other Structures. Mobile homes shall not be located closer than 10 feet from any other mobile home or permanent building within or adjacent to the mobile home park. A mobile home accessory building or structure shall not be closer than 3 feet from any adjacent mobile home or mobile home accessory building or structure. (See also 3.3.2 and 5.7.)

Exception: See Paragraph 5.9.2

10.1.4 Use of Fire Protection Equipment. The mobile home park operator should instruct his staff in the use of the fire protection equipment available in the park and define their specific duties in the event of fire. Tenants should be instructed in applicable fire prevention and fire protection rules (see Section 10.5 herein).

10.1.5 Incinerators. Where provision is made for the burning of rubbish in the park, incinerators shall be constructed in accordance with the *NFPA Standard on Incinerators* (*NFPA 82–1972*).

10.1.6 Outside Hazards. Care shall be taken to maintain the park area free of dry brush, leaves and weeds which might communicate fires between mobile homes and other buildings in the park.

10.1.7 Heat Tapes. As noted in 7.1.5.3, heat tapes shall be of the listed type.

10.2 Fire Detection and Alarm Services

10.2.1 Detection Systems in Buildings Open to the Public. Fire detection and alarm systems installed in buildings open to the public shall be installed in accordance with the *NFPA Standard on Local Protective Signaling Systems* (*NFPA 72A–1975*).

NOTE: See NFPA Standards No. 71, 72B, 72C or 72D for other suitable types of fire protective signaling systems.

10.2.2 Public Fire Alarm Services. Street fire alarm services for the park, if provided, shall be in accordance with the *NFPA Standard for the Installation, Maintenance and Use of Public Fire Service Communications* (*NFPA 73–1975*). Where such services are not available, alarm procedures shall be posted in each mobile home and in each public building in the park as required by the local fire department.

10.3 Water Supplies for Fire Protection. Water supplies for fire department operations shall be as required by the authority having jurisdiction. Where there are no such requirements, water supplies shall be adequate to permit the effective operation of at least two 1½-inch hose streams on any fire in a mobile home or elsewhere in the mobile home park whether the supply is derived from hydrants connected to an underground water supply system, a reservoir or water supply source of not less than 3,000 gallons (suitably accessible for fire department drafting operations), or fire department apparatus equipped with a water tank(s) constructed in accordance with the *NFPA Standard for Automotive Fire Apparatus* (*NFPA 1901–1975*). Hydrants, if provided, shall be located along park streets or public ways readily accessible for fire department use and located within 500 feet of all mobile home sites. Hydrant hose coupling threads shall be national standard threads (see *NFPA Standard for Screw Threads and Gaskets for Fire Hose Connections, NFPA 194–1974*) or shall conform to those used by the local fire department if different from those specified in the referenced Standard.

10.4 Mobile Home Park Portable Fire Fighting Facilities

10.4.1 Permanent Buildings. Permanent buildings shall be provided with listed portable fire extinguishers in accordance with the provision of the *NFPA Standard for Portable Fire Extinguishers* [*NFPA 10–1975* (*ANSI*)].