

**Clearinghouse Rule 17-017**

STATE OF WISCONSIN  
DEPARTMENT OF SAFETY AND PROFESSIONAL SERVICES

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IN THE MATTER OF RULEMAKING : PROPOSED ORDER OF THE  
PROCEEDINGS BEFORE THE : DEPARTMENT OF SAFETY AND  
DEPARTMENT OF SAFETY AND : PROFESSIONAL SERVICES  
PROFESSIONAL SERVICES : ADOPTING RULES  
: (CLEARINGHOUSE RULE )  
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PROPOSED ORDER

An order of the Department of Safety and Professional Services to amend SPS 302.34 (6) and 302.52 (2) and create SPS 320.05 (10), 320.07 (10r), ch. 327, 381.01 (50g) and (50r), and 383.32 (1) (i), relating to camping units.

Analysis prepared by the Department of Safety and Professional Services.

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ANALYSIS

**Statutes interpreted:**

Sections 101.63 (1), 101.82 (1), and 145.02 (2) (b), Stats.

**Statutory authority:**

Sections 101.63 (1), 101.82 (1), and 145.02 (2) (b), Stats.

**Explanation of agency authority:**

Section 101.63 (1), Stats. requires the department to adopt rules which establish standards for the construction and inspection of one- and 2-family dwellings and components thereof. The rules shall include separate standards, established in consultation with the [uniform] dwelling code council, that apply only to the construction and inspection of camping units that are set in a fixed location in a campground for which a permit is issued under s. 254.47 [s. 97.67], that contain a sleeping place, and that are used for seasonal overnight camping. Where feasible, the standards used shall be those nationally recognized and shall apply to the dwelling and to its electrical, heating, ventilating, air conditioning and other systems, including plumbing, as defined in s. 145.01 (10). No set of rules may be adopted which has not taken into account the conservation of energy in construction and maintenance of dwellings.

Section 101.82 (1), Stats. requires the department to promulgate by rule a state electrical wiring code that establishes standards for installing, repairing, and maintaining electrical wiring. The rules shall include separate standards, established in consultation with the [uniform] dwelling code council, that apply only to electrical wiring in camping units that are set in a fixed location in a campground for which a permit is issued under s. 254.47

[s. 97.67], that contain a sleeping place, and that are used for seasonal overnight camping. Where feasible, the rules shall reflect nationally recognized standards.

Section 145.02 (2) (b), Stats. requires the department to promulgate rules that establish separate plumbing standards applicable only to camping units that are set in a fixed location in a campground for which a permit is issued under s. 254.47 [s. 97.67], that contain a sleeping place, and that are used for seasonal overnight camping. If the department has appointed one or more committees under s. 227.13 to advise the department on rule making with respect to private on-site wastewater treatment systems or other plumbing systems, the department shall promulgate the rules required under this paragraph in consultation with those committees.

**Related statute or rule:**

Rules regulating the design, construction, and administration of campgrounds are in ch. ATCP 79. Rules regulating the design, construction, and inspection of one- and two-family dwellings are in chs. SPS 320 to 325.

**Plain language analysis:**

These rules establish uniform statewide construction standards and inspection and approval procedures for camping units in accordance with the requirements of ss. 101.63 (1), 101.82 (1), and 145.02 (2) (b), Stats. The standards established by the rules include:

- The general construction of camping units, including framing, roofing, interior design, and exterior covering.
- The design, installation, and construction of all heating, ventilating, and air conditioning systems in camping units.
- All electrical wiring, installations, equipment, and materials used in the construction of camping units.
- The design, construction, and installation of plumbing in camping units.
- The installation, inspection, and servicing of camping unit transfer tanks.

**Summary of, and comparison with, existing or proposed federal regulation:**

There are no federal provisions regulating the construction and inspection of camping units.

**Comparison with rules in adjacent states:**

**Illinois:**

The Illinois Department of Public Health provides rules for the design, construction, and administration of campgrounds in Illinois (77 Ill. Adm. Code Part 800). This includes provisions for the design and construction of buildings located in a campground (77 Ill. Adm. Code 800.1200) and electrical installation (77 Ill. Adm. Code 800.1600).

**Iowa:**

The State of Iowa does not have rules specific to the construction and inspection of camping units.

**Michigan:**

The Michigan Department of Environmental Quality provides rules for the design, construction, and administration of campgrounds in Michigan (Mich Admin Code, R 325.1551 to 325.1599). This includes provisions for the design and construction of structures located in a campground (Mich Admin Code, R 325.1556), plumbing (Mich Admin Code, R 325.1578) and electrical installations (Mich Admin Code, R 325.1583).

**Minnesota:**

The Minnesota Department of Health provides rules for the design, construction, and administration of campgrounds in Minnesota (Minnesota Rules, chapter 4630). This includes provisions for the design and construction of buildings and sleeping quarters located in children's camps (Minnesota Rules, parts 4630.2400 and 4630.2500).

**Summary of factual data and analytical methodologies:**

The department received input regarding the regulation of camping units during meetings with the Dwelling Code Council and the POWTS Advisory Code Council. The makeup of these councils is established under s. 15.407 (10), Stats., and consists of members who are appointed by the Governor.

The Dwelling Code Council includes representatives of several types of small businesses. These businesses provide input on design, construction, and inspection interests relative to the Uniform Dwelling Code and provided guidance and insight regarding camping unit design, construction, and inspection. The POWTS Advisory Code Council provided input on the wastewater treatment aspects of camping units at campgrounds. Through these councils, the department was able to gather information on the potential impacts of the rule revisions contained herein.

**Analysis and supporting documents used to determine effect on small business or in preparation of economic impact analysis:**

As camping units are currently subject to construction standards and inspection procedures under Wisconsin's Uniform Dwelling Code (chs. SPS 320 to 325), these rules do not impose new requirements. The purpose of these rules is to, in accordance with the requirements of ss. 101.63 (1), 101.82 (1), and 145.02 (2) (b), Stats., establish uniform statewide construction standards and inspection procedures for camping units.

The proposed rules were posted for a period of 14 days to solicit public comment on economic impact, including how the proposed rules may affect businesses, local government units, and individuals. No comments were received.

**Fiscal Estimate and Economic Impact Analysis:**

The Fiscal Estimate and Economic Impact Analysis document is attached.

**Effect on small business:**

These rules do not have an economic impact on small businesses, as defined in s. 227.114 (1), Stats. The Department’s Regulatory Review Coordinator may be contacted by email at Greg.Gasper@wisconsin.gov, or by calling (608) 261-4466.

**Agency contact person:**

Dale Kleven, Administrative Rules Coordinator, Department of Safety and Professional Services, Division of Policy Development, 1400 East Washington Avenue, Room 151, P.O. Box 8366, Madison, Wisconsin 53708; telephone 608-261-4472; email at DSPSAdminRules@wisconsin.gov.

**Place where comments are to be submitted and deadline for submission:**

Comments may be submitted to Dale Kleven, Administrative Rules Coordinator, Department of Safety and Professional Services, Division of Policy Development, 1400 East Washington Avenue, Room 151, P.O. Box 8366, Madison, WI 53708-8935, or by email to DSPSAdminRules@wisconsin.gov. Comments must be received at or before the public hearing to be held at 9:00 a.m. on April 20, 2017, to be included in the record of rule-making proceedings.

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TEXT OF RULE

SECTION 1. SPS 302.34 (6) is amended to read:

**SPS 302.34 (6) WISCONSIN INSIGNIAS.** Fees for Wisconsin insignias shall be assessed and computed on the basis of \$25.00 for each dwelling unit or camping unit.

SECTION 2. SPS 302.52 (2) is amended to read:

**SPS 302.52 (2) PETITIONS FOR VARIANCE ON RULES UNDER CHS. SPS 320 TO 325, UNIFORM DWELLING CODE, CH. SPS 327, CAMPING UNITS, AND CH. SPS 367, RENTAL UNIT ENERGY EFFICIENCY CODE.** The fee for reviewing petitions for variance on rules under chs. SPS 320 to 325, SPS 327, and SPS 367 shall be \$175.00 per petition.

SECTION 3. SPS 320.05 (10) is created to read:

**SPS 320.05 (10) CAMPING UNITS.** The provisions of this code do not apply to camping units subject to the provisions of ch. SPS 327.

SECTION 4. SPS 320.07 (10r) is created to read:

**SPS 320.07 (10r)** “Camping unit” has the meaning given in s. SPS 327.08 (9).

SECTION 5. Chapter SPS 327 is created to read:

**Chapter SPS 327**  
**CAMPING UNITS**

**Subchapter I— Administration and Enforcement**

**SPS 327.01 Purpose.** The purpose of this code is to establish uniform statewide construction standards and inspection procedures for camping units in accordance with the requirements of ss. 101.63 (1), 101.82 (1), and 145.02 (2) (b), Stats.

**SPS 327.02 Scope. (1) GENERAL.** The provisions of this code apply to all camping units built on or after the effective date of this section.

**(2) MUNICIPAL ORDINANCES.**

**(a)** A municipality may not adopt an ordinance on any subject falling within the scope of this code including establishing restrictions on the occupancy of camping units for any reason other than noncompliance with the provisions of this code as set forth in s. SPS 327.11 (5). This code does not apply to occupancy requirements occurring after the first occupancy following the final inspection required under s. SPS 327.11 (4).

**(b)** This code shall not be construed to affect local requirements relating to land use, zoning, post-construction storm water management, fire districts, side, front and rear setback requirements, property line requirements or other similar requirements. This code shall not affect the right of municipalities to establish safety regulations for the protection of the public from hazards at the job site.

**(c)** Any municipality may, by ordinance, require permits and fees for any construction, additions, alterations or repairs not within the scope of this code.

**(d)** Any municipality may, by ordinance, adopt the provisions of this chapter to apply to any additions or alterations to existing camping units.

**(e)** Nothing in this chapter shall prevent a municipality from any of the following:

**1.** Implementing erosion and sediment control requirements that are more stringent than the standards of this code when directed by an order of the United States Environmental Protection Agency or by an administrative rule of the department of natural resources under s. NR 151.004.

**2.** Regulating erosion and sediment control for sites that are not under the scope of this chapter.

**(f)** This code shall not be construed to affect the authority of the department of natural resources to enforce chapters 281 and 283, Stats., and administrative rules promulgated there under.

(3) **LEGAL RESPONSIBILITY.** The department or the municipality having jurisdiction shall not assume legal responsibility for the design or construction of camping units.

(4) **RETROACTIVITY.** The provisions of this code are not retroactive, except as specifically stated in a rule.

(5) **LANDSCAPING.** The scope of this code does not extend to driveways, sidewalks, landscaping, and other similar features not having an impact on the camping unit structure.

**SPS 327.03 Effective date.** The effective date of this chapter is February 6, 2017.

**SPS 327.04 Applications.**

(1) **NEW CAMPING UNITS.**

(a) This code applies to all camping units for which construction commenced on or after the effective date of this code.

(b) All camping units covered under par. (a) shall meet the requirements of this chapter.

(c) If a plumbing, electrical, heating, or air conditioning system is installed, the system shall meet the requirements of this chapter.

(2) **ADDITIONS AND ALTERATIONS.** Additions and alterations to camping units covered by this code shall comply with all provisions of this code at the time of permit application or the beginning of the project, if no permit is required.

(3) **CHANGE OF USE.** Property previously used for another purpose shall comply with this code upon conversion to a camping unit.

**Note:** Examples of property that may be converted to a camping unit include a cabin, covered wagon, or gazebo.

**SPS 327.05 Exemptions.**

(1) **EXISTING CAMPING UNITS.** The provisions of this code shall not apply to camping units, the construction of which was commenced prior to the effective date of this code, or to additions or alterations to such camping units.

**Note:** The provisions of this chapter may be adopted by a municipality to apply to any additions or alterations to existing camping units.

(2) **REPAIRS.** The provisions of this code do not apply to repairs or maintenance to camping units, or to the repair of electrical, plumbing, heating, ventilating, air conditioning and other systems installed therein.

(3) **ACCESSORY BUILDINGS.** The provisions of this code do not apply to detached garages or to any accessory buildings detached from the camping unit.

(4) **DETACHED DECKS.** The provisions of this code do not apply to detached decks provided the deck does not serve an exit from the camping unit.

(5) MANUFACTURED AND MODULAR HOMES. The provisions of this code do not apply to manufactured homes and modular homes.

(6) MOTOR HOMES AND RECREATIONAL VEHICLES. The provisions of this code do not apply to motor homes, and recreational vehicles, park model recreational vehicles, and recreational mobile homes.

**SPS 327.06 Procedure for municipalities.**

**(1) MUNICIPAL JURISDICTION.**

(a) *General.* **1.** Except as provided in par. (b), cities, villages, towns, and counties approved by the department under s. SPS 320.06 to exercise jurisdiction over the construction and inspection of new dwellings shall exercise jurisdiction over the construction and inspection of new camping units.

**2.** Municipalities exercising jurisdiction under subd. 1. shall, by ordinance, adopt this code in its entirety.

**3.** No additional requirements within the scope of this code may be adopted by a municipality unless approved by the department in accordance with s. SPS 327.17.

(b) *Intent to not exercise jurisdiction.* Municipalities intending not to exercise jurisdiction over the construction and inspection of new camping units shall notify the department, in writing, within 90 days of the effective date of this code.

(c) *Rescission of ordinances.* Municipalities that rescind an ordinance under par. (a) shall file a certified copy of the rescission with the department within 30 days of adoption.

**Note:** Notification of intent to not exercise jurisdiction and certified copies of rescissions of ordinances should be sent to Department of Safety and Professional Services, Industry Services Division, PO Box 2658, Madison, WI 53701-2658.

**(2) DEPARTMENTAL JURISDICTION.** In municipalities not exercising jurisdiction under sub. (1), the department will oversee enforcement and inspection services for new camping units.

**SPS 327.07 State jurisdiction.** In accordance with s. 101.64 (8), Stats., municipalities administering the code may be monitored by the department for compliance with the administrative requirements under this code.

**SPS 327.08 Definitions.** In this chapter:

(1) "Accessory building" means a detached building, not used as a camping unit but is incidental to that of the camping unit and which is located on the same lot. Accessory building does not mean farm building.

(2) "Addition" means new construction performed on a camping unit which increases the outside dimensions of the camping unit.

(3) "Allowable stress" means the specified maximum permissible stress of a material expressed in load per unit area.

