

IDAHO MANUFACTURED HOME INSTALLATION STANDARD



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State of Idaho Division of Building Safety

Idaho Housing Alliance

Idaho Association of Building Officials

IDAHO MANUFACTURED HOME INSTALLATION STANDARD

Developed cooperatively by the

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Chapter 1

GENERAL

This standard refers to both the placement of mobile homes and manufactured homes even if both types are not mentioned. Anything not addressed in the manufacturer's standards for the placement of either new or used mobile or manufactured homes shall be directed by these standards.

100. LEGAL AUTHORITY.

In accordance with Section 44-2201(2), Idaho Code, the Idaho Division of Building Safety (herein referred to as Division) is authorized to promulgate rules specifying standardized installation instructions for manufactured homes. All new manufactured homes must be installed in accordance with the manufacturer's approved installation instructions. All used mobile and manufactured homes shall be installed in accordance with the Idaho manufactured home installation standard, as provided by rule pursuant to Idaho Code, Title 44 Chapter 22. All mobile and manufactured homes must be installed in accordance with all other applicable state laws or rules pertaining to utility connection requirements. If homeowners do their own installation all sections of these standards must be met. These rules constitute a preemptive statewide standard and no other code, standard, or regulation shall be used regarding the installation of manufactured homes, except as provided for in Subsection 301.04 and Subsection 304.03.b.

101. TITLE AND SCOPE.

These rules shall be cited as the "Idaho Manufactured Home Installation Standard" or as "IMHIS." These rules apply to persons engaged in the business of manufacturing, selling, siting, installing, or preparing for transport (commonly called 'tear down'), manufactured homes in the state of Idaho. Within this standard the phrase "manufactured home" includes mobile home.

102. WRITTEN INTERPRETATIONS.

There are no written statements which pertain to the interpretation of these standards.

103. ADMINISTRATIVE APPEALS.

There are no provisions for administrative appeal of the requirements outlined herein.

104. MINIMUM STANDARDS.

This standard provides minimum statewide standards for the safety of the consumer, general public, and the owners and occupants of manufactured homes regulated by this standard. This standard may be exceeded by a homeowner, contractor, or dealer, but no jurisdiction shall require a person to exceed this standard, except as permitted by Section 67-6509A, Idaho Code, regarding siting within residential areas.

105. FIGURES.

Every figure used in this standard pertains specifically to the Section(s) or Subsection(s) which references it. Figures will not show every method described by the narrative in the referencing Section or Subsection. They are intended to aid the user of this standard by visually describing requirements of the referencing Section or Subsection. The requirements that are narratively prescribed in the referencing Section or Subsection must be complied with regardless of the specific details which may be shown in the figures. An alternative configuration, design, or technique, which can be shown to comply with the narratively prescribed requirements will be acceptable. Also, an alternative configuration, design, or technique, which can be shown by engineering calculation or demonstrated by experience or

testing to meet or exceed the requirements of the associated Section or Subsection, and which is approved by the Division and the Manufactured Home Installation Committee, may be acceptable.

106. LICENSING.

Pursuant to Title 44, Chapter 21, Idaho Code, the regulation and control of those persons engaged in the business of manufacturing, selling, installing, or preparing for transport (commonly called 'tear down'), manufactured homes is necessary to protect the health and safety of the citizens of Idaho. To that end, it shall be unlawful for any person to engage in business as a manufacturer of manufactured homes, a manufactured home dealer, manufactured home broker, manufactured home installer, mechanical installation or repair, or a manufactured home salesman without being duly licensed as provided for in IDAPA 07.03.11, "Rules Governing Licensing," Division of Building Safety IDAPA 07.03.11.

107.—199 RESERVED

Chapter 2

PERMITS AND INSPECTIONS

201. PERMITS.

01. Installation Permits. As required by Title 44, Chapter 22, Idaho Code, permits shall be obtained, using application forms furnished by the authority having jurisdiction, before installing a manufactured home on a building site or in a park. This includes manufactured homes set up for display in manufactured home parks, mobile home parks, subdivisions, and residential lots, and that are occupied on a sales lot.

a. Exception: Installation permits are not required for unoccupied manufactured homes which are temporarily displayed on a sales lot or are in storage.

02. Fees. Permit fees shall be those established by the authority having jurisdiction.

03. Permits After Setting. All work completed after setting are required to obtain all necessary permits and meet all codes and standards.

202. PLAN REVIEWS.

01. Plans. The authority having jurisdiction may require plans to be submitted before installing a manufactured home and/or constructing additions thereto.

a. Plans shall be of sufficient clarity to indicate the nature and extent of the work proposed.

203. INSPECTIONS.

01. Local. Pursuant to Section 44-2202, Idaho Code, all local jurisdictions which have adopted a building code and the Division of Building Safety in jurisdictions that have not shall issue permits and inspect all manufactured/mobile home installations for the purpose of determining compliance with IDAPA Rule 07.03.12.020.

02. State. All electrical, mechanical and plumbing connections shall be inspected by the state or authorized local authority having jurisdiction.

03. Notification. Persons, including owners of the manufactured or mobile home, involved in doing work shall notify the responsible inspecting agency and that agency shall perform requested inspections within a reasonable time.

04. Installer. All installations shall be inspected by a licensed installer or a responsible managing employee (RME) and a copy of such inspection records, using a Division approved form (available online at dbs.idaho.gov) , shall be provided to the homeowner upon completion of the inspection.

204. INSPECTION CRITERIA.

01. Site Inspection. It is recommended a "site inspection" be performed by the dealer or his representative and the customer prior to the installation of the manufactured home to verify that:

- a. All required installation, structural, and plumbing, permits have been obtained;
- b. Minimum setback requirements are being complied with;
- c. Vegetation has been removed from all areas that will be covered by the home, accessory structures, or concrete;
- d. The site has been properly prepared for the home installation.
- e. All concrete footings and foundations have been installed in compliance with this standard;
- f. Site grading and drainage work have been completed in compliance with this standard; and
- g. All aspects of construction which are affected by roof load specifications have been constructed in compliance with this standard using the locally specified roof loads.

02. Installation Inspection. An installation inspection shall be performed by both the local authority having jurisdiction and the licensed installer or responsible managing employee (RME). The inspectors shall verify that all the following items as delineated in an installation checklist as approved by the Director, as applicable for the specific installation, have been obtained, provided, constructed, or installed in compliance with this standard and the requirements of the local authority having jurisdiction.

- a. Applicable permits.
- b. Footings.
- c. Foundations.
- d. Vapor barrier.
- e. Footings, particularly with respect to size and spacing.
- f. Piers, particularly with respect to type, size, and spacing.
- g. Multi-section connections.
- h. Weather stripping and weather seals installed on-site.
- i. Exposed structural connections.
- j. Tie-down attachments.
- k. Skirting or permanent foundation.
- l. Underfloor access provisions.
- m. Underfloor ventilation provisions.

- n. Stairs.
- o. Site grading and drainage.
- p. Site installed exterior doors.
- q. Dryer exhaust ducted through skirting or foundation.
- r. Plumbing protected from freezing.
- s. Duct crossovers, to ensure they have been installed in compliance with this standard and the duct manufacturer's instructions.
- t. Flue, chimney, and vents, particularly with respect to material, size, clearance, connections, and terminations.
- u. Factory installed smoke detectors. v. Wood stoves.

03. Utilities Inspection. A utilities inspection shall be conducted by State Plumbing and Electrical Inspectors or the local authority having jurisdiction. The inspectors shall verify that all the following items, as applicable for the specific installation, have been obtained, provided, constructed, or installed in compliance with this standard and the requirements of the local authority having jurisdiction.

- a. Plumbing connections.
- b. Shutoff valves.
- c. Water supply utility connection.
- d. Sewer or septic pipe connection.
- e. Fuel gas piping.
- f. Electrical connections.
- g. Electrical service, particularly with respect to type, size, and workmanship.
- h. Air conditioning.
- i. After market electrical or plumbing equipment.
- j. Mechanical equipment

205. -- 299. RESERVED.

Chapter 3

GENERAL INSTALLATION STANDARDS

01. GENERAL.

There are two basic types of installations - standard set and permanent foundation set. See Figures 301.1 and 301.2. This Chapter prescribes the general installation requirements which apply to both types. Requirements that specifically apply to standard set homes are prescribed in Chapter 4. Requirements that specifically apply to homes set on permanent foundations are prescribed in Chapter 5. To facilitate the use of this standard, detailed support requirements which are applicable to both types of installations are prescribed in both sections. All design calculations upon which the requirements in Chapters 3, 4, and 5 are based, have been reviewed by an Idaho Registered Professional Engineer for compliance with the current version of the Idaho Residential Code and the International Building Code as adopted and amended by the Idaho building code board.

01. Content: This Chapter prescribes requirements for:

- a. The siting, and design of manufactured homes;
- b. Joining the sections of multi-section homes;
- c. Flood resistance; and
- d. Access and egress.

The requirements for installation and tie down anchoring are prescribed in Chapters 4 and 5.

02. Installation Standard. The siting and installation requirements contained in this standard are based on a roof live load of thirty to one hundred twenty pounds per square foot (30 to 120 psf), a roof dead load of ten to eighteen pounds per square foot (10 to 18 psf), and a soil bearing capacity of one thousand five hundred pounds per square foot (1,500 psf).

All manufactured homes shall be installed to the minimum requirements of this standard.

- a. Manufacturers' installation instructions may be used where specifically permitted in Subsections 301.04, 304.03.b, 403.03.b and 503.03.b.
- b. Manufactured homes placed temporarily on display, or are in storage and not occupied or intended to be occupied, shall be temporarily placed according to the requirements of Subsection 301.14.

03. Roof Snow Loads. New manufactured homes sold in Idaho are required by HUD to be constructed to withstand a minimum of thirty pounds per square foot (30 psf) roof snow load. Some jurisdictions may require a higher roof snow load. The dealer shall verify that roof snow load requirements are being complied with before selling a home in a jurisdiction. Jurisdictions with a higher roof snow load requirement have the authority to ask for compliance with the higher snow load standard.

04. Unique Installations. Manufactured homes with unique installation requirements not specifically addressed in this standard shall be installed according to the manufacturer's installation instructions.

However, the use of those instructions shall be limited to the specific aspects which are unique. Examples of unique installation aspects are: hinged rafters, perimeter floor frames, two storied homes, hinged eaves, add-on roofs, marriage line tie-downs, items identified in a HUD and DAPIA approved Alternate Construction (AC) Letter, and those items specifically identified in a Division interpretation.

05. Manufacturer's Installation Instructions. If the manufacturer's installation instructions have been used for any portion of the installation, as permitted by Subsection 301.04, a copy of those instructions shall be provided to the inspecting jurisdiction.

06. Unusual Installations. A person is allowed to design for unusual installations not provided for in this standard or in the manufacturer's installation instructions. However, prior written approval must be granted by the authority having jurisdiction. The jurisdiction may require an approved design by an Idaho Licensed Professional engineer.

07. Basic Requirement. Regardless of the type of installation system provided, it shall assure that the manufactured home has adequate support, a substantially level floor, and a flush floor connection at the marriage lines of multi-section manufactured homes.

08. Chassis Removal. Except for wheels, tires, axles, hitches, and transportation lights, no portion of a manufactured home chassis shall be removed before or after the manufactured home is installed.

09. Underfloor Ventilation. Underfloor areas of all manufactured homes shall be enclosed and ventilated according to Sections 902 and 903 of this standard.

10. Separation From Ground. After installation and final grading of the site, the bottom edge of the exterior wall of the manufactured home must be at least six inches (6") above ground level and at least two inches (2") above any other surface where water might collect. No more than 25% shall be less than 12" or exceed 36" measured from the top of the support to the bottom of the frame without approval of the local authority.

11. Close Up. Multi-section manufactured homes shall be sealed at the marriage lines to resist the elements. Wall and roof close up shall be made with similar materials and installed according to the material manufacturer's installation instructions. Shipping fasteners shall be removed from the roof and the roof sealed.

12. Compliance. A manufactured home shall not be installed in a manner which takes the manufactured home out of compliance with state or federal manufactured home construction and safety standards.

13. Approval. Installations shall not be approved until all applicable provisions of this standard have been met, including but not limited to, site preparation, support system, structural connections, tie-down requirements, access and egress requirements, underfloor enclosures with ventilation and access, and all utility connections and crossovers.

14. Temporary Placement. When a manufactured home is placed temporarily in storage by a manufacturer, dealer, or distributor in excess of thirty (30) days, the owner shall assure the manufactured home is adequately supported at each corner and under each main frame beam by a minimum of four supports located within two feet (2') from each end and within eight feet (8') of the

front and rear axle. The home shall be sealed to resist exposing the interior of the manufactured home to the elements of weather. When the home is to be set up in excess of 30 days for display, the owner shall assure the home is adequately supported by a minimum of main frame supports located within two feet (2') of each end and spaced a maximum of eight feet (8') on center. The perimeter shall be blocked at all doors and windows over forty-eight inches (48") wide, and at each corner. The marriage line shall be supported at each ridge beam column, and sealed against the weather.

302. SITE PREPARATION.

01. Suitability of Site. Each site shall be suitable for its intended use and acceptable to the authority having jurisdiction based on this standard and local land use regulations. No person shall install a manufactured home on a site which is not in compliance with this Chapter.

02. Unforeseen Factors. When unforeseen factors are encountered (e.g., rock formation, high ground water levels, springs), corrective work shall be completed prior to installing the manufactured home.

03. Grading. Site grading and drainage shall provide:

- a. Diversion of any surface water away from the manufactured home and accessory structures.
- b. Sufficient site drainage to prevent standing water and soil saturation from becoming detrimental to structures and use of the site.
- c. Finished grade away from the home's foundation or skirting at a minimum slope of five percent (5%) horizontally. See Figures 301.1 and 301.2.
- d. Uncovered slabs, patios, or walks shall slope away from the home and structures in order to drain water away from the home and structures.

04. Erosion. Where erosion due to high runoff velocity threatens the manufactured home site, adequate grading, landscaping, or drainage systems shall be provided to protect the site from degradation.

05. Site. Manufactured home sites shall be natural undisturbed soils or controlled fills and shall be free of grass and other organic material. All fill shall be engineered, compacted, and tested.

06. Vapor Retarder. The ground within the enclosed crawl space beneath every manufactured home shall be covered with a six one-thousandths inch (.006") thick continuous black membrane sheeting vapor retarder installed according to the following requirements.

- a. Membrane sheeting seams shall be overlapped by at least eight inches (8").
- b. Edges of the membrane sheeting shall not extend beyond the perimeter of the manufactured home.
- c. All holes, tears, and penetrations in the membrane sheeting shall be adequately sealed or patched with durable tape.

- d. Underfloor membrane sheeting shall not be in contact with wood unless the wood is pressure treated lumber.
- e. Black polyethylene membrane sheeting shall be installed over the ground. Clear sheeting may be installed under gravel or concrete.
- f. When the manufactured home has a recessed entry, porch, or deck, and the floor in the recessed area is constructed of open decking, the membrane sheeting shall not be installed below the open decking floor.

303. APPROVED INSTALLATION MATERIALS AND COMPONENTS

01. Component and Materials Specifications. All installation components shall be designed for their intended use and shall comply with the following:

- a. Concrete Products. All precast concrete pads, blocks, caps, and shims shall be equivalent to, or exceed, ASTM C-90-96 and constructed to be lightweight with a blend of aggregates that conform to ASTM C-33 and ASTM C-331. Pumice and cinder block components shall not be used.
- b. Poured Concrete. All poured in place concrete shall cure at least four days prior to the installation of the manufactured home and shall have a compressive strength of not less than two thousand five hundred pounds per square inch (2,500 psi) in twenty-eight (28) days.
- c. Wood Products. All pressure treated wood shall be treated with preservative according to AWPA C22 and shall be identified as to conformance with such standard by an approved agency. Field treatment of cut ends of pressure treated wood is allowed with approved products.
- d. Wood-Polymer Composite Products. All wood-polymer composites shall comply with ASTM 790, ASTM 1037, ASTM D-1413, and AWPA E172.

02. Testing. All components of the support system shall be tested to their dead load plus superimposed live load equal to three times the required live load using the test procedures in 24 CFR 3280.401.

304. MARRIAGE LINE CONNECTIONS.

01. General. After all shipping and close-up material is removed, all sections of multi-section manufactured homes shall be secured to immobilize each section, allow for the transfer of required loads, and protect interior and enclosed spaces.

02. Shimming. Gaps from one-half inch (1/2") to one inch (1") between manufactured home sections shall be shimmed and sealed according to Subsection 304.07. Gaps greater than one inch (1") shall be corrected by the manufacturer. In no case shall the installer attempt to close gaps by tensioning the lag bolts while joining the sections together. This procedure will destroy the truss and floor integrity.

03. Ridge Beam Connections. Ridge beams of multi-section manufactured homes shall be secured together either:

- a. With three-eighths inch (3/8") diameter lag bolts with full penetration, with washers, and spaced equally along the length of the ridge beam at a maximum of twenty-four inches (24") on

center and no more than forty-five (45) degrees from perpendicular. Lag bolts will be installed on both sides of the beam, offset approximately one-half of the spacing from each other. See Figure 304.1. All ridge beam lag bolts shall be installed in an area where there is solid ridge beam material between the manufactured home sections. Ridge beams shall be predrilled for lag bolts; or

b. With a connection system other than lag bolts which may be engineered by the manufacturer who shall supply the dealer and installer with complete installation instructions. Those instructions shall be in the manufactured home and the ridge beams shall be tagged to indicate an alternate system is required.

04. Floor Connections. Floors of multi-section manufactured homes shall be secure together. See Figures 304.2 and 304.3.

a. With three-eighths inch (3/8") diameter lag bolts with washers installed diagonally at forty-five (45) degrees or less through each section's rim joists installed in pairs or staggered, but not exceeding a maximum spacing of twenty-four inches (24") on center; or

b. With the manufacturer's installed mating devices bolted together with appropriately sized bolts and washers.

05. End Wall and Interior Wall Connections. All end wall studs and interior wall column supports shall be screwed together with four inch (4") long Number Eight (#8) screws spaced sixteen inches (16") on center. See Figures 304.4 and 304.5.

06. Lag bolts. Whenever lag bolts are used one-quarter inch (1/4") pilot holes shall first be drilled. The bolts shall be installed so as to provide full penetration of the lag bolt into both beams or joists.

07. Sealing. During installation, joints between all sections shall be cleaned. Where the gap exceeds one-half inch (1/2") top or bottom it shall be filled with a shim. The joints shall then be sealed with a weather stripping gasket material to limit heat loss and prevent air, moisture and other damaging infiltration. The gasket material shall be durable, non-porous caulking, closed cell foam, urethane, or sill seal. If the manufacturer supplies a sealer, it shall be used by the installer. Caulking, when used, shall fill the gap and be capable of compressing and stretching. Sill seal, if used, shall be a minimum of five and one-half inches (5-1/2") wide and attached with fasteners staggered at six inches (6") on center and compressed to form a tight seal. Any remaining gaps shall be caulked or foamed to complete the seal.

08. Patching. All cuts, holes, or tears in the bottom board or floor insulation including, but not limited, to areas around structural connections and electrical, plumbing and mechanical shall be repaired.

305. FLOOD RESISTANCE.

01. Location. Manufactured homes shall not be installed in designated flood ways but may be installed in flood hazard areas according to the minimum requirements of this section.

02. Installation. All manufactured homes installed in designated 100 year flood hazard areas shall be installed according to FEMA guidelines or be placed on permanent perimeter foundations to resist flotation, collapse, or lateral movement during a base flood. Homes installed in Manufactured/Mobile home parks shall be allowed to be installed and anchored in accordance with FEMA guidelines.

03. Elevation. The underside of the floor of all manufactured homes installed in designated 100 year flood hazard areas shall be a minimum of twelve inches (12") above the flood elevation to resist flotation, collapse, or lateral movement

04. Underfloor Enclosures. Notwithstanding the requirements of Section 703, manufactured homes installed in designated flood hazard areas shall have the underfloor enclosure foundation vents located within twelve inches (12") vertically of the finished grade.

NOTE: The following information on FEMA is not adopted as part of this standard but referenced in this standard for the convenience of the user.

Federal Emergency Management Agency (FEMA). In addition to the state's minimum standards for elevating manufactured homes in flood hazard areas, 44 CFR, Chapter 1, Section 60.3(c) (6) (iv) of the Federal Emergency Management Agency (FEMA) regulations, requires all manufactured homes in designated flood areas to be elevated to resist flotation, collapse, and lateral movement during the base flood. For additional up-to-date information of FEMA requirements, programs, or insurance contact:

- a. State Coordinator
Dept. Of Water Resources
322 E Front St, Boise, ID 83702
(208) 287-4800
- b. Federal Emergency Mgmt. Agency
Federal Regional Center
130-228th St. SW
Bothell, Washington 98021-9796

306. EGRESS REQUIREMENTS.

01. Egress. Upon completion of installation, and prior to occupancy, each manufactured home shall conform with the following requirements:

- a. Each egress door on a manufactured home shall be accessible by stairs, a ramp, or a deck.
- b. Windows and doors shall be adjusted, secured in place, and made operational to provide security, egress, and to minimize air leakage and water penetration.
- c. Damage to windows and doors which affect their safety features, thermal performance, or operation shall be repaired or replaced.
- d. Each manufactured home shall have an underfloor access provided and constructed according to Section 704.

02. Inspection Approval. Installations shall not be approved until a means of access has been provided to each of the two required exit doors on the manufactured home.

03. Stairs. At set-up and prior to occupancy, stairs which meet or exceed the following standard, shall be provided at each egress door in accordance with the current version of the Idaho Residential Code as adopted and amended by the Idaho building code board. See Figure 306.1

04. Permanent Construction Requirements. All permanent ramps, steps, stairways, railings, decks, porches, and landings shall be constructed and installed according to Section 910.

307. -- 399. RESERVED.

Chapter 4

STANDARD SET INSTALLATION STANDARDS.

401. GENERAL.

This Chapter prescribes the installation requirements that specifically apply to standard set homes. See Figure 301.1.

01. Content: This series of sections prescribes requirements for:

- a. The support pier system for standard set manufactured homes; and
- b. Tie down anchoring;

02. Frost Line. Manufactured homes on a standard set are not required to have support footings below the frost line. However, perimeter blocking must be installed in a manner, and skirting or other approved fascia material must be installed, to minimize the effects of frost.

402. APPROVED INSTALLATION MATERIALS AND COMPONENTS.

01. Footings. Pier support footings shall be a minimum of two hundred fifty-six (256) square inches and not less than the width of the pier being supported. Ridge beam column support footings shall be sized according to Subsection 403.03.b. Footings shall be any one of the following, except where specifically stated otherwise.

- a. Precast Pads. One (1) or more precast concrete pads with a nominal size of sixteen inches by sixteen inches (16" x 16") by four inches (4") thick or two (2) or more pads with a nominal size of eight inches by sixteen inches (8" x 16") by four inches (4") thick. Eight inch by sixteen inch (8" x 16") pads may be used only with concrete block piers. The pier blocks shall be perpendicular to the joint of the pad. See Figure 402.1.
- b. Poured Concrete Pads. Nominal four inch (4") or thicker poured-in-place individual concrete pads, either square or round. See Figure 402.2.
- c. Lumber or Polymer Stacked Pads. Pads of two (2) to four (4) layers of two inch (2") nominal size thick foundation grade lumber, pressure treated on all six sides, or pads of two to four layers of two inch (2") nominal size thick polymer composite. Each layer shall be laid perpendicular to the layer below it. See Figure 402.3.
- d. Lumber Pads. Pads of one layer of two inch (2") nominal size thick foundation grade lumber pressure treated on all six sides. If used with concrete piers, the grain shall be parallel with the long side of the block with no more than one inch (1") of wood exposed beyond the long sides of the block. See Figure 402.4.
- e. Plywood Pads. Pads of one (1) piece of one and one-quarter inch (1-1/4") thick plywood pressure treated on all six sides or pads of two stacked pieces of three-quarter inch (3/4") thick plywood pressure treated on all six sides. See Figure 402.5.

f. Runners. Continuous concrete runners with a thickness of six inches (6") and not less than eighteen inches (18") wide [twenty inches (20") wide under the marriage line] with two (2) continuous three-eighths inch diameter (#3) reinforcing bars. The reinforcing bars shall be centered vertically in the runner, ten inches (10") apart and shall not be closer than three inches (3") from the edge. The runner shall be centered beneath the mainframe. See Figure 402.6. These runners may be poured wide enough to include the outer mainframe and perimeter supports, or the inner mainframes and marriage line supports, on the same runner. If runners are poured wide enough to include two or more rows of supports two (2) continuous three-eighths inch diameter (#3) reinforcing bars shall be used for each row of supports. The reinforcing bars shall be centered vertically in the runner, spaced equidistant apart, and shall not be closer than three inches (3") nor farther than six inches (6") from the edge.

g. Other. Prefabricated pads or other equivalent materials when tested, listed, and labeled by a nationally recognized testing and listing laboratory, or designed by an Idaho Licensed Professional Engineer.

02. Block Piers. Concrete block piers shall be placed on approved minimum two hundred fifty-six (256) square inch (or sized as required for ridge beam column supports) footings and shall not exceed the size of the footing. Block piers shall be capped and shimmed with approved components. Piers shall be:

a. Concrete block. The blocks shall be either open or closed cell precast lightweight concrete of nominal size of eight inches by eight inches by sixteen inches (8" x 8" x 16"). Open cell blocks shall be positioned vertically. See Figure 402.7. Cinder or pumice blocks shall not be used.

(1) Single Stack. Block piers up to thirty-six inches (36") high under the main frame or marriage line and forty-eight inches (48") high under the perimeter walls may be single stacked. Single stacked block piers shall be placed perpendicular to the main frame and marriage line and parallel at the perimeter wall. Single stack piers shall be placed perpendicular to the joint of two (2) eight inch by sixteen inch (8" x 16") nominal size concrete pads. See Figure 402.1.

(2) Double Stack. Block piers over thirty-six inches (36") high under the main frame and marriage line, and over forty-eight inches (48") high under the perimeter walls, shall be double stacked with blocks interlocking. See Figure 402.8.

(3) Maximum Height. No concrete block piers shall be constructed over eighty inches (80") in height unless designed by an Idaho Licensed Professional engineer.

(4) Capacity. Single stack block piers shall be used for loads not to exceed five thousand (5,000) pounds. Double stack block piers shall be used for loads not to exceed sixteen thousand (16,000) pounds. Double and single piers may be combined for higher loads.

03. Block Pier Caps. Each block pier shall be capped with a pier cap equal in area to the pier blocking (i.e., 8" x 16" or 16" x 16"). See Figures 402.7, 402.8, and 402.9. Pier caps shall be one or more of the following.

a. Precast Block. A solid concrete block with a nominal thickness of four inches (4").

- b. Plywood. One (1) piece of one and one-quarter inch (1-1/4") thick plywood, or two (2) pieces of three-quarter inch (3/4") thick plywood.
- c. Lumber. One (1) two inch (2") nominally thick Number 2 (#2) or better grade lumber.
- d. Polymer. One (1) two inch (2") nominally thick wood polymer composite.
- e. Other. Listed or equivalent materials when tested, listed, and labeled by a nationally recognized testing and listing laboratory, or designed by an Idaho Licensed Professional Engineer.

04. Block Pier Shims. Where shim material is used between the top of the pier cap and the bottom of the main frame, the shimming material shall not exceed five inches (5") vertically. See Figure 402.9. Pier shims, when used, shall be one or more of the following;

- a. Precast Concrete. Two inch (2") thick solid concrete blocks equal in area to the pier cap;
- b. Plywood. Three-quarter inch (3/4") or thicker plywood equal in area to the pier cap;
- c. Lumber. Two inch (2") nominally thick Number Two (#2) or better grade lumber not less than five and one-half inches (5-1/2") in width and sixteen inches (16") long;
- d. Polymer. One and one-quarter inch (1-1/4") minimum thickness wood polymer not less than five and one-half inches (5-1/2") in width and sixteen inches (16") long; or

05. Block Pier Wedges. No more than two sets of wedges three-quarter inch (3/4") thick or one set of wedges one and one-half inches (1-1/2") thick by three and one-half inches (3-1/2") wide by eight inches (8") to sixteen inches (16") long may be used. They must be fitted perpendicular with, and driven tight to, the bottom of the main frame or floor to transfer loads uniformly to the pier. See Figures 402.8 and 402.9.

06. Prefabricated Piers. Prefabricated piers shall be placed on approved footings and shall not exceed the size of the footing. See Figure 402.10. Piers shall be:

- a. Tested and Listed. All prefabricated piers shall be tested, listed, and labeled for a capacity of not less than four thousand (4,000) pounds. See Subsection 303.02.
- b. Instructions. The installation of the piers shall be in compliance with pier manufacturers' instructions which shall be left with the home.
- c. Shims. No shims shall be used with a prefabricated pier.
- d. Adjustable Heads. All piers shall be of the type fitted with an adjustable head and nut. The adjustment shall not exceed that permitted by the manufacturer's instructions.

07. Other piers. Other piers may be used when tested, listed, and labeled by a nationally recognized testing and listing laboratory, or designed by an Idaho Licensed Professional Engineer.

403. INSTALLATION SUPPORT REQUIREMENTS.

01. Main Frame Supports. The main frame of all standard set manufactured home installations shall be supported as prescribed in the following Subsections. See Figure 403.1. All materials and components shall comply with the requirements of Section 402.

a. Footings for Standard Sets. The footings for the support piers under the main frames of a standard set manufactured home shall be any of the footings in Subsection 402.01. The minimum size shall be two hundred fifty-six (256) square inches.

b. Piers. The piers for the support of main frames in standard sets shall be any of piers in Subsections 402.02, 402.06, or 402.07. When block piers are used they shall be placed perpendicular to the main frame. Open cells shall be vertical.

c. Location of Supports. The footings and pier stands under the main frame shall be placed not more than twelve inches (12") from the ends of the frames. The footings and pier stands shall continue to be set six feet (6') on center the full length of the frame. A six inch (6") variance is allowable to clear obstructions. This spacing shall be maintained in all roof loads up to and including one hundred twenty pounds per square foot (120 psf).

d. Piers. The piers for the support of main frames in standard sets shall be any of the piers in Subsections 402.02, 402.06, or 402.07. When block piers are used they shall be placed perpendicular to the main frame.

e. Location of Supports. The footings and pier stands under the main frame shall be placed not more than twelve inches (12") from the ends of the frames. The footings and pier stands shall continue to be set six feet (6') on center the full length of the frame. A six inch (6") variance is allowable to clear obstructions. This spacing shall be maintained in all roof loads up to and including one hundred twenty pounds per square foot (120 psf).

