screw threaded into the luminaire canopy other than a mounting screw or cover screw, or attached to a listed grounding means (plate) in a nonmetallic outlet box for luminaire mounting. [Grounding means shall also be permitted for luminaire attachment screws.]

(D) Grounding Connection in Nonmetallic Box. A connection between the one or more equipment grounding conductors brought into a nonmetallic outlet box shall be so arranged that a connection of the equipment grounding conductor can be made to any fitting or device in that box that requires grounding.

(E) Grounding Continuity. Where more than one equipment grounding or bonding conductor of a branch circuit enters a box, all such conductors shall be connected together using a method specified in 250.8, and the arrangement shall be such that the disconnection or removal of a receptacle, luminaire, or other device fed from the box will not interfere with or interrupt the grounding continuity.

(F) Cord-Connected Appliances. Cord-connected appliances, such as washing machines, clothes dryers, refrigerators, and the electrical system of gas ranges, and so forth, shall be grounded by means of an approved cord with equipment grounding conductor and grounding-type attachment plug.

551.56 Bonding of Non–Current-Carrying Metal Parts.

(A) Required Bonding. All exposed non–current-carrying metal parts that are likely to become energized shall be effectively bonded to the grounding terminal or enclosure of the panelboard.

(B) Bonding Chassis. A bonding conductor shall be connected between any panelboard and an accessible terminal on the chassis. Bonding terminations shall be suitable for the environment in which the conductors and terminations are installed.

Exception: Any recreational vehicle that employs a unitized metal chassis-frame construction to which the panelboard is securely fastened with a bolt(s) and nut(s) or by welding or riveting shall be considered to be bonded.

(C) Bonding Conductor Requirements. Grounding terminals shall be of the solderless type and listed as pressure terminal connectors recognized for the wire size used. The bonding conductor shall be solid or stranded, insulated or bare, and shall be 8 AWG copper minimum, or equal.

(D) Metallic Roof and Exterior Bonding. The metal roof and exterior covering shall be considered bonded where both of the following conditions apply:

(1) The metal panels overlap one another and are securely attached to the wood or metal frame parts by metal fasteners.
(2) The lower panel of the metal exterior covering is secured by metal fasteners at each cross member of the chassis, or the lower panel is connected to the chassis by a metal strap.

(E) Gas, Water, and Waste Pipe Bonding. The gas, water, and waste pipes shall be considered grounded if they are bonded to the chassis.

(F) Furnace and Metal Air Duct Bonding. Furnace and metal circulating air ducts shall be bonded.

551.57 Appliance Accessibility and Fastening. Every appliance shall be accessible for inspection, service, repair, and replacement without removal of permanent construction. Means shall be provided to securely fasten appliances in place when the recreational vehicle is in transit.

Part V. Factory Tests

551.60 Factory Tests (Electrical). Each recreational vehicle designed with a 120-volt or a 120/240-volt electrical system shall withstand the applied voltage without electrical breakdown of a 1-minute, 900-volt ac or 1280-volt dc dielectric strength test, or a 1-second, 1080-volt ac or 1530-volt dc dielectric strength test, with all switches closed, between ungrounded and grounded conductors and the recreational vehicle ground. During the test, all switches and other controls shall be in the "on" position. Fixtures, including luminaires and permanently installed appliances, shall not be required to withstand this test. The test shall be performed after branch circuits are complete prior to energizing the system and again after all outer coverings and cabinetry have been secured. The dielectric test shall be performed in accordance with the test equipment manufacturer's written instructions.

Each recreational vehicle shall be subjected to all of the following:

(1) A continuity test to ensure that all metal parts are properly bonded
(2) Operational tests to demonstrate that all equipment is properly connected and in working order
(3) Polarity checks to determine that connections have been properly made
(4) GFCI test to demonstrate that the ground fault protection device(s) installed on the recreational vehicle are operating properly

Part VI. Recreational Vehicle Parks

551.71 Type Receptacles Provided.

(A) 20-Ampere. Every recreational vehicle site with electrical supply shall be equipped with recreational vehicle site supply equipment with at least one 20-ampere, 125-volt weather-resistant receptacle. This receptacle, when used in recreational vehicle site electrical equipment, shall not be required to be tamper-resistant in accordance with 406.12.

(B) 30-Ampere. A minimum of 70 percent of all recreational vehicle sites with electrical supply shall each be equipped with

a 30-ampere, 125-volt weather-resistant receptacle conforming to Figure 551.46(C)(1). This supply shall be permitted to include additional receptacle configurations conforming to 551.81. The remainder of all recreational vehicle sites with electrical supply shall be equipped with one or more of the receptacle configurations conforming to 551.81.