(4) "Alteration" means an enhancement, upgrading, or substantial change or modification other than an addition or repair to a camping unit or to electrical, plumbing, heating, ventilating, air conditioning, and other systems within a camping unit.

(5) "Approved" means an approval by the department or its authorized representative. (Approval is not to be construed as an assumption of any legal responsibility for the design or construction of the camping unit.)

(6) "Building component" means any subsystem, subassembly, or other system designed for use in or as part of a structure, which may include structural, electrical, mechanical, plumbing, and fire protection systems and other systems affecting health and safety.

(7) "Building system" means plans, specifications and documentation for a system of manufactured building or for a type or a system of building components, which may include structural, electrical, mechanical, plumbing, and variations which are submitted as part of the building system.

(8) "Campground" has the meaning given in s. ATCP 79.03 (3).

**Note:** ATCP 79.03 (3) reads: "Campground" means a parcel or tract of land owned by a person, state, or local government that is designed, maintained, intended, or used for the purpose of providing campsites offered with or without charge, for temporary overnight sleeping accommodations.

(9) "Camping unit" means a framed structure or a tent, teepee, yurt, or other structure with fabric roof or walls that is 400 square feet or less in area, which is used for seasonal overnight camping in a campground.

(10) "Camping unit transfer tank" or "transfer tank" means a type of portable container used to collect and hold wastewater discharges generated by an individual camping unit.

(11) "Ceiling height" means the clear vertical distance from the finished floor to the finished ceiling.

(12) "Certified UDC inspector" means a person certified by the department to engage in the administration and enforcement of this code.

(13) A "chimney" is one or more vertical, or nearly so, passageways or flues for the purpose of conveying flue gases to the atmosphere.

(14) "Code" means this chapter.

(15) "Common area" means a kitchen, hallway, or any habitable room.

(16) "Cooling load" is the rate at which heat must be removed from the space to maintain a selected indoor air temperature during periods of design outdoor weather conditions.

(17) "Deck" means an unenclosed exterior structure, attached or adjacent to the exterior wall of a camping unit, which has a floor, but no roof.

(18) "Department" means the department of safety and professional services.



(19) "Dilution air" means air that is provided for the purpose of mixing with flue gases in a draft hood or draft regulator.

(20) "Direct-vent appliance" means a gas-burning appliance that is constructed and installed so that all air for combustion is derived directly from the outside atmosphere and all flue gases are discharged to the outside atmosphere.

(21) "Exit" means a direct, continuous, unobstructed means of egress from inside the camping unit to the exterior of the camping unit.

(22) "Fireblocking" means a material or device used to retard or prevent the spread of flame or hot gases through concealed spaces into adjacent rooms or areas.

(23) "First floor" means the first floor level above any groundfloor or basement or, in the absence of a groundfloor or basement, means the lowest floor level in the camping unit.

(24) "Flight" means a continuous series of risers and treads, with no intermediate landings.

(25) "Gas appliance" means any device that uses gas as a fuel or raw material to produce light, heat, power, refrigeration, or air conditioning.

(26) "Groundfloor" means that level of a camping unit, below the first floor, located on a site with a sloping or multilevel grade and which has a portion of its floor line at grade.

(27) "Guard" means a barrier erected to prevent a person from falling to a lower level.

(28) "Habitable room" means any room used for sleeping, living, or dining purposes, excluding such enclosed places as kitchens, closets, pantries, bath or toilet rooms, hallways, laundries, storage spaces, utility rooms, and similar spaces.

(29) "Handrail" means a horizontal or sloping rail intended for grasping by a hand, for guidance or support or preventing a fall down a stair.

(30) "Heating load" is the estimated heat loss of each room or space to be heated, based on maintaining a selected indoor air temperature during periods of design outdoor weather conditions. The total heat load includes: the transmission losses of heat transmitted through the wall, floor, ceiling, glass or other surfaces; and either the infiltration losses or heat required to warm outdoor air used for ventilation.

(31) "HVAC" means heating, ventilating and air conditioning.

(32) "HVAC system" means the equipment, distribution network, and terminals that provide either collectively or individually the processes of heating, ventilating, or air conditioning to a building.

(33) "Insignia" or "Wisconsin insignia" means a device or seal approved by the department to certify compliance with this code.

(34) "Kitchen" means an area used, or designed to be used, for the preparation of food.

(35) "Land disturbing construction activity" means any man-made alteration of the land surface resulting in a change in the topography or existing vegetative or non-vegetative soil cover, that may result in storm water runoff and lead to an increase in soil erosion and movement of sediment.

(36) "Listed and listing" means equipment or building components which are tested by an independent testing agency and accepted by the department.

(37) "Loft" means an upper room or floor with one side that has at least 50% of the space from the floor to the ceiling open to the floor below.

(38) "Manufactured home" has the meaning given in s. 101.91 (2), Stats.

(39) "Mechanical draft system" means a venting system for a gas burning appliance that is designed to remove flue or vent gases by mechanical means, such as a fan, which may consist of an induced draft portion under non-positive static pressure or a forced draft portion under positive static pressure.

(40) "Modular home" has the meaning given in s. 101.71 (6), Stats.

(41) "Motor home" has the meaning given in s. 340.01 (33m), Stats.

(42) "Municipality" means any city, village, town or county in this state.

(43) "Naturally vented appliance" means an appliance with a venting system designed to remove flue or vent gases under non-positive static vent pressure entirely by natural draft.

(44) "Owner" means any person having a legal or equitable interest in the camping unit.

(45) "Park model recreational vehicle" means a factory built vehicular structure that is designed only for recreational use and not as a primary residence or for permanent occupancy, is built and certified in accordance with NFPA 1192-15, Standard for Recreational Vehicles, or ANSI A119.5-15, Recreational Park Trailer Standard, and is not certified as a manufactured home.

(46) "Porch" means an unenclosed exterior structure at or near grade attached or adjacent to the exterior wall of any camping unit, and having a roof and floor.

(47) "Pre-existing insignia" or "Wisconsin pre-existing insignia" means a device or seal approved by the department for camping units constructed before the effective date of this code.

(48) "Recreational mobile home" has the meaning given in s. 66.0435 (1) (hm), Stats.

(49) "Recreational vehicle" has the meaning given in s. 340.01 (48r), Stats.

(50) "Registered UDC inspection agency" means a person, business, or entity that is registered with the department for the purpose of facilitating issuance of Wisconsin camping unit building permits and inspection of camping units in municipalities where the department has jurisdiction pursuant to s. 101.651 (3) (b), Stats.

(51) "Repair" means the act or process of restoring to original soundness, including redecorating, refinishing, nonstructural repairs or maintenance, or the replacement of existing fixtures, systems, or equipment with the equivalent fixture, system or equipment.

(52) "Shingle" means a unit of roof-covering material that has been manufactured to specific dimensions and is applied in overlapping fashion. "Shingle" includes all of the following:

(a) "Fiberglass asphalt shingle" means a type of shingle with an internal mat composed of nonwoven, resin-bonded glass fibers, that is impregnated and coated with asphalt.

(b) "Laminated shingle" means a shingle with a second layer of asphalt and mat laminated to the first layer, usually in a design pattern to simulate the dimensional appearance of natural slate or wood shakes.

(c) "Organic asphalt shingle" means a shingle with an internal mat composed of organic fibers, such as cellulose, that is saturated and coated with asphalt.

(d) "Strip shingle" means a rectangular shingle that relies either on a sealant or on a combination of weight and stiffness to resist wind uplift, rather than using interlocking tabs.

(53) "Stair," "stairs," or "stairway" means one or more risers that form a continuous passage from one elevation to another.

(54) A "story" is that portion of a camping unit located between the floor and the ceiling.

(55) "Vent" means a vertical flue or passageway to vent fuel-burning appliances.

(56) "Ventilation" means the process of supplying or removing air by natural or mechanical means to or from any space.

(57) "Waters of the state" includes those portions of Lake Michigan and Lake Superior within the boundaries of Wisconsin, and all lakes, bays, rivers, streams, springs, ponds, wells, impounding reservoirs, marshes, watercourses, drainage systems and other surface waters or groundwaters, natural or artificial, public or private, within the state or its jurisdiction.

(58) "Window" means a glazed opening in an exterior wall, including glazed portions of doors, within a conditioned space.

**SPS 327.09 Wisconsin camping unit building permit. (1) WHERE REQUIRED.** A Wisconsin camping unit building permit shall be obtained from the municipality administering and enforcing this code or from a registered UDC inspection agency administering and enforcing this code in a municipality where the department has jurisdiction pursuant to s. 101.651 (3) (b), Stats., before any construction of a camping unit may begin.

(2) INSPECTIONS. A person who obtains a Wisconsin camping unit building permit from a registered UDC inspection agency shall retain the same agency to conduct the inspection of the camping unit under s. SPS 327.11.

**SPS 327.10 Procedure for obtaining camping unit building permit.**

(1) APPLICATION. Application for a Wisconsin camping unit building permit shall be on forms obtained from the department, the municipality, or the authorized UDC inspection agency administering and enforcing this code. No application shall be accepted that does not contain all the information requested on the form.

(2) FILING OF PERMIT APPLICATIONS. (a) A Wisconsin camping unit building permit shall be filed with the municipality or the authorized UDC inspection agency administering and enforcing this code.

(b) Camping units for which a permit has been issued shall be inspected in accordance with s. SPS 327.11.

(3) FEES. (a) *Municipal fees.* The municipality shall, by ordinance, determine fees to cover expenses of final inspection of the camping unit and the issuance of a Wisconsin insignia.

(b) *Inspection agency fees.* UDC inspection agency fees shall be determined by contract between the municipality and the agency or between the department and the agency, where the agency has been authorized to conduct inspections on behalf of the department.

(4) ISSUANCE OF PERMITS. (a) The Wisconsin camping unit building permit shall be issued if the requirements for filing and fees are satisfied.

(b) The permit shall expire 24 months after issuance if construction of the camping unit has not been completed.

(5) DENIAL OF PERMITS. (a) *General.* Approval shall be denied if the municipality or authorized UDC inspection agency administering and enforcing this code determines that the Wisconsin camping unit building permit application does not substantially conform to the provisions of this code and other legal requirements.

(b) *Denial of application.* A copy of the denied application, accompanied by a written statement specifying the reasons for denial, shall be sent to the applicant and to the owner as specified on the Wisconsin camping unit building permit application.

(d) *Appeals.* The applicant may appeal a denial of the application in accordance with the procedure outlined in s. SPS 327.18.

(6) TIME-SPAN FOR APPROVAL OR DENIAL. Action to approve or deny a camping unit building permit application shall be completed within 10 business days of receipt of the application, fees, and supplementary information required to process the application.

**SPS 327.11 Inspections.**

(1) INSPECTOR CERTIFICATION. All inspections, for the purpose of administering and enforcing this code, shall be performed by a certified UDC inspector who holds the respective credential for the inspection performed.

**(2) GENERAL INSPECTION REQUIREMENTS. (a) General.** Inspections shall be conducted by the municipality or authorized UDC inspection agency administering and enforcing this code to determine if the construction conforms to the provisions of this code.

**(b) Inspection notice.** The applicant or an authorized representative shall request an inspection from the municipality or authorized UDC inspection agency administering and enforcing this code.

**(3) ROUGH INSPECTION. (a)** A rough inspection of the following shall be performed after the rough work is constructed but before it is concealed to determine if the work complies with this code:

1. General construction, including framing.
2. Rough electrical.
3. Rough plumbing.
4. Rough heating, ventilating and air conditioning.

**(b)** All categories of work for rough inspections may be completed before the notice for inspection is given, provided the work has not been covered.

**(c)** The applicant may request one rough inspection or individual rough inspections.

**(d)** A separate fee may be charged for each individual inspection.

**(4) FINAL INSPECTION REQUIRED PRIOR TO OCCUPANCY. (a)** A camping unit may not be occupied until a final inspection has been made of a camping unit's construction, HVAC, electrical, plumbing, and transfer tank that finds no critical violations of this code that could reasonably be expected to affect the health or safety of a person using the camping unit.

**(b)** If the municipality or authorized UDC inspection agency conducting the inspection under this subsection did not conduct the inspection under sub. (3), the final inspection under this subsection may not take place until the municipality or authorized UDC inspection agency is provided a copy of an inspection report or other written verification of a pass result for all inspections required under sub. (3).

**(5) NOTICE OF COMPLIANCE OR NONCOMPLIANCE.**

**(a)** Upon finding of compliance for an inspection under sub. (4), the municipality shall assign a Wisconsin insignia to the owner of the camping unit as provided in s. SPS 327.12 (1).

**(b)** Upon finding of noncompliance for an inspection under sub. (3) or (4), the municipality or authorized UDC inspection agency enforcing this code shall notify the applicant of record and the owner, in writing, of the violations to be corrected.

**(c)** The municipality or authorized UDC inspection agency shall order all cited violations corrected within 30 days after written notification, unless an extension of time is granted under s. SPS 327.18.

(6) VOLUNTARY INSPECTION. The department or its authorized representative may, at the request of the owner, enter and inspect camping units, subject to the provisions of this code, to ascertain compliance with this code.

(7) RECORD KEEPING.

(a) *Municipal enforcement.* Municipalities that have adopted an ordinance to enforce this code shall maintain records in accordance with all of the following:

1. A record shall be made of each visit to a site, each inspection performed and the pass or fail results of each inspection.

2. Applications forms, correction orders, correspondence and inspection records shall be maintained for 7 years after completion of the camping unit.

(b) *State enforcement.* Inspectors working under state contract shall maintain records in accordance with the provisions of the contract that was in effect at the time the inspections were completed.

**Note:** Records generated by an inspection are public records and are subject to the open-records law.

**SPS 327.12 Approval procedures.**

(1) WISCONSIN INSIGNIA. (a) Upon finding of compliance under s. SPS 327.11 (5) (a), the municipality shall issue a Wisconsin insignia to the owner of the camping unit.

(b) At the request of the owner of a camping unit that is exempt from the provisions of this code under s. SPS 327.05 (1), the municipality shall issue a Wisconsin pre-existing insignia to the owner of the camping unit. A pre-existing insignia shall contain the following language: "Unit was constructed before code's eff. date."

(c) Wisconsin insignias shall be purchased by municipalities from the department in accordance with the fee established in s. SPS 302.34. The owner of the camping unit shall affix the Wisconsin insignia to the camping unit as provided in sub. (3).