02. Perimeter Supports. The perimeter side walls of all manufactured homes sections over twelve feet (12') in width shall be supported as prescribed in the following Subsections. See Figure 403.1. All materials and components shall comply with the requirements of Section 402.

a. Perimeter Footings for Standard Sets. The footings for the support piers under the perimeter side walls of a standard set manufactured home shall be any of the footings in Subsection 402.01. The minimum footing size shall be two hundred fifty-six (256) square inches. Footings shall not extend beyond the exterior perimeter walls of the manufactured home.

b. Perimeter Piers for Standard Sets. The piers for the support under the perimeter side walls of a standard set manufactured home shall be any of the piers in Subsections 402.02, 402.06, or 402.07.(1) All piers must be installed on approved footings which meet the requirements of Subsection 402.01. Perimeter blocking can be parallel. Where double stacks are used check with manufacturer's specifications or refer to Figures 402.8 and 402.9.

(1) Block piers are required if the footing is constructed of eight inch by sixteen inch by four inch (8" x 16" x 4") precast pads. The pier blocks must be placed perpendicular to the joint of the pads. See Figure 402.1.

(2) When it is not possible to install a perimeter pier directly under the exterior sidewall, the floor shall be supported by a four inch (4") wide by six inch (6") high nominal size or equal horizontal Number Two (#2) or better grade wood beam, spanning a minimum of three floor joists and supported by an approved pier recessed not more than ten inches (10") from the perimeter. See Figures 403.2 and 403.3. When wood wedges are used with the beams, they shall be installed at each end of the block pier between the top of the pier and the bottom of the beam. Block piers shall be placed perpendicular to the floor joists.

(a) Exception: In homes with longitudinal joists and where the third joist is above or inside the main frame beam, the pier support beam shall span a minimum of two joists.

(3) Where a manufactured home has cantilevered portions and expanded rooms, these protrusions shall be supported by piers at each corner and along the cantilevered portion of the sidewall perimeter.

c. Location of Supports. Footings and pier stands under the perimeter side walls shall be located as prescribed below.

(1) Six inches (6") or less from each corner.

(2) Eight feet (8') on center maximum for roof loads from thirty to forty pounds per square foot (30 to 40 psf) or per original manufacturers standards. Thirty pounds per square foot is the minimum permissible snow load rating in Idaho. Exception – Open floor not carrying weight.

(3) Six feet (6') on center maximum for roof loads over forty and up to sixty pounds per square foot (41 to 60 psf).

(4) Four feet (4') on center maximum for roof loads over sixty and up to eighty pounds per square foot (61 to 80 psf).

(5) A sixteen inch (16") variance is allowable to clear obstructions.

03. Marriage Line Supports. The marriage line rim joists and ridge beam columns of all standard set multi-section manufactured homes shall be supported as prescribed in the following Subsections. See Figure 403.1. All materials and components shall comply with the requirements of Section 402.

a. Marriage Line Rim Joist Supports. The entire marriage line shall be supported by minimum two hundred fifty-six (256) square inch footings and piers. See Subsections 402.01, 402.02, 402.06, or 402.07.

b. Ridge Beam Column Supports. Marriage line roof ridge beam column supports shall comply with the requirements prescribed in the following subsections.

(1) The manufacturer shall identify in a diagram the load on, and the location of, each column. The diagram shall be provided to the homeowner, and upon request, to the dealer, installer, and local authority having jurisdiction.

- (2) The manufacturer shall clearly mark the location of each column. These markings shall remain visible for inspection after the installation is completed.
- (3) The installer shall use the manufacturer's diagram and markings to determine locations and loads of column supports.
- (4) The installer shall use Table 400-A to determine the size of footing required for each column load.
- (5) Footings for marriage line roof ridge beam support columns shall be constructed according to any one of the following four methods.
- (a) Multilayered sixteen inch by sixteen inch by four inch (16" x 16" x 4") precast concrete pads placed in a pyramid shape to distribute the load from the pier to the base. See Figures 403.4 and 403.5. Each layer of blocks shall span at least fifty percent (50%) of each block in the layer beneath.
- (b) Poured in place concrete pads a minimum of eight inches (8") nominal thickness with two (2) three-eighths inch diameter (#3) reinforcing bars in each direction.
- (c) A poured concrete footing runner a minimum of eight inches (8") nominal thickness by twenty inches (20") wide with two properly positioned three-eighths inch (#3) reinforcing bars. See Subsection 402.01.f.

Table 400-A			
Footing Size (Inches)	Capacity (Pounds)	Footing Size (Inches)	Capacity (Pounds)
15 x 15	2,500	29 x 29	8,500
17 x 17	3,000	30 x 30	9,000
18 x 18	3,500	31 x 31	10,000
20 x 20	4,000	32 x 32	11,000
21 x 21	4,500	34 x 34	12,000
22 x 22	5,000	35 x 35	13,000
23 x 23	5,500	37 x 37	14,000
24 x 24	6,000	38 x 38	15,000
25 x 25	6,500	39 x 39	16,000
26 x 26	7,000	40 x 40	17,000
27 x 27	7,500	42 x 42	18,000
28 x 28	8,000	43 x 43	19,000
The footing sizes shown are for square pads and are based on the area (square inches) required for the load. Other footing configurations, such as a rectangular configuration, may be used, provided the area (square inches) is equal to or greater than the area of the square footing shown in the table. For example, a 12-inch x 22-inch (264-square-inch) footing may be used in place of a 16-inch x 16-inch (256-square-inch) footing. Also, two 12-inch x 24-inch pads may be used in place of one 24-inch x 24-inch pad.			

(d) Pads of two to four layers of minimum two inch by ten inch (2"x10") nominal size lumber pressure treated on all six sides. The length of the pad shall not exceed double the width. The boards in each layer shall be laid crosswise to the boards in the layer beneath.

c. Piers. Marriage line piers shall be concrete block or listed prefabricated piers. See Subsections 402.02 and 402.06. All ridge beam columns with a load in excess of five thousand pounds (5,000 lbs. shall have multiple blocked concrete piers or prefabricated piers listed and labeled to support the load either by itself or in combination with another pier.

d. Location of Supports. Marriage line supports shall be located as prescribed below. See Figure 403.1.

(1) On a standard set the first support will be the first ridge beam column support, which shall be within six inches (6") of each end.

(2) Ridge beam column supports shall be sized and located per the diagrams supplied by the manufacturer for each home and Table 400-A.

(3) Marriage line rim joist supports shall be located along the entire length of the marriage line as prescribed below.

(a) Eight feet (8') on center maximum for roof loads from thirty to forty pounds per square foot (30 to 40 psf) or per original manufacturer's standards wherever there is a bearing wall above the marriage line. Thirty pounds per square foot is the minimum permissible snow load rating in Idaho.

Exception – Open floor not carrying weight

(b) Six feet (6') on center maximum for roof loads over forty and up to sixty pounds per square foot (41 to 60 psf) wherever there is a bearing wall above the marriage line.

(c) Four feet (4') on center maximum for roof loads over sixty and up to eighty pounds per square foot (61 to 80 psf) wherever there is a bearing wall above the marriage line.

(d) Three feet (3') on center maximum for roof loads over eighty and up to one hundred pounds per square foot (81 to 100 psf) wherever there is a bearing wall above the marriage line.

(e) Two feet (2') on center maximum for roof loads over one hundred pounds per square foot (100 psf) wherever there is a bearing wall above the marriage line.

(f) As an alternate support system to that specified in (d) and (e) above, a marriage line pony wall may be constructed of minimum two inch by six inch (2" x 6") nominal size studs, twenty-four inches (24") on center, with double top and single (treated) bottom plates to support the marriage line. A four inch by six inch (4" x 6") nominal size post shall be placed in this pony wall at all ridge beam support locations

identified by the manufacturer. All wood shall have a structural rating equal to, or greater than, #2 SPF.

(g) Ridge beam column supports may be considered to be rim joist supports as long as the maximum allowable spacing between supports is not exceeded.

04. Height of Installation. No more than twenty-five percent (25%) of the main frame pier supports of a manufactured home shall exceed thirty-six inches (36") in height without prior approval of the local authority having jurisdiction. Pier heights shall be measured from the top of the footing to the bottom of the frame. See Figure 402.9. Maximum pier height shall not exceed eighty inches (80"). See Figure 402.8.

404. ANCHORING.

01. Anchoring. To resist lateral movement from high winds, earthquakes, and flooding, all manufactured homes shall be anchored down.

02. Loads. Anchoring equipment including all anchors, straps, and tension devices used to secure a manufactured home when installed, shall be capable of resisting an allowable working load at least equal to or exceeding three thousand one hundred-fifty pounds (3,150 lbs.) and shall be capable of withstanding fifty percent (50%) overload (4,725 lbs.) without failure of either the anchoring equipment or the attachment point to the manufactured home. When the stabilizing system is designed by a qualified Idaho Licensed Engineer, alternate working loads may be used, provided the anchoring equipment is capable of withstanding a fifty percent (50%) overload. Each type of anchor suitable for the purpose of this standard shall meet the following criteria.

a. Each anchor shall be certified and listed as to its resistance against pulling based on the maximum angle of diagonal or vertical tie loading and the angle of anchor installation and the type of soil in which the anchor is to be installed.

b. Anchors designed for the connection of multiple ties shall be certified and listed as being capable of resisting the combined working load and overload consistent with the intent expressed herein; and shall be installed to resist resultant forces.

c. Each anchor shall be selected based on the soil class at the depth where the anchor will be installed.

d. Each anchor shall, at a minimum, be installed to the full depth shown in the anchor manufacturer's installation instructions. The retainer or stabilizer plates shall be installed to achieve the required ground anchor resistance capacity. See Figure 406.1.

e. The load carrying portion of the anchor shall extend below the frost line.

03. Installation Instructions. Anchor manufacturers shall provide manufacturer's installation instructions for all listed and approved anchoring systems sold in Idaho. Anchor manufacturer's installation instructions shall be consistent with the product listing and approval. One copy of the anchor manufacturer's instructions must be made available to the inspectors of the local authority having jurisdiction.

- a. Caution: Before installing ground anchors, the site shall be checked for marked and unmarked underground utilities.

04. Testing. Anchoring devices shall be tested to one and one-half (1.5) times the horizontal wind load of fifteen pounds per square foot (15 psf) and a roof uplift of nine pounds per square foot (9 psf) using the test procedures in the current version of ASTM D-3953.

05. Ties. All tie strapping shall be fastened to anchors and drawn tight with adjustable tensioning devices supplied with the anchor.

- a. Tie strapping shall be certified and listed to be capable of resisting an allowable working load of three thousand one hundred-fifty pounds (3,150 lbs.) with no more than two percent (2%) elongation and shall withstand a fifty percent (50%) overload.

- b. Ties shall connect the anchor to the main frame I-beams which run lengthwise under the manufactured home. Ties shall not connect to steel outrigger or cross member beams which fasten to, and intersect with, the main frame I-beams.

- c. Tie materials shall be designed to prevent self-disconnection when ties are slack. See Figure 406.2 & 3.

06. Spacing. Unless otherwise specified in the anchoring equipment manufacturer's installation instructions, anchoring devices shall be installed on both sides of the manufactured home with a maximum spacing of eleven feet (11') on center and no more than two feet (2') from each end.

07. Certification. Anchoring equipment is certified when tested, listed, and labeled by a nationally recognized testing and listing laboratory, or designed by an Idaho Licensed Professional Engineer.

08. Alternate anchoring systems. Alternate anchoring systems may be used when tested, listed, and labeled by a nationally recognized testing and listing laboratory, or designed by an Idaho Licensed Professional Engineer.

09. Used anchor systems. Used anchor system may be used if meeting manufacturers specifications and in combination with new straps.

405. -- 499. RESERVED.

Chapter 5

PERMANENT FOUNDATION INSTALLATION STANDARDS

501. GENERAL.

There are two basic types of installations - standard set and permanent foundation set. This Chapter prescribes the installation requirements for homes installed on permanent foundations. See Figure 301.2.

01. Content: This series of sections prescribes requirements for:

- a. The foundation and support pier system for manufactured homes installed on permanent foundations;
- b. Tie down anchoring;

02. Frost Line. Manufactured homes on a permanent foundation shall have the perimeter stem wall and footings below the frost line. The local authority having jurisdiction will prescribe the required depth.

A permanent foundation will meet the requirements of the Idaho Residential Code Section 504.1 or may be designed by an Idaho professional engineer.

502. APPROVED INSTALLATION MATERIALS AND COMPONENTS.

01. Footings. Pier support footings shall be a minimum of two hundred fifty-six (256) square inches and not less than the width of the pier being supported. Ridge beam column support footings shall be sized according to Subsection 503.03.b. Footings shall be either one of the following, except where specifically stated otherwise.

- a. Poured Concrete Pads. Nominal eight inch (8") or thicker poured-in-place individual concrete pads, either square or round. See Figure 502.1.
- b. Runners. Continuous concrete runners with a thickness of eight inches (8") and not less than eighteen inches (18") wide [twenty inches (20") wide under the marriage line] with two (2) continuous three-eighths inch diameter (#3) reinforcing bars. The reinforcing bars shall be centered vertically in the runner, ten inches (10") apart and shall not be closer than three inches (3") from the edge. The runner shall be centered beneath the mainframe. See Figure 502.2. These runners may be poured wide enough to include the outer mainframe and perimeter supports, or the inner mainframes and marriage line supports, on the same runner. If runners are poured wide enough to include two or more rows of supports two (2) continuous three-eighths inch diameter (#3) reinforcing bars shall be used for each row of supports. The reinforcing bars shall be centered vertically in the runner, spaced equidistant apart, and shall not be closer than three inches (3") nor farther than six inches (6") from the edge.

02. Block Piers. Concrete block piers shall be placed on approved minimum two hundred fifty-six (256) square inch (or sized as required for ridge beam column supports) footings and shall not exceed the size of the footing. Block piers shall be capped and shimmed with approved components. Piers shall be:

a. Concrete block. The blocks shall be either open or closed cell precast lightweight concrete of nominal size of eight inches by eight inches by sixteen inches (8" x 8" x 16"). Open cell blocks shall be positioned vertically. See Figure 502.3. Cinder or pumice blocks shall not be used.

(1) Single Stack. Block piers up to thirty-six inches (36") high under the main frame or marriage line and forty-eight inches (48") high under the perimeter walls may be single stacked. Single stacked block piers shall be placed perpendicular to the main frame and marriage line and parallel at the perimeter wall. See Figure 502.3.

(2) Double Stack. Block piers over thirty-six inches (36") high under the main frame and marriage line shall be double stacked with blocks interlocking. See Figure 502.4.

(3) Maximum Height. No concrete block piers shall be constructed over eighty inches (80") in height unless designed by an Idaho Licensed Professional engineer.

(4) Capacity. Single stack block piers shall be used for loads not to exceed five thousand (5,000) pounds. Double stack block piers shall be used for loads not to exceed sixteen thousand (16,000) pounds. Double and single piers may be combined for higher loads.

03. Block Pier Caps. Each block pier shall be capped with a pier cap equal in area to the pier blocking (i.e., 8" x 16" or 16" x 16"). See Figures 502.3, 502.4, and 502.5. Pier caps shall be one or more of the following.

a. Precast Block. A solid concrete block with a nominal thickness of four inches (4").

b. Plywood. One (1) piece of one and one-quarter inch (1-1/4") thick plywood, or two (2) pieces of three-quarter inch (3/4") thick plywood.

c. Lumber. One (1) two inch (2") nominally thick Number 2 (#2) or better grade lumber.

d. Polymer. One (1) two inch (2") nominally thick wood polymer composite.

e. Other. Listed or equivalent materials approved by the Division and the Manufactured Home Installation Committee.

04. Block Pier Shims. Where shim material is used between the top of the pier cap and the bottom of the main frame, the shimming material shall not exceed five inches (5") vertically. See Figure 502.5. Pier shims, when used, shall be one or more of the following;

a. Precast Concrete. Two inch (2") thick solid concrete blocks equal in area to the pier cap;

b. Plywood. Three-quarter inch (3/4") or thicker plywood equal in area to the pier cap;

c. Lumber. Two inch (2") nominally thick Number Two (#2) or better grade lumber not less than five and one-half inches (5-1/2") in width and sixteen inches (16") long;

d. Polymer. One and one-quarter inch (1-1/4") minimum thickness wood polymer not less than five and one-half inches (5-1/2") in width and sixteen inches (16") long; or

05. Block Pier Wedges. No more than two sets of wedges three-quarter inch (3/4") thick or one set of wedges one and one-half inches (1-1/2") thick by three and one-half inches (3-1/2") wide by eight inches (8") to sixteen inches (16") long may be used. They must be fitted perpendicular with, and driven tight to, the bottom of the main frame or floor to transfer loads uniformly to the pier. See Figure 402.8.

06. Prefabricated Piers. Prefabricated piers shall be placed on approved footings and shall not exceed the size of the footing. See Figure 502.6. Piers shall be:

a. Tested and Listed. All prefabricated piers shall be tested, listed, and labeled for a capacity of not less than four thousand (4,000) pounds. See Subsection 303.02.b. Instructions. The installation of the piers shall be in compliance with pier manufacturers' instructions which shall be left with the home.

c. Shims. No shims shall be used with a prefabricated pier.

d. Adjustable Heads. All piers shall be of the type fitted with an adjustable head and nut. The adjustment shall not exceed that permitted by the manufacturer's instructions.

07. Other piers. Other piers may be used tested, listed, etc.

503. INSTALLATION SUPPORT REQUIREMENTS.

01. Main Frame Supports. The main frame of all permanent foundation set manufactured home installations shall be supported as prescribed in the following Subsections. See Figure 503.1. All materials and components shall comply with the requirements of Section 303.

a. Footings for Permanent Foundations. The footings for the support piers under the main frames of a permanent foundation set manufactured home shall be poured in place concrete pads. See Subsection 502.01.a. The homeowner may opt to have eight inch (8") thick poured concrete footing runners (See Subsection 502.01.b.), but they shall not be required by the local authority having jurisdiction, dealers, or installers.

(1) Exception: When a permanent foundation for an existing standard set home is being installed, (See Subsection 504.02.) any of the footings in Subsection 402.01 which are already in place are approved.

b. Piers. The piers for the support of main frames shall be any of the piers in Subsections 502.02, 502.06, or 502.07. When block piers are used they shall be placed perpendicular to the main frame.

c. Location of Supports. The footings and pier stands under the main frame shall be placed not more than thirty inches (30") from the ends of the frames. The footings and pier stands shall continue to be set six feet (6') on center the full length of the frame. A six inch (6") variance is allowable to clear obstructions. This spacing shall be maintained in all roof loads up to and including one hundred twenty pounds per square foot (120 psf).

02. Perimeter Supports. Manufactured homes installed on a permanent foundation shall have the entire perimeter of the home supported by the foundation walls. All materials and components shall comply with the requirements of Section 502.

03. Marriage Line Supports. The marriage line rim joists and ridge beam columns of permanent foundation set multi-section manufactured homes shall be supported as prescribed in the following Subsections. See Figure 503.1. All materials and components shall comply with the requirements of Section 303.

a. Marriage Line Rim Joist Supports. The entire marriage line shall be supported by minimum two hundred fifty-six (256) square inch poured in place footings and piers. See Subsections 502.01, 502.02, 502.06, or 502.07.

b. Ridge Beam Column Supports. Marriage line roof ridge beam column supports shall comply with the requirements prescribed in the following subsections.

(1) The manufacturer shall identify in a diagram the load on, and the location of, each column. The diagram shall be provided to the homeowner, and upon request, to the dealer, installer, and local authority having jurisdiction.

(2) The manufacturer shall clearly mark the location of each column. These markings shall remain visible for inspection after the installation is completed.

(3) The installer shall use the manufacturer's diagram and markings to determine locations and loads of column supports.

(4) The installer shall use Table 500-A to determine the size of footing required for each column load.

(5) Footings for marriage line roof ridge beam support columns shall be constructed according to either one of the following two methods.

(a) Poured in place concrete pads a minimum of eight inches (8") nominal thickness with two (2) three-eighths inch diameter (#3) reinforcing bars in each direction.

(b) A poured concrete footing runner a minimum of eight inches (8") nominal thickness by twenty inches (20") wide with two properly positioned three-eighths inch (#3) reinforcing bars. See Subsection 502.01.b.c.

04. Piers. Marriage line piers shall be concrete block or listed prefabricated piers. See Subsections 502.02 and 502.06. All ridge beam columns with a load in excess of five thousand pounds (5,000 lbs.) shall have multiple blocked concrete piers or prefabricated piers listed and labeled to support the load either by itself or in combination with another pier.

d. Location of Supports. Marriage line supports shall be located as prescribed below. See Figure 503.1.

(1) The foundation wall shall be the first support at each end.

(2) Ridge beam column supports shall be sized and located per the diagrams supplied by the manufacturer for each home and Table 500-A.

(3) Marriage line rim joist supports shall be located along the entire length of the marriage line as prescribed below.

(a) Eight feet (8') on center maximum for all roof loads thirty pounds per square foot (30 psf) and greater. Thirty pounds per square foot is the minimum permissible snow load rating in Idaho for new manufactured homes wherever there is a bearing wall above the marriage line.

(b) Six feet (6') on center maximum for roof loads over forty and up to 60 psf wherever there is a wall above the marriage line.

(c) Four feet (4') on center maximum for roof loads over sixty and up to eighty pounds per square foot (60 to 80 psf) wherever there is a bearing wall above the marriage line.

(d) Three feet (3') on center maximum for roof loads over eighty and up to one hundred pounds per square foot (80 to 100 psf) wherever there is a bearing wall above the marriage.

Table 500-A			
Footing Size (Inches)	Capacity (Pounds)	Footing Size (Inches)	Capacity (Pounds)
15 x 15	2,500	29 x 29	8,500
17 x 17	3,000	30 x 30	9,000
18 x 18	3,500	31 x 31	10,000
20 x 20	4,000	32 x 32	11,000
21 x 21	4,500	34 x 34	12,000
22 x 22	5,000	35 x 35	13,000
23 x 23	5,500	37 x 37	14,000
24 x 24	6,000	38 x 38	15,000
25 x 25	6,500	39 x 39	16,000
26 x 26	7,000	40 x 40	17,000
27 x 27	7,500	42 x 42	18,000
28 x 28	8,000	43 x 43	19,000
The footing sizes shown are for square pads and are based on the area (square inches) required for the load. Other footing configurations, such as a rectangular configuration, may be used, provided the area (square inches) is equal to or greater than the area of the square footing shown in the table. For example, a 12-inch x 22-inch (264-square-inch) footing may be used in place of a 16-inch x 16-inch (256-square-inch) footing. Also, two 12-inch x 24-inch pads may be used in place of one 24-inch x 24-inch pad.			

(e) Two feet (2') on center maximum for roof loads over one hundred pounds per square foot (100 psf) wherever there is a bearing wall above the marriage line.

(f) As an alternate support system to that specified in (d) and (e) above, a marriage line pony wall may be constructed of minimum two inch by six inch (2" x 6") nominal size studs, twenty-four inches (24") on center, with double top and single (treated) line. A four inch by six inch (4" x 6") nominal size post shall be placed in this pony wall at all ridge beam support locations identified by the manufacturer. All wood shall have a structural rating equal to, or greater than, #2 SPF.

(g) Ridge beam column supports may be considered to be rim joist supports as long as the maximum allowable spacing between supports is not exceeded.

05. Height of Installation. No more than twenty-five percent (25%) of the main frame pier supports of a manufactured home shall exceed thirty-six inches (36") in height without prior approval of the local authority having jurisdiction, unless it is set on a basement. See Section 504.03. Pier heights shall be measured from the top of the footing to the bottom of the frame. See Figure 502.5. Maximum pier height shall not exceed eighty inches (80").

504. PERMANENT FOUNDATIONS.

01. Permanent Foundation. A Permanent Foundation is a perimeter supporting foundation wall which is constructed of concrete, concrete block, or pressure treated wood, on a concrete footing placed below the locally established frost depth. See Figure 301.2. This permanent foundation is used in conjunction with main frame and marriage line supports required in Section 503. Manufactured homes must be permanently affixed to a foundation to qualify as real property for tax and financing purposes. They shall meet the requirements of the Idaho Residential Code or shall be designed by an Idaho professional engineer.

a. Concrete Foundation. A poured in place perimeter concrete foundation shall comply with the requirements prescribed in the following Subsections. See Figures 504.1A, 504.2A, and 504.2B.

(1) Footings. The foundation footings shall be a minimum eight inches (8") thick by sixteen inches (16") wide of continuous poured concrete with two horizontal three-eighths inch diameter (#3) reinforcing bar.

(2) Stem Walls. The foundation stem wall shall be a minimum six inches (6") thick by twenty-three inches (23") high poured concrete with one horizontal three-eighths inch diameter (#3) reinforcing bar per eighteen inches (18") of height. Maximum stem wall height shall not exceed forty-eight inches (48") for over twenty-five percent (25%) of the home unless the home is installed on a basement wall as defined in Subsection 504.03, or the design is approved by the local authority having jurisdiction. All stem walls over thirty inches (30") in height shall have vertical three-eighths inch diameter (#3) reinforcing bar, thirty-two inches (32") on center, to tie the footing and wall together.

(3) Sill Plate. The stem wall shall have a sill plate of two inch by four inch (2" x 4") nominal size foundation grade redwood or pressure treated lumber attached with one-half inch by ten inch (1/2" x 10") anchor bolts six feet (6') on center and within twelve inches (12") of each corner.

b. Block Foundation. A concrete block wall foundation shall comply with the requirements prescribed in the following Subsections. See Figure 504.1B

(1) Reinforcing bar. Vertical reinforcing bar shall be placed in the footing within twelve inches (12") of the ends and thirty-two inches (32") on center and shall extend in height to within two inches (2") of the top of the top course of blocks.

(2) Stem Wall. The stem walls of a block foundation shall be constructed of eight inch by eight inch by sixteen inch nominal size (8" x 8" x 16") concrete blocks mortared together for a minimum of three (3) rows and a maximum of six (6) rows. Each cell which contains a vertical reinforcing bar extending up from the footing shall be completely filled with mortar. A three-eighths inch diameter (#3) reinforcing bar shall be placed in the top course to form a bond beam and all cells in the top course of blocks shall be filled with grout.

(3) Sill Plate. The stem wall shall have a sill plate of two inch by four inch (2" x 4") nominal size foundation grade redwood or pressure treated lumber attached with one-half inch by ten inch (1/2" x 10") anchor bolts grouted in the block space a maximum of six feet (6') on center and within twelve inches (12") of each corner.

c. Pressure Treated Wood Foundation. A foundation of pressure treated lumber shall comply with the requirements prescribed in the following Subsections. See Figure 504.1C.

(1) Footings. The footings for a pressure treated lumber foundation shall be a minimum eight inches (8") thick by sixteen inches (16") wide continuous poured concrete with two horizontal three-eighths inch diameter (#3) reinforcing bar. The footing shall have one-half inch by seven inch (1/2" x 7") anchor bolts within twelve inches (12") of each corner and six feet (6') on center to secure the bottom plate of the stem wall to the footing.

(2) Stem Wall. The stem wall shall be a minimum of twenty-four inches (24") and a maximum of forty-eight inches (48") in height. It shall be constructed of two inch by four inch (2" x 4") nominal size pressure treated studs spaced sixteen inches (16") on center with pressure treated top and bottom plates. The top plate shall be fastened to the bottom of the home with galvanized three and one-half inch (3 1/2") long (16d) nails. It shall have an exterior enclosure of pressure treated plywood secured on all studs and plates with stainless steel fasteners. The pressure treated plywood shall be fifteen-thirty seconds inch (15/32") thick with a thirteen-sixteenths (13/16) span index for walls up to thirty-two inches (32") high and nineteen-thirty seconds inch (19/32") thick with a forty-twentieths (40/20) span index for walls higher than thirty-two inches (32"). The stainless steel fasteners shall be either two and one-half inch (2 1/2") long (8d) nails at six inches (6") on center on all edges and twelve inches (12") on center on interior studs, or sixteen (16) gauge one and one-half inch (1 1/2") staples at four inches (4") on center on all edges and eight inches (8") on center on interior studs. All wood shall be pressure treated according to AWPA standards and shall be stamped AWPA FDN.

d. Other Permanent Foundation Designs. Other permanent foundation systems that are engineered and stamped by an Idaho Licensed Professional Engineer, and which have been approved by the Division and the Manufactured Home Installation Committee, may be used.

e. Frost Protection. All footings for permanent foundations shall be placed a minimum of twenty-four inches (24") below grade, or according to the accepted frost level of the jurisdiction. Footings shall be on undisturbed or engineered and tested compacted soil.

f. Vents. All foundations shall be vented within three feet (3') of each corner and with twenty foot (20') maximum spacing.

g. Installation. The manufactured home is to be installed with the perimeter walls supported on the foundation wall and the main frames supported according to Subsection 503.01. The marriage line shall be supported in accordance to Subsection 503.03.

h. Recesses and Decks. When a manufactured home has a factory installed deck, porch, or recessed entry larger than thirty-six (36) square feet which has open decking a stem wall shall encompass that area to separate it from the remainder of the foundation. The stem wall shall have a footing, and be a minimum of twelve inches (12") high. No vapor barrier shall be installed under this open deck area.

02. Foundations for Existing Home. Existing standard set manufactured homes (See Figure 301.1) may be converted to a permanent foundation set by placing the home onto any one of the three foundations described in Section 504.

a. If a concrete or block stem wall (Subsection 504.01.a(2) or Subsection 504.01.b(2)) is used, the home will need to be raised (or moved) in order to pour concrete into wall forms or to fill the cells of the concrete blocks, and to attach the sill plate. The home will be then placed back onto the foundation.

b. If a pressure treated foundation (See Subsection 504.01.c.) is used, the top plate shall be secured to the bottom of the home with three and one-half inch (3 1/2") long (16d) galvanized nails and the bottom plate shall be bolted to the footing. The studs of the stem wall shall be tightly fitted between the top and bottom plates and toe nailed with three inch (3") long (10d) galvanized nails to provide support under the walls of the home. See Figure 504.3C. The exterior enclosure shall be according to Subsection 504.01.c(2). Installing this system does not require the home to be raised.

c. The footings must be below frost depth but no less than twenty-four inches (24") below grade. The foundation wall must be backfilled to that depth. The grade must be sloped a minimum of five percent (5%) from the foundation wall. A "flower bed" effect may be created by placing landscape ties or timbers three feet (3') from the home and then filling this area with backfill. See Figures 504.3A and 504.3B.

d. Check and correct the supports under the main beams (See Subsection 503.01.a(1)) and marriage line. See Subsection 503.03. All ridge beam support columns must be on footings of minimum five hundred twelve (512) square inches.

e. Check to ensure a vapor barrier is in place under the home. If there is no barrier, install a six one-thousandths inch thick (.006") black membrane vapor retarder. See Subsection 302.06.