Δ **(C) 50-Ampere.** A minimum of 20 percent of existing and 40 percent of all new recreational vehicle sites with electrical supply, shall each be equipped with a 50-ampere, 125/250-volt weather-resistant receptacle conforming to the configuration as identified in Figure 551.46(C)(1). Every recreational vehicle site equipped with a 50-ampere receptacle shall also be equipped with a 30-ampere, 125-volt receptacle conforming to Figure 551.46(C)(1). These electrical supplies shall be permitted to include additional receptacles that have configurations in accordance with 551.81. The weather-resistant requirement for 50-ampere, 125/250-volt receptacles shall become effective January 1, 2026.

Informational Note: The percentage of 50 ampere sites required by 551.71 could be inadequate for seasonal recreational vehicle sites serving a higher percentage of recreational vehicles with 50-ampere electrical systems. In that type of recreational vehicle park, the percentage of 50-ampere sites could approach 100 percent.

At least one 20-ampere, 125-volt receptacle must be installed at each RV campsite. Many RVs require a 30-ampere connection, and 70 percent of sites must also provide a 30-ampere receptacle.

Some RVs have a 50-ampere, 120/240-volt supply installed, and 20 percent of existing and 40 percent of new RV sites must be provided with a 50-ampere receptacle to accommodate the larger electrical system. This receptacle is in addition to the 20- and 30-ampere receptacles required for the site. This requirement increases the load capacity for RV park services and feeders.

See also

Figure 551.46(C)(1), which shows receptacle configurations
551.81, which provides receptacle ratings

(D) Tent Sites. Dedicated tent sites with a 15- or 20-ampere electrical supply shall be permitted to be excluded when determining the percentage of recreational vehicle sites with 30- or 50-ampere receptacles.

(E) Additional Receptacles. Additional receptacles shall be permitted for the connection of electrical equipment outside the recreational vehicle within the recreational vehicle park.

Δ **(F) GFCI Protection.**

N **(1) Receptacles Installed in Other Than Recreational Vehicle Site Equipment.** Ground-fault circuit-interrupter protection shall be provided as required in 210.8(B).

N **(2) Receptacles Installed in Recreational Vehicle Site Equipment.** Ground-fault circuit-interrupter protection shall only be required for 125-volt, single-phase, 15- and 20-ampere receptacles.

Informational Note No. 1: Appliances used within the recreational vehicle can create leakage current levels at the supply receptacle(s) that could exceed the limits of a Class A GFCI device.

Informational Note No. 2: The definition of *Feeder Assembly* clarifies that the power supply cord to a recreational vehicle is considered a feeder.

551.72 Distribution System.

Δ **(A) Systems.** Distribution systems shall provide the voltage and have a capacity for the receptacles provided in the recreational vehicle (RV) site supply equipment as calculated according to 551.73 and shall have an ampacity not less than 30 amperes. Systems permitted include single-phase 120 volts, single-phase 120/240 volts, or single-phase 120/208 volts — two ungrounded and one neutral conductor taken from a 208Y/120-volt system.

(B) Three-Phase Systems. Feeders from 208Y/120-volt, 3-phase systems shall be permitted to include two ungrounded conductors and shall include one grounded conductor and one equipment grounding conductor. So far as practicable, the loads shall be equally distributed on the 3-phase system.

Δ **(C) Receptacles.** Receptacles rated at 50 amperes shall be supplied from a circuit of the voltage class and rating of the receptacle. Other recreational vehicle sites with 125-volt, 20- and 30-ampere receptacles shall be permitted to be derived from any grounded distribution system that supplies 120-volt, single-phase power.

Δ **(D) Neutral Conductors.** Neutral conductors shall be permitted to be reduced in size below the minimum required size of the ungrounded conductors for 240-volt, line-to-line, permanently connected loads only. The neutral conductors shall not be reduced in size below the size of the ungrounded conductors for the site distribution.

Informational Note: Due to the long circuit lengths typical in most recreational vehicle parks, feeder conductor sizes found in the ampacity tables of Article 310 could be inadequate to maintain the voltage regulation suggested in 215.2(A), Informational Note No. 2. Total circuit voltage drop is a sum of the voltage drops of each serial circuit segment, where the load for each segment is calculated using the load that segment sees and the demand factors shown in Table 551.73(A).

Δ **(E) Connected Devices.** The use of listed surge protective devices shall be permitted.

Informational Note: Use of multiple autotransformers on the load side of RV pedestals, supplied by a single feeder, can result in increased current on the RV park or campground distribution system.