(2) LOST OR DAMAGED INSIGNIA. (a) *Notification.* If a Wisconsin insignia becomes lost or damaged or is no longer in use, the municipality shall be notified immediately, in writing, by the owner of the camping unit.

(b) *Return of damaged insignias.* If a Wisconsin insignia become damaged, the insignia shall be returned to the municipality with the appropriate fee to obtain a new insignia.

(3) AFFIXING WISCONSIN INSIGNIAS. Each Wisconsin insignia shall be affixed to a specific camping unit in an overt location on the outside or inside of the camping unit. If the Wisconsin insignia is issued under sub. (1) (a), the camping unit may not be occupied until the Wisconsin insignia has been affixed as provided in this subsection.

(4) INSIGNIA RECORDS. (a) *Municipality's insignia records.* The municipality shall keep permanent records regarding the handling of all Wisconsin insignias indicating the following:

1. The number of Wisconsin insignias affixed to camping units.

2. Which Wisconsin insignia has been applied to which camping unit.
3. The disposition of any damaged or rejected Wisconsin insignias.
4. The location and custody of all unused Wisconsin insignias.

(b) *Retention of insignia records.* The records under par. (a) shall be maintained by the municipality for at least 10 years. A copy of the records shall be sent to the department upon request.

(5) UNIT IDENTIFICATION. Each camping unit shall be assigned a serial number. The serial number shall be located on the Wisconsin insignia.

**SPS 327.13 Suspension or revocation of Wisconsin camping unit building permit.**

(1)

(a) The municipality or the registered UDC inspection agency administering and enforcing this code may suspend or revoke any Wisconsin camping unit building permit where it appears that the permit or approval was obtained through fraud or deceit, where the applicant has willfully refused to correct a violation order, or where the inspector is denied access to the premises.

(b) No construction may take place on the camping unit after suspension or revocation of the permit.

(2) Any person aggrieved by a determination made by the department, a municipality, or a registered UDC inspection agency may appeal the decision in accordance with s. SPS 327.18.

**SPS 327.14 Effect of suspension and revocation.**

(1) BEARING OF INSIGNIA. Upon suspension or revocation under s. SPS 327.13, the camping unit shall not be entitled to bear the Wisconsin insignia unless the municipality has inspected, or caused to be inspected, such camping unit and is satisfied that all requirements for approval have been met.

(2) RETURN OF INSIGNIAS. The owner shall return to the municipality a Wisconsin insignia assigned to a camping unit no later than 30 days from the effective date of any suspension or revocation under s. SPS 327.13 .

**SPS 327.15 Approval of products.**

(1) VOLUNTARY APPROVAL. (a) Materials, equipment and products regulated by this code may receive a written approval from the department indicating code compliance.

(b)

1. Approval of materials, equipment and products shall be based on sufficient data, tests and other evidence that prove the material, equipment or product is in compliance with the standards specified in this code.

2. Tests, compilation of data, and calculations for materials, equipment and products shall be conducted by a qualified independent third party.

(2) ALTERNATE APPROVAL. (a) Materials, equipment and products, including experimental materials, equipment, and products, which meet the intent of this code and which are not approved under sub. (1) shall be permitted if approved in writing by the department.

(b)

1. Approval of materials, equipment and products shall be based on sufficient data, tests, and other evidence that prove the material, equipment, or product meets the intent of the standards specified in this code.

2. Tests, compilation of data, and calculations for materials, equipment, and products shall be conducted by a qualified independent third party.

(4) REVIEW, APPROVAL AND REVOCATION PROCESSES.

(a)

1. Upon receipt of a fee and a written request, the department may issue an approval for a material, equipment, or product.

2. The department shall review and make a determination on an application for approval after receipt of all forms, fees, plans, and information required to complete the review.

3. For voluntary and alternate approvals, a determination shall be made within 40 business days of receipt of all required materials.

(b)

1. The department may include specific conditions in issuing an approval, including an expiration date for the approval.

2. Violations of the conditions under which an approval is issued shall constitute a violation of this code.

(c) If the department determines that the material, equipment, or product does not comply with this code or the intent of this code, the request for approval shall be denied in writing.

(d) If an approved material, equipment, or product is modified, the approval shall be considered null and void, unless the material, equipment, or product is resubmitted to the department for review and approval is granted.

(e)

1. The department may revoke or deny an approval of a material, equipment, or product for any false statements or misrepresentations of relevant facts or data, unacceptability of a third party providing information, or as a result of material, equipment, or product failure.

2. The department may re-examine an approved material, equipment, or product and issue a revised approval at any time.



(f) The department may revoke an approval if the department determines that the material, equipment, or product does not comply with this code or the intent of this code due to a change in the code or department interpretation of the code.

(g) An approval issued by the department may not be construed as an assumption of any responsibility for defects in design, construction, or performance of the approved material, equipment, or product nor for any damages that may result.

(h) Fees for the review of a material, equipment or product under this section and any onsite inspections shall be submitted in accordance with ch. SPS 302.

**(5) UNGRADED OR USED MATERIALS.**

(a) Ungraded or used building materials may be used or reused as long as the material possesses the essential properties necessary to achieve the level of performance required by the code for the intended use.

(b) The department or the municipality enforcing this code may require tests in accordance with sub. (1) or (2).

**SPS 327.16 Petition for variance.** The department may grant a variance to a rule only if the variance does not result in lowering the level of health, safety, and welfare established or intended by the rule. The department may consider other criteria in determining whether a variance should be granted including the effect of the variance on uniformity.

**(1) APPLICATION FOR VARIANCE.** Application for a petition for variance shall be made on a form furnished by the department. The applicant shall submit the petition for variance application to the municipality exercising jurisdiction in order to receive the municipal recommendation. Where no municipality exercises jurisdiction, the application shall be submitted to the department. The following items shall be submitted when requesting a variance:

(a) A clear written statement of the specific provisions of this code from which a variance is requested and the method of establishing equivalency to those provisions.

(b) A fee in accordance with s. SPS 302.52. The municipality may require a fee for the processing of the application in addition to the department's fee.

**(2) MUNICIPAL RECOMMENDATION.** The municipality administering and enforcing this code shall submit all applications for variance to the department, together with a municipal recommendation within 10 business days after receipt of the application. The recommendation of the municipality shall include the following items:

(a) Inspections performed on the property.

(b) The issuance of correction orders on the property.

(c) An assessment of the overall impact of the variance on the municipality.

(3) DEPARTMENTAL ACTION. Where a municipality administers and enforces the code, the department shall decide petitions for variance and shall mail notification to the municipality and the applicant within 5 business days after receipt of the application and municipal recommendation. Where the department enforces the code, the department shall decide petitions for variance within 15 business days after receipt of the application and fees.

(4) APPEALS. A person or municipality may appeal the determination of the department in the manner set out in s. 101.02 (6) (e) to (i) and (8), Stats.

**SPS 327.17 Municipal variance from the code.** Any municipality exercising or intending to exercise jurisdiction under this code may apply to the department for a variance permitting the municipality to adopt an ordinance not in conformance with this code. The department shall review and make a determination on a municipal request to adopt an ordinance not in conformance with this code within 60 business days of receipt of the request.

(1) APPLICATION FOR VARIANCE. The department may grant an application only under the following circumstances:

(a) The municipality has demonstrated that the variance is necessary to protect the health, safety, or welfare of individuals within the municipality because of specific climate or soil conditions generally existing within the municipality.

(b) The municipality has demonstrated that the granting of the variance, when viewed both individually and in conjunction with other variances requested by the municipality, does not impair the statewide uniformity of this code.

(2) DEPARTMENTAL INQUIRY. Prior to making a determination, the department shall solicit within the municipality and consider the statements of any interested persons as to whether or not said application should be granted.

(3) APPEALS. Any municipality aggrieved by the denial of an application may appeal the determination in accordance with the procedure set out in s. 101.02 (6) (e) to (i) and (8), Stats. The department shall review and make a determination on an appeal of denial of a municipal request to adopt an ordinance not in conformance with this code within 60 business days of receipt of the appeal.

(4) UNIFORMITY. This section shall be strictly construed in accordance with the goal of promoting statewide uniformity.

**SPS 327.18 Appeals of orders, determinations, and for extension of time.**

(1) APPEALS OF ORDERS AND DETERMINATIONS BY A MUNICIPALITY EXERCISING JURISDICTION. Appeals of order or determination of a municipality exercising jurisdiction under this code, including denials of application for permits, shall be made in accordance with the procedure set out in ch. 68, Stats., prior to making an appeal to the department, except as provided in sub. (2).

(2) APPEALS OF FINAL DETERMINATIONS BY A MUNICIPALITY EXERCISING JURISDICTION. Appeals of final determination by municipalities shall be made to the department after the procedures prescribed in ch. 68, Stats., have been exhausted. All appeals to the department shall be in writing stating the reason for the appeal. All appeals shall be filed with the department within 10 business days of the date the final determination is rendered under ch. 68, Stats. The department shall render a written decision on all appeals within 60 business days of receipt of all calculations and documents necessary to complete the review.

**Note:** Chapter 68, Stats., provides that municipalities may adopt alternate administrative appeal procedures that provide the same due process rights as ch. 68, Stats. Municipalities having adopted such alternate procedures may follow those alternate procedures.

(3) APPEALS OF ORDERS AND DETERMINATIONS BY THE DEPARTMENT. Appeals of an order of the department made pursuant to the provisions of this code, including denials of application for permits, shall be in accordance with the procedure set out in s. 101.02 (6) (e) to (i) and (8), Stats. The department shall review and make a determination on an appeal of an order or determination within 60 business days of receipt of all calculations and documents necessary to complete the review.

(4) EXTENSIONS OF TIME.

(a) The time for correction of cited orders as set out in s. SPS 327.11 shall automatically be extended in the event that an appeal of said orders is filed. The extension of time shall extend to the termination of the appeal procedure and for such additional time as the department or municipality administering and enforcing this code may allow.

(b) The department or municipality administering and enforcing this code may grant additional reasonable time in which to comply with a violation order.

**SPS 327.19 Adoption of standards.**

(1) CONSENT. Pursuant to s. 227.21 (2), Stats., the attorney general has consented to the incorporation by reference of the standards listed in Tables 327.19-1 to 327.19-7.

(2) ADOPTION OF STANDARDS. The standards referenced in Tables 327.19-1 to 327.19-7 are incorporated by reference into this chapter.

**Note:** Copies of the adopted standards are on file in the offices of the department and the legislative reference bureau. Copies of the standards may be purchased, or are available for free, through the respective organizations or other information listed in Tables 327.19-1 to 327.19-7.

(3) ALTERNATE STANDARDS.

(a) Alternate standards that are equivalent to or more stringent than the standards incorporated by reference in this chapter may be used in lieu of incorporated standards when approved by the department or if written approval is issued by the department in accordance with par. (b).

(b)

1.

a. Upon receipt of a fee and a written request, the department may issue an approval for the use of the alternate standard.

b. The department shall review and make a determination on an application for approval within 40 business days of receipt of all forms, fees, and documents required to complete the review.

2. Determination of approval shall be based on an analysis of the alternate standard and the incorporated standard, prepared by a qualified independent third party or the organization that published the incorporated standard.

3. The department may include specific conditions in issuing an approval, including an expiration date for the approval. Violations of the conditions under which an approval is issued shall constitute a violation of this code.

4. If the department determines that the alternate standard is not equivalent to or more stringent than the standards incorporated by reference, the request for approval shall be denied in writing.

5. The department may revoke an approval for any false statements or misrepresentations of facts on which the approval was based. The department may re-examine an approved alternate standard and issue a revised approval at any time.

6. Fees for review of standards under this paragraph shall be submitted in accordance with ch. SPS 302.

**Table 327.19–1**

ASHRAE	American Society of Heating, Refrigerating, and Air-conditioning Engineers, Inc. 1791 Tullie Circle, N.E. Atlanta, GA 30329 www.ashrae.org
<b>Standard Reference Number</b>	<b>Title</b>
1. 2013 Fundamentals	ASHRAE Handbook — Fundamentals
2. 2011 HVAC Applications	ASHRAE Handbook — HVAC Applications
3. 2012 HVAC Systems & Equipment	ASHRAE Handbook — HVAC Systems & Equipment

**Table 327.19–2**

AWC	American Wood Council 222 Catocin Circle SE Suite 201 Leesburg, VA 20175 www.americanwoodcouncil.org
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<b>Standard Reference Number</b>	<b>Title</b>
1. ANSI/AWC NDS– 2015	National Design Specification For Wood Construction
2. ANSI/AWC PWF – 2007	Permanent Wood Foundation Design Specification

**Table 327.19–3**

ICC	The International Code Council 500 New Jersey Avenue, NW, 6th Floor Washington, D.C. 20001 www.iccsafe.org
<b>Standard Reference Number</b>	<b>Title</b>
ICC 400–2012	Standard on the Design and Construction of Log Structures

**Table 327.19–4**

NAIMA	North American Insulation Manufacturers Association 11 Canal Center Plaza, Suite 103 Alexandria, VA 22314 www.naima.org
<b>Standard Reference Number</b>	<b>Title</b>
1. 3rd Edition, 2002	Fibrous Glass Residential Duct Construction Standards

**Table 327.19–5**

NFPA	National Fire Protection Association 1 Batterymarch Park Quincy, MA 02269 www.nfpa.org
<b>Standard Reference Number</b>	<b>Title</b>
1. NFPA 54/ANSI Z223.1 2015	National Fuel Gas Code

**Table 327.19–6**

SMACNA	Sheet Metal and Air Conditioning Contractors' National Association 4201 Lafayette Center Drive Chantilly, VA 20151–1219 www.smacna.org
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Standard Reference Number	Title
1. Seventh Edition, 1998	Residential Comfort System Installation Standards Manual
2. Seventh Edition, 2003	Fibrous Glass Duct Construction Standards
3. Third Edition, 2005	HVAC Duct Construction Standards — Metal and Flexible

**Table 327.19–7**

TPI	Truss Plate Institute, Inc. 218 North Lee Street, Suite 312 Alexandria, VA 22314 www.tpinst.org
Standard Reference Number	Title
ANSI/TPI 1–2007	National Design Standard for Metal Plate Connected Wood Truss Construction

### **Subchapter II — Construction Standards**

**SPS 327.20 Loads and materials.** Every camping unit shall be designed and constructed in accordance with the requirements of this section.