03. Basement Perimeter Support Foundation. A single or double section manufactured home may be placed on a basement constructed as follows: (See Figures 504.4A and 504.4B).

a. Wall Footing. The perimeter footing shall be eight inches (8") thick by twenty inches (20") wide concrete reinforced with two (2) one-half inch diameter (#4) reinforcing bar.

b. Walls. The perimeter walls shall be concrete eight inches (8") thick by a minimum eight feet (8') and a maximum of ten feet (10') high reinforced vertically and horizontally every eighteen inches (18") with one-half inch diameter (#4) reinforcing bar. The wall shall have a double two inch by eight inch (2" x 8") nominal size redwood or pressure treated sill plate attached to the wall with one-half inch by twelve inch (1/2" x 12") anchor bolts one foot (1') from each corner and spaced six feet (6') on center.

c. Marriage Line Footing. The centerline footing shall be eight inches (8") thick by twenty-four inches (24") wide with two (2) one-half inch diameter (#4) reinforcing bar. Widen the footing to thirty-six inches (36") for two feet (2') on each side of any marriage line post which supports a cross supporting I-beam. See Subsection 504.03.d(2).

d. Support System. The manufactured home main frame beams shall be supported by either of the following two methods, or a combination of the following two methods.

(1) Cross walls of standard two inch by four inch (2" x 4") nominal size stud construction spaced a maximum of every twelve feet (12'). Each wall shall have a four inch by six inch (4" x 6") nominal size post located directly under each main frame beam. These walls may extend across from the basement wall to the centerline but are only required to extend to the I-beam support post. See Figures 504.4A and 504.4B. The bottom plate must be secured to the floor to prevent movement.

(2) An eight inch (8") by fifteen pounds per foot (15 lb./ft.) I-beam may be supported by four inch (4") deep pockets in the concrete wall and by four inch by six inch (4" x 6") nominal size posts in the centerline wall. Each cross beam shall be welded at each end to a three-eighths inch (3/8") thick plate secured into the concrete wall pocket. Each cross beam shall also be welded to the home's main frame beams at each point of contact. Maximum spacing between beams shall be twelve feet (12').

(3) Note that support walls or beams placed at the maximum spacing of twelve feet (12') will allow the home to incur more floor vibrations than it will if the walls or beams are positioned more closely together.

e. Floor. The floor shall be a nominal four inch (4") thick concrete slab poured over a compacted sand and gravel base. The slab shall be thickened to eight inches (8") by sixteen inches (16") wide under all cross walls. See Subsection 504.03.d(1).

f. External Pressure. A two inch by four inch (2" x 4") nominal size board shall be nailed with three and one-half inch (3 1/2") long (16d) nails to the home's floor joists along the sill plate on

the side walls to counter external pressure on the walls. See Figure 504.4A. This may be eliminated if either the cross walls or I-beams extend continuous across the basement.

g. Ceiling Height. The minimum height from the top of the concrete floor to a ceiling which may be attached to the manufactured home main frame beams shall be seven feet six inches (7'-6"). If cross I-beams are used to support the manufactured home main frame beams (See Subsection 504.03.d(2)) the minimum distance from the top of the concrete floor to the bottom of the I-beams shall be seven feet (7'-0").

h. Marriage Line Wall. A marriage line wall constructed of two inch by four inch (2" x 4") nominal size studs, 16" on center, with double top and single bottom plates shall support the marriage line the entire length of the home. The bottom plate shall be bolted to the concrete floor with one-half inch by ten inch (1/2" x 10") anchors spaced forty-eight inches (48") on center. A four inch by six inch (4" x 6") nominal size post shall be placed in this wall at all ridge beam support locations. The wall studs and posts shall be one piece from floor plate to top plate. Openings over three feet (3') in width may only be located in this wall at the same locations as open spans in the home above.

i. Anchors. The manufactured home shall be anchored to the foundation by one or the other of two following methods.

(1) The use of prefabricated foundation clips or plates located every forty-eight inches (48") either inside or outside the sill plate.

(2) If the home is totally supported by cross I-beams, the I-beams shall be welded to the home's main frame beams at each point of contact.

j. Other Designs. Other engineered basement plans designed and stamped by an Idaho Licensed Engineer and approved by the local authority having jurisdiction may be used.

04. Grading. After all aspects of the foundation is complete, the site shall have adequate grading as prescribed in Section 302 of this standard.

05. Drainage. The contractor shall assure that proper drainage is provided around a basement or foundation in a high ground water location in compliance with the requirements of the local authority having jurisdiction.

06. Permits and Inspections. Building permits and inspections are required in any jurisdiction having a building code. Permits must be obtained prior to construction. See Section 201.

505. ANCHORING.

01. Anchoring. To resist lateral movement from high winds, earthquakes, and flooding, all manufactured homes installed on permanent foundations shall have manufactured and approved anchoring devices capable of resisting loads prescribed in Section 505.02.

02. Loads. Anchoring equipment including all anchors, straps, and tension devices used to secure a manufactured home when installed, shall be capable of resisting an allowable working load at least equal to or exceeding three thousand one hundred-fifty pounds (3,150 lbs.) and shall be capable of

withstanding fifty percent (50%) overload (4,725 lbs.) without failure of either the anchoring equipment or the attachment point to the manufactured home. When the stabilizing system is designed by a qualified Idaho Licensed Engineer, alternate working loads may be used, provided the anchoring equipment is capable of withstanding a fifty percent (50%) overload.

03. Ties. All tie strapping shall be fastened to anchors and drawn tight with adjustable tensioning devices supplied with the anchor.

a. Tie strapping shall be certified and listed to be capable of resisting an allowable working load of three thousand one hundred-fifty pounds (3,150 lbs.) with no more than two percent (2%) elongation and shall withstand a fifty percent (50%) overload.

b. Ties shall connect the anchor to the main frame I-beams which run lengthwise under the manufactured home. Ties shall not connect to steel outrigger or cross member beams which fasten to, and intersect with, the main frame I-beams.

c. Tie materials shall be designed to prevent self-disconnection when ties are slack. See Figure 505.1

04. Spacing. Unless otherwise specified in the anchoring equipment manufacturer's installation instructions, anchors shall be placed in the sidewall footing within two feet (2') from each corner and spaced as follows: (Also see Figure 504.2A, 504.2B and Section 505.) Installation will be in compliance with the devices manufacturer's standards.

05. Certification. Anchoring equipment is certified when tested, listed, and labeled by a nationally recognized testing and listing laboratory, or designed by a Idaho Licensed Professional Engineer.

06. Alternate anchoring systems. Alternate anchoring systems may be used when approved by an Idaho Licensed Professional Engineer.

506. -- 599. RESERVED.

Chapter 6

ELECTRICAL CONNECTIONS

601. GENERAL.

01. Installation. All electrical work in connection with a manufactured home installation, alteration, repair, conversion, or addition, shall be performed according to the National Electrical Code by an Idaho Licensed Electrical Contractor or by the homeowner. A permit is required for all electrical work.

602. ELECTRICAL FEEDER CONNECTIONS.

01. Power Supply. A manufactured home power supply shall be provided according to Article 550-24 of the National Electrical Code. All connections shall be made by an Idaho Licensed Electrical Contractor or the homeowner.

603. SERVICE EQUIPMENT CONNECTION.

01. Service Equipment on Manufactured Home. As permitted by Article 550-23(b) of the National Electrical Code and 24 CFR 3280.803, service equipment may be permanently installed on a manufactured home if:

- a. The service equipment is installed by the manufacturer at the manufacturing plant during initial construction or is installed on-site in a manner prescribed by Article 550-23(b) of the 1999 National Electrical Code provided the home was manufactured after January 1, 1992;
- b. The service equipment is installed according to Article 230 of the National Electrical Code;
- c. The service equipment is installed on the manufactured home as close as possible to the site's electrical service as designated by the applicable electric utility company and installed by a licensed installer; and
- d. The service equipment is grounded according to Article 250 of the National Electrical Code.

Note. The following information is not adopted as part of this standard but is referenced in this standard for the convenience of the user. Users should review the code provisions cited to determine if any of the requirements have changed.

- a. Article 550-23(a) of the National Electrical Code requires that manufactured home service equipment be readily accessible, be located in sight of the manufactured home, and shall not be located more than thirty feet (30') from the exterior wall of the manufactured home.

02. Service Clearances. Service conductors shall maintain the overhead clearances required by Article 230-24 of the National Electrical Code. Underground installation clearances shall be as required by Article 300 of the National Electrical Code or as may be required by the electric utility company. See Figure 603.1.

604. ELECTRICAL CROSSOVER CONNECTIONS.

01. Crossover Connection. Each circuit shall be connected to the corresponding color coded or marked circuit of the adjacent section in an approved manner. The connection shall be made by an Idaho Licensed Electrical Contractor or the homeowner.

02. Chassis Bonding. Each chassis shall be bonded to the adjacent chassis with a solid or stranded, green insulated or bare, No. 8 copper conductor, or by an equal bonding method.

605. ELECTRICAL EQUIPMENT.

01. Shipped Loose Equipment. Electrical equipment such as ceiling fans, chandeliers, exterior lights, and mechanical equipment which are shipped loose with the manufactured home shall be installed on-site according to the National Electrical Code, and the product manufacturer's listings. Wiring connections of shipped-loose electrical equipment shall be connected to the corresponding color coded or marked conductors to all applicable provisions of the National Electrical Code. See Figures 605.1 and 605.2.

02. Bonding Strap Removal. 240 volt appliances, such as ranges and dryers, shall have the bonding strap between the ground and neutral conductors removed before installation in a manufactured home. Cords used on 240 volt appliances shall have 4 conductors and 4 prongs when connected to a manufactured home.

606. ELECTRICAL TESTING.

01. Testing. At the time of installation, all manufactured homes shall be tested as follows:

- a. All 120 volt electrical receptacle outlets shall be subjected to a polarity test to assure that connections have been made properly;
- b. All shipped-loose fixtures shall be subjected to a polarity test to assure that connections have been made properly;
- c. All receptacles protected by a ground fault circuit interrupter (GFCI) shall be tested with a GFCI tester;
- d. All grounding and bonding conductors installed or connected during the manufactured home installation shall be tested for continuity; and
- e. All electrical lights, equipment, ground fault circuit interrupter, and appliances shall be subjected to an operational test to demonstrate that all equipment is connected and in working order.

607. -- 699. RESERVED.

Chapter 7

PLUMBING CONNECTIONS

701. GENERAL.

01. Connections. Plumbing installations involving the connection of the manufactured home to the site water and sewer utilities shall be plumbed according to the Idaho State Code 54-2601 and the current edition of the Idaho State Plumbing Code (ISPC). Uniform Plumbing Code.

02. Installer. Plumbing installations to connect the manufactured home to site water and sewer utilities may be performed by any one of the following:

- a. A manufactured home installer with a specialty contractor license or journeyman's license, (which limits the work to under the perimeter of the home).
- b. Idaho State Licensed Plumber.
- c. The homeowner.

03. Location. All site utility plumbing installations outside the fixed limits of the perimeter of the manufactured home shall be installed by a licensed plumbing contractor, excavator, or the homeowner.

04. Permits. All plumbing installations require a permit and an inspection by a state authorized inspector.

702. SHIP-LOOSE PLUMBING.

01. Ship-Loose Plumbing. Manufactured home underfloor drain pipe systems may be shipped by the manufacturer in one of the following methods:

- a. Complete and ready to be connected to the site sewer utility;
- b. Loose in one or more pre-assembled sections to be attached to the site sewer utility;
- c. Loose sections intended to be assembled on-site as approved by the DAPIA and in accordance with the manufacturer's instructions.

703. WATER CONNECTIONS.

01. Water Connections. The installation and connection of the manufactured home water distribution system to the site water utility shall be limited to under the perimeter of the home, and shall be done by a Licensed Manufactured Home Installer, a Licensed Plumbing Contractor or the homeowner. The installation shall require a permit and shall be inspected.

02. Material. Water service pipe installed to a manufactured home shall be of approved type material, ISPC, Section 604.1. IPC, Section 1004.

Note. The following information is not adopted as part of this standard but referenced in this standard for the convenience of the user. Users should review the code provisions cited to determine if any of the requirements have been changed.

- a. As required by the ISPC, Section 606.2, Uniform Plumbing Code, Section 1005, an accessible full way shutoff valve shall be provided on the water supply serving the manufactured home.
- b. As required by the ISPC, Table 610.4, UPC, Section 1009, the water inlet shall be connected to the site water supply by an approved connector not less than three-quarter inch (3/4") nominal diameter.
- c. As required by the ISPC, Section 608.2, UPC, Section 1007- B, where static water pressure exceeds eighty pounds per square inch (80 psi) at the supply, a pressure reducing valve shall be installed.
- d. As required by the ISPC, Section 312.6, UPC, Section 315-F, water inlets shall be protected from freezing by insulating the pipe and/or using an electric heat tape listed for use with manufactured homes.
- e. As required by 24 CFR 3280.609(b), the water pipe crossover on multi-section manufactured homes shall be connected with the connectors supplied by the manufacturer. See Figures 703.1 and 703.2. When the manufacturer's connector is not available the connector shall consist of an approved flexible water connector sized no less than the waterlines being connected or shall be fabricated from other approved materials. Exposed water line crossover connections shall be insulated to protect them from freezing.
- f. As required by the ISPC, Section 608.5 UPC, Section 1007-E, water heater pressure relief valve drain pipes shall not be terminated, nor allowed to discharge, beneath manufactured homes but shall be extended to the exterior of the perimeter of the home.
- g. Water service shall be installed according to the following requirements:
 - (1) No water pipe shall be installed or permitted outside of a building or exterior wall unless adequate provisions are made to protect the pipe from freezing.
 - (2) There shall be no connections between potable and non-potable water.

03. Water Valve Access. The full way main valve shall be installed between the water service utility and the manufactured home connection, within the crawl space enclosure at a readily accessible location.

04. Water Utility Size. The size of water service required shall be determined by referring to ISPC, Table 610.3 and Table 610.4. UPC chapter 10, Tables 101 and 102. The minimum requirement is a three-quarter inch (3/4") nominal size service line.

704. DRAIN AND SEWER CONNECTIONS.

01. Drain Connection. The installation and connection by a Licensed Manufactured Home Installer of the manufactured home drain to the sewer utility shall be limited to under the perimeter of the home.

Installation outside the perimeter of the home shall be according to Idaho State Code 54-2602, (a), (f). A-F.

Note. The following information is not adopted as part of this standard but referenced in this standard for the convenience of the user. Users should review the code provisions cited to determine if any of the requirements have been changed.

- a. As required by 24 CFR 3280.610(c), each manufactured home shall have only one drain outlet.
- b. As required by 24 CFR 3280.610(c), each manufactured home shall be connected to the sewer inlet by means of a drain connector consisting of approved pipe fittings schedule 40 or heavier and a nominal size of three inches (3") or larger. Listed and approved flexible connectors shall be used to connect the drain pipe to the sewer inlet.
- c. As required by 24 CFR 3280.610, the drain pipe crossover on multi-section manufactured homes shall be connected with the connectors supplied by the manufacturer, or when not available, shall consist of approved pipe and fittings, not less than Schedule 40 and not less in diameter than the pipes being connected.
- d. As required by the Idaho State Plumbing Code (ISPC), site drain plumbing shall be installed as prescribed in the following Subsections. See Figure 704.1.
 - (1) No soil or waste pipe shall be installed or permitted above ground outside of a building or exterior wall.
 - (2) All drain pipe shall be installed at a grade of one-quarter inch (1/4") per foot except as otherwise permitted by the authority having jurisdiction.
- e. As required by the Idaho State Plumbing Code, a full sized clean out extending to or above finished grade, shall be installed at the junction of the building drain and the building sewer. The clean out shall be located approximately two feet (2') from the foundation or skirting. See Figure 704.1.

02. Sewer Clean out Access. An accessible sewer clean out shall be located under the manufactured home within the underfloor enclosure.

705. PLUMBING ASSEMBLY.

All plumbing assemblies shall be free from defects, demonstrate acceptable workmanship, and be installed in conformance with acceptable engineering practices and the applicable codes.

Note. The following information is not adopted as part of this standard but is referenced in this standard for the convenience of the user. Users should review the code provisions cited to determine if any changes have been made.

- a. As required by the IPC, Section 309, underfloor water and drain plumbing shall meet the following requirements:

- (1) Threaded pipe ends shall be reamed and all burrs, chips, cutting oil, and foreign matter removed. Pipe joint compound used on water pipes shall be nontoxic and shall be applied to male threads only;
- (2) Pipe joint cement shall be of approved type and applied to male threads only;
- (3) Joints and connections in the plumbing system shall be gas-tight and watertight; and
- (4) All joints and connections shall be correctly assembled for tightness. Pipe threads shall be fully engaged into the threads of the fitting. Plastic pipe shall be inserted to the full depth of the welding sockets of each fitting. Pipe threads and slip joints shall not be wrapped with string, paper, putty, or similar fillers.

b. As required by 24 CFR 3280.608, water and drain pipe under the manufactured home shall:

- (1) Be installed without undue strains and stresses;
- (2) Have provisions for expansion contraction and structural settlement;
- (3) Plastic drainage piping shall be supported at intervals not to exceed 4 feet and plastic water piping shall be supported at intervals not to exceed 3 feet. Be supported or anchored at three four foot (4') intervals except for plastic water pipe which shall be secured at thirty-two inch (32") intervals; Should this be separated?
- (4) Have hangers or anchors of sufficient strength to support the weight of the pipe and its contents; and
- (5) Have hangers, clamps, brackets, or anchors which do not compress, distort, cut, or abrade the pipe. Sheet metal or plastic straps (i.e., plumbers tape) may be used for support as long as the strap is flat against the pipe.

c. As required by the ISPC, Chapter 7 UPC, drainage pipe under the manufactured home shall:

- (1) Be installed according to the ISPC UPC, using the component parts supplied by the manufacturer;
- (2) Be assembled using approved pipe and fittings;
- (3) Be installed to provide a one-quarter inch (1/4") per foot grade in all horizontal drain piping. When a full size clean out is installed at the upper end, the grade may be reduced to one-eighth inch (1/8") per foot;
- (4) Additional cleanout shall be provided in a drainage line for each aggregate horizontal change in direction exceeding 135 degrees. Have clean outs located so a cleaning tool does not have to pass through more than 135 degrees of fittings excluding removable traps;
- (5) Cleanouts shall be installed per ISPC, Section 707.0. Have clean outs installed so they open opposite of the flow, or at right angles to the pipe;

- (6) Be not less in diameter than the pipe it is being connected to;
 - (7) Use approved fitting per ISPC, Section 706.0 for all changes in direction.
 - (8) Use 45 degree "Y" branches, 60 degree "Y" branches, long turn "TY" branches, sanitary T" branches, or other approved fittings or combination of fittings having equivalent sweep for all horizontal to vertical drain pipe connections; and
 - (9) Use 45 degree "Y" branches, long-turn "TY" branches, or other approved fittings or combination of fittings having equivalent sweep for all horizontal to horizontal and vertical to horizontal drain pipe connections;
- d. As per 24 CFR 3280.606, the following shall be provided for manufactured home water and drain plumbing:
- (1) An unobstructed minimum clearance of twelve inches (12") in front of each clean out opening (ISPC, Section 707.9: 2" and less, 18 inches in front, in excess of 2", 24 inches);
 - (2) An access panel for each trap which has mechanical joints and is located inside a floor or wall;
 - (3) Accessibility to all water and drain crossover connections;
- e. All access panels in walls and floors shall be insulated and shall be secured in place after all plumbing tests are complete.
- f. As per 24 CFR 3280.603(6), the following are prohibited:
- (1) Drilling or cutting holes in drain or vent piping;
 - (2) Using vent pipes as waste or drain pipes except as provided by the manufacturer's original design;
 - (3) Using fittings which retard the flow of sewage or air;
 - (4) Patching or concealing cracked or imperfect pipe rather than replacing it; and
 - (5) Bending rigid piping rather than installing directional fittings.

706. PLUMBING TESTS.

01. Water Test. The water distribution system of the manufactured home and the supply connection shall be tested to assure there is no leakage under normal operating pressure.

ISPC, Section 609.4: A 50 psi air pressure shall be permitted to be substituted for the water test. In either method of test, the piping shall withstand the test without leaking for a period of not less than 15 minutes.

02. Drain Test. The manufactured home drainage piping system shall be connected to the site sewer inlet, and tested by allowing water to flow into all fixtures and receptors, including the clothing washer standpipe, for a period of three (3) minutes. If water under pressure is not available, the drainage piping system shall be tested by letting at least three (3) gallons of water into each fixture and receptor. Each P-trap and clean out shall be visible during this test to assure there are no leaks.

ISPC, Sections 712.2 and .3: A water test shall be with a 10 foot head and air, 5 psi, both for not less than 15 minutes.

707. -- 799. RESERVED.

Chapter 8

MECHANICAL CONNECTIONS

801. GENERAL

01. Permits. A separate permit is not required for the installation of heat duct crossovers or appliance exhaust ducts. This work is covered by the manufactured home installation permit. A separate permit may be required by local ordinances for alterations and all field installations of air conditioners, heat pumps, and fuel burning appliances.

02. Installations. All mechanical installations in connection with the alteration, repair, conversion of, or addition to, a manufactured home shall comply with the appropriate current adopted mechanical code as adopted by local authority having jurisdiction and this standard.

802. MECHANICAL EQUIPMENT.

01. Original Installations. Mechanical connections designed for the manufactured home by the manufacturer shall be installed to the manufacturer's installation instructions by the installer. Heat pumps or air conditioners added to a home during, or prior to, the initial sale to the first consumer shall be listed for manufactured home or mobile home use and shall be listed for use with any manufactured home heating or air handling equipment it is used in conjunction with.

02. After Market Installations. Mechanical installations not a part of the original manufactured home shall be in conformance with the appropriate currently adopted mechanical code as adopted by the local authority having jurisdiction and installed according to their listings. It is highly recommended that heat pumps, air conditioners, water heaters specifically for HVAC purposes, and furnaces installed in a manufactured home after the initial sale to the first consumer be listed for manufactured or mobile home use.

03. Equipment Support. Mechanical equipment installed outside of, and not supported by, the manufactured home shall be mounted on a minimum three inches (3") thick level concrete slab, precast reinforced concrete slab, or a listed mounting base. The equipment shall be mounted according to the applicable equipment manufacturer's installation instructions. The top surface of the slab or base shall be a minimum of two inches (2") above the finished grade. See Figure 802.1.

04. Prohibited Installations. Mechanical equipment shall not be installed in any required egress window or obstruct any egress from the home.

05. Condensation Drains. Condensation drains from air conditioners, pumps, evaporative coolers, dehumidifiers, refrigeration equipment, or any other appliance shall not terminate under a manufactured home and shall deliver drained liquids away from the home.

803. CROSSOVER DUCTS.

01. General. All parts of the heating and cooling ducts system which are connected on the site shall be installed to be mechanically secure, protected from ground moisture and water, sealed with durable materials installed per the duct manufacturer's instructions, and insulated to R-8 minimum in all homes. This includes crossover ducts, extensions, elbows, splitter boxes, and all other components.

02. Crossover Ducts. Heat crossover ducts shall be made of the following material and installed according to the following requirements. See Figure 803.1.

a. Crossover ducts on homes shall be installed in accordance with the current edition of the Idaho Residential Code.

b. Crossover ducts shall be designed and installed to eliminate pressure of the bottom board and floor insulation against the connection and shall be installed in accordance with the current edition of the Idaho Residential Code, Parts 5 and 6, Chapter 16. Common practice includes adding an extension and elbow to the collar. Where such extensions and elbows are used they shall be a minimum 26 gauge metal, connected to the collar with at least three (3) sheet metal screws, and sealed per IRC, Section M1601.4.1 and at the collar connection with minimum two inch (2") wide foil tape or duct sealer for outdoor application installed per the manufacturer's specifications. Unlisted duct tape shall not be permitted as a sealant on any duct. If jointed elbows are used; the joints shall be sealed in the same manner as the collar connection. A rigid 90 degree elbow shall be used on new homes manufactured after January 1, 2002 to connect the crossover duct to the main supply duct collar.

c. Where an extension or elbow is used, the inner liner, shall be cut back leaving sufficient outer liner, insulation, and vapor retarder to cover the extension or elbow. The outer liner, R-8 insulation, and vapor retarder shall cover the extension or elbow (See Figure 803.1), and shall extend up into the floor insulation and bottom board and be taped to the bottom board where the crossover duct enters with approved bottom board tape.

d. The inner liner, along with the wire helix, of the crossover duct shall be installed in accordance with the current edition of the Idaho Residential Code, Chapter 16 and extended over, and be secured to, the sheet metal extensions, elbows, or collars with at least three sheet metal screws placed to securely hold the wire helix. Alternatively, a tool tightened plastic cable tie strap may be used where a lip on the extension, elbow or collar will prevent the strap from slipping off. Where screws are used, the tears shall be repaired with foil or Mylar tape. The joint shall be sealed with minimum two inch (2") wide foil tape or with a duct sealer rated for outdoor applications. The tape or sealer shall be installed per the manufacturer's specifications. Unlisted duct tape shall not be permitted as a sealant on any duct. The outer liner and insulation shall be returned back to cover the inner liner and the extension, elbow, or collar, and shall be secured in place with a mechanical fastener.

e. Adequate clearance shall be maintained under the manufactured home for the heating and cooling duct crossovers. Crossover ducts shall be blocked or suspended above the ground providing one inch (1") minimum clearance. If blocks are used, they shall be pressure treated wood, concrete, or extruded polystyrene insulation board.

f. Crossover ducts shall be installed with a minimum of bends and length which restrict air flow, shall be adequately supported, and not be crushed, dented, compressed, or have sharp bends or stress at the connections. All tears or holes in the inner liner shall be sealed with sealer specified in Subsection 803.02.d. and the outer liner shall be repaired with bottom board sealer.

804. APPLIANCE VENTING.

01. Venting. Appliance venting shall comply with the appliance manufacturer's installation instructions, IRC Chapter 15 and the following requirements:

- a. Moisture or heat producing appliances, such as dryers, shall be vented to the outside atmosphere in a manner to ensure moisture laden air is carried out beyond the perimeter of the home. Listed non-venting appliances are not required to have external vents.
- b. Exhaust ducts shall be routed through the wall, floor, skirting, or foundation, to the exterior. Exhaust duct systems of clothes dryers, ranges, or other appliances shall not terminate beneath the manufactured home. Exhaust duct installations shall, whenever possible have no dips or traps and shall be installed according to the applicable appliance manufacturer's installation instructions.
- c. No inlets or outlets of an exhaust vent, combustion air vent, or return air vent capable of conveying air, liquid, or gasses into or out of any appliance shall be located under the manufactured home when it is installed over a basement, or in an area where a garage is to be attached. See Figure 804.1.

02. Dryer Exhaust Vents. Dryer exhaust ducts, when required, shall be installed according to the dryer manufacturer's installation instructions and the IRC, Section M1502. or as prescribed in the following Subsections. See Figure 804.2.

- a. The duct shall be a minimum of four inches (4") in diameter and no longer than 35 feet twenty-five feet (25'). The total length shall be reduced five feet (5') for each ninety (90) degree turn.
- b. The duct material shall have a smooth interior finish and be constructed of metal having a minimum thickness of 0.0157 inches (No. 28 gage) be rigid metal., rigid PVC, or flexible metal.
- c. Transition ducts used to connect the dryer to the exhaust duct system shall be a single length that is listed and labeled in accordance with UL 2158A. Transition ducts shall be a maximum of 8 feet in length. Transition ducts shall not be concealed within construction. Nonmetallic duct or flexible foil duct material shall not be used within three feet (3') of the dryer connection or enclosed within a wall or floor cavity;
- d. No screws, fasteners, screens, or other obstructions, shall extend into the duct.

805. -- 899. RESERVED

Chapter Nine

UNDERFLOORS/ACCESS AND EGRESS

901. UNDERFLOOR ENCLOSURES.

01. Requirement. Each manufactured home shall have the underfloor crawl space entirely enclosed with a permanent foundation or approved skirting material. The permanent foundation or skirting material shall be installed at the time the home is set.

02. Skirting. Skirting shall conform with the requirements in the following Subsections. See Figures 902.1 and 902.2.

- a. Skirting shall be constructed of a durable rigid material such as vinyl, wood, aluminum, or steel, and shall be suitable for exterior exposure. Untreated wood shall not be utilized within six inches (6") of any earthen material.
- b. Skirting shall be installed according to the skirting manufacturer's installation instructions and this subsection.
- c. Skirting shall be adequately secured to assure stability, to minimize vibration, and to minimize susceptibility to wind damage.
- d. Skirting shall be installed to compensate for possible frost heave.
- e. Holes or gaps between the skirting and the ground, or any other gap anywhere around the skirting that could permit rodents to get under the home, shall be sealed or back filled.
- f. Skirting shall not be attached to a manufactured home in a manner which will permit water to be trapped between the skirting and the siding or between the skirting and the trim of the manufactured home.
- g. All framing used to secure skirting material and located within six inches (6") of earth shall be pressure treated lumber.
- h. Deck, porch, or landing floors which are not insulated and which allow for the free flow of air and moisture through them shall be separated from the underfloor area of a manufactured home by skirting, a foundation, or a durable flexible material such as sheet vinyl, Plexiglas, Fiberglass, ABS, or EPDM. The area below an open floor may be enclosed with lattice work, skirting, or a foundation wall if made accessible according to Section 904 of this standard. See Figure 902.2. See Subsection 302.06.f. for vapor retarder installation at this location. Vents shall be installed as prescribed in Section 903.

03. Perimeter Foundations. Perimeter permanent foundation walls of wood, concrete, or concrete block supporting the exterior walls of the manufactured home shall be designed and constructed according to Section 305.

902. UNDERFLOOR VENTILATION.

01. Requirement. All manufactured homes shall be provided with underfloor ventilation meeting the requirements prescribed in the following Subsections.

- a. A minimum of eight ventilation openings shall be provided from the underfloor space to the exterior.
- b. A ventilation opening shall be placed three feet (3') from each corner, or as near to three feet (3') from each corner as practical. Vents shall not be spaced more than twenty feet (20') apart. Vents shall be placed as high as practical.
- c. The total net free area for ventilation shall be one square foot for every three hundred (300) square feet of underfloor area.
- d. Ventilation openings shall provide ventilation on at least three sides of the manufactured home.
- e. Ventilation openings shall be provided with one-quarter inch (1/4") corrosion resistant wire mesh or with louvered openings with not less than one-eighth inch (1/8") screen to retard the entry of vegetation, waste materials, and rodents.
- f. When a vent label does not include a rating of the net free area, the free area may be calculated by deducting twenty-five percent (25%) from the gross ventilation area. This calculation adjusts for blockage caused by vent hardware such as screens and louvers. The gross vent area is calculated by the length times height of the opening through the vent.
- g. Intake air for indoor ventilation purposes, except for combustion air, shall not be drawn from underfloor spaces of the manufactured home.
- h. When combustion air for heat producing appliances is taken from the underfloor area, ventilation shall be adequate to assure proper operation of the appliances. No increase in the minimum underfloor ventilation is necessary.
- i. When a manufactured home is placed over a basement and the combustion air for heat producing appliances is designed to be taken from the underfloor area, the combustion air inlets shall be ducted to the outside of the basement area.