(F) Connection to Recreational Vehicle Site Equipment. Each recreational vehicle shall be powered by only one 30-ampere or one 50-ampere external power supply cord.

Informational Note: The requirement in 551.72(F) does not preclude the use of the 15- or 20-ampere receptacle convenience outlet on the recreational vehicle supply equipment.

551.73 Calculated Load.

Δ **(A) Basis of Calculations.** Electrical services and feeders shall be calculated on the basis of not less than all of the following:

(1) 12,000 volt-amperes per site equipped with 50-ampere, 208Y/120-volt or 120/240-volt supply facilities
(2) 3600 volt-amperes per site equipped with both 20-ampere and 30-ampere supply facilities
(3) 2400 volt-amperes per site equipped with only 20-ampere supply facilities
(4) 600 volt-amperes per site equipped with only 20-ampere supply facilities that are dedicated to tent sites

The demand factors set forth in Table 551.73(A) shall be the minimum allowable demand factors that shall be permitted in calculating load for service and feeders. Where the electrical supply for a recreational vehicle site has more than one receptacle.

Where the electrical supply is in a location that serves two recreational vehicles, the equipment for both sites shall comply with 551.77, and the calculated load shall only be calculated for the two receptacles with the highest rating.

TABLE 551.73(A) *Demand Factors for Site Feeders and Service-Entrance Conductors for Park Sites*

Number of Recreational Vehicle Sites	Demand Factor (%)
1	100
2	90
3	80
4	75
5	65
6	60
7–9	55
10–12	50
13–15	48
16–18	47
19–21	45
22–24	43
25–35	42
36 plus	41

(B) Demand Factors. The demand factor for a given number of sites shall apply to all sites indicated. For example, 20 sites calculated at 45 percent of 3600 volt-amperes results in a permissible demand of 1620 volt-amperes per site or a total of 32,400 volt-amperes for 20 sites.

Informational Note: These demand factors may be inadequate in areas of extreme hot or cold temperature with loaded circuits for heating or air conditioning.

Loads for other amenities such as, but not limited to, service buildings, recreational buildings, and swimming pools shall be calculated separately and then be added to the value calculated for the recreational vehicle sites where they are all supplied by a common service.

551.74 Overcurrent Protection. Overcurrent protection shall be provided in accordance with Article 240.

551.76 Grounding — Recreational Vehicle Site Supply Equipment.

(A) Grounding Electrode. Recreational vehicle site supply equipment, other than those used as service equipment, shall not be required to have a grounding electrode. An auxiliary grounding electrode(s) in accordance with 250.54 shall be permitted to be installed.

(B) Exposed Non–Current-Carrying Metal Parts. Exposed non–current-carrying metal parts of fixed equipment, metal boxes, cabinets, and fittings that are not electrically connected to grounded equipment shall be grounded by an equipment grounding conductor run with the circuit conductors from the service equipment or from the transformer of a secondary distribution system. Equipment grounding conductors shall be sized in accordance with 250.122 and shall be permitted to be spliced by listed means.

The arrangement of equipment grounding connections shall be such that the disconnection or removal of a receptacle or other device will not interfere with, or interrupt, the grounding continuity.

(C) Secondary Distribution System. Each secondary distribution system shall be grounded at the transformer.

(D) Grounded Conductor Not to Be Used as an Equipment Ground. The grounded conductor shall not be used as an equipment grounding conductor for recreational vehicles or equipment within the recreational vehicle park.

(E) No Connection on the Load Side. No connection to a grounding electrode shall be made to the grounded conductor on the load side of the service disconnecting means except as covered in 250.30(A) for separately derived systems, and 250.32(B), Exception No. 1 for separate buildings.

551.77 Recreational Vehicle Site Supply Equipment.

Recreational vehicle site supply equipment shall be listed for use as recreational vehicle site supply equipment and shall comply with 551.77(A) through (F).

(A) Location. Where provided on back-in sites, the recreational vehicle site electrical supply equipment shall be located on the left (road) side of the parked vehicle, on a line that is 1.5 m to 2.1 m (5 ft to 7 ft) from the left edge (driver's side of the parked RV) of the recreational vehicle stand and shall be located at any point on this line from the rear of the recreational vehicle stand to 4.5 m (15 ft) forward of the rear of the recreational vehicle stand.

For pull-through sites, the electrical supply equipment shall be permitted to be located at any point along the line that is 1.5 m

to 2.1 m (5 ft to 7 ft) from the left edge (driver's side of the parked RV) from 4.9 m (16 ft) forward of the rear of the recreational vehicle stand to the center point between the two roads that gives access to and egress from the pull-through sites.