(1) **DESIGN LOAD.** Every camping unit shall be designed and constructed to support the actual dead load and live loads acting upon it without exceeding the allowable stresses of the material. The construction of camping units shall result in a system that provides a complete load path capable of transferring all loads from point of origin through the load-resisting elements to the ground.

(a) *Dead loads.* Every camping unit shall be designed and constructed to support the actual weight of all components and materials. Earth-sheltered camping units shall be designed and constructed to support the actual weight of all soil loads.

(b) *Live loads.* Floors and ceilings shall be designed and constructed to support the minimum live loads listed in Table 327.20-1. The design load shall be applied uniformly over the component area.

**Table 327.20-1**

Component	Live Load (pounds per sq. ft.)
Floors	40
Exterior balconies and porches	40
Ceilings (with storage)	20
Ceilings (without storage)	5

(2) METHODS OF DESIGN. All camping units shall be designed by the method of structural analysis or the method of accepted practice specified in each part of this code.

**Note:** See ch. NR 116, rules of the department of natural resources, for special requirements relating to buildings located in flood plain zones. Information regarding the elevation of the regional flood may be obtained from the local zoning official.

(3) STRUCTURAL STANDARDS. (a) *General.* Design, construction, installation, practice and structural analysis shall conform to the following nationally recognized standards.

(b) *Wood.*

1. Structural lumber, glue-laminated timber, timber pilings, and fastenings shall be designed in accordance with the "National Design Specification for Wood Construction" and the "Design Values for Wood Construction," a supplement to the National Design Specification for Wood Construction, except the provisions of section 4.1.7 shall also apply to reused lumber. Reused lumber shall be considered to have a duration of load factor of 0.90.

2. Span tables for joists and rafters approved by the department may be used in lieu of designing by structural analysis.

3. Sawn lumber that is not graded in accordance with the standards under subd. 1., shall use the NDS published allowable design stresses for the lumber species using grade number 3 when used for studs, stringers, rafters or joists and may use grade number 1 when used for beams, posts, or timbers.

(c) *Whole logs.* Camping units constructed of whole logs shall conform to ICC 400, Standard on the Design and Construction of Log Structures.

**Note:** This standard requires the minimum log diameter to be 8 inches.

(d) *Fasteners.*

1. All building components shall be fastened to withstand the dead load and live load.

2. Fasteners shall comply with the schedule listed in Table 327.20-2.

**Note:** Other fastening methods may be allowed if engineered under s. SPS 327.20 (3).

**Table 327.20–2**

**MINIMUM FASTENER SCHEDULE TABLE**

Other interior and exterior panel products and finishes installed per manufacturer requirements.

For engineered connectors, use manufacturer's specified fasteners.

<b>Description of Building Materials/Connection</b>	<b>Number and Type of Fastener<sup>1 2 3</sup></b>
<b>Floor Framing</b>	
Joist to joist, face nailed over support	3–8d
Joist to sill or girder, toe nail	3–8d

Band or rim joist to joist, end nail	3-16d
Band or rim joist to sill or top plate	2-16d at 16" o.c.
Bridging to joist, toe nail each end	2-8d
Built-up girder and beams, top loaded	10d at 32" o.c. at top and bottom and staggered and two at ends and at each splice
Built-up girder and beams, side-loaded	16d at 16" o.c. at top and bottom and staggered and two at ends and at each splice
Ledger strip to beam, face nail	3-16d each joist
<u>Joist on ledger to beam, toe nail</u>	<u>3-8d</u>

### **Wall Framing**

Sole plate to joist or blocking, face nail	2-16d at 16" o.c.
Top or sole plate to stud, end nail	2-16d
Stud to sole plate, toe nail	3-8d or 2-16d
Doubled studs, face nail	10d at 24" o.c.
Doubled top plates, face nail	10d at 24" o.c.
Doubled top plates, minimum 24" offset of end joints, face nail in lapped area	8-16d
Top plates, laps and intersections, face nail	2-10d
Continuous header, two pieces	16d at 16" o.c. along each edge
Continuous header to stud, toe nail	4-8d
1" corner brace to each stud and plate, face nail	2-8d or 2 staples, 1 $\frac{3}{4}$ "
<u>Built-up corner studs</u>	<u>10d at 24" o.c.</u>

### **Roof/Ceiling Framing**

Ceiling joists to plate, toe nail	3-8d
Ceiling joist, laps over partitions, face nail	3-10d
Ceiling joist to parallel rafters, face nail	3-16d
Rafter to plate, toe nail (maximum 6 rafter span, engineered connector for longer)	2-16d
Roof rafters to ridge, valley or hip rafters, toe nail	4-16d
Roof rafters to ridge, valley or hip rafters, face nail	3-16d
<u>Collar ties to rafters, face nail</u>	<u>3-8d</u>

### **Boards and planks**

1" x 6" subfloor or less to each joist, face nail	2-8d or 2 staples, 1 $\frac{3}{4}$ "
Wider than 1" x 6" subfloor toe to each joist, face nail	3-8d or 4 staples 1 $\frac{3}{4}$ "
2" subfloor to joist or girder, blind and face nail	2-16d
1" x 6" roof or wall sheathing to each bearing, face nail	2-8d or 2 staples, 1 $\frac{3}{4}$ "
1" x 8" roof or wall sheathing to each bearing, face nail	2-8d or 3 staples, 1 $\frac{3}{4}$ "



Wider than 1" x 8" roof sheathing to each bearing, face nail	3-8d or 4 staples, 1 3/4"
2" planks	2-16d at each bearing

### Panel Sheathing

<u>Material</u>	<u>Fastener</u>	<u>Spacing of Fastener</u>	
		<u>Edges</u>	<u>Intermediate Supports</u>
<b>Engineered wood panel for subfloor and roof sheathing and wall corner wind bracing to framing</b>			
5/16" to 1/2"	6d common or deformed nail or staple, 1 1/2"	6"	12" <sup>4</sup>
5/8" to 3/4"	8d smooth or common, 6d deformed nail, or staple, 14 ga. 1 3/4"	6"	12" <sup>4</sup>
7/8" to 1"	8d common or deformed nail	6"	12"
1 1/8" to 1 1/4"	10d smooth or common or 8d deformed nail	6"	12"
<b>Combination subfloor/ underlayment to framing</b>			
3/4" or less	6d deformed or 8d smooth or common nail	6"	12"
7/8" to 1"	8d smooth, common or deformed nail	6"	12"
1 1/8" to 1 1/4"	10d smooth or common or 8d deformed nail	6"	12"
<b>Wood panel siding to framing</b>			
1/2" or less	6d corrosion-resistant siding and casing nails	6"	12"
5/8"	8d corrosion-resistant siding and casing nails	6"	12"
1/2" structural cellulosic fiberboard sheathing	1 1/2" galvanized roofing nail; 8d common nail; staple 16 ga., 1 1/2" long	3"	6"
25/32" structural cellulosic fiberboard sheathing	1 3/4" galvanized roofing nail; 8d common nail; staple 16 ga., 1 3/4" long	3"	6"
1/2" gypsum sheathing <sup>5</sup>	1 1/2" galvanized roofing nail; 6d common nail; staple galvanized 1 1/2" long; 1 1/4" screws, Type W or S	4"	8"
5/8" gypsum sheathing <sup>5</sup>	1 3/4" galvanized roofing nail; 8d common nail; staple galvanized 1 5/8" long; 1 5/8" screws, Type W or S	7"	7"

1 All nails are smooth-common, box or deformed shank except where otherwise stated.

2 Nail is a general description and may be T-head, modified round head or round head.

3 Staples are 16-gauge wire, unless otherwise noted, and have a minimum 7/16" o.d. crown width.

4 Staples shall be spaced at not more than 10" o.c. at intermediate supports for floors.

5 Apply vertically 4" x 8" or 4" x 9" panels.

(4) ALTERNATE MATERIALS AND STANDARDS. No part of this code is intended to prohibit or discourage use of alternate, equivalent materials or standards or the construction of innovative or nonconventional camping units.

**SPS 327.21 Exits.** Exits, doors, and hallways shall be constructed as specified in this section.

(1) EXITS FROM THE FIRST FLOOR.

(a) A first floor level shall have at least one exit door that discharges to grade. This exit may include interior or exterior stairs.

(b) A first floor level shall have at least one egress window complying with sub. (3) on that floor level.

(c) If a camping unit has more than one room on the first floor, the exit door and egress window shall be located in different rooms.

(d) If there are bedrooms on the first floor, each must have an egress window that complies with sub. (3).

(2) EXITS FROM LOFTS. At least one stairway or ladder exit shall be provided to the floor below for a loft.

(3) WINDOWS USED FOR EXITING. Windows which are installed for exit purposes shall comply with the requirements of this subsection.

(a) The window shall be openable from the inside without the use of tools or the removal of a sash. If equipped with a storm or screen, it shall be openable from the inside.

(b)

1. The nominal size of the net clear window opening shall be at least 20 inches by 24 inches irrespective of height or width. Nominal dimensions shall be determined by rounding up fractions of inches if they are 1/2-inch or greater or rounding down fractions of inches if they are less than 1/2-inch.

2. No portion of the window, including stops, stools, meeting rails, and operator arms, shall infringe on the required opening.

(c) The area and dimension requirements of par. (b) may be infringed on by a storm window.

(d) For any window used for exiting, the lowest point of clear opening shall be no more than 60 inches above the floor.

(4) DOORS USED FOR EXITING. (a) A door used for exiting from a camping unit shall be a swing-type door at least 80 inches high by 32 inches wide.

(b) All exit doors shall be openable from the interior without the use of a key.

**SPS 327.22 Stairways and elevated areas.**

(1) **HANDRAILS.** (a) A flight of stairs with more than 3 risers shall be provided with at least one handrail for the full length of the flight.

(b) Handrails shall be designed and constructed to withstand a 200 pound load applied in any direction.

(c) Exterior handrails shall be constructed of metal, decay resistant or pressure-treated wood, or shall be protected from the weather.

(2) **GUARDS.** (a) Except as provided in par. (b), all openings between floors, and open sides of landings, platforms, balconies, lofts, or porches that are more than 16 inches above grade or a floor shall be protected with guards.

(b) For exterior applications, open sides of decks, landings, porches, or similar structures that are more than 24 inches above grade shall be protected with guards. The 24 inch vertical measurement shall be taken from the lowest point within 3 feet horizontally from the edge of the deck, landing, porch, or similar structure.

(c) Guards shall be constructed to prevent the through-passage of a sphere with a diameter of 4 3/8 inches, when applying a force of 4 pounds.

(d) This subsection does not apply to window wells, egress wells, and retaining walls.

**SPS 327.23 Ladders.** Ladders which are used as part of a required exit shall be designed to withstand loads of at least 200 pounds.

**SPS 327.24 Ceiling height.** All habitable rooms, kitchens, hallways, bathrooms, and corridors shall have a ceiling height of at least 7 feet, except as follows:

(1)

(a) Rooms may have ceiling heights of less than 7 feet provided at least 50% of the room's floor area has a ceiling height of at least 7 feet. Any area with a ceiling height of less than 5 feet may be ignored in this calculation.

(b) The 50% limit in par. (a) does not apply to subs. (3) to (6).

(2) Beams and girders or other projections may project to no more than 8 inches below the required ceiling height.

(3) The ceiling height extending back from the front edge of a water closet may slope to below 7 feet, but may not go below 5 feet until beyond the back of the water closet.

(4) The ceiling height extending back from the front edge of a lavatory may be less than 7 feet, but may not go below 5 feet until beyond the back of the lavatory.

(5) A ceiling height of less than 7 feet may be provided between the rear rim of a bathtub and a wall of the room abutting that rim, or between the side rim and a room wall abutting that rim.

(6) A ceiling height of less than 7 feet may be provided between the rear wall of a shower stall and a wall of the room abutting that rear wall, or between the side wall of a shower and a room wall abutting that side wall.

**SPS 327.25 Fireblocking.**

(1) FIREBLOCKING LOCATIONS. Fireblocking shall be provided in all of the following locations:

(a) In concealed spaces of walls and partitions, including furred spaces, at the ceiling and floor levels.

(b) At all interconnections between concealed vertical and horizontal spaces including the attachment between a carport and a camping unit.

(c) In concealed spaces between stair stringers at the top and bottom of the run and at any intervening floor level.

(d) At all openings around wires, cables, vents, pipes, ducts, chimneys, and fireplaces at ceiling and floor level.

(2) FIREBLOCKING MATERIALS. Fireblocking shall consist of one of the following:

(a) 2-inch nominal lumber.

(b) Two layers of one-inch nominal lumber.

(c) One thickness of 3/4-inch nominal plywood or wood structural panel with any joints backed with the same material.

(d) One thickness of 1/2-inch gypsum wallboard, face nailed or face screwed to solid wood, with any joints backed with the same material.

(e) Fiberglass or mineral wool batt insulation may be used if both of the following conditions are met:

1. The least dimension of the opening may not exceed 4 inches.

2. The batt shall be installed to fill the entire thickness of the opening or stud cavity.

(f) For wires, cables, pipes, and vents only, non-shrinking caulk, putty mortar, or similar material may be used provided no dimension of the opening exceeds 1/2 inch around the penetrating object.

(g) For chimneys, fireplaces, and metal vents, fireblocking shall be metal, cement board, or other noncombustible material.

**SPS 327.26 Smoke detectors.** (1) A listed and labeled battery-operated smoke alarm shall be installed in all of the following locations:

(a) If a camping unit has a loft, an alarm shall be installed inside the loft. An alarm is not required to be installed outside of the loft.

(b) On a floor level that contains one or more sleeping rooms, an alarm shall be installed inside each sleeping room and an alarm shall be installed outside of the sleeping rooms.

(c) An alarm shall be installed on a floor level that does not contain a sleeping room.

**Note:** Section 101.645 (3), Stats., requires the owner of a dwelling to install a functional smoke detector in the basement of the dwelling and on each floor level except the attic or storage area of each dwelling unit. The occupant of such a dwelling unit shall maintain any smoke detector in that unit, except that if any occupant who is not the owner, or any state, county, city, village or town officer, agent or employee charged under statute or municipal ordinance with powers or duties involving inspection of real or personal property, gives written notice to the owner that the smoke detector is not functional the owner shall provide, within 5 days after receipt of that notice, any maintenance necessary to make that smoke detector functional.