903. UNDERFLOOR ACCESS.

01. Requirement. All manufactured homes shall be provided with an access to the underfloor area through one of the methods described in this section.

02. Skirting Access. Underfloor access through the skirting shall:

- a. Have a minimum clear opening of eighteen inches high by twenty-four inches wide (18"x24");
- b. Require no tools, no more than five (5) pounds of force, nor the operation of more than four devices, to open;
- c. Be easily identifiable;
- d. Have a minimum thirty inch (30") clear space directly in front, outside the perimeter of the home, of each access panel or door.

03. Foundations and Ground Level Access. Ground level installations shall be provided with an access well which shall conform to the following requirements.

- a. The access well shall have a minimum inside dimension of twenty-four inches (24") high by thirty-six inches (36") wide, and extend at least twenty-four inches (24") from the perimeter of the home.
- b. The access well shall have a minimum clear opening of eighteen inches high by twenty-four inches wide (18"x24") to the underside of the home.
- c. The access well shall have a lightweight removable watertight cover made to resist the entrance of animals or water. The cover shall be designed and installed so that it cannot be locked. The cover shall be designed and installed so that it can be easily opened without using any tools.

04. Floor Access. Access openings through the floor of a manufactured home shall be provided only by the manufacturer and constructed according to approved Design Approval Primary Inspection Agency (DAPIA) plans. For other approvals see Subsection 201.02.

05. Stairway Access. Access openings through the manufactured home floor for stairways shall be provided only by the manufacturer and constructed according to approved DAPIA plans. For other approvals see Subsection 201.02.

904. ACCESS & EGRESS.

01. Requirement. There shall be a minimum of two exit doors in each manufactured home. Each bedroom shall have one emergency egress window providing access to the outside.

02. Obstructions. Accessory buildings or structures shall not obstruct a required exit, egress window, appliance access, or utility access except where specifically permitted in this standard. No hinged exterior egress door shall be prevented from opening at least 90 degrees. Door locks or other obstructions which would obstruct the path of egress from a manufactured home shall not be installed nor be permitted to remain

03. Enclosed Exit Doors. When an accessory building or structure, other than an awning or carport, encloses an exit door of the manufactured home so that it no longer provides egress to the outside an additional exit door, opening to the outside, shall be installed in either the manufactured home (See Subsection 201.02) or the accessory building or structure. This new door must be located in close proximity to the original door.

04. Original Exit Door. One of the original manufactured home exit doors must open directly to the outside without passing through an accessory building or structure.

- a. Exception: Egress may open directly into and pass through a carport as described in Section 905 of this standard.

05. Prohibited Construction. No accessory building or structure shall be constructed which obstructs any required means of egress from a manufactured home.

Chapter 10

ACCESSORY BUILDINGS AND STRUCTURES

1001. GENERAL.

01. Standards. Every manufactured home accessory building or structure shall be designed and constructed according to the applicable locally adopted Building Codes and this standard. Permits must be obtained prior to construction.

1002. CARPORTS & AWNINGS.

01. Accessories. Permanent awnings or carports shall be erected or constructed on a manufactured home site only as an accessory to a manufactured home located on the same site. This section of the standard does not apply to temporary, flexible, or fabric awnings and carports, nor to fixed window awnings used with manufactured homes.

02. Site Built. Permanent or rigid awnings or carports shall be constructed, supported, attached, and anchored according to locally adopted building codes and this standard.

03. Prefabricated. Approved prefabricated awnings and carports shall be installed, attached to the manufactured home and anchored into the ground according to methods prescribed in the awning or carport manufacturer's installation instructions.

04. Windows and Doors. Manufactured home windows and doors may open directly into a space occupied by a permanent or rigid awning or carport.

05. Enclosure. Permanent awnings or carports shall not be enclosed with rigid materials or walls or converted for use as a habitable room or garage unless the completed construction complies with all the requirements of the local codes and this standard. Enclosing the awning or carport shall not take the manufactured home out of conformance with any state or federal manufactured home regulation.

a. Exception: Awnings may be enclosed with insect screening if required egress paths are not blocked. See Section 904.

06. Wall Support. When a prefabricated awning or carport is attached to and supported by the wall of a standard set manufactured home, supports complying with Section 304 of this standard shall be placed under the exterior wall. The supports shall be spaced a maximum of four feet (4') on center under the area of attachment. A perimeter support foundation meets this requirement.

07. Wall Attachment. A site built permanent awning or carport may be attached to an exterior wall of a manufactured home to improve its stability. In that case the awning or carport shall be supported by a horizontal rail a minimum of two inches by six inches (2" x 6") nominal size attached with a minimum of two (2) three and one-half inch (3 1/2") long (16d) nails or equal having a minimum one and one-half inch (1-1/2") penetration into each exterior wall stud in the area of attachment. Under no condition shall horizontal rails be secured into or supported by the manufactured home exterior wall top plates. Additional support posts shall be added under this horizontal rail to assure the carport or awning is self-supporting. See Figure 905.1.

08. Roof Support. A prefabricated awning or carport may only be attached to manufactured home roof trusses, eaves, or fascia, according to engineered DAPIA approved plans demonstrating the manufactured home roof was engineered and constructed to carry the additional loads. DAPIA approved plans shall be made available to the authority having jurisdiction before the installer or homeowner will be permitted to attach an awning or carport to a manufactured home truss, eaves, or fascia.

1003. PORCHES.

01. Accessory. A porch may be installed or constructed on a manufactured home site only as an accessory to a manufactured home on the same site.

02. Self-Supportive. A porch shall be designed and constructed as a self-supporting structure but may be attached to a manufactured home to provide a weather seal. See Figure 906.1. If both the home and the porch are on a permanent foundation, the roof may be attached to the home per Subsection 1003.07.

03. Code. Porches shall be designed and constructed to the requirements of the locally adopted building code.

1004. ATTACHED GARAGES.

01. Accessory. An attached garage shall be constructed on a manufactured home site only as an accessory to a manufactured home on the same site.

02. Self-Supportive. A garage attached to a standard set manufactured home shall be designed and constructed as a freestanding, self-supporting structure and may only be attached to a manufactured home to provide a weather seal. If both the home and garage are on a permanent foundation, the garage may be attached to the home but must remain self-supporting. A dormer may be constructed to the manufactured home roof to provide this attachment. See Figure 907.1.

03. Code. Attached garages shall be designed and constructed according to locally adopted building codes and this section.

04. Separation. Attached garages shall be separated from the manufactured home according to the requirements prescribed in the following Subsections. See Figure 907.1.

a. No opening shall be permitted from a garage directly into a room used for sleeping purposes. No windows shall be permitted in the exterior wall of a manufactured home where a garage is to be attached. Any opening between the garage and manufactured home shall be equipped with a twenty (20) minute fire rated door of solid wood not less than one and three-eighths inches (1-3/8") in thickness, or the equivalent;

b. The garage shall be completely separated from the manufactured home, including attic and crawl space areas, with a minimum five-eighths inch (5/8") fire rated gypsum board or its equivalent;

c. Exhaust vent, combustion air vent, return air vent, condensation drain, or any other vent or opening capable of conveying air, moisture, liquid, or gasses into or out of the

manufactured home, or to or from any appliance used in conjunction with the manufactured home, shall not be located in an area where a garage is intended to be attached.

1005. RAMADAS.

01. Accessory. A ramada shall be erected, constructed or maintained on a manufactured home site only as an accessory to a manufactured home located on the same site.
02. Clearance. A ramada or any portion thereof shall have a clearance of not less than eighteen inches (18") in a vertical direction above the highest portion of a manufactured home roof and not less than six inches (6") in a horizontal direction from each side of a manufactured home. See Figure 908.1.
03. Self-Supportive. A ramada shall be designed and constructed as a freestanding, self-supporting structure meeting the requirements of the locally adopted building code.
04. Enclosures. A ramada shall not be wholly enclosed on any side or end. Gable ends must be vented if they are enclosed.
05. Chimneys and Flues. Manufactured home chimneys, flues and vents shall be extended through the ramada roof as prescribed in the following Subsections. See Figure 908.1.
 - a. Chimneys or flues from solid fuel burning appliances shall extend at least three feet (3') above the part of the ramada roof through which it passes and at least two feet (2') above the highest elevation of any part of the ramada roof within ten feet (10') horizontal of the chimney.
 - b. Vents for fuel burning appliances shall extend through the ramada roof according to the listing of the appliance.
 - c. Plumbing vents shall extend through the ramada roof a minimum of six inches (6") above the flashing. Plumbing vents shall not be located within three feet (3') of any motor driven air intake that opens into habitable rooms.

1006. DECKS, PORCHES, LANDINGS, STAIRS, RAMPS & GUARDRAILS.

01. Construction Standard. Every porch, deck, landing, stair, ramp, guard rail, or guardrail erected, constructed, or maintained adjacent to a manufactured home shall comply with the locally adopted building code.
02. Attachment to Manufactured Home. When a deck, landing, ramp, or stairs is attached to the wall of a conventionally set manufactured home, supports complying with Section 304 of this standard shall be placed under the exterior wall at a maximum spacing of four feet (4') on center under the full length of the area of attachment.
03. Required Installations. If during the installation of a manufactured home, a porch, deck, or landing (recessed porch) constructed by the manufactured home manufacturer is over thirty inches (30") above the finished grade, it shall have guardrails installed conforming to the locally adopted building code.

1007-1010. RESERVED.

DEFINITIONS

01. Accessible. Having access thereto, but which may require removal of an access panel or opening of a door.
02. Accessory Building or Structure. Any permanent structure established for use of the occupant of the manufactured home other than occupancy and as further defined by rule by the Division.
- a. Accessory Building. An accessory building including, but not limited to, armadas, storage sheds, and garages.
 - b. Accessory Structures. An accessory structure including, but not limited to, awnings, carports, decks, steps, and ramps.
03. Alteration. Any change, addition, repair, conversion, replacement, modification, or removal of, any equipment or installation which may affect the operation, construction, or occupancy of a manufactured structure. Alteration does not mean:
- a. Minor repairs with approved component parts;
 - b. Conversion of listed fuel burning appliances according to the terms of their listing ; or
 - c. Adjustment and maintenance of equipment, or replacement of equipment or accessories in kind.
04. Approved. Approved, licensed, or certified by the Division of Building Safety or its designee.
05. Attached Garage. A garage which is joined to a manufactured home but is self- supporting and separated with fire-resistive construction.
06. Authority Having Jurisdiction. The local government which inspects and issues permits for installation, alteration, or conversion of manufactured homes, equipment, accessory buildings and structures.
07. Awning. Any stationary structure, permanent or removable, used in conjunction with a manufactured home for the purpose of providing shelter and having a roof with supports and not more than one wall. Window awnings are excluded from this definition.
08. Base Flood. Defined by FEMA in 44 CFR Chapter 1 as the flood level that has a one percent (1%) probability of being equaled or exceeded in any given year.
09. Building Drain. That part of the lowest piping of a drainage system which receives the discharge from soil, waste, and other drainage pipes inside the walls of the manufactured home and conveys it to the building sewer.
10. Building Sewer. That part of the horizontal piping of a drainage system which extends from the end of the building drain and which receives the discharge of the building drain and conveys it to a public sewer, private sewer, individual sewage disposal system, or other point of disposal.

11. Building Water Supply. The pipe carrying potable water from the water meter or other source of water supply to a building or other point of use or distribution on the lot. Building supply shall also mean water service.
12. Carport. A stationary structure consisting of a roof with its supports and not more than one wall used for sheltering a motor vehicle.
13. Chassis. The entire transportation system of a manufactured home.
14. Clearance. The distance between two adjacent surfaces.
15. Concealed. Rendered inaccessible by the structure or finish of the manufactured home.
16. Controlled Fill. Fill shall be engineered to bear a minimum one thousand five hundred pounds per square foot (1,500 psf) structural load in which the fill material is placed in layers of soil, crushed stone, or masonry waste material, compacted, and tested to ensure that it meets specified compaction standards determined by laboratory test of soil samples from the fill material.
17. Division. The State of Idaho Division of Building Safety.
18. Drain. A pipe that carries waste, water, or waterborne waste in a drainage system.
19. Dwelling Unit. One or more habitable rooms which are designed to be occupied by one family with facilities for living, sleeping, cooking, and eating.
20. Equipment. Materials, appliances, subassembly, devices, fixtures, fittings, and apparatuses used in the construction, plumbing, mechanical, and electrical systems of a manufactured structure.
21. 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 approved for manufactured home use, designed for the purpose of delivering energy from the source of electrical supply to the distribution panel board within the manufactured home.
22. Footing. That portion of the support system that transmits loads directly to the soil.
23. Foundation System. A perimeter footing and stem wall support system.
24. Foundation Set. A manufactured home installed on footings and piers and which has the perimeter enclosed with a supporting permanent foundation footing and stem wall extending below the frost line.
25. Frame. The fabricated rigid substructure which provides considerable support to the affixed manufactured home structure both during transport and on-site. It also provides a platform for attaching the running gear assembly, the draw bar, and coupling mechanism to the home.
26. Garage. A structure located on a manufactured home site designed for the storage of motor vehicles.
27. Gas Supply. A listed connector designed for connecting the manufactured home to the gas supply source.

28. Grade. The fall (slope) in reference to a horizontal plane expressed in inches per foot length or as a percentage. One hundred percent grade equals twelve inches fall in one foot length.
29. Grounded. Connected to earth or to some conducting body that serves in place of the earth.
30. Ground Anchor. Any device at a manufactured home site designed to transfer manufactured home anchoring load to the ground.
31. Ground Level Installation. A manufactured home with a below-grade foundation system and a perimeter retaining wall or foundation which has earth back filled against it.
32. Installation. In relation to:
- a. Construction. Work performed inside the home after it leaves the factory and which affects the arrangements and methods of construction of the home, the fire and life safety aspects of the home, and the electrical, plumbing, and mechanical equipment and systems of the home.
 - b. Siting. Work performed outside the home to place it on its site. This includes work associated with the manufactured home support and tie-down system, structural work, work associated with the fire and life safety aspects of the home, work associated with electrical, plumbing, and mechanical equipment, work to make up utility connections, and the work to install skirting and steps.
33. Installer. Any individual licensed to install, set up, block, tie down, secure, support, or install skirting to manufactured homes.
34. Labeled. Equipment or materials used in the manufacture or installation of a manufactured home, to which has been attached a label, symbol, or other identifying mark of a nationally recognized testing laboratory, inspection agency, or other organization which evaluates products to nationally recognized standards and periodically inspects production of equipment and materials to show compliance with those standards for usage in a specified manner.
35. Listing Agency. An agency that:
- a. Is regularly engaged in conducting its own tests, listing, labeling, or contracting its testing procedures to a nationally recognized testing agency;
 - b. Maintains a periodic inspection program on production of currently listed products; and
 - c. Publishes, at a minimum, an annual report which is used to determine whether products have been tested to such national standards and found safe for use in a specified manner.
36. Load Bearing Device. Any equipment or device used in the support of manufactured home including but not limited to footings, piers, caps, and shims.
37. Maintenance of Equipment. Performing routine tasks such as lubricating or changing filters, washers, fuses, or bulbs as necessary for the continued operation of the equipment but does not include the replacement, conversion, alteration, or addition of any equipment.

38. **Manufactured Home.** (defined under I.C. 39-4105(8)): A structure constructed for human habitation, after June 15, 1976, in accordance with the federal Manufactured Home Construction and Safety Standards (HUD) and is transportable in one (1) or more sections, which, in the traveling mode, is eight (8) body feet or more in width or is forty (40) body feet or more in length, or when erected on site, is three hundred twenty (320) or more square feet, 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, but which is not constructed or equipped with a permanent hitch or other device allowing it to be moved other than for the purpose of moving to a permanent site, and which does not have permanently attached to its body or frame any wheels or axles. and includes the plumbing, heating, air conditioning, and electrical systems contained therein, except that such term shall include any structure which meets all the requirements of this subsection except the size requirements and with respect to which the manufacturer voluntarily files a certification required by the secretary of housing and urban development and complies with the standards established under 42 U.S.C. section 5401 et seq.

NOTE: A manufactured home does not include a mobile home, or a mobile home or house trailer constructed before the federal Manufactured Home Construction and Safety Standards went into effect on June 15, 1976.

39. **Manufacturer's Representative.** An employee, dealer, or person authorized by a manufacturer through contract to act on behalf of the manufacturer.

40. **Minor Repair.** A simple repair such as replacing broken glass, fittings, devices, or fixtures, using approved component parts. This does not include the repair, replacement, conversion, alteration, or addition to, of major portions of the structural, plumbing, electrical, or mechanical systems of the manufactured home.

41. **Model.** An individual manufactured home as designated by the manufacturer, intended to be manufactured with a specific floor plan, structural components, and the type, location, and installation of plumbing, mechanical, and electrical equipment according to the plans submitted to the Design Approval Primary Inspection Authority.'

42. **Modular building -** Means any building or building component, other than a manufactured or mobile home, that is of closed construction and is either entirely or substantially prefabricated or assembled at a place other than the building site.

43. **Mobile home** (defined under I.C. 39-4105(9))-A factory-assembled structure or structures constructed prior to June 15, 1976, and equipped with the necessary service connections and made so as to be readily movable as a unit or units on their own running gear and designed to be used as a dwelling unit or units with or without a permanent foundation.

Note: The term "mobile home" means forms of housing known as "trailers", "house trailers", or "trailer coaches" exceeding 8 feet in width or 45 feet in length, designed to be moved from one place to another by an independent power connected to them, or any trailer, house trailer, or trailer coach up to 8 feet in width or 45 feet in length used as a principal residence.

44. **Mobile home, rehabilitated –** A factory-assembled structure constructed prior to June 15, 1976, the effective date of the Manufactured Housing and Safety Standard Act (HUD code), that are currently sited in Idaho or that may be brought into the state after July 1, 1998, which have been upgraded to comply

with Title 44 Chapter 25 of the Idaho Statutes and received a "Certificate of Compliance" from the Division of Building Safety of the State of Idaho.

45. Municipality. A city, county, or other unit of local government otherwise authorized by law to enact codes.

46. New Home. Refers to a manufactured home that has not been titled or converted to real property and/or has not been approved for occupancy by the jurisdiction having authority to do so.

47. Noncompliance. A failure of a manufactured home, alteration, or installation to comply with an appropriate currently adopted building code or standard.

48. Option. A provision made during the manufacture of a home to facilitate the future installation of any appliance other equipment (e.g., air conditioner, wet bar, or dishwasher).

49. Pier. That portion of the support system between the footing and the manufactured home.

50. Porch. A stationary structure which may be constructed with two (2) or more walls, used adjacent to, and in conjunction with, a manufactured home to provide additional space.

51. Prefabricated Pier. A listed or approved pier which is manufactured at an offsite location but does not include concrete blocks.

52. Ramada. A stationary structure have a roof extending over a manufactured home which may also extend over a patio or parking space for motor vehicles, and is used principally for protection from snow, sun, or rain.

53. Recessed Porch. An open floor area supported by the main frame which is located outside the exterior walls of the manufactured home.

54. Readily Accessible. Direct access without the necessity of removing any panel, door, or similar obstruction.

55. Repair. The reconstruction or renewal of any part of an existing manufactured home or piece of equipment for the purpose of its maintenance (See alteration).

56. Replacement In Kind. Replacing equipment or accessories with approved like equipment or accessories, such as switches, thermostats, fittings, elements, or motors, but does not include the replacement of major portions of the structural, plumbing, electrical, or mechanical system.

57. RME – "Responsible managing employee" or "RME" means the person designated by the retailer, installer, manufacturer or resale broker to supervise other employees, either personally or through others

58. Service Equipment, Manufactured Home. The equipment for connecting a manufactured home feeder assembly.

59. Set Up. See the definition of installation.

60. Site, Manufactured Home. A designated parcel of land designed to accommodate a manufactured home, its accessory structures or buildings, and accessory equipment for the exclusive use of the occupants.
61. Skirting. A weather resistant material used to enclose the space below the manufactured home.
62. Stabilizing Devices. All components of the anchoring system and support systems such as piers, footings, foundations, ties, anchoring equipment, ground anchors, and any other equipment which supports the manufactured home and secures it to the ground.
63. Standard Set. A manufactured home installed on footings and piers which has a perimeter enclosed by an above ground skirting or fascia.
64. Support System. A combination of foundations, footings, piers, caps, and shims that will, when properly installed, support the weight of the manufactured home.
65. Tag. A label or insignia issued by the Division and applied to manufactured homes to indicate compliance with federal or state laws, rules, and regulations.
66. Testing Laboratory or Testing Agency. An organization:
- a. In the business of testing equipment and systems;
 - b. Qualified and equipped to perform or to observe experimental testing to approved standards;
 - c. Not under the jurisdiction or control of any single manufacturer or supplier for an affected industry;
 - d. Which publishes reports including specified information about the equipment and systems tested and found safe for use in a specified manner; and
 - e. Whose methods and standards have been approved by the Division.
67. Tie. Straps or securing devices used to connect the manufactured home to tie-down anchors.
68. Tie-down. Any device designed to anchor a manufactured home securely to the earth.
69. Used. Anything other than a new home (see definition for New Home)
70. Utilities. The water, sewer, gas, or electric services provided on a lot for a manufactured home.
71. Utility Connection. Includes, but is not limited to, the following: Installation and connection of the manufactured home electrical feeders to the electric utility;
- a. Installation and connection of the manufactured home drain to the sewer utility;
 - b. Installation and connection to the manufactured home water system to the water utility;

c. Installation and connection of the manufactured home fuel gas system to the gas utility.

72. Vertical Tie. A tie intended to resist the uplifting or overturning forces.

73. Visual Inspection. An inspection of the visible portions of completed construction for the purpose of identifying code compliance.

ACRONYMS AND ABBREVIATIONS.

The following list defines acronyms and abbreviations as they are used in this standard.

01. ABS. Acrylonitrile butadiene styrene.
02. ADA. Americans with Disabilities Act.
03. ANSI. American National Standard Institute.
04. ASTM. American Society for Testing and Materials.
05. AWWA. American Wood Products Association.
06. CFR. Code of Federal Regulations.
07. CPVC. Chlorinated polyvinyl chloride.
08. DAPIA. Design Approval Primary Inspection Agency. A state or private organization that has been accepted by the Secretary of HUD to evaluate and approve manufactured home designs and quality control procedures.
09. FEMA. Federal Emergency Management Agency.
10. HUD. US Department of Housing and Urban Development.
11. IMHIS. Idaho Manufactured Home Installation Standard.
12. IBS – International Building Code
13. IPC – Idaho Plumbing Code
13. IRC – Idaho (or International) Residential Code
14. IPIA. Production Inspection Primary Inspection Agency. A state or private organization that has been accepted by the Secretary of HUD to evaluate the ability of manufactured home manufacturers to follow approved quality control procedures and provide ongoing surveillance of the manufacturing process.
15. NEC. National Electrical Code.
16. NFPA. National Fire Protection Association.
17. PEX. Cross linked polyethylene tubing.
18. PSI. Pounds per square inch.
19. PSF. Pounds per square foot.

20. PVC. Polyvinyl chloride.

21. RME – Responsible Managing Employee

SUBJECT INDEX

To be updated in final version

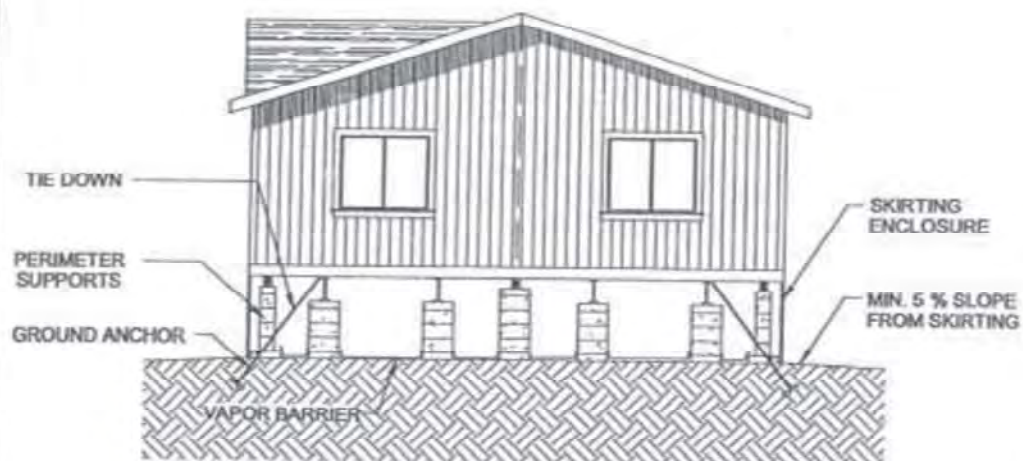
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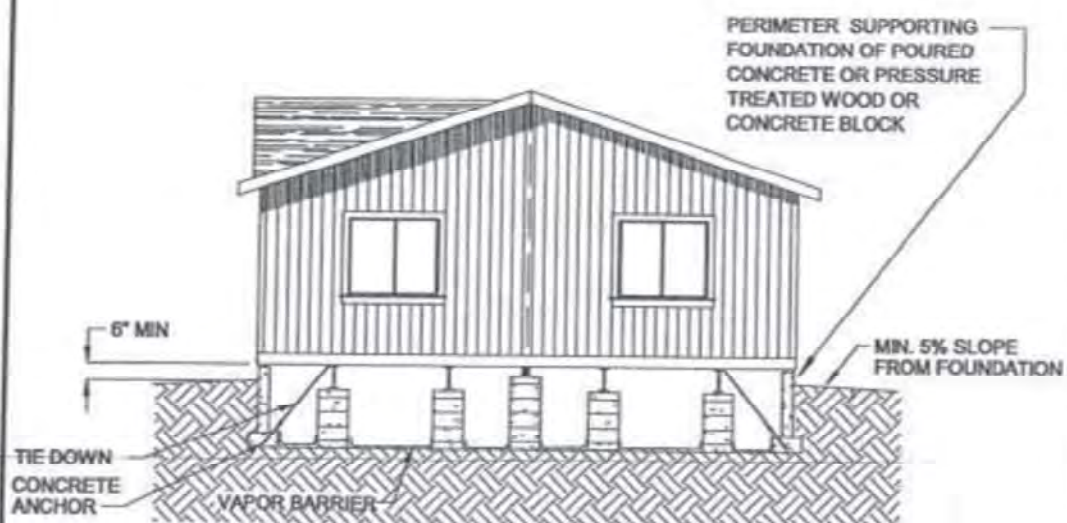
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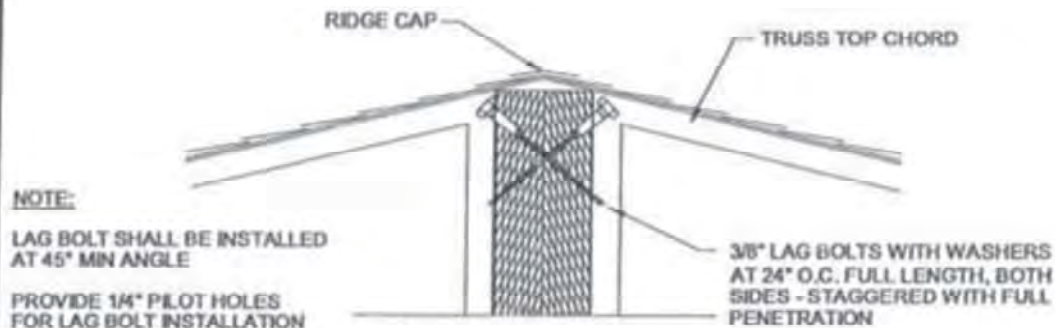
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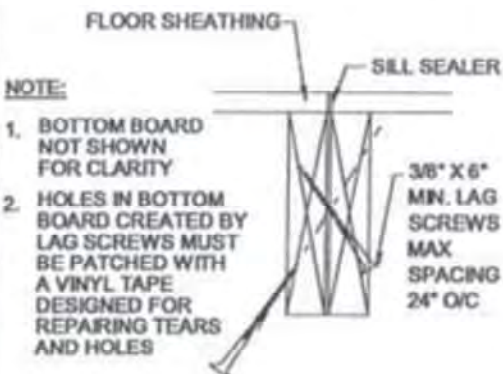
STANDARD SET
FIGURE 301.1



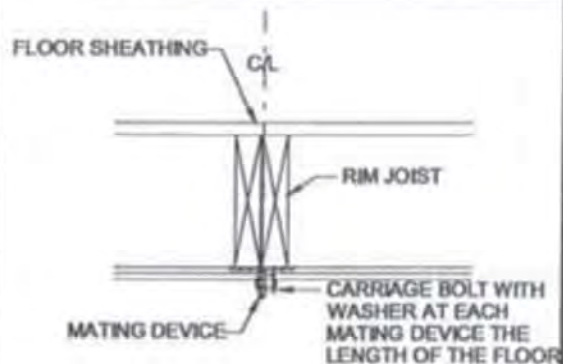
PERMANENT FOUNDATION SET
FIGURE 301.2



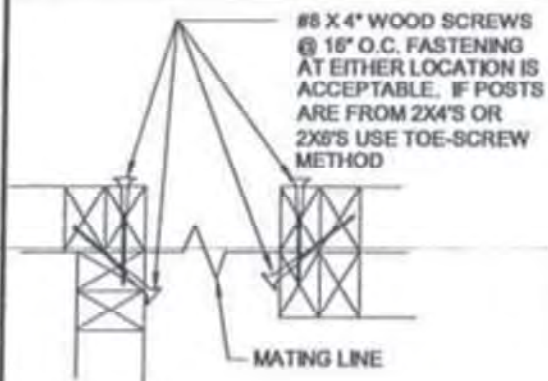
RIDGE BEAM BOLT CONNECTION
FIGURE 304.1



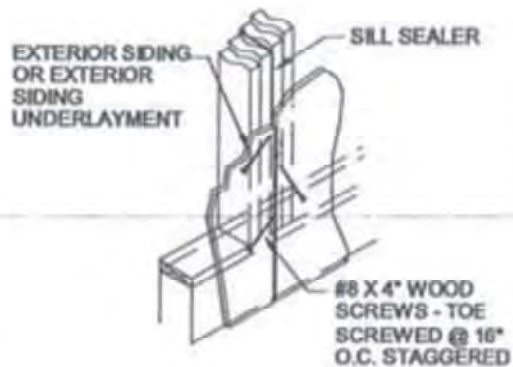
FLOOR CONNECTION W/ LAG SCREW
FIGURE 304.2