The left edge (driver's side of the parked RV) of the recreational vehicle stand shall be marked.

(B) Disconnecting Means. A disconnecting switch or circuit breaker shall be provided in the site supply equipment for disconnecting the power supply to the recreational vehicle.

(C) Access. All site supply equipment shall be accessible by an unobstructed entrance or passageway not less than 600 mm (2 ft) wide and 2.0 m (6 ft 6 in.) high.

(D) Mounting Height. Site supply equipment shall be located not less than 600 mm (2 ft) above the electrical datum plane for that RV site and no more than 2.0 m (6 ft 6 in.) above the electrical datum plane unless platform provisions are made to reach the circuit protection devices that are no more than 2.0 m (6 ft 6 in.) above that platform.

(E) Working Space. Sufficient space shall be provided and maintained about all electrical equipment to permit ready and safe operation, in accordance with 110.26.

(F) Marking. Where the site supply equipment contains a 125/250-volt receptacle, the equipment shall be marked as follows: "Turn disconnecting switch or circuit breaker off before inserting or removing plug. Plug must be fully inserted or removed." The marking shall be located on the equipment adjacent to the receptacle outlet.

The marking is to reduce the possibility of a partially engaged attachment plug, which could result in intermittent neutral (grounded conductor) contact. Loss of the neutral could momentarily apply the line-to-line voltage (240 volts) across 125-volt equipment, causing damage to equipment and wiring within the vehicle.

551.78 Protection of Outdoor Equipment.

(A) Wet Locations. All switches, circuit breakers, receptacles, control equipment, and metering devices located in wet locations shall be weatherproof.

(B) Meters. If secondary meters are installed, meter sockets without meters installed shall be blanked off with an approved blanking plate.

Δ **551.79 Clearance for Overhead Conductors.** Open conductors of not over 1000 volts, nominal, shall have a vertical clearance of not less than 5.5 m (18 ft) and a horizontal clearance of not less than 900 mm (3 ft) in all areas subject to recreational vehicle movement. In all other areas, clearances shall conform to 235.360 and 235.361.

Informational Note: See 235.360 and 235.361, for clearances of conductors over 600 volts, nominal.

551.80 Underground Service, Feeder, Branch-Circuit, and Recreational Vehicle Site Feeder-Circuit Conductors.

(A) General. All direct-burial conductors, including the equipment grounding conductor if of aluminum, shall be insulated and identified for the use. All conductors shall be continuous from equipment to equipment. All splices and taps shall be made in approved junction boxes or by use of listed material.

(B) Protection Against Physical Damage. Direct-buried conductors and cables entering or leaving a trench shall be protected by rigid metal conduit, intermediate metal conduit, electrical metallic tubing with supplementary corrosion protection, rigid polyvinyl chloride conduit (PVC), nonmetallic underground conduit with conductors (NUCC), high density polyethylene conduit (HDPE), reinforced thermosetting resin conduit (RTRC), liquidtight flexible nonmetallic conduit, liquidtight flexible metal conduit, or other approved raceways or enclosures. Where subject to physical damage, the conductors or cables shall be protected by rigid metal conduit, intermediate metal conduit, Schedule 80 PVC conduit, or RTRC listed for exposure to physical damage. All such protection shall extend at least 450 mm (18 in.) into the trench from finished grade.

Informational Note: See 300.5 and Article 340 for conductors or Type UF cable used underground or in direct burial in earth.

551.81 Receptacles. A receptacle to supply electric power to a recreational vehicle shall be one of the configurations shown in Figure 551.46(C)(1) in the following ratings:

(1) 50-ampere — 125/250-volt, 50-ampere, 3-pole, 4-wire grounding type for 120/240-volt systems
(2) 30-ampere — 125-volt, 30-ampere, 2-pole, 3-wire grounding type for 120-volt systems
(3) 20-ampere — 125-volt, 20-ampere, 2-pole, 3-wire grounding type for 120-volt systems

Informational Note: See ANSI/NEMA WD 6-2016, *Wiring Devices — Dimensional Specifications*, Figures 14-50, TT, and 5-20, for complete details of these configurations.

ARTICLE 552 Park Trailers

Part I. General

552.1 Scope. The provisions of this article cover the electrical conductors and equipment installed within or on park trailers not covered fully under Articles 550 and 551.

This article covers park trailers that have a single chassis and wheels, that do not exceed 400 ft² (set up), and that are not used as permanent residences. Article 552 does not apply to units that meet the definition of the term *park trailer* (see Article 100) but are used for commercial purposes (see 552.4).