(2) Smoke alarms and detectors shall be installed and maintained in accordance with the manufacturer's specifications. Interconnection of smoke alarms and detectors is not required.

#### **SPS 327.27 Carbon monoxide alarms.**

(1) GENERAL. A listed and labeled carbon monoxide alarm shall be installed within 10 feet of a fireplace or fuel-burning appliance.

(2) ELECTRICAL SERVICE. If electrical service for a camping unit is provided by a public utility, a carbon monoxide alarm required under sub. (1) shall be continuously powered by the camping unit electrical service and shall have a backup battery power supply.

#### **SPS 327.28 Protection against decay and termites.**

(1) Wood used in any of the applications under this section shall meet all of the following requirements:

(a) The wood shall be labeled and pressure treated with preservative in accordance with an AWPA standard or shall be naturally durable and decay-resistant or shall be engineered to be decay resistant.

(b) The wood shall be pressure treated with preservative or shall be naturally termite-resistant unless additional steps are taken to make the wood termite-resistant.

(2) Wood used in the following locations shall be as required under sub. (1):

(a) Resting directly upon or embedded in earth.

(b) Floor joists or sleepers that meet all of the following conditions:

1. The joists or sleepers are protected from the weather.

2. The joists or sleepers are within 18 inches above a lower floor surface, deck or soil.

(c) Floor joists exterior to the camping unit that are within 18 inches above exterior grade, unless protected with a moisture barrier.

**Note:** Acceptable moisture barriers for this application include 3/4 -inch exterior preservative-treated plywood, or ice dam protection material listed as meeting the requirements of ASTM D 1970 or vapor retarder material, provided they are protected from physical and UV light damage.

(d) Girders that span directly over and within 12 inches of earth.

(e) Sills and rim joists that rest on concrete or masonry and are also below grade or within 8 inches above final exterior grade.

(f)

1. Siding and sheathing in contact with concrete, masonry or earth and within 6 inches above final exterior grade.

2. Siding and sheathing in contact with concrete or masonry and within 2 inches above an impervious surface.

(g) Ends of wood structural members and their shims resting on or supported in masonry or concrete walls and having clearances of less than 1/2 inch on the top, sides and ends.

(h) Bottom plates or sole plates of walls that rest on concrete or masonry and that are below exterior grade or less than 8 inches above final exterior grade.

(i) Columns in direct contact with concrete or masonry unless supported by a structural pedestal or plinth block at least one inch above the floor.

(j) Any structural part of an outdoor deck, including the decking.

(k) Permanent wood foundations.

(3) Wood girders that rest directly on exterior concrete or masonry shall be protected by one of the following methods:

(a) The wood shall be pressure treated with preservative or shall be a naturally durable and decay-resistant species.

(b) Material, such as pressure-treated plywood, flashing material, steel shims, or water-resistant membrane material shall be placed between the wood and the concrete or masonry.

(4) All pressure-treated wood and plywood shall be identified by a quality mark or certificate of inspection of an approved inspection agency which maintains continued supervision, testing and inspection over the quality of the product.

**Note:** Heartwood of redwood, cypress, black walnut, catalpa, chestnut, sage orange, red mulberry, white oak, or cedar lumber are considered by the department to be naturally decay-resistant. Heartwood of bald cypress, redwood, and eastern red cedar are considered by the department to be naturally termite resistant.

(5)

(a) Fasteners for pressure-preservative treated wood and fire-retardant-treated wood shall meet one of the following requirements:

1. The fastener is a steel bolt with a diameter of 0.5 inch or greater.
2. The fastener is made of stainless steel.
3. The fastener is made of hot-dipped, zinc-galvanized steel with the coating weight and thickness labeled as complying with ASTM A 153.
4. The fastener is made of steel with a mechanically-deposited zinc coating labeled as complying with ASTM B 695, Class 55 or greater.
5. The fastener has coating types and weights in accordance with the fastener manufacturer's recommendations. In the absence of the manufacturer's recommendations subd. 1., 2., 3., or 4. shall apply.

**Note:** "Zinc plated," "zinc coated," "chrome plated," etc., fasteners do not necessarily comply with either of these standards.

(b) When a fastener is used with a hanger or other metal fixture, the fastener shall be of the same material as the hanger or metal fixture.

**Note:** When separate pieces are in close contact, zinc corrodes rapidly in the presence of plain steel. Zinc corrodes much more rapidly in the presence of stainless steel.

(c) For the purposes of this section, a fastener includes nails, screws and bolts, along with nuts and washers.

**SPS 327.29 Floor design.** Floors shall support all dead loads plus the minimum unit live loads as set forth in s. SPS 327.20. The live loads shall be applied to act vertically and uniformly to each square foot of horizontal floor area.

**SPS 327.30 Wood floors in contact with the ground.** Wood floors in contact with the ground shall be designed and constructed in accordance with the wood-foundation standards adopted in Table 327.19-2.

**SPS 327.31 Wood frame floors.** Unless designed through structural analysis, wood frame floors shall comply with the following requirements:

(1) FLOOR JOISTS. (a) Floor joists shall comply with the structural requirements and live load determination under s. SPS 327.20.

(b) Where the joists of a floor system are parallel to, and located between bearing walls above and below, the joists shall be doubled.

(2) FLOOR TRUSSES. Metal plate connected wood floor trusses shall be designed in accordance with the Design Specifications for Metal Plate Connected Parallel Chord Wood Trusses and the National Design Specification for Wood Construction. Truss members shall not be cut, bored or notched.

(3) GIRDERS AND BEAMS. (a) Wood girders and beams shall be fitted at the post or column. Adjoining ends shall be fastened to each other to transfer horizontal loads across the joint. Beams shall also be fastened to the posts with framing anchors, angle clips, or equivalent.

(b) Where intermediate beams are used, they shall rest on top of the girders; or shall be supported by ledgers or blocks fastened to the sides of the girders; or they may be supported by approved metal hangers into which the ends of the beams shall be fitted.

(c) Lateral restraint for all wood beams shall be provided at all columns using a saddle or other approved connection where the beam meets one of the following conditions:

1. The beam is not restrained at both ends.
2. The beam is more than 11.25 inches deep using actual measurement.

**Note:** A saddle supports the beam on the bottom and allows for the through-connection of fasteners into the side of the beam.

(4) BEARING AND END CONFIGURATION.

(a) *Sawn lumber.*

1. 'Joists.' Wood joists made of sawn lumber shall meet the following bearing requirements:

a. Wood joists supported on wood or metal shall have a bearing surface of at least 1½-inches measured from the end of the joist.

b. The tail end of a floor joist may not extend past the edge of a beam by more than the depth of the floor joist.

c. Wood floor joists with ends that intersect over a beam shall have the ends overlap at least 3 inches and be securely fastened together with at least two 12d common nails or the ends shall be butt-jointed or face-jointed and fastened with ties, straps, plates or solid blocking.

2. 'Beams and girders.' Beams and girders made of sawn lumber shall have a bearing surface on their supports of at least 3 inches parallel to the beam or girder and be at least as wide as the beam or girder.

(b) *Engineered wood products.* Bearing surface for engineered wood products shall be in accordance with the manufacturer's instructions provided those instructions were developed through structural analysis or product testing and are applicable to the configuration.

(5) NOTCHING AND BORING. Notching and boring of beams or girders is prohibited unless determined through structural analysis.

(a) *Notching of floor joists.*

1. Notches located in the top or bottom of floor joists shall not have a depth exceeding 1/6 the depth of the joist, shall not have a length exceeding 1/3 the joist depth nor be located in the middle 1/3 of the span of the joist.



2. Where floor joists are notched on the ends, the notch shall not exceed  $\frac{1}{4}$  the depth of the joist. Notches over supports may extend the full bearing width of the support.

**(b) Boring of floor joists.**

1. 'General.' A hole may not be bored in a floor joist within 2 inches of a notch or another hole. In no case shall the distance between adjacent holes be less than the diameter of the larger hole.

2. 'Holes near the edge.' Holes bored in the top or bottom 2 inches of a joist shall follow the limitations for notching under par. (a).

3. 'Other holes.' Holes bored in floor joists that are not within 2 inches of the top or bottom of the joist shall have their diameter limited to  $\frac{1}{3}$  the depth of the joist.

**(c) Engineered wood products.** Notching or boring of engineered wood products shall be done in accordance with the manufacturer's instructions provided those instructions were developed through structural analysis or product testing.

**(6) OVERHANG OF FLOORS. (a) General.** Except as provided in pars. (b) and (c), a floor joist overhang shall be cantilevered beyond the outer edge of the supporting wall below it by no more than the actual depth of the joist or shall be designed through structural analysis in accordance with s. SPS 327.20 (3).

**(b) Joist overhangs parallel to the main floor framing system.** Joist overhangs that are extensions of, and parallel to, the main floor framing system may extend beyond the depth of the joist without structural analysis provided they meet all of the following conditions:

1. The overhang is cantilevered no more than 2 feet beyond the outer edge of the supporting wall below it.

2.

a. The overhang supports a uniform load limited to the weight of the bearing wall and the tributary roof area above it.

b. The tributary length of the roof area, excluding the eave overhang, is no more than 2 feet greater than the actual length of the joist directly below.

c. The eave overhang is no more than 2 feet.

**Note:** The tributary length is usually half the span of the joist or rafter.

3. The joist overhang does not support any concentrated loads. For the purposes of this subsection, a framed opening in the wall with a rough opening of 4 feet or less shall be considered uniform loading.

4.

a. The cantilevered joist is doubled at the supporting wall.

b. The doubled joist length extends inward beyond the inner edge of the supporting wall by the same distance as the cantilever.

c. The added joist member is secured to the main joist.

(c) *Joist overhangs perpendicular to the main floor framing system.* Joist overhangs that are perpendicular to the main floor framing system, or lookout joists, may extend beyond the depth of the joist without structural analysis provided they meet all of the following conditions:

1. The joist overhang is cantilevered no more than 2 feet beyond the outer edge of the supporting wall below it.

2.

a. A double floor joist is used to support the lookout joist.

b. The double floor joist is located a distance of at least 2 times the cantilever length inward from the outer edge of the supporting wall below.

c. The lookout joists are fastened to the double joist with metal hangers.

3. The joist overhang supports no more than either a non-bearing wall or a wall that supports only a roof which spans no more than the floor overhang cantilever length plus the eave overhang.

(d) All overhangs longer than the depth of the supporting joist that do not meet all of the conditions under par. (b) or (c) shall be designed through structural analysis.

(7) FLOOR OPENINGS. Trimmers and headers shall be doubled when the span of the header exceeds 4 feet. Headers which span more than 6 feet shall have the ends supported by joist hangers or framing anchors, unless the ends are supported on a partition or beam. Joists more than 8 feet long that frame into headers shall be supported on metal framing anchors or on ledger strips of at least 2 inches by 2 inches nominal.

(8) FLOOR SHEATHING, BOARDS AND PLANKS.

(a) *Plywood sheathing.* Plywood sheathing used for floors shall be limited to the allowable loads and spans shown in Table 327.31-A.

(c) *Combination subfloor-underlayment.* Combination subfloor-underlayment shall be installed in accordance with Table 327.31-B.

(d) *Floor boards.* Where wood boards are used for floor sheathing, the boards shall comply with the minimum thicknesses shown in Table 327.31-C.

(e) *Planks.* Planks shall be tongue and groove or splined and at least 2 inches, nominal, in thickness. Planks shall terminate over beams unless the joints are end matched. The planks shall be laid so that no continuous line of joints will occur except at points of support. Planks shall be nailed to each beam.

(9) BRIDGING.

(a) *Sawn lumber.* Bridging shall be provided for sawn lumber framing at intervals not exceeding 8 feet where the nominal depth to thickness ratio is greater than 4 to 1.

**Note:** This 4:1 ratio means bridging is required for wood-framed floors having nominal 2X10 or deeper solid-sawn-lumber joists, to provide restraint against rotation or lateral displacement.

(b) *Engineered products.* Bridging shall be provided for engineered framing products in accordance with the manufacturer's recommendations.

(10) **SILL PLATES.** All of the following requirements apply to a sawn-lumber sill plate with uniform loading that is partially extended beyond the load-bearing surface of a foundation wall in order to put the exterior surface of an upper-lying wall flush with or beyond the exterior surface of insulation that is placed on the outside of the foundation wall:

(a) The center of any anchor bolt shall be set back from the side edge of the sill plate by a distance of at least 4 times the diameter of the bolt.

(b) The thickness of the concrete or mortar cover around any anchor bolt shall comply with ACI 318 section 7.7.

**Note:** Under ACI 318 section 7.7, the minimum cover for a 5/8-inch-diameter or smaller bolt is 1 1/2 inches.

(c) With wood floor joists that are parallel to the foundation wall, the sill plate may not extend beyond the load-bearing surface of the wall by more than one-half of the nominal thickness of the joist that bears on the sill plate.

**Note:** As used throughout this subchapter and in the standards that the subchapter incorporates by reference, the shorter side of the cross-sectional area of a wood member is the thickness of the member. The longer side of the cross-sectional area is the depth, when the longer side is vertical; and it is the width when the longer side is horizontal.

**Note:** Under sub. (6), wood floor joists that are perpendicular to the foundation wall can extend beyond the foundation wall by a distance of up to the depth of the joist.

**Table 327.31–A**  
**ALLOWABLE SPANS FOR PLYWOOD FLOOR SHEATHING CONTINUOUS**  
**OVER TWO OR MORE SPANS AND FACE GRAIN PERPENDICULAR TO**  
**SUPPORTS<sup>1</sup>**

<b>Span Rating<sup>2</sup></b>	<b>Plywood Thickness</b>	<b>Maximum span<sup>3</sup></b>
32/16	15/32", 1/2", 5/8"	16' <sup>5</sup>
40/20	19/32", 5/8", 3/4", 7/8"	20' <sup>4,5</sup>
48/24	23/32", 3/4", 7/8"	24"

**1** These values apply to C–D, C–C, and Structural I and II grades only. Spans shall be limited to values shown because of possible effect of concentrated loads.

**2** Span Rating appears on all panels in the construction grades listed in footnote 1.

**3** Plywood edges shall have approved tongue and groove joints or shall be supported with blocking, unless 1/4-inch minimum thickness underlayment or 1 1/2 inches of approved cellular or lightweight concrete is installed or finished floor is 25/32-inch wood strip.