FLOOR CONNECTION W/ CLIPS
FIGURE 304.3



INTERIOR WALL CONNECTIONS
FIGURE 304.4

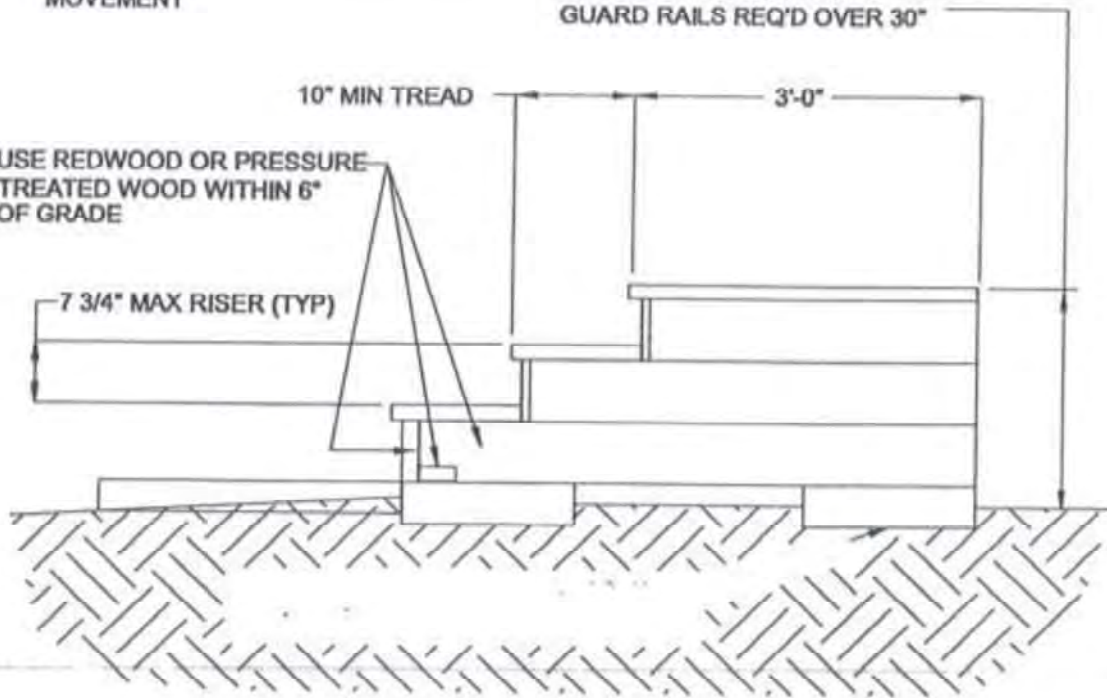


END WALL CONNECTIONS
FIGURE 304.5

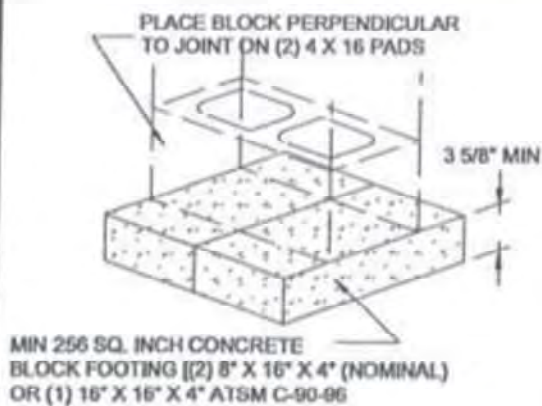
30" MAX W/O GUARD RAILS
GUARD RAILS REQ'D OVER 30"

3'-0"

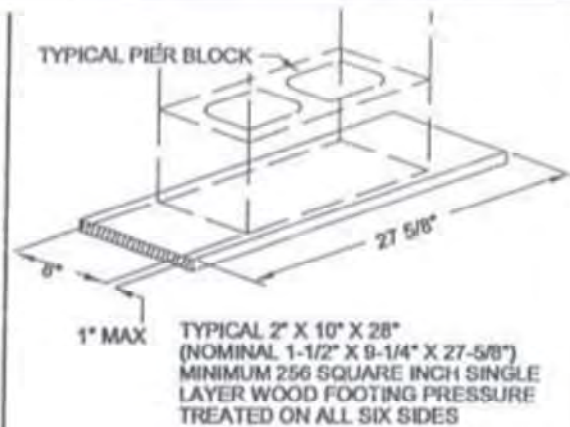
7 3/4" MAX RISER (TYP)



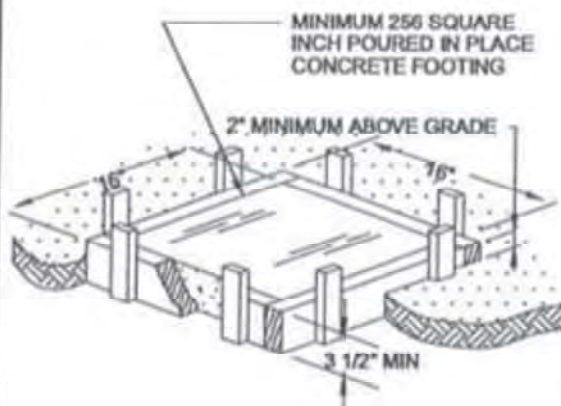
STAIRS
FIGURE 306.1



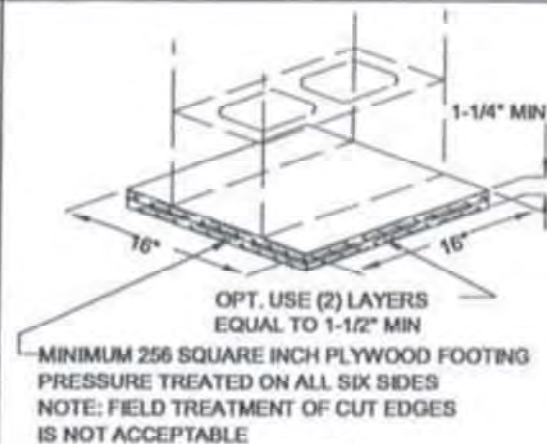
PRECAST CONCRETE PIER PAD
FIGURE 402.1



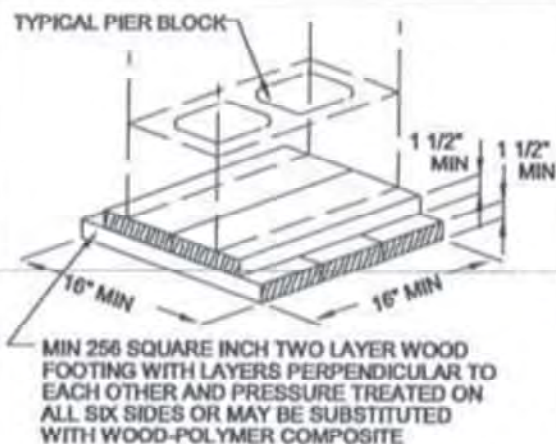
SINGLE LAYER WOOD PIER PAD
FIGURE 402.4



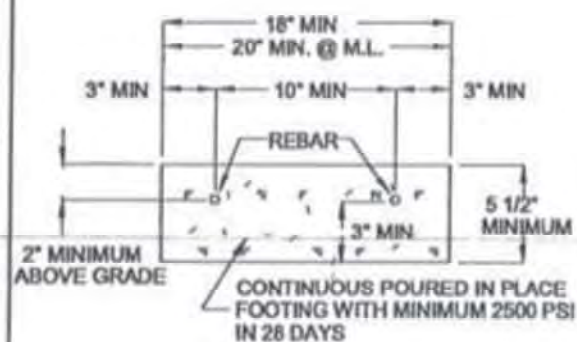
POURED CONCRETE PIER PAD
FIGURE 402.2



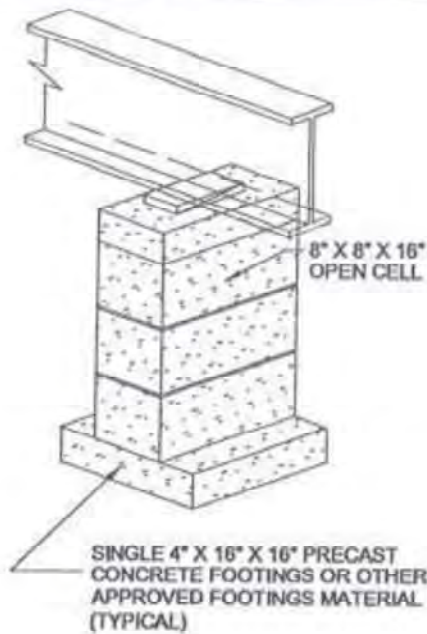
WOOD PIER PAD
FIGURE 402.5



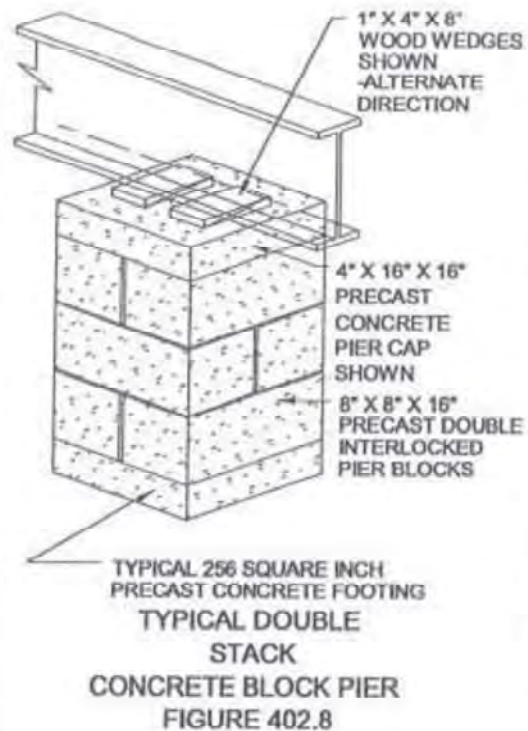
DOUBLE LAYER WOOD PIER PAD
FIGURE 402.3



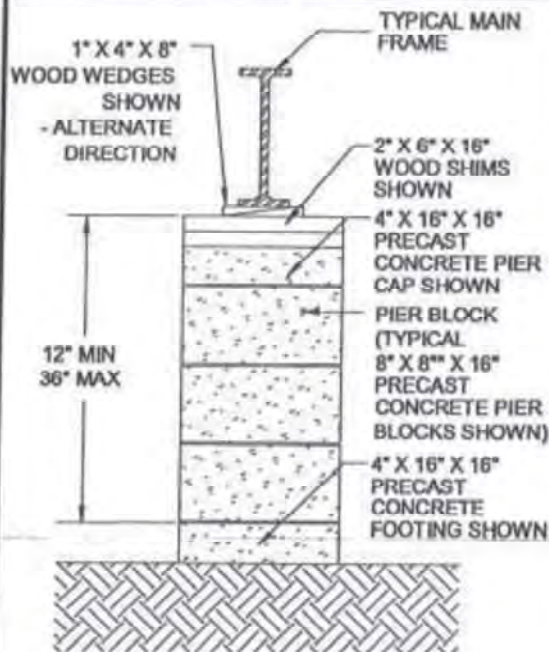
CONTINUOUS CONCRETE FOOTING
FIGURE 402.6



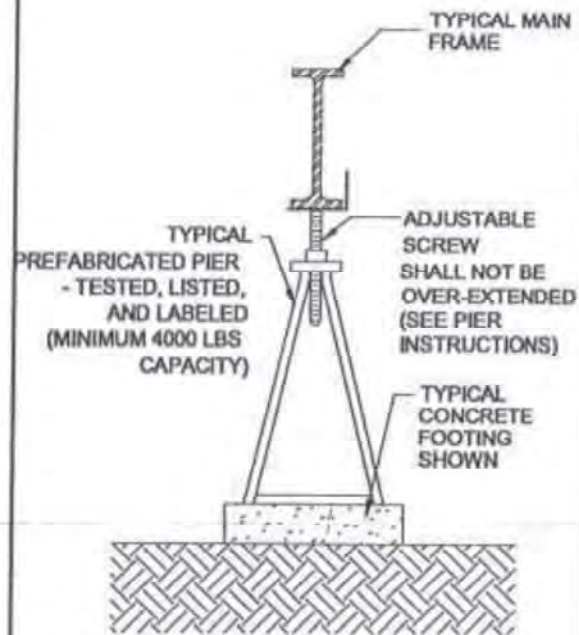
TYPICAL CONCRETE BLOCK PIER
FIGURE 402.7



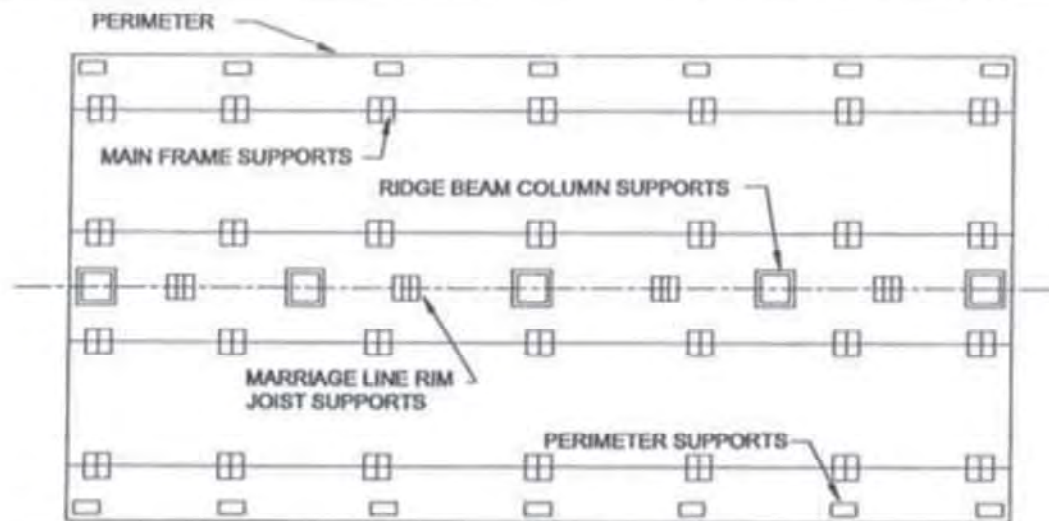
TYPICAL DOUBLE
STACK
CONCRETE BLOCK PIER
FIGURE 402.8







TYPICAL BLOCK PIER DETAIL
FIGURE 402.9



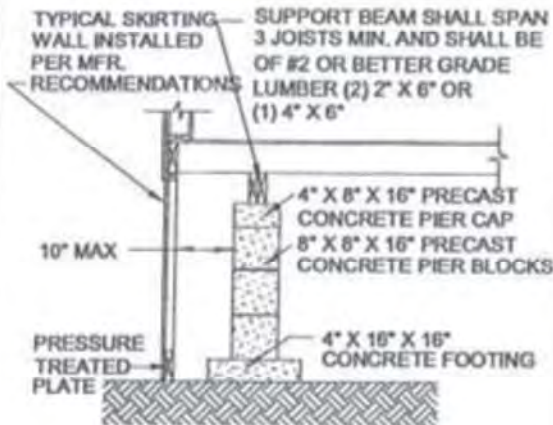
TYPICAL PREFABRICATED PIER
FIGURE 402.10



	PERIMETER SUPPORTS	LOCATED WITHIN 6 INCHES OF CORNER AND 8 FT O.C. FOR ROOF LOAD UP TO 30 PSF; 6 FT O.C. FOR 40 PSF; 4 FT O.C. FOR 80 PSF; FOUNDATIONS FOR 100 PSF AND OVER
	MAIN FRAME SUPPORTS	LOCATED WITHIN 12 INCHES OF EACH END AND 6 FT O.C. FOR ALL ROOF LOADS
	RIDGE BEAM SUPPORTS	LOCATED WITHIN 6 INCHES OF EACH END AND AS REQUIRED AND MARKED BY THE MANUFACTURER
	MARRIAGE LINE RIM JOIST SUPPORTS	LOCATED 8 FT O.C. FOR ALL ROOF LOADS 30 PSF AND GREATER EXCEPT WHEREVER THERE IS A WALL ABOVE THE MARRIAGE LINE THEN SUPPORTS SHALL BE LOCATED 6 FT O.C. FOR 40 PSF; 4 FT O.C. FOR 60 PSF; 3 FT O.C. FOR 80 PSF; 2 FT O.C. FOR 100 PSF OR OVER.

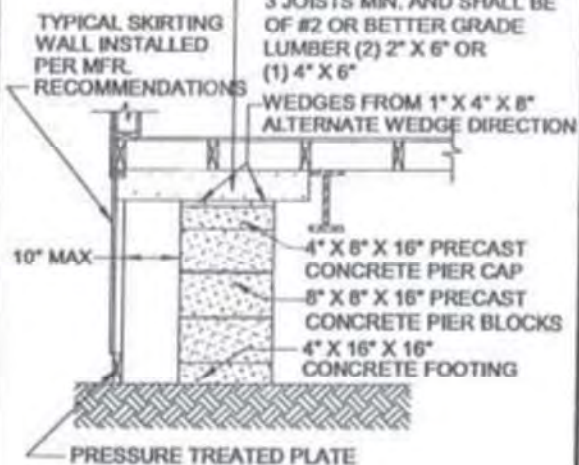
STANDARD SET SUPPORT SYSTEM
FIGURE 403.1

NOTE:
WHEN WOOD WEDGES ARE USED WITH WOOD
SUPPORT BEAMS THEY SHALL BE INSTALLED
AT EACH END BETWEEN THE TOP OF THE
PIER SHIM AND THE BOTTOM OF THE
HORIZONTAL BEAM



PERIMETER PIER
W/ TRANSVERSE JOISTS
FIGURE 403.2

NOTE:
WHEN WOOD WEDGES ARE USED WITH WOOD
SUPPORT BEAMS THEY SHALL BE INSTALLED
AT EACH END BETWEEN THE TOP OF THE
PIER SHIM AND THE BOTTOM OF THE
HORIZONTAL BEAM



PERIMETER PIER
W/ LONGITUDINAL JOISTS
FIGURE 403.3

TYPICAL 4" X 16" X 16"
PAD SPANNING PADS
BELOW

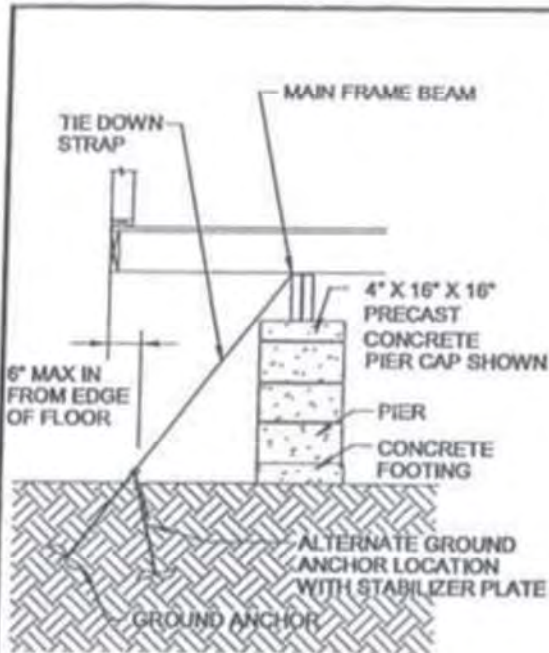


512 SQ IN PIER PAD
(5000 POUND CAPACITY)
FIGURE 403.4

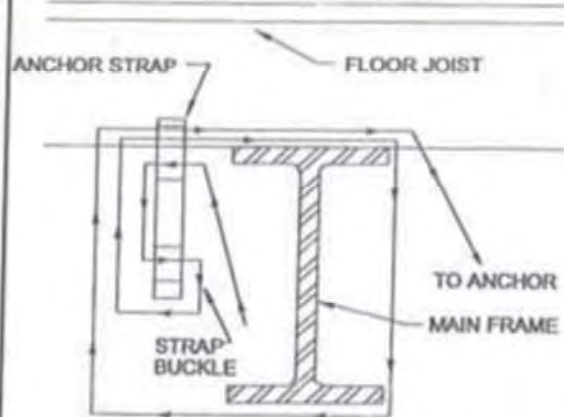
TYPICAL 4" X 16" X 16"
PAD SPANNING PADS
BELOW



1024 SQ IN PIER PAD
(11,000 POUND CAPACITY)
FIGURE 403.5

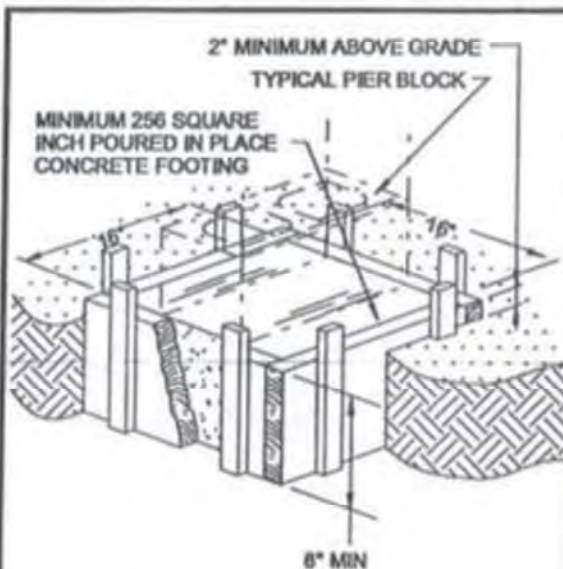


FRAME TIE DOWN DETAIL
FIGURE 406.1

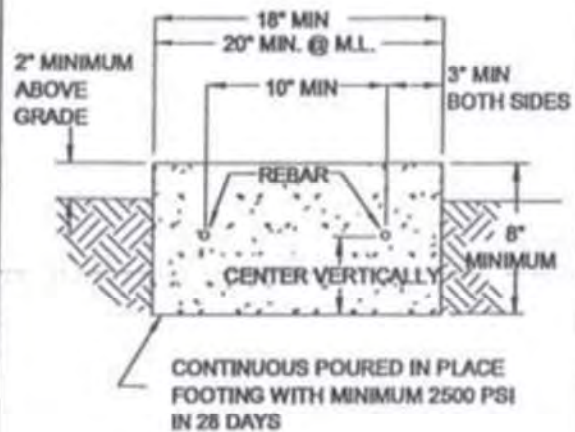


NOTE:
STRAPPING SHALL BE .035 X 1 1/4\"/>

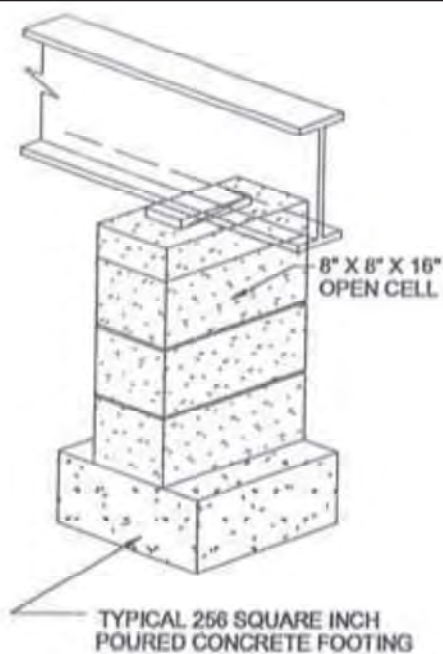
MAIN FRAME TIE-DOWN
STRAP CONNECTION
FIGURE 406.2



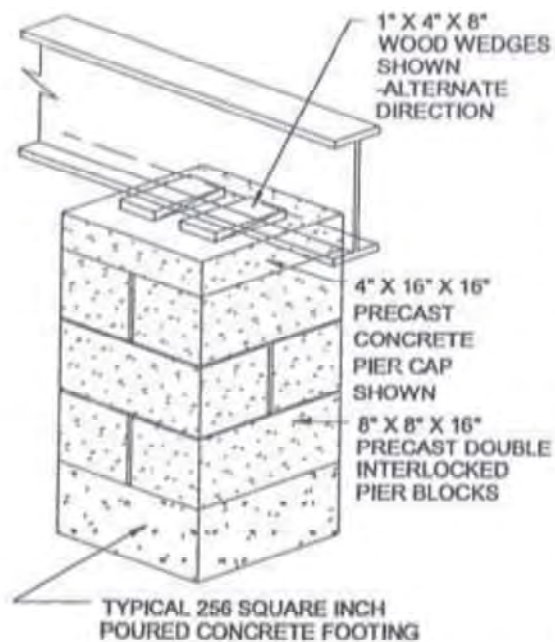
POURED CONCRETE PIER PAD
FIGURE 502.1



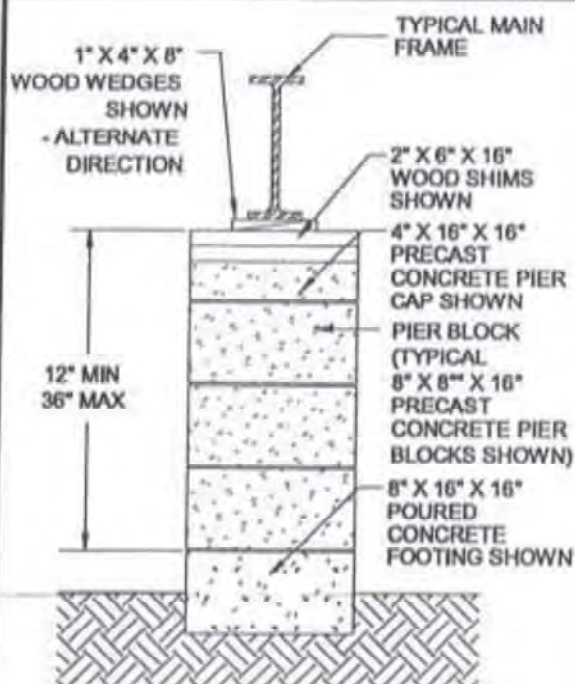
CONTINUOUS CONCRETE FOOTING
FIGURE 502.2



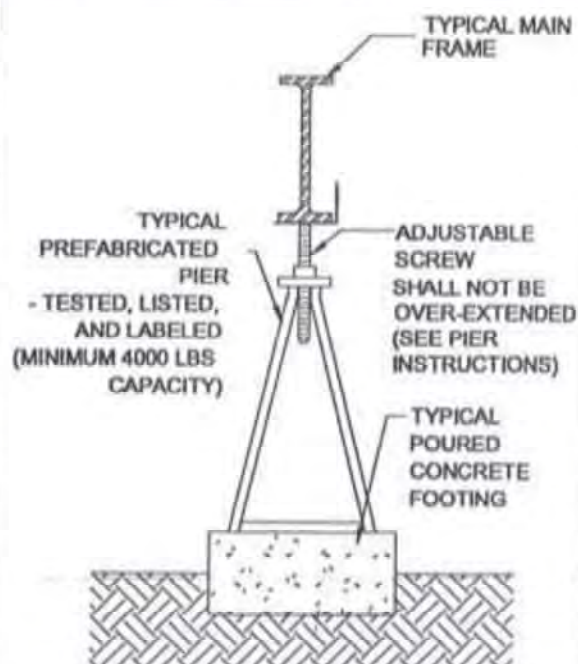
TYPICAL CONCRETE BLOCK PIER
FIGURE 502.3



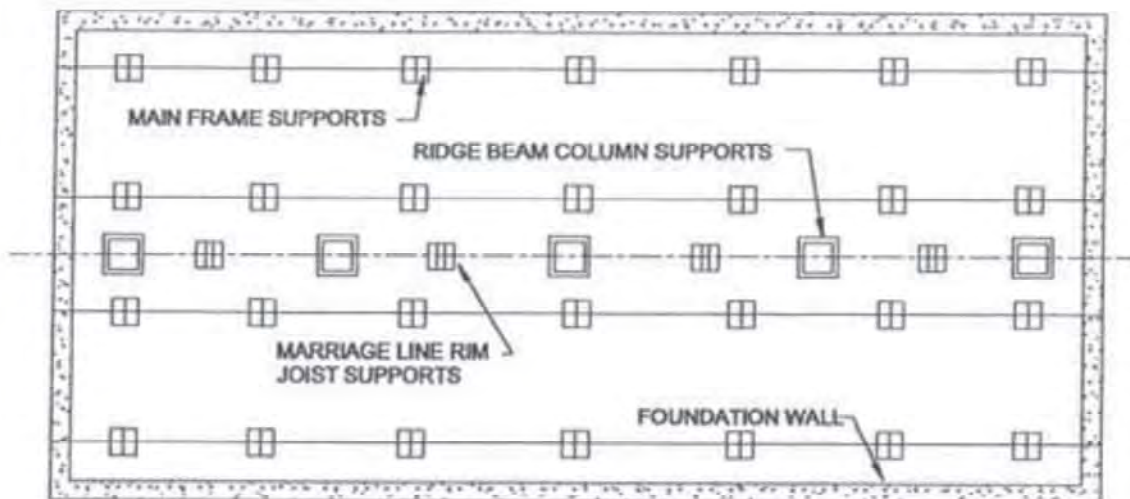
TYPICAL DOUBLE STACK
CONCRETE BLOCK PIER
FIGURE 502.4



TYPICAL BLOCK PIER DETAIL
FIGURE 502.5



TYPICAL PREFABRICATED PIER
FIGURE 502.6



	FOUNDATION SUPPORT	REFER TO SECTION 504
	MAIN FRAME SUPPORTS	LOCATED WITHIN 30 INCHES OF EACH END AND 6 FT O.C. FOR ALL ROOF LOADS
	RIDGE BEAM SUPPORTS	LOCATED AS REQUIRED AND MARKED BY THE MANUFACTURER
	MARRIAGE LINE RIM JOIST SUPPORTS	LOCATED 8 FT O.C. FOR ALL ROOF LOADS 30 PSF AND GREATER EXCEPT WHEREVER THERE IS A WALL ABOVE THE MARRIAGE LINE THEN SUPPORTS SHALL BE LOCATED 6 FT O.C. FOR 40 PSF; 4 FT O.C. FOR 60 PSF; 3 FT O.C. FOR 80 PSF; 2 FT O.C. FOR 100 PSF OR OVER.

PERMANENT FOUNDATION SUPPORT SYSTEM
FIGURE 503.1

2X4 SILL PLATE PRESSURE
TREATED OR REDWOOD

1/2" DIA X 10" LONG
ANCHOR BOLT AT MAX
6'-0" O.C. AND 12"
FROM CORNERS.
INSTALL RECESSED
WASHER AND NUT ON
EA. BOLT

CONCRETE
FOUNDATION
WALL
6" X 23" MIN
6" X 48" MAX

#3 REBAR VERTICAL
32" O.C. (REQ'D FOR
WALL OVER 30" HIGH)

(1) #3 REBAR
CONTINUOUS HORIZ
PER 16" HEIGHT

TIE DOWN ANCHOR
MAX 24" FROM ENDS
AND MAX 11'-0" O.C.
HOOKED TO REBAR

(2) #3 REBAR
CONTINUOUS HORIZ.

16" X 8" CONC. FOOTING

4" CLR

POURED CONCRETE
PERMANENT FOUNDATION
FIGURE 504.1A

2X4 SILL PLATE PRESSURE
TREATED OR REDWOOD

1/2" DIA X 10" LONG
ANCHOR BOLT AT MAX
6'-0" O.C. AND 12"
FROM CORNERS.
INSTALL RECESSED
WASHER AND NUT ON
EA. BOLT

CONCRETE BLOCK
FOUNDATION WALL
8" X 24" MIN
8" X 48" MAX

(1) #3 REBAR
CONTINUOUS HORIZ
FOR BOND BEAM

TIE DOWN ANCHOR
MAX 24" FROM ENDS
AND MAX 11'-0" O.C.
HOOKED TO REBAR

#3 REBAR
VERTICAL 32" O.C.

(2) #3 REBAR
CONTINUOUS HORIZ.

16" X 8" CONC. FOOTING

TOP ROW OF
BLOCK FULL
GROUTED

4" CLR

8" X 8" X 16" CONCRETE BLOCK
PERMANENT FOUNDATION
FIGURE 504.1B

16d GALV. NAIL @16" O.C. (@ TOP PLATE TO MFG HOME)

2X4 PRESSURE TREATED TOP PLATE

(2) 16d GALVANIZED NAILS (END NAIL)

8d STAINLESS STEEL NAILS @ 6" O.C. AT PANEL EDGES & 12" O.C.
@ INT SUPPORTS OR 16 GA. X 1-1/2" STAINLESS STEEL STAPLES
@ 4" O.C. AT PANEL EDGES AND 8" O.C. AT INTERIOR SUPPORTS

2X4 STUDS AT 16" O.C. PRESSURE TREATED

PRESSURE TREATED 1/2" PLYWOOD

(2) 16d GALV. NAILS (END NAIL)

2X4 PRESSURE TREATED SILL PLATE BOLTED WITH
1/2" DIA X 7" LONG GALV. ANCHOR BOLT AT MAX
6'-0" O.C. AND 12" FROM CORNERS
INSTALL WASHER AND NUT ON EACH BOLT

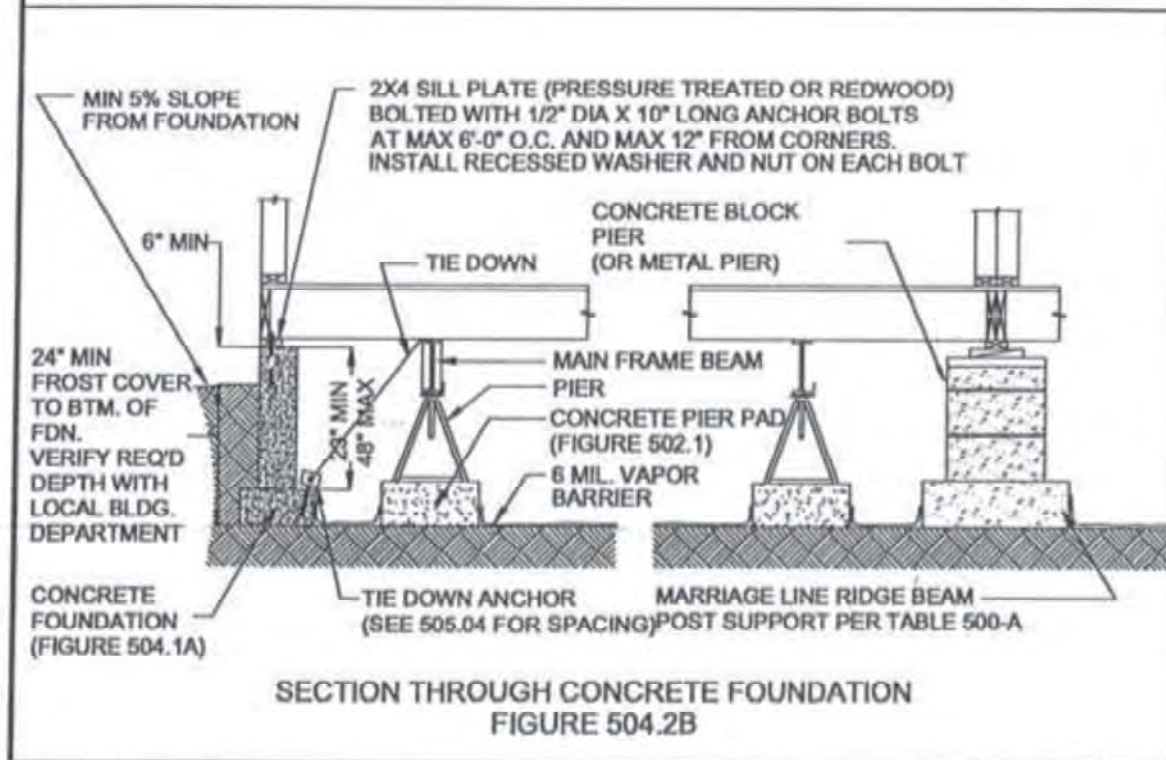
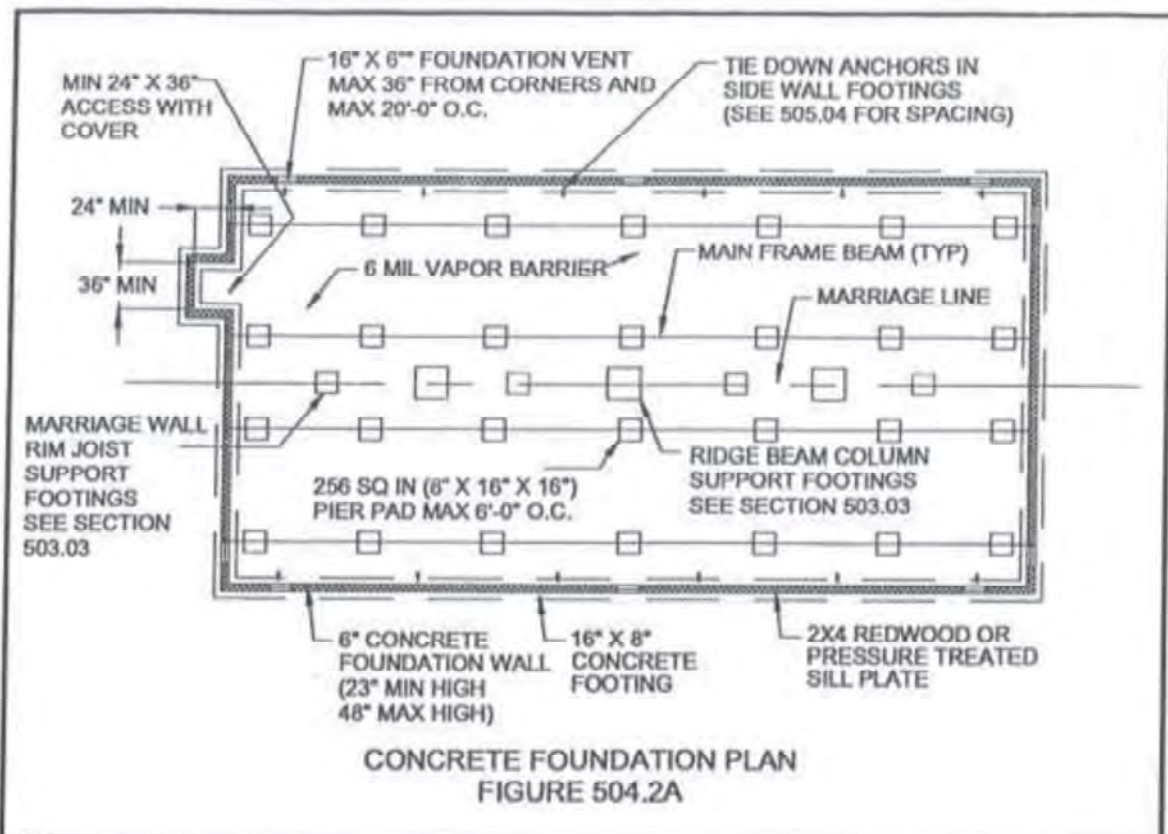
(2) #3 REBAR CONTINUOUS HORIZ.

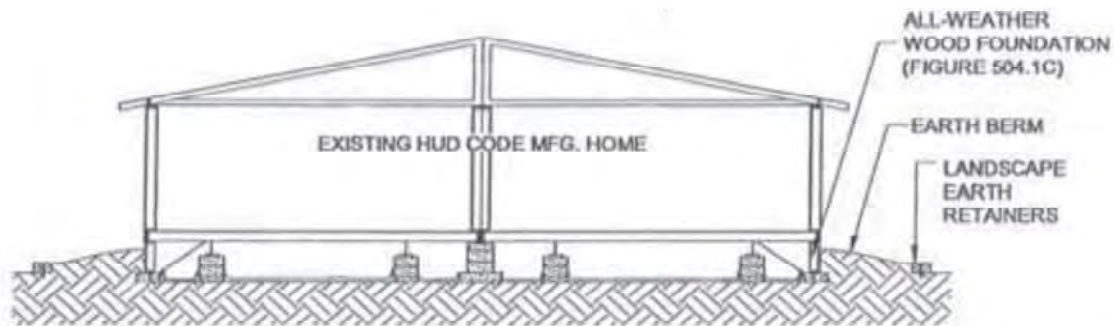
16" X 8" CONC. FOOTING

TIE DOWN ANCHOR MAX.
24" FROM ENDS AND
MAX 11'-0" O.C.
HOOKED TO REBAR

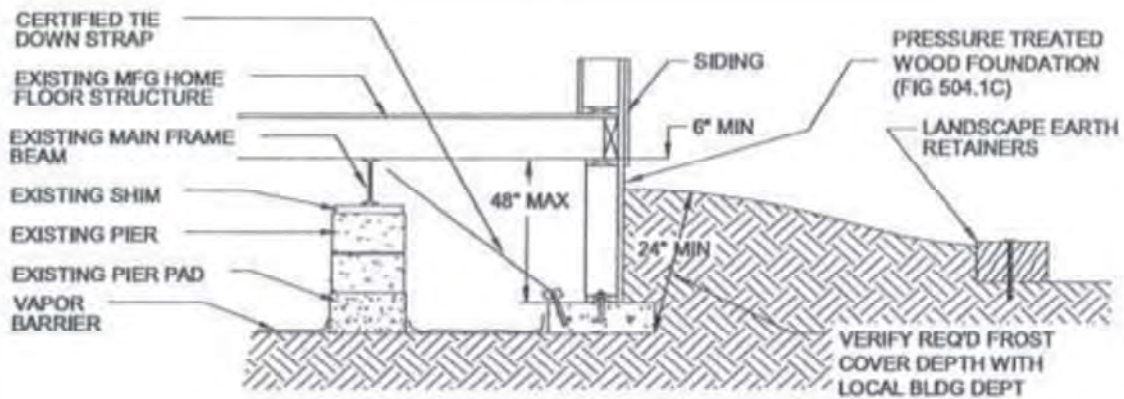
4" CLR

PRESSURE TREATED WOOD
PERMANENT FOUNDATION
FIGURE 504.1C

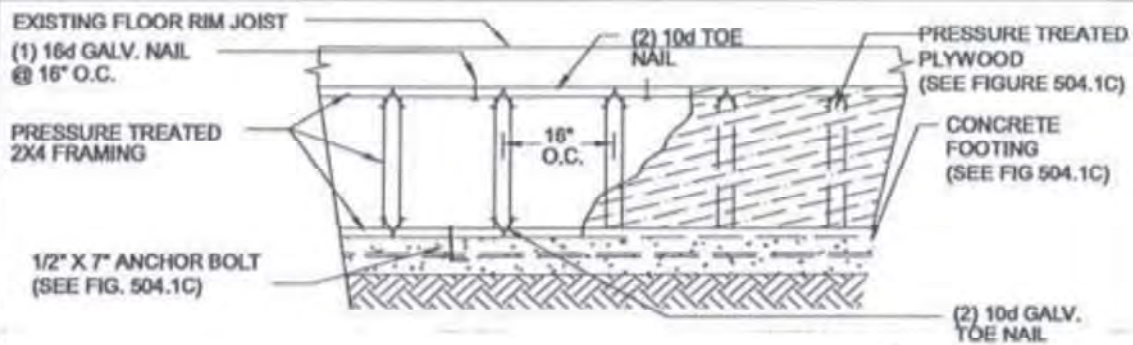




BUILDING SECTION
FIGURE 504.3A

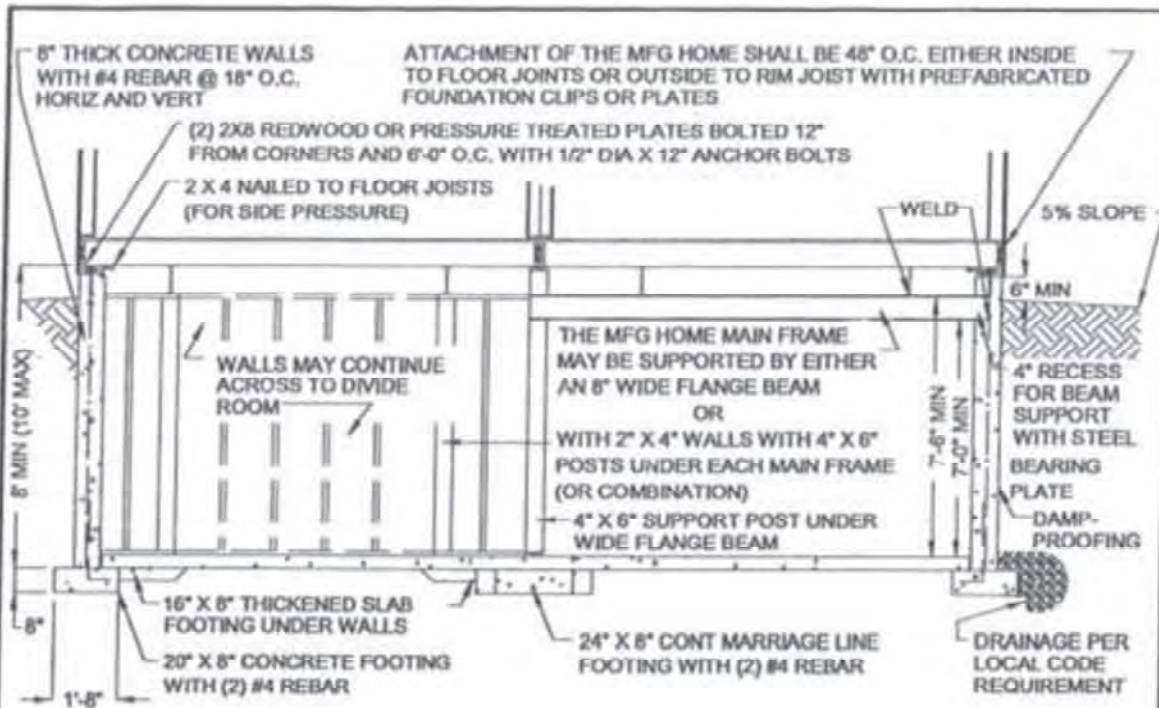


FOUNDATION SECTION DETAIL
FIGURE 504.3B

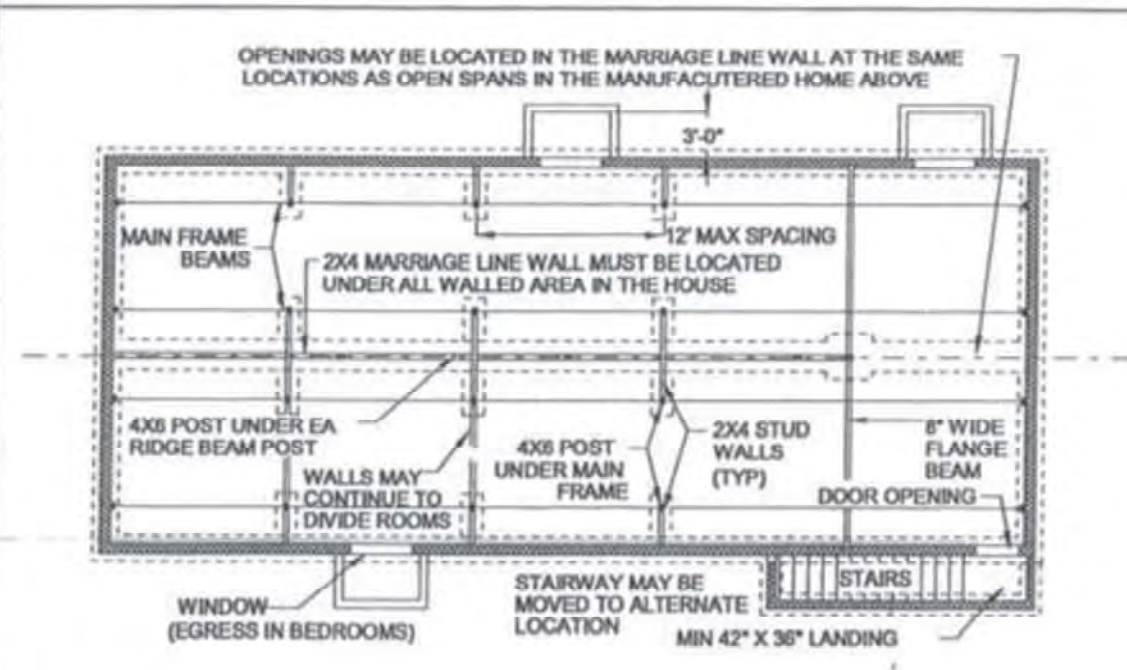


FOUNDATION ELEVATION DETAIL
FIGURE 504.3C

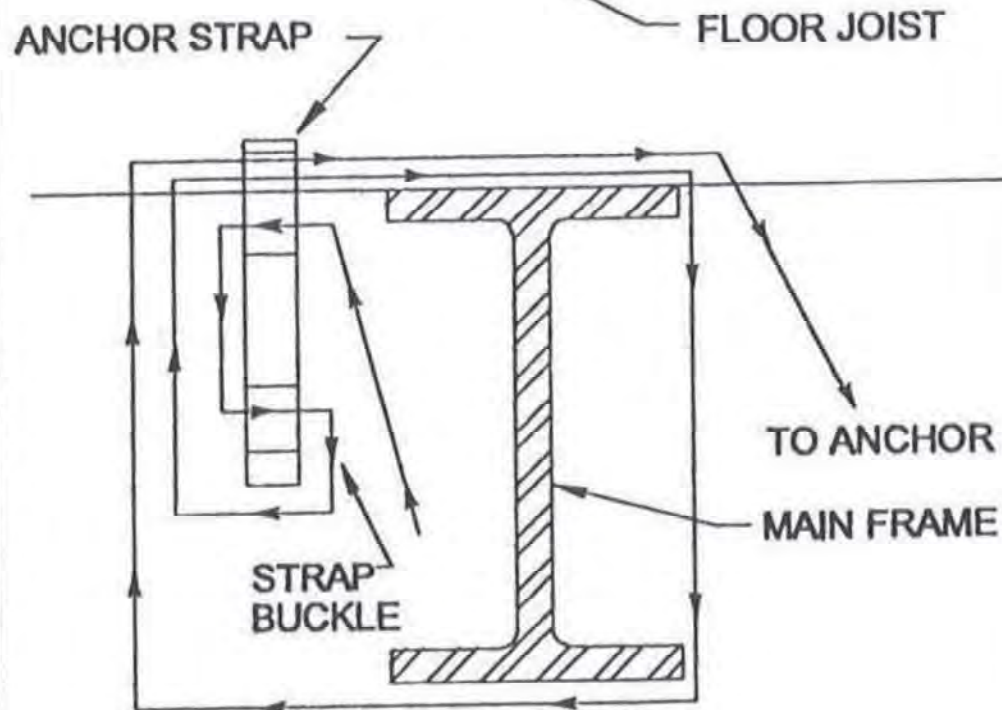
ALL WEATHER WOOD FOUNDATION FOR AN EXISTING MFG. HOME
FIGURES 504.3A, 504.3B, 504.3C



CROSS SECTION THROUGH BASEMENT
FIGURE 504.4A



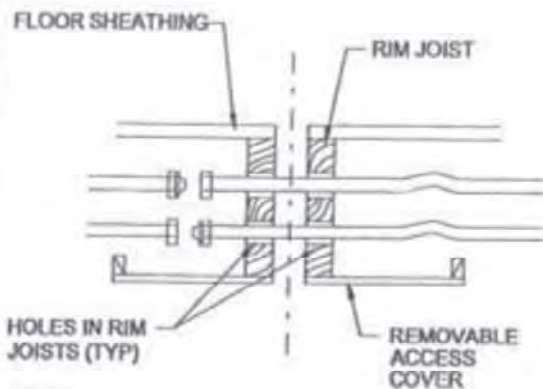
BASEMENT FOUNDATION PLAN
FIGURE 504.4B



NOTE:

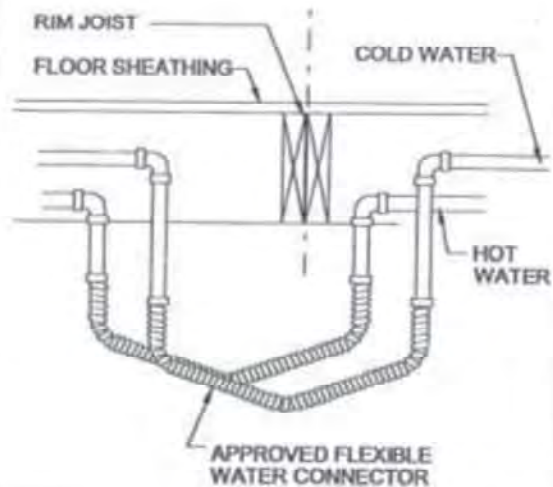
STRAPPING SHALL BE .035 X 1 1/4" WIDE
STEEL WITH ZINC COATING APPLIED AT
.80 OZ. PER FOOT AS PER ASTM 03953-87
ALTERNATE STRAPPING SYSTEM MAY
BE USED UPON PRIOR APPROVAL BY
THE DIVISION OF BUILDING SAFETY

**MAIN FRAME TIE-DOWN
STRAP CONNECTION
FIGURE 505.1**



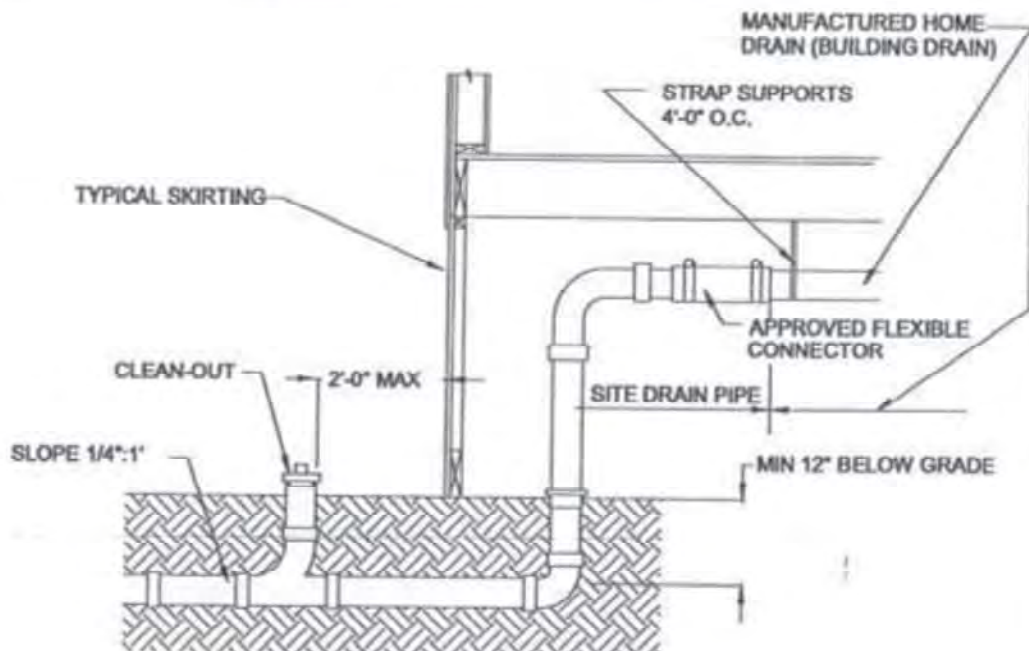
NOTE:
CONCEALED CLEANOUTS, P-TRAPS, AND MECHANICAL JOINTS SHALL BE VISIBLE DURING TESTS. ACCESS PANELS AND INSULATION SHALL BE REPLACED AND SECURED AFTER ALL PLUMBING TESTS ARE COMPLETED.

CONCEALED WATER
CROSSOVER CONNECTION
FIGURE 703.1

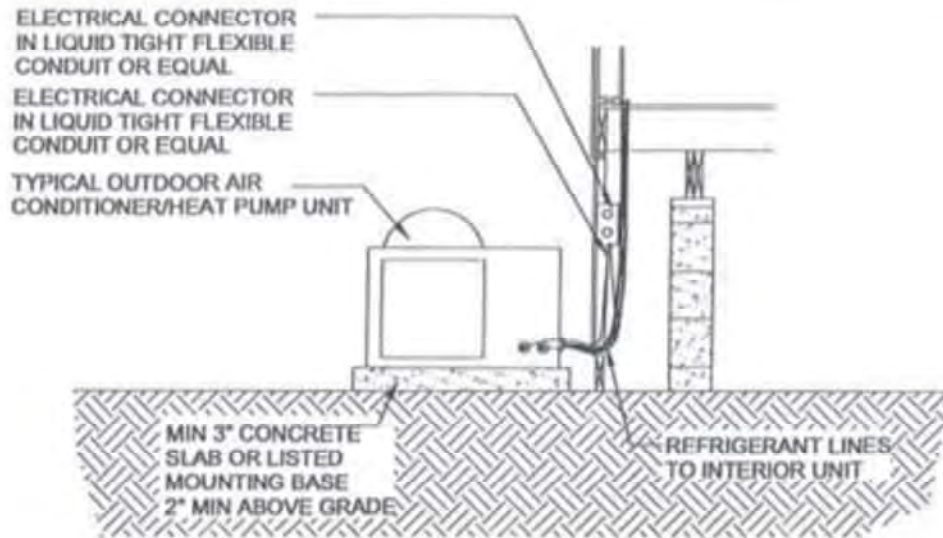


NOTE:
EXPOSED WATER LINE CROSSOVER CONNECTION SHALL BE INSULATED FOR FREEZE PROTECTION

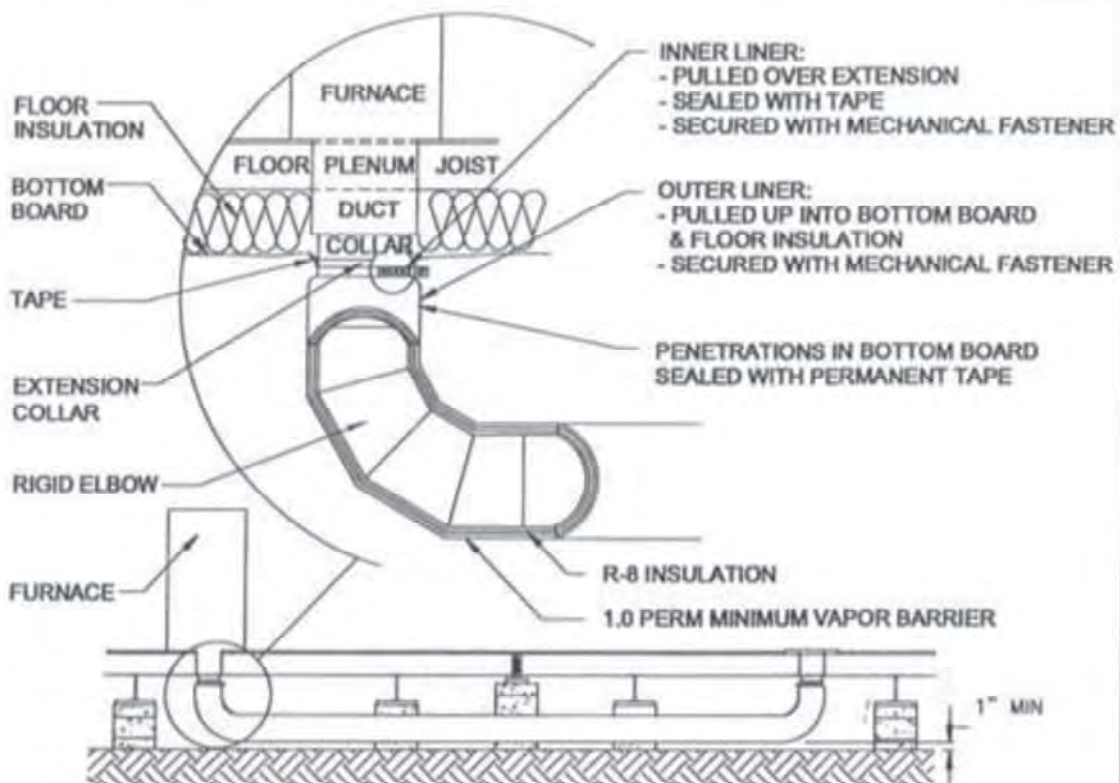
EXPOSED WATER
CROSSOVER CONNECTION
FIGURE 703.2