Allowable uniform load based on deflection of 1/360 of span is 165 pounds per square foot.

4 For joists spaced 24 inches on center, plywood sheathing with Span Rating 40/20 or greater can be used for subfloors when supporting 1½ inches lightweight concrete.

5 May be 24 inches if 25/32-inch wood strip flooring is installed at right angles to joists.

**Table 327.31–B**  
**MINIMUM THICKNESS FOR PLYWOOD COMBINATION**  
**SUBFLOOR–UNDERLAYMENT. PLYWOOD CONTINUOUS OVER TWO OR**  
**MORE SPANS AND FACE GRAIN PERPENDICULAR TO SUPPORTS<sup>1,2</sup>**

<b>Plywood Grade</b>	<b>Plywood Species Group</b>	<b>Maximum Support Spacing<sup>3</sup></b>		
		<b>16" o.c Panel Thickness (inches)</b>	<b>20" o.c Panel Thickness (inches)</b>	<b>24" o.c Panel Thickness (inches)</b>
Sanded exterior type	1	½	5/8	¾
	2 & 3	5/8	¾	7/8
	4	¾	7/8	1
Underlayment C-C Plugged Sturd-I-Floor <sup>4</sup>	All Groups	APA Rated Sheathing and APA Rated Sturd-I-Floor shall be installed consistent with their rating.		

1 Spans shall be limited to values shown, based on possible effect of concentrated loads.

2 Unsupported edges shall be tongue and groove or blocked except where ¼-inch underlayment or 25/32-inch finish floor is used.

3 Underlayment, C–C Plugged, sanded exterior type: allowable uniform load based on deflection of L/360 span for spans 24 inches or less is 125 psf; and for spans 48 inches, 65 psf.

4 The department will accept subfloor underlayment panels such as Sturd–I– Floor which meet the requirements of APA manufacturing specifications for Sturd–I–Floor panels.

**Table 327.31–C**  
**MINIMUM THICKNESS OF FLOOR BOARDS**

<b>Joist Spacing</b>	<b><u>Minimum Net Thickness</u></b>	
	<b>Perpendicular to Joist</b>	<b>Diagonal to Joist</b>
24"	11/16"	¾"
16"	5/8"	5/8"

**SPS 327.32 Decks.** A deck attached to a camping unit or any detached deck that serves an exit from a camping unit that meets the following requirements is in compliance with this code:

(1) A deck shall be constructed to support the actual dead load and a minimum live load of 40 pounds per square inch acting on it without exceeding the allowable stresses of the material.

(2) A deck attached to a camping unit shall have a ledger attachment that meets the requirement under sub. (1).

(3) Corrosion-resistant flashing shall be installed where a deck attaches to the wall or floor assembly of a camping unit.

(4) The handrail and guard requirements of s. SPS 327.22.

(5) The decay protection requirements of s. SPS 327.28.

**SPS 327.33 Exterior covering.**

(1) GENERAL. The exterior walls shall be covered with a permanent weather resistant finish.

(2) DURING CONSTRUCTION. During construction, wall cavity insulation may not be installed until a water-resistant covering is in place over the wall cavity and windows, doors and a roof with at least underlayment are installed.

**Note:** An example of acceptable water-resistant covering for a wall is foam sheathing with permanently taped joints.

(3) FLASHING. (a) Corrosion-resistant flashing shall be installed in the exterior wall to prevent water from entering the wall cavity or coming in contact with the structural framing components.

(b) The flashing shall extend to the surface of the exterior wall finish and prevent water from reentering the exterior wall.

(c)

1. Any joints between 2 pieces of flashing that form a vertical joint shall be lapped a minimum of 6 inches and sealed.

2. Any joints between 2 pieces of flashing that form a horizontal joint shall be lapped a minimum of 2 inches and sealed unless otherwise specified by the flashing manufacturer.

3. Sealants used for flashing shall be exterior grade and shall be compatible with the materials being sealed.

(d) Flashing shall be provided at all of the following locations:

1. At the top of all exterior door and window openings, unless using self-flashing windows that provide at least one inch of flashing around the opening, including the corners.

2. At the intersection of chimneys or other masonry construction with frame walls.
3. Under and at the ends of masonry, wood or metal copings and sills.
4. Continuously above all projecting wood trim.
5. Where porches, decks or stairs attach to a wall or floor assembly of wood frame construction.
6. At wall and roof intersections.
7. At built-in gutters.
8. Along the bottom of door openings that are elevated above-grade.

**Note:** Flashing placed along the bottom of a door opening that is elevated above-grade can subsequently accommodate adding a deck outside the door.

(e) For a roof that intersects with an upper-lying head wall and rake wall, such as where a dormer is provided, the vertical metal flashing along the rake wall shall extend down the roof at least one-half inch past the vertical flashing on the head wall.

**Note:** A head wall as addressed in this paragraph intersects a sloping roof at a horizontal line along the top of a roof segment. A rake wall intersects a sloping roof along the side of a roof segment.

(f) For a roof eave that intersects with a sidewall, the end of the roof flashing shall be installed so that it diverts water away from the sidewall and onto the roof or into the gutter.

#### (4) WATER-RESISTIVE BARRIER REQUIREMENTS.

(a) *General.* 1. Exterior walls of wood or metal frame construction shall be provided with a water-resistive barrier from the highest point to the bottom of the permanent weather-resistant covering.

**Note:** Acceptable water-resistive barrier materials include polymeric-based house wraps and spray-applied water-resistive barriers installed per the manufacturer's instructions, #15 or greater asphalt-saturated felts that comply with ASTM D 226 for type I felt and extruded foam sheathing with permanently taped joints. Duct tape or similar will not result in a permanently taped joint.

2. Structural products with an integral water-resistive barrier may be approved as a complete assembly.

(b) *Material compatibility.* The water-resistive barrier material shall be compatible with the other materials in the wall with which it will come into contact.

**Note:** Spray-applied water-resistive barriers may not be compatible with foam plastic insulation.

(c) *Performance requirements.* 1. Polymer-based house wraps shall meet all of the following requirements:

a. A water vapor permeability rating of 5 perms or higher when tested in accordance with ASTM E96.

**b.** An acceptable water-resistance rating determined in accordance with ASTM D779, AATCC 127 or CCMC 07102.

**Note:** Asphalt-saturated felt or "tar paper" is not a polymeric-based house wrap.

**Note:** For more information on the water-resistance tests and their results, see the International Code Council Evaluation Services Acceptance Criteria AC 38.

**2.** Spray-applied water-resistive barriers shall be approved under the International Code Council Evaluation Services.

**Note:** For approval criteria, see ICC-ES acceptance criteria AC 212 or successor document.

**(d) Application. 1.** Horizontal seams in sheet or strip material shall be overlapped such that the upper layer extends over the lower layer at least 2 inches.

**2.** Vertical seams in sheet or strip materials shall be overlapped at least 6 inches.

**3.** Any rips, tears or voids shall be patched in accordance with subds. 1. and 2.

**(e) Penetrations. 1.** Penetrations caused by fasteners of the water-resistive barrier or the weather-resistant exterior covering do not require sealing.

**2.** Penetrations of 5 square inches or less with an annular space of no more than ½ inch shall be sealed with caulk or similar material.

**3.** Penetrations of greater than 5 square inches shall be flashed in accordance with sub. (3).

**SPS 327.34 Wood frame walls.** Unless designed through structural analysis, wood frame walls shall comply with the following requirements.

**(1) STUD CONFIGURATION.** Studs in the exterior walls shall be placed with the wide faces perpendicular to the plane of the wall.

**Note:** See s. SPS 327.28 for requirements on treating wood for decay and termite resistance.

**(2) TOP PLATES. (a) General.** Except as allowed under subd. 3., top plates shall be provided and configured as follows:

**1.** Studs at bearing walls shall be capped with double top plates.

**2.** End joints in double top plates shall be offset at least 2 stud spaces.

**3.** Double top plates shall be overlapped at the corners and at intersections of partitions.

**4.** The plate immediately above the stud may have a joint only when directly over the stud.

**(b) Notching and boring. 1.** When piping or ductwork is placed in an exterior wall or an interior load-bearing wall, such that at least half of the top plate is removed, the plate shall be reinforced with a steel angle at least 2 inches by 2 inches by 20 gauge thick.

**Note:** 20 gauge is approximately 0.036 inch.

2. The steel angle shall span the gap and extend at least to the midpoint of the adjacent stud spaces.

3. Other equivalent materials may be used in accordance with s. SPS 327.20.

(c) *Exceptions.* 1. A single top plate may be used in place of a double top plate provided a rafter is located directly over the studs and the plate is securely tied at the end joints, corners and intersecting walls. Joints may occur in single top plates only when directly over a stud.

2. A continuous header, consisting of two 2-inch members set on edge, may be used in lieu of a double plate if tied to the adjacent wall.

(3) WALL OPENINGS. (a) *Headers.* Where doors or windows occur, headers shall be used to carry the load across the opening.

(b) *Header support.* Headers in bearing walls shall be supported in accordance with the following:

1. Headers 3 feet or less in length shall be directly supported on each end by either:

- a. The single common stud and a shoulder stud; or
- b. The single common stud with a framing anchor attached.

2. Headers greater than 3 feet but less than or equal to 6 feet in length shall be directly supported on each end by the single common stud and a shoulder stud.

3. Headers greater than 6 feet in length shall be directly supported on each end by the single common stud and 2 shoulder studs.

(4) NOTCHING. Notching and boring of columns or posts is prohibited unless designed through structural analysis. Studs shall not be cut or bored more than 1/3 the depth of the stud, unless the stud is reinforced.

(5) PARTITIONS. Load-bearing partitions shall be placed over beams, girders, or other load-bearing partitions. Load-bearing partitions running at right angles to the joists shall not be offset from the main girder or walls more than the depth of the joist unless the joists are designed to carry the load.

(6) POSTS AND COLUMNS.

(a) *General.* 1. Posts and columns shall be installed to resist imposed loads.

2. Posts and columns shall bear directly over the middle 1/3 of a footing.

3. Posts and columns shall be restrained at the top and bottom to resist displacement.

4. All columns shall be positively attached to the beams they support using clips, straps or saddles.

5. Posts and columns that use a height adjustment mechanism shall have the mechanism imbedded in concrete or permanently disabled after installation.



(b) *Bearing surface.* Posts and columns shall have a steel bearing plate affixed to one or both ends to distribute any applied loads and to prevent fiber crushing of any structural member being supported.

(c) *Steel posts or columns.* Steel posts or columns shall be sized according to one of the following methods:

1. Manufactured columns shall follow the manufacturer's testing and listing.

2. Columns made of steel stock, not meeting the requirements of subd. 1., shall follow a nationally accepted design specification or the size shall be determined through structural analysis or load testing.

(d) *Wood posts or columns.* Wood posts or columns shall be sized according to Table 327.34 or the size shall be determined through structural analysis or load testing.

(7) FOUNDATION CRIPPLE WALLS. (a) Foundation cripple walls shall be framed with studs at least as large as the studs above.

(b) When more than 4 feet in height, cripple walls shall be framed with studs needed for an additional floor level.

(c) Cripple walls shall be sheathed on at least one side for its entire length with a wood structural panel that is fastened to both the top and bottom plates or the cripple walls shall be constructed of solid blocking.

(d) Cripple walls shall be fully supported by a continuous foundation.

**Table 327.34**

**WOOD COLUMNS**

Wood Nominal Size	Cross Section Area	Height (feet)	Allowable Load (pounds)
4" x 4"	12.25"	8	4,900
		10	3,100
		12	2,150
4" x 6"	19.25"	8	7,700
		10	4,900
		12	3,400
6" x 6"	30.25"	8	30,000
		10	18,900
		12	13,300

**Note:** This Table is based on a modulus of elasticity or E of 1,000,000 psi and a fiber bending strength or Fb of 1,000 psi.

**SPS 327.35 Roof design and framing.**

(1) ROOF RAFTERS.

(a) *General.* 1. Rafters shall be notched to fit the exterior wall plate and fastened to the wall.

2. Collar ties shall be installed on the upper third of every third pair of abutting roof rafters or every 48 inches, whichever is less.

(b) *Ridge boards.* 1. Where rafters meet to form a ridge, the rafters shall be attached to a ridge board.

2. The ridge board shall have a depth at least equal to the length of the cut end of the rafter abutting it.

3. Where all rafters are placed directly opposite each other or are offset at the ridge board by less than the thickness of the rafter, the ridge board shall have a nominal thickness of at least 1 inch.

4. Where one or more rafters are offset at the ridge board by more than the thickness of the rafter, the ridge board shall have a nominal thickness of at least 2 inches.

(c) *Ridge beams.* Rafters shall be attached to ridge beams using engineered clips, straps or hangers or the connection shall be designed through structural analysis.

(d) *Bearing.* The required bearing for wood rafters shall be in accordance with the NDS adopted in Table 327.19-2, except in no case shall the bearing be less than 1 1/2 inches on wood or metal or less than 3 inches on masonry or concrete.

(e) *Ladders.* 1. Overhangs at gable end walls of more than 12 inches shall be provided with ladders which extend into the structure a distance no less than the length of the overhang.

2. The ladders shall be fastened at the wall.

3. The interior end of each ladder shall be attached to a rafter or truss with a hanger.

**Note:** For the purposes of this section, a ladder is defined as a perpendicular projection extending beyond the face of the wall below.

## (2) CEILING JOISTS.

(a) Ceiling joists shall be nailed to exterior walls and to the ends of rafters.

(b) Ends of ceiling joists shall be lapped at least 3 inches and be fastened either with 3-16d nails or in accordance with the floor joist requirements under s. SPS 327.31 (4) (a) 1. c.

(c) Where ceiling joists are placed at right angles to the rafters, the lookout joist or ties shall be fastened to the parallel ceiling joists or rafters using engineered clips, straps or hangers or the connection shall be designed through structural analysis.

## (3) VALLEY AND HIP RAFTERS.

(a) *Valley rafters.* 1. Where no bearing is provided under valley rafters at the intersection of 2 roof areas, the valley rafters shall be doubled in thickness and shall be at least 2 inches deeper than the required common rafter to permit full bearing at the beveled end.

2. Where ridges are provided at different elevations, vertical support shall be provided for the interior end of the lower ridge board or ridge beam.

(b) *Hip rafters.* Where no bearing is provided under hip rafters, the hip rafters shall be of the same thickness as common rafters and shall be at least 2 inches deeper than required to permit full contact with the jack rafter.