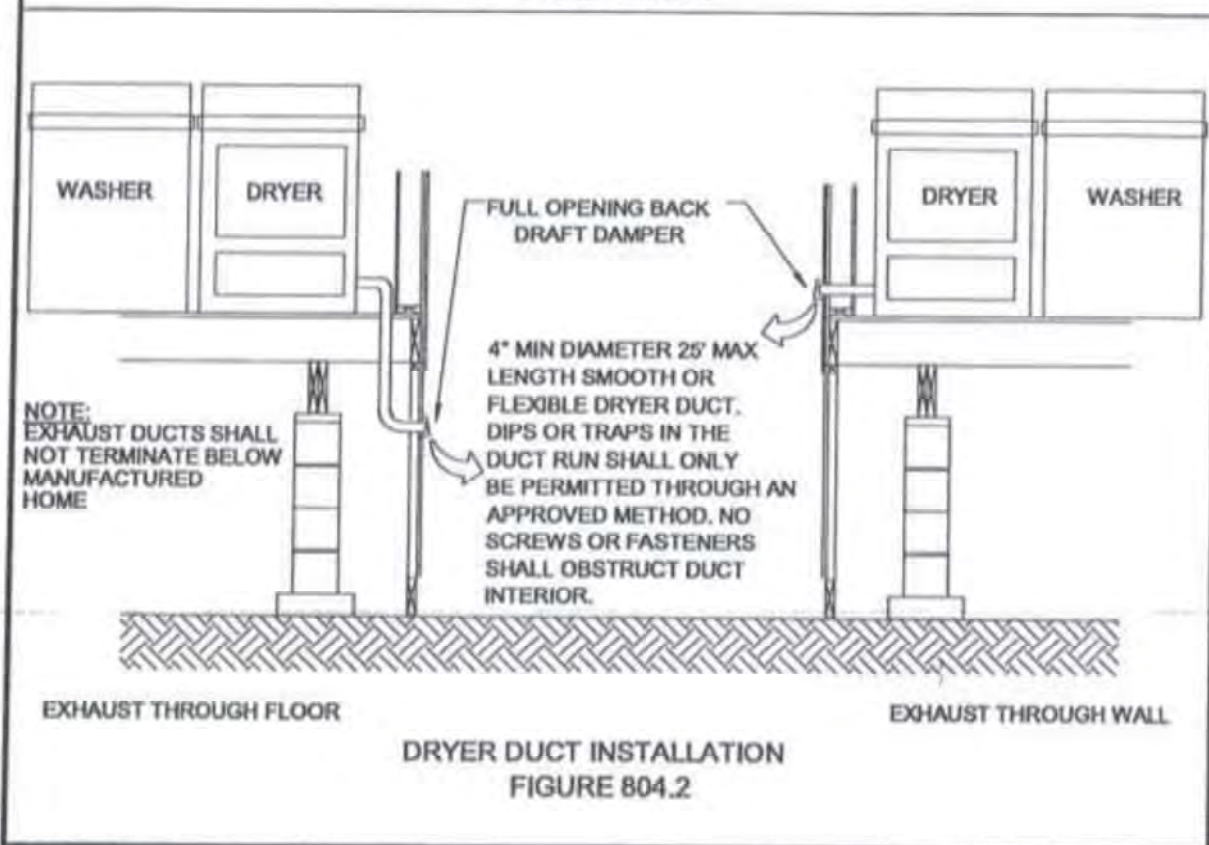
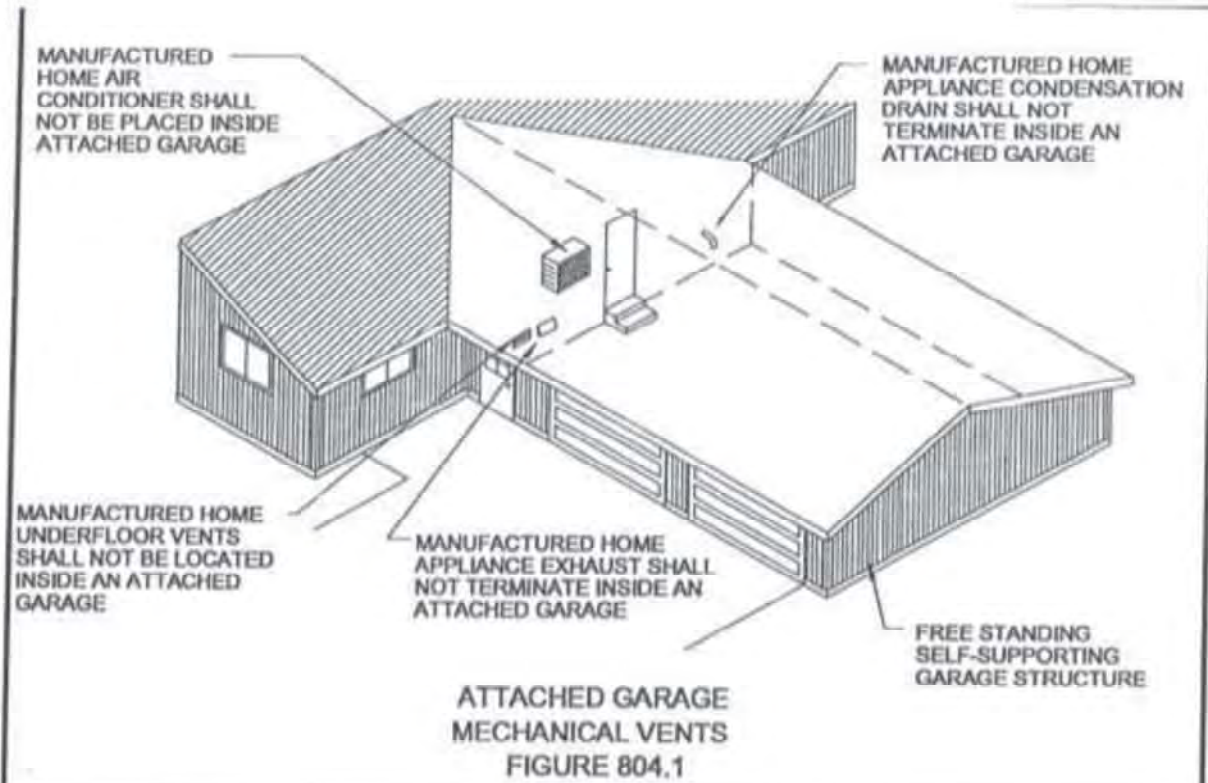
DRAIN LINE CONNECTION
FIGURE 704.1

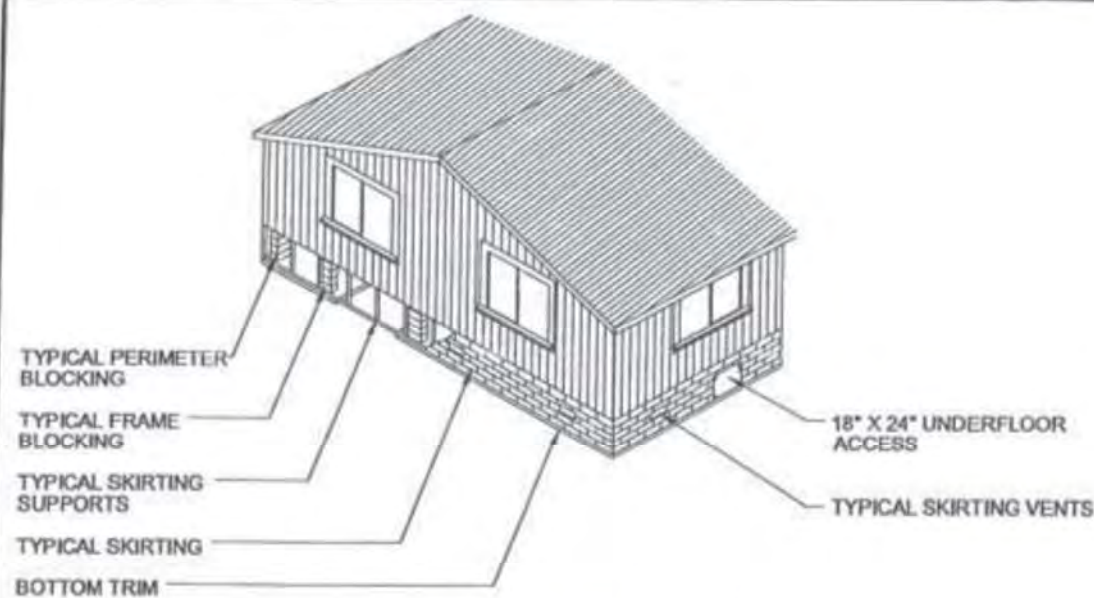


MECHANICAL EQUIPMENT SUPPORT
FIGURE 802.1



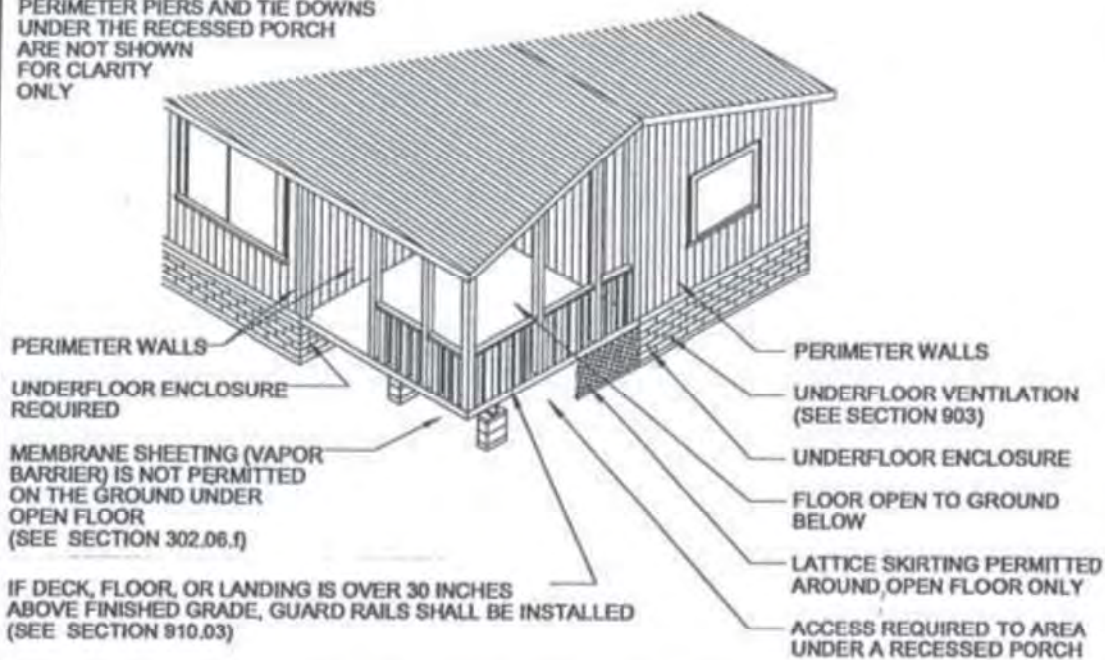
CROSSOVER DUCT CONNECTION
FIGURE 803.1



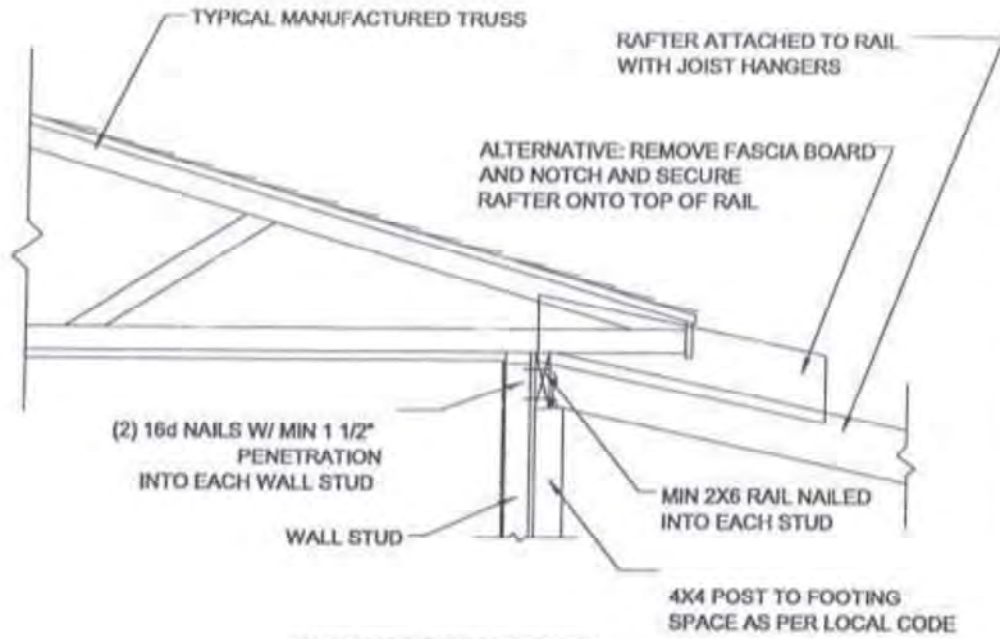


UNDERFLOOR ENCLOSURES
FIGURE 902.1

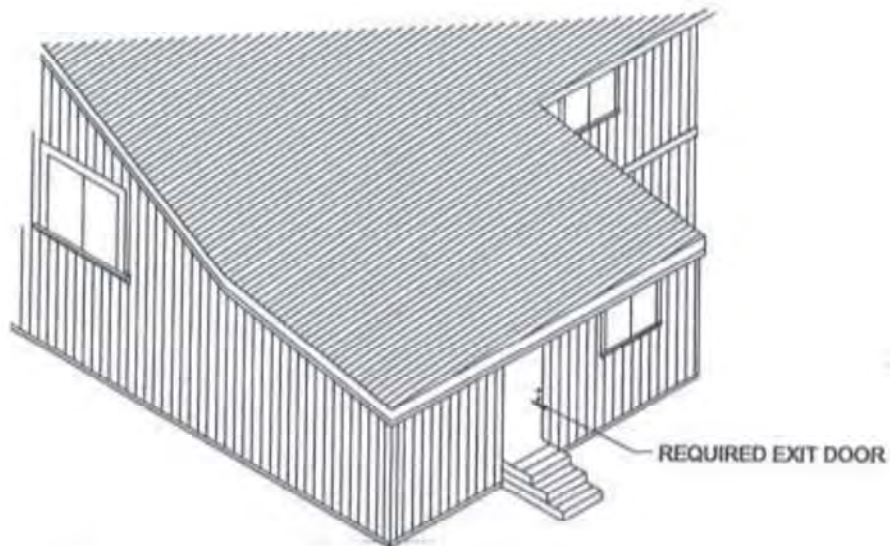
NOTE:
PERIMETER PIERS AND TIE DOWNS
UNDER THE RECESSED PORCH
ARE NOT SHOWN
FOR CLARITY
ONLY



TYPICAL RECESSED PORCH DETAIL
FIGURE 902.2



CARPORT CONNECTION
FIGURE 905.1



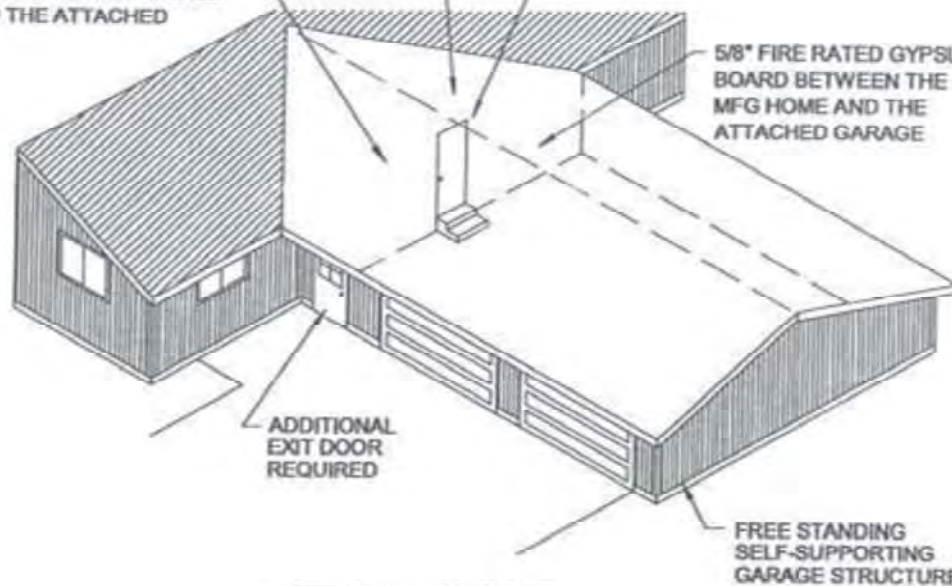
PORCH INSTALLATION
FIGURE 906.1

VENTILATION OPENINGS ARE NOT PERMITTED INTO THE MANUFACTURED HOME FROM THE ATTACHED GARAGE

WINDOWS ARE NOT PERMITTED BETWEEN THE MANUFACTURED HOME AND THE ATTACHED GARAGE

DOOR BETWEEN MANUFACTURED HOME AND ATTACHED GARAGE SHALL BE 1 3/8" THICK AND HAVE A 20 MINUTE FIRE RATING

5/8" FIRE RATED GYPSUM BOARD BETWEEN THE MFG HOME AND THE ATTACHED GARAGE



ATTACHED GARAGE
FIGURE 907.1

SOLID FUEL BURNING APPLIANCE FLUE

24" MIN

MIN 28 SQUARE INCH VENT EVERY 10'-0" THE LENGTH OF THE RAMADA ROOF

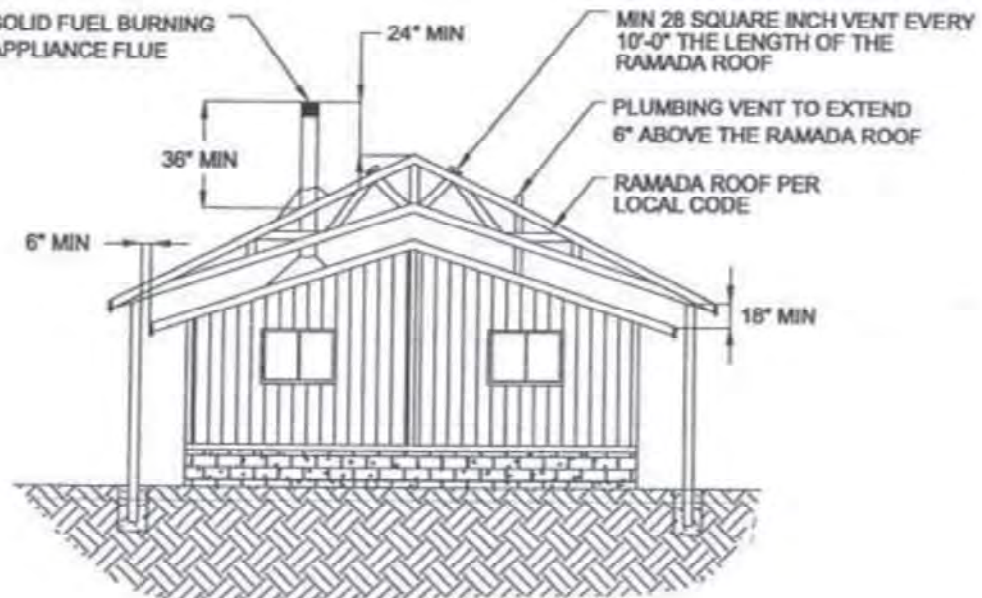
PLUMBING VENT TO EXTEND 6" ABOVE THE RAMADA ROOF

RAMADA ROOF PER LOCAL CODE

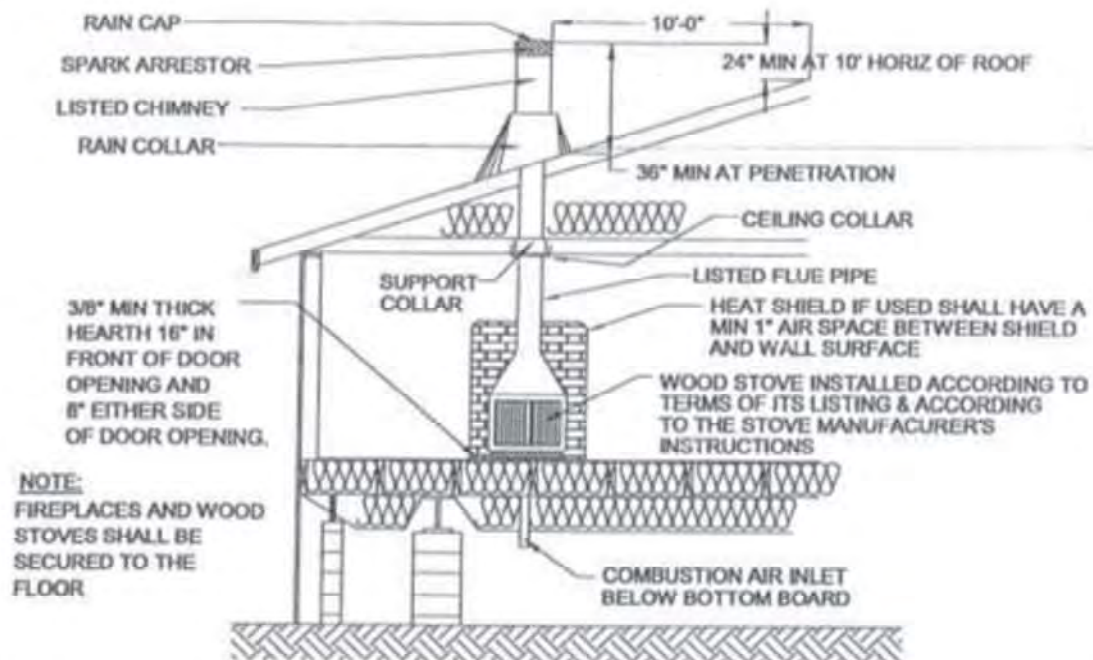
36" MIN

6" MIN

18" MIN

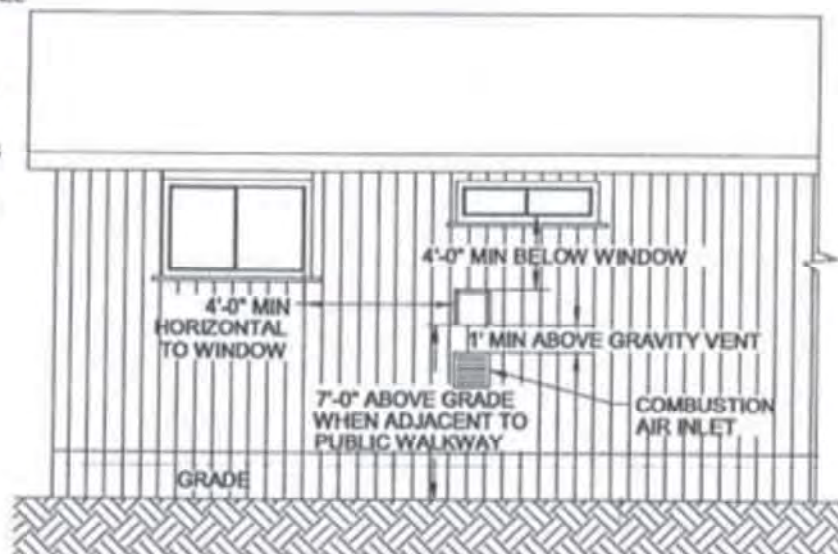


RAMADA INSTALLATION
FIGURE 908.1



WOOD STOVE INSTALLATION
FIGURE 1004.1

NOTE:
HORIZONTAL VENTS SHALL BE LOCATED NOT LESS THAN 2 FEET FROM AN ADJACENT BUILDING, NOT LESS THAN 1 FOOT ABOVE ANY DOOR OR WINDOW, AND NOT LESS THAN 7 FEET ABOVE GRADE WHEN LOCATED ADJACENT TO PUBLIC WALKWAYS.



SIDEWALL VENTILATION TERMINATION
FIGURE 1005.1

>

24 CFR § 3280.5 - Data plate.

CFR Table of Popular Names

§ 3280.5 Data plate.

Each manufactured home shall bear a data plate affixed in a permanent manner near the main electrical panel or other readily accessible and visible location. Each data plate shall be made of material what will receive typed information as well as preprinted information, and which can be cleaned of ordinary smudges or household dirt without removing information contained on the data plate; or the data plate 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. Each data plate shall contain not less than the following information:

- (a)** The name and address of the manufacturing plant in which the manufactured home was manufactured.
- (b)** The serial number and model designation of the unit, and the date the unit was manufactured.
- (c)** The applicable statement:

This manufactured home is designed to comply with the Federal Manufactured Home Construction and Safety Standards in force at the time of manufacture.or

This manufactured home has been substantially completed in accordance with an approved design and has been inspected (except for the components specifically identified in the instructions for completion on-site) in accordance with the Federal Manufactured Home Construction and Safety Standards and the requirements of the Department of Housing and Urban Development (HUD) in effect on the date of manufacture.

(d) The applicable statement:

This manufactured home IS designed to accommodate the additional loads imposed by the attachment of an attached accessory building or structure in accordance with the manufacturer installation instructions. The additional loads are in accordance with the design load(s) identified on this Data Plate; or

This manufactured home IS NOT designed to accommodate the additional loads imposed by the attachment of an attached accessory building or structure in accordance with the manufacturer installation instructions.

(e) A list of the certification label(s) number(s) that are affixed to each transportable manufactured section under § 3280.8.

(f) A list of major factory-installed equipment, including the manufacturer's name and the model designation of each appliance.

(g) Reference to the roof load zone and wind load zone for which the home is designed and duplicates of the maps as set forth in § 3280.305(c). This information may be combined with the heating/cooling certificate and insulation zone map required by §§ 3280.510 and 3280.511. The Wind Zone Map on the Data Plate shall also contain the statement:

This home has not been designed for the higher wind pressures and anchoring provisions required for ocean/coastal areas and should not be located within 1500' of the coastline in Wind Zones II and III, unless the home and its anchoring and foundation system have been designed for the increased requirements specified for Exposure D in ANSI/ASCE 7-88.

(h) 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 and III, which 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 manufacturers printed instructions.

- (i) The statement: “Design Approval by”, followed by the name of the agency that approved the design.
- (j) The statement: The manufacturer certifies this home is compliant with the Title VI, Toxic Substances Control Act.

[59 FR 2469, Jan. 14, 1994, as amended at 80 FR 53727, Sept. 8, 2015; 85 FR 5566, Jan. 31, 2020; 86 FR 2516, Jan. 12, 2021]



CFR Toolbox

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Cornell Law School

CFR › Title 24 › Subtitle B › Chapter XX › Part 3280 › Subpart A › Section 3280.11

24 CFR 3280.11 - Certification label.

§ 3280.11 Certification label.

(a) A permanent label shall be affixed to each transportable section of each manufactured home for sale or lease in the United States. This label shall be separate and distinct from the data plate which the manufacturer is required to provide under § 3280.5 of the standards.

(b) The label shall be approximately 2 in. by 4 in. in size and shall be permanently attached to the manufactured home by means of 4 blind rivets, drive screws, or other means that render it difficult to remove without defacing it. It shall be etched on 0.32 in. thick aluminum plate. The label number shall be etched or stamped with a 3 letter designation which identifies the production inspection primary inspection agency and which the Secretary shall assign. Each label shall be marked with a 6 digit number which the label supplier shall furnish. The labels shall be stamped with numbers sequentially.

(c) The label shall read as follows:

As evidenced by this label No. ABC 000001, the manufacturer certifies to the best of the manufacturer's knowledge and belief that this manufactured home has been inspected in accordance with the requirements of the Department of Housing and Urban Development and is constructed in conformance with the Federal manufactured home construction and safety standards in effect on the date of manufacture. See date plate.

(d) The label shall be located at the tail-light end of each transportable section of the manufactured home approximately one foot up from the floor and one foot in from the road side, or as near that location on a permanent part of the exterior of the manufactured home unit as practicable. The road side is the right side of the manufactured home when one views the manufactured home from the tow bar end of the manufactured home.

[42 FR 960, Jan. 4, 1977. Redesignated at 44 FR 20679, Apr. 6, 1979, as amended at 52 FR 47553, Dec. 15, 1987. Redesignated and amended at 58 FR 55003, Oct. 25, 1993]

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Displaying title 24, up to date as of 8/19/2024. Title 24 was last amended 8/02/2024.

Title 24 —Housing and Urban Development

Subtitle B —Regulations Relating to Housing and Urban Development

Chapter XX

—Office of Assistant Secretary for Housing—Federal Housing Commissioner, Department of Housing and Urban Development

Part 3280 —Manufactured Home Construction and Safety Standards

Subpart D —Body and Frame Construction Requirements

§ 3280.305 Structural design requirements.

- (a) **General.** Each manufactured home must be designed and constructed as a completely integrated structure capable of sustaining the design load requirements of this part and must be capable of transmitting these loads to stabilizing devices without exceeding the allowable stresses or deflections. Roof framing must be securely fastened to wall framing, walls to floor structure, and floor structure to chassis to secure and maintain continuity between the floor and chassis, so as to resist wind overturning, uplift, and sliding as imposed by design loads in this part. In multistory construction, each story must be securely fastened to the story above and/or below to provide continuity and resist design loads in this part. Uncompressed finished flooring greater than $\frac{1}{8}$ inch in thickness must not extend beneath load-bearing walls that are fastened to the floor structure.
- (b) **Design loads —**
 - (1) **Design dead loads.** Design dead loads shall be the actual dead load supported by the structural assembly under consideration.
 - (2) **Design live loads.** The design live loads and wind and snow loads shall be as specified in this section and shall be considered to be uniformly distributed. The roof live load or snow load shall not be considered as acting simultaneously with the wind load and the roof live or snow load and floor live loads shall not be considered as resisting the overturning moment due to wind.
 - (3) When engineering calculations are performed, allowable unit stresses may be increased as provided in the documents referenced in § 3280.304 except as otherwise indicated in §§ 3280.304(b)(1) and 3280.306(a).
 - (4) Whenever the roof slope does not exceed 20 degrees, the design horizontal wind loads required by § 3280.305(c)(1) may be determined without including the vertical roof projection of the manufactured home. However, regardless of the roof slope of the manufactured home, the vertical roof projection shall be included when determining the wind loading for split level or clerestory-type roof systems.
- (c) **Wind, snow, and roof loads —**
 - (1) **Wind loads—design requirements.**
 - (i) **Standard wind loads (Zone I).** When a manufactured home is not designed to resist the wind loads for high-wind areas (Zone II or Zone III) specified in paragraph (c)(1)(ii) of this section, the manufactured home and each of its wind-resisting parts and portions must be designed for horizontal wind loads of not less than 15 psf and a net uplift roof load of not less than 9 psf. The net uplift roof load must not be reduced by the dead load of the roof structure for the purposes of engineering design or structural load testing.
 - (ii) **Wind loads for high wind areas (Zone II and Zone III).** When designed for high wind areas (Zone II and Zone III), the manufactured home, each of its wind resisting parts (including, but not limited to, shear walls, diaphragms, ridge beams, and their fastening and anchoring systems), and its components and cladding materials (including, but not limited to, roof trusses, wall studs, exterior sheathing, roofing and siding materials, exterior glazing, and their connections and fasteners) shall be designed by a Professional Engineer or Architect to resist:
 - (A) The design wind loads for Exposure C specified in ANSI/ASCE 7-88, “Minimum Design Loads for Buildings and Other Structures,” for a fifty-year recurrence interval, and a design wind speed of 100 mph, as specified for Wind Zone II, or 110 mph, as specified for Wind Zone III (Basic Wind Zone Map); or
 - (B) The wind pressures specified in the following table:

TABLE OF DESIGN WIND PRESSURES

Element	Wind zone II design wind speed 100 MPH	Wind zone III design wind speed 110 MPH
Anchorage for lateral and vertical stability (See § 3280.306(a)):		
Net Horizontal Drag ^{1 2} :	³ ±39 PSF	³ ±47 PSF
Uplift ⁴ :	⁵ -27 PSF	-32 PSF
Main wind force resisting system:		
Shearwalls, Diaphragms and their Fastening and Anchorage Systems ^{1 2}	±39 PSF	±47 PSF
Ridge beams and other Main Roof Support Beams (Beams supporting expanding room sections, etc.)	-30 PSF	-36 PSF
Components and cladding:		
Roof trusses ⁴ in all areas; trusses shall be doubled within 3'-0' from each end of the roof	⁵ -39 PSF	⁵ -47 PSF
Exterior roof coverings, sheathing and fastenings ^{4,6,7} in all areas except the following	⁵ -39 PSF	⁵ -47 PSF
Within 3'-0' from each gable end (overhang at end wall) of the roof or endwall if no overhang is provided ^{4,6,7}	⁵ -73 PSF	⁵ -89 PSF
Within 3'-0' from the ridge and eave (overhang at sidewall) or sidewall if no eave is provided ^{4,6,7}	⁵ -51 PSF	⁵ -62 PSF
Eaves (Overhangs at Sidewalls) ^{4,6,7}	⁵ -51 PSF	⁵ -62 PSF
Gables (Overhangs at Endwalls) ^{4,6,7}	⁵ -73 PSF	⁵ -89 PSF
Wall studs in sidewalls and endwalls, exterior windows and sliding glass doors (glazing and framing), exterior coverings, sheathing and fastenings ⁸ :		
Within 3'-0' from each corner of the sidewall and endwall	±48 PSF	±58 PSF
All other areas	±38 PSF	±46 PSF

Element	Wind zone II design wind speed 100 MPH	Wind zone III design wind speed 110 MPH
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NOTES:

¹ The net horizontal drag of ± 39 PSF to be used in calculating Anchorage for Lateral and Vertical Stability and for the design of Main Wind Force Resisting Systems is based on a distribution of wind pressures of + 0.8 or + 24 PSF to the windward wall and -0.5 or -15 PSF to the leeward wall.