**(4) ROOF TRUSSES.**

(a) Metal plate connected wood roof trusses shall be designed in accordance with TPI 1 and the NDS adopted under s. SPS 327.19.

(b) Truss members shall not be cut, bored or notched, except as allowed under sub. (5) (d).

(c) If connection is provided to stabilize a non-load bearing wall, a slotted expansion joint or clip shall be used.

**(5) NOTCHING AND BORING.**

(a) *General.* **1.** Notching and boring of beams or girders is prohibited unless determined through structural analysis.

**2.** Notching and boring of ceiling joists and rafters shall comply with pars. (b) and (c).

(b) *Notching.* **1.** Notches located in the top or bottom of ceiling joists and rafters are prohibited from all of the following:

- a. Having a depth exceeding  $1/6$  the depth of the member.
- b. Having a length exceeding  $1/3$  the depth of the member.
- c. Being located in the middle  $1/3$  of the span of the member.

**2.** Where ceiling joists or rafters are notched at the ends, the notch may not exceed  $1/4$  the depth of the member.

**3.** Bird mouth cuts may not exceed  $1/3$  the depth of the rafter unless the seat cut bears fully on the wall plate.

(c) *Boring.* **1.** Holes bored within 2 inches of the top or bottom of ceiling joists or rafters may not be located in the middle  $1/3$  of the span of the member.

**2.** The diameter of a hole may not exceed  $1/3$  the depth of the member.

**3.** A hole may not be bored within 2 inches of a notch or another hole.

**4.** The distance between adjacent holes may not be less than the diameter of the larger hole.

(d) *Engineered wood products.* Notching or boring of engineered wood products shall be done in accordance with the manufacturer's instructions provided those instructions were developed through structural analysis or product testing.

**(9) ROOF SHEATHING, BOARDS AND PLANKING.**

(a) *Structural sheathing.* The allowable loads and spans for structural sheathing shall be in accordance with the grade stamp on the panel.

(b) *Roof boards.* 1. Where the rafter spacing is 24 inches on center or less, roof boards may be used that have a minimum thickness of 5/8-inch for solid sheathing and 3/4-inch for spaced sheathing.

2. Where the rafter spacing is greater than 24 inches on center, roof boards shall be tongue and groove, at least 1.5 inches thick.

(c) *Roof planks.* 1. Roof planks shall be tongue and groove or splined and at least 2 inches, nominal, in thickness.

2. Planks shall terminate over beams unless the joints are end matched.

3. The planks shall be laid so that no continuous line of joints will occur except at points of support.

4. Planks shall be nailed or fastened to each beam.

### **SPS 327.36 Weather protection for roofs.**

(1) GENERAL. (a) All roofs shall be designed and constructed to assure drainage of water.

(b) All fasteners shall be corrosion resistant.

(2) UNDERLAYMENT FOR SHINGLES. Underlayment consisting of number 15 asphalt-impregnated felt paper or equivalent or other type I material that shows no water transmission when tested in accordance with ASTM D 226 or ASTM D 4869 shall be provided under shingles.

**Note:** Underlayment materials meeting the requirements of ASTM D 1970 meet the performance requirements of this section.

(3) ASPHALT SHINGLES.

(a) *General.* 1. Shingles that have a self-sealing adhesive strip shall include a sealant which has an average bond strength of at least 1.5 pounds per 3.75 inches of shingle width, at 32°F.

**Note:** The department will accept results of testing conducted in accordance with an approved test method for verifying compliance with the sealant uplift resistance required in this paragraph. Information on the applicable test method may be obtained from the department.

2. Each shingle package shall be labeled by the manufacturer to indicate conformance to the applicable ASTM standard for each type of shingle or the exception in par. (c).

3. Shingles shall be installed in accordance with the manufacturer's recommendations.

4. Shingles shall have at least 4 fasteners per strip shingle or 2 fasteners per interlocking shingle, unless the manufacturer has other specifications.

5. Shingle head lap shall be at least 2 inches, unless the manufacturer has other specifications.

6. All fasteners for shingles shall be corrosion-resistant.

**Note:** See s. SPS 327.08 (52) for definitions of shingle terms.

**Note:** Section SPS 327.04 (2) requires compliance with all parts of this code, including these roofing provisions, for an alteration to any camping unit that is regulated under this code.

(c) *Fiberglass shingles.* Fiberglass asphalt shingles shall conform to ASTM D 3462 except that laminated shingles shall have a tear strength of at least 1450 grams in each ply.

(4) OTHER ROOF COVERINGS. All roof coverings not otherwise addressed in this section shall be installed in accordance with the manufacturer's instructions or a national standard recognized by the department.

(5) REROOFING. New roof coverings may not be installed over existing roof coverings where any of the following conditions exist:

(a) The existing roof or roof covering is water-soaked or has deteriorated such that it is inadequate as a base for additional roofing.

(b) The existing roof is wood shake, slate, clay, cement or asbestos-cement tile.

(c) The existing roof has 2 or more applications of any type of permanent roof covering.

(6) FLASHING.

(a) *General.* Flashing shall be installed at the junction of chimneys and roofs, in all valleys, and around all roof openings.

(b) *Flashing of open valleys.* 1. Open valleys shall be flashed with at least No. 28 gauge corrosion-resistant sheet metal, 16 inches wide, or a layer of at least 50-pound roll roofing, 16 inches wide, placed over a layer of number 15 roofing underlayment.

2. Flashing sections shall be overlapped by at least 4 inches.

(c) *Flashing of closed valleys.* Where shingles are laced or woven over the valley, the valley shall be flashed with one of the following:

1. At least one layer of 50-pound roofing, at least 20 inches wide, over a layer of number 15 roofing underlayment.

2. A product labeled as meeting the requirements of ASTM D1970.

(d) *Chimney flashing.* 1. Chimneys shall be flashed and counter-flashed to a height of at least 6 inches.

2. Chimney crickets or saddles shall be installed where the upper side of a chimney is more than 30 inches wide on a sloping roof.

3. The intersection of the cricket and the chimney shall be flashed and counter-flashed to a height of at least 6 inches.

### Subchapter III — Heating, Ventilating, and Air Conditioning

**SPS 327.38 Scope.** The provisions of this subchapter shall apply to the design, installation, and construction of all heating, ventilating, and air conditioning systems in camping units covered by this code.

**SPS 327.39 Design.** Where a heating system is provided in a camping unit, the heating system shall be designed in accordance with this section. Where a cooling system is provided in a camping unit, the cooling requirements of this section shall be met.

(1) **DISTRIBUTION SYSTEMS.** Distribution systems shall be sized and located to satisfy the heating and cooling loads of each conditioned space.

(2) **VENTILATION.**

(a) *General.* 1. All exhaust vents shall terminate outside the camping unit.

2. Automatic or gravity dampers that close when the system is not operating shall be provided for outdoor air intake and exhaust.

(b) *Balancing.* 1. *General.* Except as provided under subd. 2., mechanical ventilation systems shall be balanced.

2. *Exception.* Passive intake air ducts providing makeup air for intermittent exhaust fans shall be sized to provide at least 40% of the total air that would be exhausted with all intermittent exhaust ventilation in the camping unit operating simultaneously.

3. **Kitchen range hoods.**

a. Kitchen range hoods that exhaust air from the kitchen area are considered as exhaust ventilation for balancing and makeup purposes.

b. Kitchen range hoods that are listed and installed to recirculate air without exhausting it are not required to be balanced.

4. **Infiltration.**

a. Infiltration may be considered as makeup air for balancing purposes only where there are no naturally vented space- or water-heating appliances in the camping unit.

b. For the purpose of complying with this subdivision, naturally vented space-heating or water-heating appliances are those that take combustion or dilution air from inside the camping unit, including unsealed fireplaces and draft hood appliances with power venting.

**Note:** Whole-house fans that are used in the summer to bring cool night air in through open windows and exhaust into the attic are considered to be a supplemental cooling system rather than part of the ventilation system.

(c) *Rooms with toilets, tubs, or showers.* Any room with a toilet, tub, or shower shall be provided with exhaust ventilation capable of exhausting 50 cubic feet per minute on an intermittent basis or 20 cubic feet on a continuous basis.

(3) CONTROLS. The temperature rise through the equipment shall not exceed 100° F unless listed. Controls shall be provided to maintain the inside temperature. Where forced, warm-air systems are used, controls shall be installed to control air movement.

**SPS 327.40 Selection of equipment.** All heating and central cooling equipment shall be selected on the basis of air-handling capacity, pumping capacity, and thermal capacity to handle the calculated design heating or cooling load.

**SPS 327.41 Types and location of equipment.**

(1) GENERAL.

(a) All heat producing appliances and cooling appliances shall be listed by a testing agency acceptable to the department.

(b) Installation and maintenance of gas-fueled appliances shall comply with the appliance listing and the requirements of NFPA 54, National Fuel Gas Code, except as otherwise required under this subchapter.

(2) FURNACES. (a) The input and output capacity of furnaces shall be listed on the nameplate. All nameplates shall show evidence that the equipment has been listed by a recognized testing laboratory.

(b) Furnaces shall be fired with the fuel for which they have been approved. Fuels shall be supplied to the furnace in the volume and at the pressure required on the label.

(5) WATER HEATERS. (a) A water heater with a tank may be installed in a closet located in a bathroom or bedroom where the closet is used exclusively for the water heater, where the enclosed space has a weather-stripped solid door with a self-closing device, and where all air for combustion is obtained from the outdoors.

**Note:** Section SPS 327.42 still requires combustion air to be provided to the appliance.

(b) A tankless water heater may be installed in any closet or cabinet. The tankless water heater shall be installed in accordance with the manufacturer's installation instructions.

**SPS 327.42 Combustion air.**

(1) SCOPE. (a) Naturally vented appliances and other appliances that require air for combustion and dilution of flue gases to be taken from within the camping unit shall comply with this section.

(b) Appliances that are provided with a direct supply of outside air for combustion in accordance with the manufacturer's installation instructions and listing are not required to comply with this section.

(c) Where the appliance listing and manufacturer's instructions are more stringent than the provisions of this section, the listing and manufacturer's instructions apply.

(d) Listed fireplace stoves are not required to comply with this section if permitted in the manufacturer's instructions.

(e) Listed factory-built fireplaces shall comply with the manufacturer's recommendations.

(2) METHODS FOR PROVIDING AIR. Air for combustion and dilution shall be provided in accordance with one of the following:

(a) Air may be provided from inside the camping unit in accordance with sub. (3).

(b) Air may be provided from outside the camping unit in accordance with sub. (4).

(c) The appliance may be installed in accordance with its listing and manufacturer's instructions.

(d) An engineered system providing an adequate supply of air for combustion ventilation and dilution of flue gases may be installed if approved by the department.

(3) AIR FROM INSIDE THE CAMPING UNIT.

(a)

1. The equipment shall be located in a space with a volume not less than 50 cubic feet per 1000 Btu/h of the combined input rating of all fuel-burning appliances drawing combustion and dilution air from that space.

2. The space may be made up of more than one room if the rooms are connected through doorways without doors or connected through sets of openings described in par. (b).

(b)

1. When needed to connect rooms, two openings shall be provided, one within one foot of the ceiling of the room and one within one foot of the floor.

2. The net free area of openings shall be calculated in accordance with sub. (5).

3. The net free area of each opening shall be a minimum of one square inch per 1000 Btu/h of combined input rating of the fuel burning appliances drawing combustion and dilution air from the communicating rooms, but shall be not less than 100 square inches.

(4) AIR FROM OUTSIDE THE CAMPING UNIT.

(a) When air for combustion and dilution is provided from outside the camping unit, as allowed under sub. (2) (b), one of the methods specified in pars. (b) to (d) shall be used.

(b) Openings may be provided to connect rooms containing appliances to the outdoors.

1.

a. Two openings shall be provided, one within one foot of the ceiling of the room and one within one foot of the floor.



**b.** Openings may connect directly to the outdoors or to the outdoors through a horizontal or vertical duct.

**c.** The net free area of openings shall be calculated in accordance with sub. (5).

**2.** The net free area of each direct opening to the outdoors not using a duct shall be a minimum of one square inch per 4000 Btu/h of combined input rating of the fuel-burning appliances drawing combustion and dilution air from the room.

**3.**

**a.** The net free area of each opening connected to the outdoors through a horizontal duct shall be a minimum of one square inch per 2000 Btu/h of combined input rating of the fuel-burning appliances drawing combustion and dilution air from the room.

**b.** The cross-sectional area of the duct shall be equal to or greater than the required size of the opening.

**4.**

**a.** The net free area of each opening connected to the outdoors through a vertical duct shall be a minimum of one square inch per 4000 Btu/h of combined input rating of the fuel-burning appliances drawing combustion and dilution air from the room.

**b.** The cross-sectional area of the duct shall be equal to or greater than the required size of the opening.

**(c)**

**1.** Where all appliances drawing air for combustion and dilution from the room are gas appliances, air may be provided via a single opening to connect the room to the outdoors in accordance with this paragraph.

**2.**

**a.** The opening shall be located within one foot of the ceiling of the room.

**b.** The opening may connect directly to the outdoors, may connect to the outdoors through a horizontal duct, or may connect to the outdoors through a vertical duct.

**c.** The net free area of the opening shall be calculated in accordance with sub. (5).

**3.**

**a.** The net free area of the opening shall be a minimum of one square inch per 3000 Btu/h of combined input rating of the fuel-burning appliances drawing combustion and dilution air from the room, and not less than the combined cross-sectional flow areas of the appliance flue collars or draft hood outlets.

**b.** The cross-sectional area of the duct shall be equal to or greater than the required size of the opening.

**4.** The appliances shall have a minimum clearance to the surfaces of the room of one inch at the sides and back of the appliance and 6 inches at the front of the appliance.

**(d)**

1. A combination of openings to the outside and openings to other rooms may be used in accordance with this paragraph.

**2.**

a. One opening shall connect directly to the outdoors, connect to the outdoors through a horizontal duct, or connect to the outdoors through a vertical duct.

b. The net free area of the openings shall be calculated in accordance with sub. (5).

c. The net free area of the opening shall be a minimum of one square inch per 5000 Btu/h of combined input rating of the fuel burning appliances drawing combustion and dilution air from the room.

d. The cross-sectional area of a duct, if used, shall be equal to or greater than the required size of the opening.