² Horizontal drag pressures need not be applied to roof projections when the roof slope does not exceed 20 degrees.

³ + sign would mean pressures are acting towards or on the structure; - sign means pressures are acting away from the structure; \pm sign means forces can act in either direction, towards or away from the structure.

⁴ Design values in this "Table" are only applicable to roof slopes between 10 degrees (nominal 2/12 slope) and 30 degrees.

⁵ The design uplift pressures are the same whether they are applied normal to the surface of the roof or to the horizontal projection of the roof.

⁶ Shingle roof coverings that are secured with 6 fasteners per shingle through an underlayment which is cemented to a 3/8" structural rated roof sheathing need not be evaluated for these design wind pressures.

⁷ Structural rated roof sheathing that is at least 3/8" in thickness, installed with the long dimension perpendicular to roof framing supports, and secured with fasteners at 4" on center within 3'-0" of each gable end or endwall if no overhang is provided and 6" on center in all other areas, need not be evaluated for these design wind pressures.

⁸ Exterior coverings that are secured at 6" o.c. to a 3/8" structural rated sheathing that is fastened to wall framing members at 6" on center need not be evaluated for these design wind pressures.

(iii) One-piece metal roofing capable of resisting the design wind pressures for "Components and Cladding: (Exterior roof coverings)" in the Table for Design Wind Pressures in this section is allowed to be used without structural sheathing, provided the metal roofing is tested using procedures that have been approved by HUD and that meet all requirements of §§ 3280.303(c) and (g) and 3280.401.

(2) **Wind loads—zone designations.** The Wind Zone and specific wind design load requirements are determined by the fastest basic wind speed (mph) within each Zone and the intended location, based on the Basic Wind Zone Map, as follows:

(i) **Wind Zone I.** Wind Zone I consists of those areas on the Basic Wind Zone Map that are not identified in paragraphs (c)(2)(ii) or (iii) of this section as being within Wind Zone II or III, respectively.

(ii) **Wind Zone II.** ...100 mph. The following areas are deemed to be within Wind Zone II of the Basic Wind Zone Map:

Local governments: The following local governments listed by State (counties, unless specified otherwise):
Alabama: Baldwin and Mobile.

Florida: All counties except those identified in paragraph (c)(1)(i)(C) of this section as within Wind Zone III.

Georgia: Bryan, Camden, Chatham, Glynn, Liberty, McIntosh.

Louisiana: Parishes of Acadia, Allen, Ascension, Assumption, Calcasieu, Cameron, East Baton Rouge, East Feliciana, Evangeline, Iberia, Iberville, Jefferson Davis, LaFayette, Livingston, Pointe Coupee, St. Helena, St. James, St. John the Baptist, St. Landry, St. Martin, St. Tammany, Tangipahoa, Vermillion, Washington, West Baton Rouge, and West Feliciana.

Maine: Hancock and Washington.

Massachusetts: Barnstable, Bristol, Dukes, Nantucket, and Plymouth.

Mississippi: George, Hancock, Harrison, Jackson, Pearl River, and Stone.

North Carolina: Beaufort, Brunswick, Camden, Chowan, Columbus, Craven, Currituck, Jones, New Hanover, Onslow, Pamlico, Pasquotank, Pender, Perquimans, Tyrrell, and Washington.

South Carolina: Beaufort, Berkeley, Charleston, Colleton, Dorchester, Georgetown, Horry, Jasper, and Williamsburg.

Texas: Aransas, Brazoria, Calhoun, Cameron, Chambers, Galveston, Jefferson, Kenedy, Kleberg, Matagorda, Nueces, Orange, Refugio, San Patricio, and Willacy.

Virginia: Cities of Chesapeake, Norfolk, Portsmouth, Princess Anne, and Virginia Beach.

(iii) **Wind Zone III.** ...110 mph. The following areas are considered to be within Wind Zone III of the Basic Wind Zone Map:

(A) **States and Territories:** The entire State of Hawaii, the coastal regions of Alaska (as determined by the 90 mph isotach on the ANSI/ASCE 7-88 map), and all of the U.S. Territories of American Samoa, Guam, Northern Mariana Islands, Puerto Rico, Trust Territory of the Pacific Islands, and the United States Virgin Islands.

(B) **Local governments:** The following local governments listed by State (counties, unless specified otherwise):

Florida: Broward, Charlotte, Collier, Dade, Franklin, Gulf, Hendry, Lee, Martin, Manatee, Monroe, Palm Beach, Pinellas, and Sarasota.

Louisiana: Parishes of Jefferson, La Fourche, Orleans, Plaquemines, St. Bernard, St. Charles, St. Mary, and Terrabonne.

North Carolina: Carteret, Dare, and Hyde.

(iv) **Consideration of local requirements.** For areas where wind mapping data or records or the requirements of the State or local authority indicate wind speeds in excess of those identified in this section, the Department may establish, through rulemaking, more stringent requirements for manufactured homes to be installed in such areas.

(3) **Snow and roof loads.**

(i) Flat, curved and pitched roofs shall be designed to resist the following live loads, applied downward on the horizontal projection as appropriate for the design zone marked on the manufactured home:

Zone (see Map in § 3280.305(c)(4))	Pounds per square foot
North Zone	40
Middle Zone	30
South Zone	20

(A) **North Roof Load Zone.** The following counties in each of the following states are deemed to be within the North Roof Load Zone:

Maine—Aroostook, Piscataquis, Somerset, Penobscot, Waldo, Knox, Hancock, and Washington.

Alaska—All Counties

(B) **Middle Roof Load Zone.** The following counties in each of the following states are deemed to be within the Middle Roof Load Zone:

States	Counties			
South Dakota	Grant	Brookings	Hanson	Lincoln
	Codington	Miner	Minnehaha	Yankton

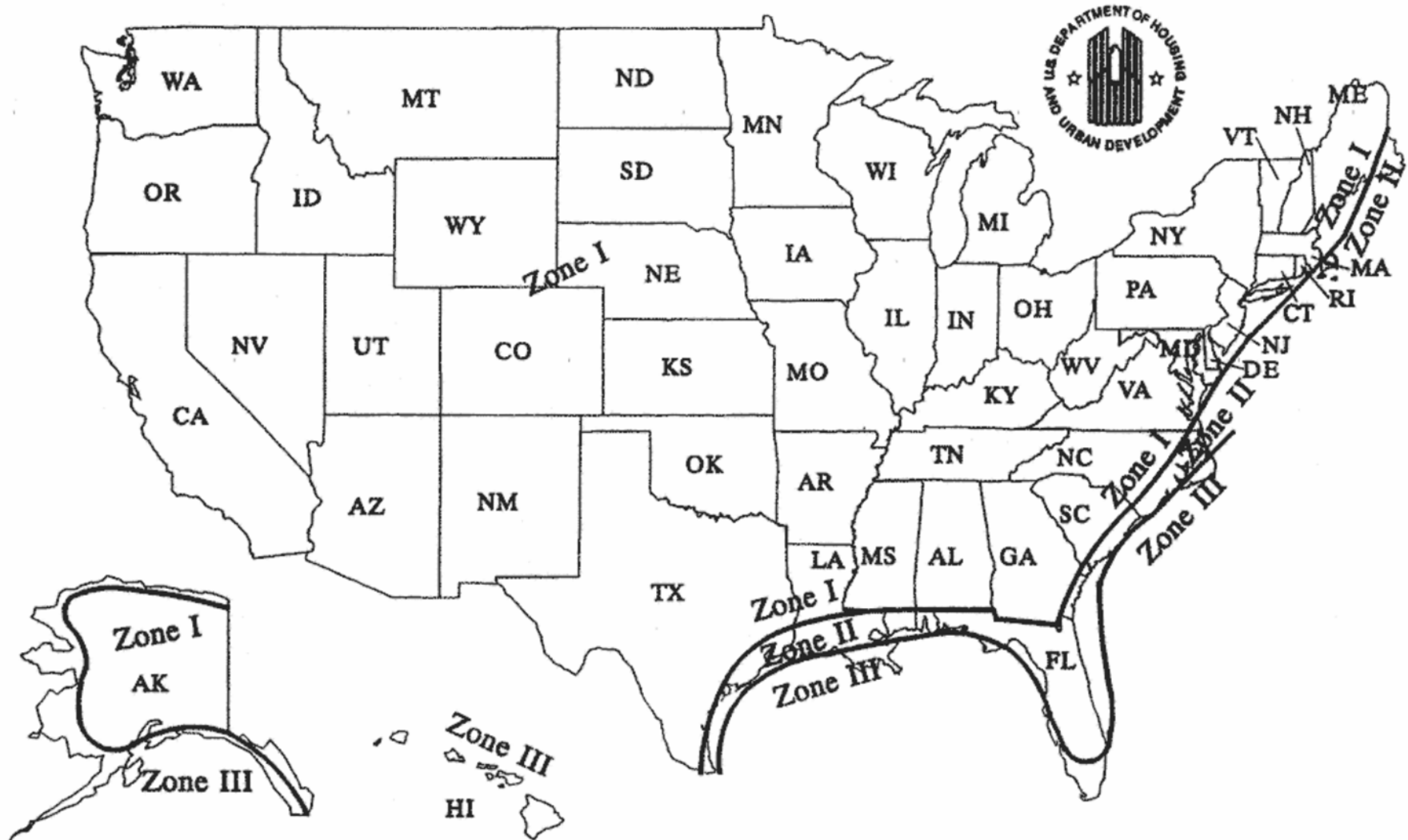
States	Counties			
	Deuel	Lake	Hutchinson	Union
	Hamlin	Moody	Turner	Clay
	Kingsbury	McCook		
Minnesota	Koochiching	Stearns	Renville	Sibley
	Itasca	Swift	McLeod	Nicollet
	Hubbard	Kandiyohi	Carver	Blue Earth
	Cass	Meeker	Dakota	Martin
	Crow Wing	Wright	Goodhue	Watonwan
	Aitkin	Lac qui Parle	Wabasha	Brown
	St. Louis	Chippewa	Winona	Redwood
	Lake	Yellow Medicine	Fillmore	Lyon
	Cook	Mille Lacs	Mower	Lincoln
	Carlton	Kanabec	Olmsted	Pipestone
	Pine	Benton	Dodge	Murray
	Wadena	Isanti	Rice	Cottonwood
	Todd	Sherburne	Steele	Jackson
	Morrison	Anoka	Freeborn	Nobles
	Douglas	Chisapo	Faribault	Rock
	Grant	Washington	Waseca	
	Stevens	Hennepin	Le Sueur	
	Pope	Ramsey	Scott	
Iowa	Hancock	Mitchell	Hamilton	Buena Vista
	Lyon	Howard	Webster	Cherokee
	Osceola	Chickasaw	Calhoun	Plymouth
	Dickinson	Butler	Sac	Sioux
	Emmet	Floyd	Ida	O'Brien
	Kossuth	Cerro Gordo	Humboldt	Clay
	Winnebago	Franklin	Pocahontas	Wright
	Worth	Hardin	Palo Alto	

States	Counties			
Wisconsin	Douglas	Oconto	Pepin	Lincoln
	Bayfield	Menominee	Pierce	Oneida
	Ashland	Langlade	Dunn	Polk
	Iron	Marathon	Eau Claire	Burnett
	Vilas	Clark	Chippewa	Washburn
	Forest	Jackson	Rusk	Sawyer
	Florence	Trempealeau	Barron	Price
	Marinette	Buffalo	Taylor	Door
	St. Croix			
Michigan	Houghton	Iron	Presque Isle	Wexford
	Baraga	Dickinson	Charlevoix	Benzie
	Marquette	Menominee	Montmorency	Grand Traverse
	Alger	Delta	Alpena	Kalkaska
	Luce	Schoolcraft	Alcona	Oscoda
	Chippewa	Mackinac	Ogemaw	Otsego
	Keweenaw	Cheyboygan	Roscommon	Leelanau
	Ontonagon	Emmet	Missaukee	Antrim
	Gogebic	Crawford		
New York	St. Lawrence	Herkimer	Onondaga	Genesee
	Franklin	Lewis	Madison	Orleans
	Clinton	Oswego	Cayuga	Niagara
	Essex	Jefferson	Seneca	Erie
	Hamilton	Oneida	Wayne	Wyoming
	Warren	Fulton	Ontario	Monroe
	Saratoga	Montgomery	Yates	
	Washington	Schenectady	Livingston	
Massachusetts	Essex			
Maine	Franklin	Kennebec	Lincoln	Cumberland
	Oxford	Androscoggin	Sagadahoc	York

States	Counties			
Montana	All Counties			
Idaho	All Counties			
Colorado	All Counties			
Wyoming	All Counties			
Utah	All Counties			
Vermont	Franklin	Orleans	Caledonia	Addison
	Grand Isle	Essex	Washington	Rutland
	Lamoille	Chittenden	Orange	Windsor
New Hampshire	All Counties			

- (C) **South Roof Load Zone.** The states and counties that are not listed for the North Roof Load Zone in paragraph (c)(3)(i)(A) of this section, or the Middle Roof Load Zone in paragraph (c)(3)(i)(B) of this section, are deemed to be within the South Roof Load Zone.
- (ii) **Consideration of local requirements.** For exposures in areas (mountainous or other) where recognized snow records, wind records, or the requirements of the State or local authority indicate significant differences from the loads stated in this paragraph (c)(3), the Department may establish, through rulemaking, more stringent requirements for manufactured homes to be installed in such areas. For snow loads, such requirements must be based on a roof snow load of 0.6 of the ground snow load for areas exposed to wind and a roof snow load of 0.8 of the ground snow load for sheltered areas.
- (iii) Eaves and cornices shall be designed for a net uplift pressure of 2.5 times the design uplift wind pressure cited in § 3280.305(c)(1)(i) for Wind Zone I, and for the design pressures cited in § 3280.305(c)(1)(ii) for Wind Zones II and III.
- (iv) Skylights must be capable of withstanding roof loads as specified in paragraphs (c)(3)(i) or (c)(3)(ii) of this section. Skylights must be listed and tested in accordance with AAMA 1600/I.S.7-00, 2003, Voluntary Specification for Skylights.
- (4) **Data plate requirements.** The Data Plate posted in the manufactured home (see § 3280.5) shall designate the wind and roof load zones or, if designed for higher loads, the actual design external snow and wind loads for which the home has been designed. The Data Plate shall include reproductions of the Load Zone Maps shown in this paragraph (c)(4), with any related information. The Load Zone Maps shall be not less than either 3¹/₂ in. by 2¹/₄ in., or one-half the size illustrated in the Code of Federal Regulations.

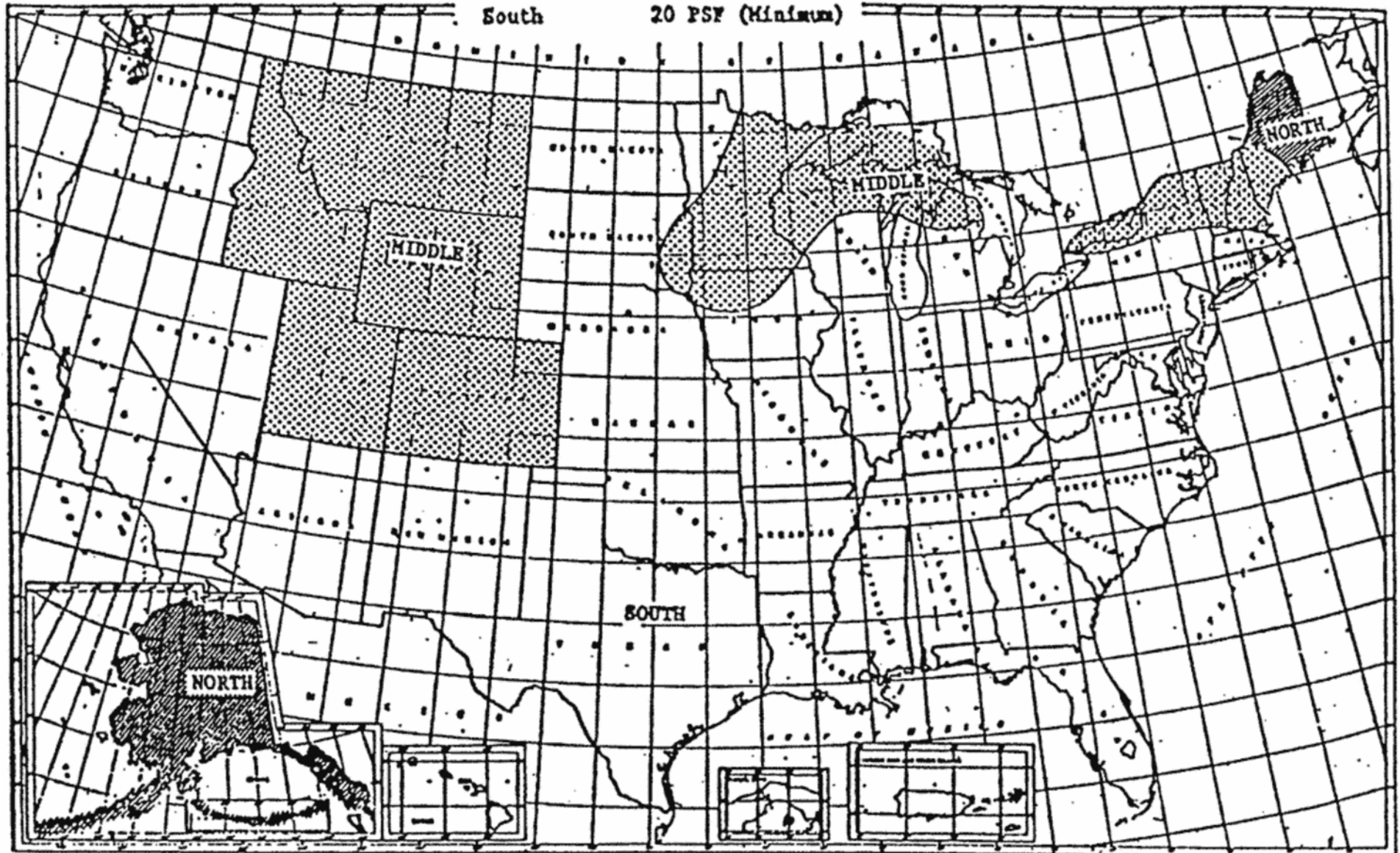
Basic Wind Zone Map for Manufactured Housing



NOTE: See Section 3280.305(c)(2) for areas included in each Wind Zone.

ROOF LOAD ZONE MAP

North	40 PSF (Snow)
Middle	30 PSF (Snow)
South	20 PSF (Minimum)



- (1) When a structural assembly is subjected to total design live loads, the deflection for structural framing members shall not exceed the following (where L equals the clear span between supports or two times the length of a cantilever):

Floor— $L/240$

Roof and ceiling— $L/180$

Headers, beams, and girders (vertical load)— $L/180$

Walls and partitions— $L/180$

- (2) The allowable eave or cornice deflection for uplift is to be measured at the design uplift load of 9 psf for Wind Zone I, and at the design uplift pressure cited in paragraph (c)(1)(ii) of this section for Wind Zones II and III. The allowable deflection shall be $(2 \times L_c)/180$, where L_c is the measured horizontal eave projection from the wall.

(e) **Fastening of structural systems.**

- (1) Roof framing must be securely fastened to wall framing, walls to floor structure, and floor structure to chassis, to secure and maintain continuity between the floor and chassis in order to resist wind overturning, uplift, and sliding, and to provide continuous load paths for these forces to the foundation or anchorage system. The number and type of fasteners used must be capable of transferring all forces between elements being joined. In multistory construction, each story must be securely fastened to the story above and/or below to provide continuity and resist design loads in this section.
- (2) For Wind Zone II and Wind Zone III, roof framing members must be securely fastened at the vertical bearing points to resist design overturning, uplift, and sliding forces. When engineered connectors are not installed, roof framing members must be secured at the vertical bearing points to wall framing members (studs), and wall framing members (studs) must be secured to floor framing members, with 0.016 inch base metal, minimum steel strapping or engineered connectors, or by a combination of 0.016 inch base metal, minimum steel strapping or engineered connectors, and structural-rated wall sheathing that overlaps the roof and floor system if substantiated by structural analysis or by suitable load tests. Steel strapping or engineered connectors are to be installed at a maximum spacing of 24 inches on center in Wind Zone II, and 16 inches on center in Wind Zone III. *Exception:* Where substantiated by structural analysis or suitable load tests, the 0.016 inch base metal minimum steel strapping or engineered connectors may be omitted at the roof to wall and/or wall to floor connections, when structural rated sheathing that overlaps the roof and wall and/or wall and floor is capable of resisting the applicable design wind loads.

- (f) **Walls.** The walls shall be of sufficient strength to withstand the load requirements as defined in § 3280.305(c) of this part, without exceeding the deflections as specified in § 3280.305(d). The connections between the bearing walls, floor, and roof framework members shall be fabricated in such a manner as to provide support for the material used to enclose the manufactured home and to provide for transfer of all lateral and vertical loads to the floor and chassis.

- (1) Except where substantiated by engineering analysis or tests, studs shall not be notched or drilled in the middle one-third of their length.
- (2) Interior walls and partitions shall be constructed with structural capacity adequate for the intended purpose and shall be capable of resisting a horizontal load of not less than five pounds per square foot. An allowable stress increase of 1.33 times the permitted published design values may be used in the design of wood framed interior partitions. Finish of walls and partitions shall be securely fastened to wall framing.

(g) **Floors.**

- (1) Floor assemblies shall be designed in accordance with accepted engineering practice standards to support a minimum uniform live load of 40 lb/ft² plus the dead load of the materials. In addition (but not simultaneously), floors shall be able to support a 200-pound concentrated load on a one-inch diameter disc at the most critical location with a maximum deflection not to exceed one-eighth inch relative to floor framing. Perimeter wood joists of more than six inches depth shall be stabilized against overturning from superimposed loads as follows: at ends by solid blocking not less than two-inch thickness by full depth of joist, or by connecting to a continuous header not less than two-inch thickness and not less than the depth of the joist with connecting devices; at eight-foot maximum intermediate spacing by solid blocking or by wood cross-bridging of not less than one inch by three inches, metal cross-bridging of equal strength, or by other approved methods.
- (2) Wood, wood fiber or plywood floors or subfloors in kitchens, bathrooms (including toilet compartments), laundry areas, water heater compartments, and any other areas subject to excessive moisture shall be moisture resistant or shall be made moisture resistant by sealing or by an overlay of nonabsorbent material applied with water-resistant adhesive. Use of one of the following methods would meet this requirement:
- (i) Sealing the floor with a water-resistant sealer; or
- (ii) Installing an overlay of a non-absorbent floor covering material applied with water-resistant adhesive; or

(iii) Direct application of a water-resistant sealer to the exposed wood floor area when covered with a non-absorbent overlay; or

(iv) The use of a non-absorbent floor covering which may be installed without a continuous application of a water-resistant adhesive or sealant when the floor covering meets the following criteria:

(A) The covering is a continuous membrane with any seams or patches seam bonded or welded to preserve the continuity of the floor covering; and

(B) The floor is protected at all penetrations in these areas by sealing with a compatible water-resistant adhesive or sealant to prevent moisture from migrating under the nonabsorbent floor covering; and

(C) The covering is fastened around the perimeter of the subfloor in accordance with the floor covering manufacturer's instructions; and,

(D) The covering is designed to be installed to prevent moisture penetration without the use of a water-resistant adhesive or sealer except as required in this paragraph (g). The vertical edges of penetrations for plumbing shall be covered with a moisture-resistant adhesive or sealant. The vertical penetrations located under the bottom plates of perimeter walls of rooms, areas, or compartments are not required to be sealed; this does not include walls or partitions within the rooms or areas.

(3) Wood panel products used as floor or subfloor materials on the exterior of the home, such as in recessed entryways, must be rated for exterior exposure and protected from moisture by sealing or applying nonabsorbent overlay with water resistant adhesive.

(4) Carpet or carpet pads shall not be installed under concealed spaces subject to excessive moisture, such as plumbing fixture spaces, floor areas under installed laundry equipment. Carpet may be installed in laundry space provided:

(i) The appliances are not provided;

(ii) The conditions of paragraph (g)(2) of this section are followed; and

(iii) Instructions are provided to remove carpet when appliances are installed.

(5) Except where substantiated by engineering analysis or tests:

(i) Notches on the ends of joists shall not exceed one-fourth the joist depth.

(ii) Holes bored in joists shall not be within 2 inches of the top or bottom of the joist, and the diameter of any such hole shall not exceed one-third the depth of the joist.

(iii) Notches in the top or bottom of the joists shall not exceed one-sixth the depth and shall not be located in the middle third of the span.

(6) Bottom board material (with or without patches) must meet or exceed the level of 48 inch-pounds of puncture resistance as tested by the Beach Puncture Test in accordance with Standard Test Methods for Puncture and Stiffness of Paperboard, and Corrugated and Solid Fiberboard, ASTM D781-1968 (Reapproved 1973) (incorporated by reference, see § 3280.4). The material must be suitable for patches and the patch life must be equivalent to the material life. Patch installation instruction must be included in the manufactured home manufacturer's instructions. The bottom board material must be tight fitted against all penetrations.

(h) **Roofs.**

(1) Roofs shall be of sufficient strength to withstand the load requirements as defined in § 3280.305 (b) and (c) without exceeding the deflections specified in § 3280.305(d). The connections between roof framework members and bearing walls shall be fabricated in such a manner to provide for the transfer of design vertical and horizontal loads to the bearing walls and to resist uplift forces.

(2) Roofing membranes shall be of sufficient rigidity to prevent deflection which would permit ponding of water or separation of seams due to wind, snow, ice, erection or transportation forces.

(3) Cutting of roof framework members for passage of electrical, plumbing or mechanical systems shall not be allowed except where substantiated by engineering analysis.

(4) All roof penetrations for electrical, plumbing or mechanical systems shall be properly flashed and sealed. In addition, where a metal roof membrane is penetrated, a wood backer shall be installed. The backer plate shall be not less than $\frac{5}{16}$ inch plywood, with exterior glues, secured to the roof framing system beneath the metal roof, and shall be of a size to assure that all screws securing the flashing are held by the backer plate.

- (5) Portions of roof assemblies, including, but not limited to, dormers, gables, crickets, hinged roof sections, sheathing, roof coverings, underlayments, flashings, and eaves and overhangs are permitted to be assembled and installed on site in accordance with 24 CFR part 3282, subpart M, provided that the requirements in paragraphs (h)(5)(i) through (iv) of this section are met.

- (i) Approved installation instructions must be provided that include requirements for the following items:

- (A) Materials, installation, and structural connections complying with this section;
- (B) Installation and fastening of sheathing and roof coverings;
- (C) Installation of appliance vent systems in accordance with § 3280.710;
- (D) Installation of plumbing vents as required by § 3280.611; and
- (E) Installation of attic ventilation in accordance with § 3280.504(c).

- (ii) The installation instructions specified in paragraph (h)(5)(i) of this section must include drawings, details, and instructions as necessary to assure that the on-site work complies with the approved design.

- (iii) The installation instructions specified in paragraph (h)(5)(i) of this section must provide for inspection of the work at the installation site. As necessary to ensure conformance, inspection panels may be required, or inspections may need to occur in stages that assure inspections are performed before any work is concealed. Such inspection procedures shall be addressed in the approved installation instructions.

- (iv) Temporary weather protection must be provided per § 3280.307(e).

- (i) **Frame construction.** The frame shall be capable of transmitting all design loads to stabilizing devices without exceeding the allowable load and deflections of this section. The frame shall also be capable of withstanding the effects of transportation shock and vibration without degradation as required by subpart J.

- (1) [Reserved]

- (2) **Protection of metal frames against corrosion.** Metal frames shall be made corrosion resistant or protected against corrosion. Metal frames may be protected against corrosion by painting.

- (j) **Welded connections.**

- (1) All welds must be made in accordance with the applicable provisions of the Specification for Structural Steel Buildings, Allowable Stress Design and Plastic Design, AISC-S335, 1989; the Specification for the Design of Cold-Formed Steel Structural Members, AISI, 1996; and the Specification for the Design of Cold-Formed Stainless Steel Structural Members, SEI/ASCE 8-02, 2002.

- (2) Regardless of the provisions of any reference standard contained in this subpart, deposits of weld slag or flux shall be required to be removed only from welded joints at the following locations:

- (i) Drawbar and coupling mechanisms;
- (ii) Main member splices, and
- (iii) Spring hanger to main member connections.

- (k) **Attics.**

- (1) For roofs with slopes 7:12 or greater, the area of the attic floor that meets the ceiling-height/living-space requirements of these construction and safety standards must be designed to resist a minimum design live load of 40 pounds per square foot (psf) in accordance with paragraph (g) of this section.

- (2) For roofs with slopes less than 7:12 that contain an attic area or for portions of roofs with slopes 7:12 or greater that do meet the ceiling height/living space requirements of the standards, the attic floor must be designed for a storage live load of 20 pounds per square foot (psf).