**3.**

a. The equipment shall be located in a space with a volume not less than 50 cubic feet per 1000 Btu/h of the combined input rating of all fuel-burning appliances installed in that space.

b. The space may be made up of more than one room if the rooms are connected through openings without doors or connected through sets of openings described in subd. 4.

**4.**

a. When needed to connect rooms, two openings shall be provided, one within one foot of the ceiling of the room and one within one foot of the floor.

b. The net free area of openings shall be calculated in accordance with sub. (5).

c. The net free area of each opening shall be a minimum of one square inch per 1000 Btu/h of combined input rating of the fuel burning appliances drawing combustion and dilution air from the communicating rooms, but shall be not less than 100 square inches.

**(5) NET FREE AREA CALCULATION.**

(a) The required size of openings for combustion and dilution air shall be based on the net free area of each opening.

(b) The net free area of an opening shall be that specified by the manufacturer of the opening covering or by a source approved by the department.

(c) In the absence of such information, openings covered with metal louvers shall be deemed to have a net free area of 75 percent of the area of the opening, and openings covered with wood louvers shall be deemed to have a net free area of 25 percent of the area of the opening.

**SPS 327.43 Mechanical draft systems.** Where a mechanical draft system, such as a fan is used, provision shall be made to prevent the flow of gas to the main burners when the draft system is not performing so as to satisfy the operating requirements of the system for safe performance.

**SPS 327.44 Equipment maintenance information.** Required regular maintenance actions for equipment shall be clearly stated and incorporated on a readily accessible label. The label may be limited to identifying, by title or publication number, the operation and maintenance manual for that particular model and type of equipment. Maintenance instructions shall be furnished for equipment which requires preventive maintenance for efficient operation. Manufacturer's manuals for all installed heating and cooling equipment and service water heating equipment shall be provided.

**SPS 327.45 Ductwork.**

(1) DUCT USE. Ducts designed for the transmission of air shall be used for no other purpose.

(2) INTERIOR DUCTS. All interior ducts shall be constructed in accordance with the following:

(a) *Supply and return air ducts.* Supply and return air ducts shall comply with this paragraph except that ducts attached to appliances may be constructed of materials specified in the appliance listing.

1. Kitchen exhaust ducts and ducts for air exceeding 250° F shall be constructed of sheet metal or lined with sheet metal or constructed of other noncombustible noncorrugated materials.

2. Ducts connected to furnaces shall be constructed of sheet metal for at least 6 feet from the furnace.

3. Spaces formed by unlined wood joists, studs or wood I-joists with solid webs may be used as return air ducts. Spaces used as return air ducts shall be cut off from all remaining unused portions of the space by tight-fitting stops of sheet metal or of wood joist material. Bridging shall be removed from the joist space.

(b) *Under-floor plenums.* An under-floor space may be used as a plenum in a camping unit in accordance with this section.

1. Except for the floor immediately above the under-floor plenum, supply ducts shall be provided extending from the plenum to registers or other floor levels.

2. The under-floor spaces shall not be used for storage, shall be cleaned of all loose scrap material and shall be tightly and substantially enclosed.

3. The enclosing material of the under-floor space, including the side wall insulation and vapor barriers, shall not be more flammable than one-inch wood boards.

4. Access shall be through an opening in the floor which shall be 18 inches by 24 inches.

5. The furnace supplying warm air to the under-floor space shall be equipped with an automatic control which will start the air circulating fan when the air in the furnace bonnet reaches a temperature not higher than 150° F. Such control shall be one that cannot be set higher than 150° F.

6. The furnace supplying warm air to the under-floor space shall be equipped with an approved temperature limit control that will limit outlet air temperature to 200° F.

7. A noncombustible receptacle shall be placed below each floor opening into the air chamber. The receptacle shall be securely suspended from the floor members and shall be not more than 18 inches below the floor opening. The area of the receptacle shall extend 3 inches beyond the opening on all sides. The perimeter of the receptacle shall have a vertical lip at least one inch high at the open sides if it is at the level of the bottom of the joist, or 3 inches high if the receptacle is suspended.

8. Floor registers shall be designed for easy removal to permit access for cleaning the receptacles.

9. Exterior walls and interior stud partitions shall be firestopped at the floor.

10. Each wall register shall be connected to the air chamber by a register box or boot.

11. A duct conforming to par. (a) shall extend from the furnace supply outlet at least 6 inches below combustible framing.

12. The entire ground surface and enclosing exterior walls of the under-floor space shall be covered with a vapor barrier having a vapor permeability rating of one perm or less and a flame spread rating of 200 or less.

13. Fuel gas lines may not be located within the under-floor space.

#### **SPS 327.46 Dampers, registers, and grilles.**

##### **(1) VOLUME AND BACKDRAFT DAMPERS.**

(a) Volume duct dampers shall be provided to permit balancing of the system.

(b) Volume dampers shall be provided with access.

**Note:** Acceptable means of access include a manufactured access panel, an air grille used as a cover, a plastic ceiling cap, or a damper accessible through an air diffuser or grille.

##### **(2) AIR REGISTERS AND GRILLES.**

(a) *Supply air registers.* All supply air outlets shall be provided with registers or devices which will provide a uniform distribution of air.

(b) *Return air grilles.* Return air grilles shall not be located in bathrooms, kitchens, utility spaces, or a confined space in which a draft diverter or draft regulator is located. All other habitable spaces shall have permanent openings to a return air grille equal in area to the supply outlet serving those areas. At least one return air opening shall be provided for each floor.

**SPS 327.47 Piping.**

(1) PIPE SIZES AND ARRANGEMENT. All steam and hot water supply and return piping, air-line piping and auxiliary equipment shall be of appropriate sizes, elevations and arrangements to accomplish the calculated results without stress or other detriment.

**Note:** The sizes of pipe to be used for mains and risers may be selected from the ASHRAE Guide and Data Book, published by the American Society of Heating, Refrigerating and Air Conditioning Engineers; or the manuals published by the Institute of Boiler and Radiator Manufacturers or the Mechanical Contractors Association of America.

(2) EXPANSION AND CONTRACTION. The piping for the heating system shall be equipped with anchors, expansion swings, or joints, supports and similar devices to relieve stress and strain caused by temperature change of the pipe material.

(3) PIPE INSULATION. Unguarded steam, hot water supply and return piping shall be covered with insulating material where the pipes pass through occupied areas and the surface temperature exceeds 180° F.

(4) STEAM AND HOT WATER PIPES. No pipe carrying hot water or steam at a surface temperature exceeding 250° F shall be placed within one inch of any combustible material, pass through a combustible floor, ceiling, or partition unless the pipe is protected by a metal sleeve one inch larger in diameter than the pipe or with approved pipe covering.

(5) BALANCING. Balancing cocks shall be provided in each circuit of a hot water distribution system.

**SPS 327.48 Venting system location.** A venting system shall terminate at least 3 feet above any forced air inlet located within 10 feet horizontally. This provision does not apply to the combustion air intake of a direct-vent appliance.

**SPS 327.49 Multiple appliance venting.** Two or more listed gas-or liquid-fueled appliances may be connected to a common gravity-type flue provided the appliances are equipped with listed primary safety controls and listed shutoff devices and comply with the following requirements.

(1) The appliances shall be located in the same story, except for engineered venting systems.

(2) The appliances shall be joined at a manifold or Y-type fitting as close to the chimney as possible, unless the connector from each appliance enters a separate chimney inlet and the inlets are offset at least 12 inches vertically or the separate inlets occur at right angles to each other.

**SPS 327.50 Fuel storage.**

(1) LP GAS STORAGE TANKS.

(a) All LP gas storage tanks shall be constructed, installed, and maintained to conform with the applicable sections of ch. SPS 340.

(b) LP gas tanks may not be located inside camping units.

(c) LP gas tanks shall have welded steel supports and be permanently installed on concrete pads or foundations.

**(2) OIL STORAGE TANKS.**

(a) The total oil storage capacity inside any camping unit shall be limited to 550 gallons in one tank, or not more than 275 gallons in each of 2 tanks cross-connected to a single burner.

(b) Oil storage tanks on the inside of any camping unit shall be located at the same level as the burner it serves.

**Note:** Except as provided in pars. (a) and (b), the installation of oil storage tanks is regulated under ch. ATCP 93, Flammable, Combustible, and Hazardous Liquids.

**(3) GAS PIPING SYSTEMS.** Gas piping systems, extending from the point of delivery to the connection with each gas-fired appliance or device, shall be installed to conform with NFPA 54, National Fuel Gas Code.

**(4) SHUTOFF AND CONTROL DEVICES.**

(a) Any oil-fired appliance or device connected to a fuel piping system shall have an accessible, approved manual shutoff valve installed upstream of any connector.

(b) Automatic gas-burning heating appliances shall be equipped with listed devices which will shut off the gas to the pilot light and main burner or burners in the event of pilot failure.

(c) Liquid fuel-burning appliances shall be equipped with primary safety controls which will shut off the flow of fuel to the burner or burners in the event of ignition failure.

## **Subchapter IV — Electrical Standards**

### **SPS 327.51 Electrical standards.**

(1) All electrical wiring, installations, equipment and materials used in the construction of camping units shall comply with the requirements of the Wisconsin Administrative Electrical Code, Vol. 2., ch. SPS 316, except as provided in this section.

(2) The requirements in NEC section 210.70 (A) (2) (2) do not apply to a stairway for a deck.

**Note:** A light over the stairs is not required, but a light outside the door is.

(3) Except as provided in s. SPS 327.11, the inspection of the electrical construction of a camping unit is not required.

(4) No more than one receptacle outlet is required to be installed for the entire countertop space of a kitchen in a camping unit.

(5) The requirements for installation of fire alarms in a camping unit are as provided in s. SPS 327.26.

(6) The ampacity of a conductor providing service to a camping unit and rating of the service disconnecting means may not be less than 50 amperes.

## Subchapter V — Plumbing

### SPS 327.52 Plumbing.

(1) GENERAL. The design, construction, and installation of plumbing shall comply with the requirements of the Wisconsin Plumbing Code, chs. SPS 382 to 387, except as provided in this section.

#### (2) TANKLESS WATERHEATERS.

(a) The minimum flow rate of a tankless type water heater may be obtained by multiplying 0.65 by the calculated hot water gallons per minute demand, as determined by SPS 382 Tables 382.40–1b and 382.40–3, provided the heater will achieve a water temperature of 110° F at the terminal fitting or faucet.

(b) The sizing method in par. (a) may not be used for sizing a water heater serving a high-flow fixture, a hose bibb, a hydrant, or a fixture that is required to have a supply line with a diameter larger than one-half inch.

(c) For the purposes of this subsection, "high-flow fixture" means a fixture with a flow rate of more than 4 gallons per minute, at 80 pounds per square inch, and a water velocity not exceeding 8 feet per second.

#### (3) SINKS. (a) No more than one sink is required to be installed in a camping unit.

(b) If only one sink is installed in a camping unit, the sink shall be installed in the kitchen of the camping unit.

(4) INSPECTIONS. Except as provided in s. SPS 327.11, the inspection of the plumbing of a camping unit is not required.

(5) PIPE AND TUBING. The pipe and tubing for any portion of the plumbing system of a camping unit may be flexible plastic.

## Subchapter VI — Camping Unit Transfer Tanks

**SPS 327.53 Purpose.** The purpose of this subchapter is to establish uniform standards and criteria for the installation, inspection, and servicing of camping unit transfer tanks so that the tanks are safe and will protect public health and the waters of the state.

**SPS 327.54 Installation and maintenance.** A camping unit transfer tank shall be installed and maintained in accordance with the manufacturer's specifications and as provided under ch. ATCP 79.

**SPS 327.55 Compliance with code.** A camping unit transfer tank that meets the following requirements is in compliance with this code:

(1) The tank is listed and has been labeled by a nationally recognized testing agency.

(2) The tank is installed as required under s. SPS 327.54

(3) Inlet and toilet connections to the tank are sized to provide adequate flow rate and designed to prevent backflow contamination.

(4) A vent that terminates outside the camping unit is located at the highest point of the tank.

**SPS 327.56 Servicing requirements.** The servicing of a camping unit transfer tank shall be performed in a manner to prevent the discharge of wastewater into the surrounding soil or onto the ground surface.

**Note:** The servicing of private sewerage systems including septic and holding tanks, dosing chambers, grease interceptors, seepage beds, seepage pits, seepage trenches, privies and portable restrooms is addressed in ch. NR 113, which is administered by the department of natural resources.

**SPS 327.57 Abandonment.** A subsurface tank that is no longer used as a camping unit transfer tank shall be abandoned by complying with all of the following:

(1) Disconnecting all piping to the tank.

(2) Sealing all disconnected piping to the tank.

(3) Pumping and disposing of the contents from the tank.

**Note:** The removal and disposal of the contents from treatment tanks, distribution tanks, seepage pits, and holding components is addressed in ch. NR 113, which is administered by the department of natural resources.

(4) Removing the tank or removing the cover of the tank and filling the tank with soil, gravel, or an inert solid material.

**SPS 327.58 Penalties.** Penalties for violations of this subchapter shall be assessed in accordance with s. 145.12, Stats.

**Note:** Section 145.12 (4), Stats., indicates that any person who violates any order under s. 145.02 (3) (f) or 145.20 (2) (f) or any rule or standard adopted under s. 145.13 shall forfeit not less than \$10 nor more than \$1,000 for each violation. Each violation of an order under s. 145.02 (3) (f) or 145.20 (2) (f) or any rule or standard adopted under s. 145.13 constitutes a separate offense and each day of continued violation is a separate offense.

SECTION 6. SPS 381.01 (50g) and (50r) are created to read:

**SPS 381.01**

**(50g)** "Camping unit" has the meaning given in s. SPS 327.08 (9).

**(50r)** "Camping unit transfer tank" means a type of portable container used to collect and hold wastewater discharges generated by an individual camping unit.



SECTION 7. SPS 383.32 (1) (i) is created to read:

**SPS 383.32 (1) (i)** The use of camping unit transfer tanks shall be restricted to campgrounds permitted by the department of agriculture, trade and consumer protection under ch. ATCP 79.

SECTION 8. EFFECTIVE DATE. The rules adopted in this order shall take effect on the first day of the month following publication in the Wisconsin administrative register, pursuant to s. 227.22 (2) (intro.), Stats.

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(END OF TEXT OF RULE)

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