



## First Revision No. 8978-NFPA 70-2018 [ Global Input ]

### Change Title of Article 555 to Marinas, Boatyards, Floating Buildings and Commercial and Noncommercial Docking Facilities

Add the following Informational Note below title.

Informational Note: *Text that is followed by a reference in brackets has been extracted from NFPA 303 -2016, Fire Protection Standard for Marinas and Boatyards, and NFPA 307-2016, Standard for the Construction and Fire Protection of Marine Terminals, Piers, and Wharves. Only editorial changes were made to the extracted text to make it consistent with this Code.*

Merge Article 553 and Article 555.

See attached word document.

### Supplemental Information

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
FINAL_Article_553-555_Merged.docx	All changes to 555 were done through FR's in 555. Track changes does not show these changes. Everything is just moved with the exception of the highlighted sections. Those sections had slight modifications to account for the merging of the two articles.	✓

### Submitter Information Verification

**Submitter Full Name:** NEC-CMP Panel 07  
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### Committee Statement and Meeting Notes

**Committee Statement:** Delete Article 553 and add "floating buildings" into the title of Article 555. Due to the electrical safety hazards, and the electrical infrastructure being similar in nature. The addition of "floating buildings" to Article 555 will enhance electrical safety and usability of the NEC. Also, add an Informational Note to provide information to other NFPA standards that could be a potential source and to note where code language has been extracted.

#### Response Message:

[Public Input No. 3274-NFPA 70-2017 \[Article 553\]](#)

[Public Input No. 3273-NFPA 70-2017 \[Article 555\]](#)

### Editorial Comment

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## Article 555

### Marinas, Boatyards, Floating Buildings and Commercial and Noncommercial Docking Facilities

Commented [RH1]: PI 3273 +

Informational Note: Text that is followed by a reference in brackets has been extracted from NFPA 303-2016, Fire Protection Standard for Marinas and Boatyards, and NFPA 307-2016, Standard for the Construction and Fire Protection of Marine Terminals, Piers, and Wharves. Only editorial changes were made to the extracted text to make it consistent with this Code.

Commented [RH2]: PI 2893 +

## Part I. General

### 555.1 Scope.

This article covers the installation of wiring and equipment in the areas comprising fixed or floating piers, wharves, docks, floating buildings and other areas in marinas, boatyards, boat basins, boathouses, yacht clubs, boat condominiums; docking facilities associated with one-family dwellings, two-family dwellings, multifamily dwellings, and residential condominiums; any multiple docking facility or similar occupancies; and facilities that are used, or intended for use, for the purpose of repair, berthing, launching, storage, or fueling of small craft and the moorage of floating buildings.

Commented [RH3]: PI 3273 +

Informational Note No.1: See NFPA 303-2011, *Fire Protection Standard for Marinas and Boatyards*, for additional information.

Commented [RH4]: PI 2203 +

Informational Note No. 2: Where boats, floating buildings, docks, etc. are connected to a source of electric supply,

hazardous voltages and currents may create serious safety concerns.

Commented [RH5]: PI 2203 +

**555.2 Definitions.** The definitions in this section shall apply only within this article.

Commented [RH6]: PI 2228, 1910 +

**Berth.**

Commented [RH7]: PI 2488 +

The water space to be occupied by a boat or other vessel alongside or between bulkheads, piers, piles, fixed and floating docks, or any similar access structure. (See also Slip.) [NFPA 303 3.3.1]

**Boatyard.**

Commented [RH8]: PI 2492 +

A facility used for constructing, repairing, servicing, hauling from the water, storing (on land and in water), and launching of boats. [303 3.3.2]

**Bulkhead.**

Commented [RH9]: PI 2493 +

A vertical structural wall, usually of stone, timber, metal, concrete, or synthetic material, constructed along, and generally parallel to, the shoreline to retain earth as an extension of the upland, and often to provide suitable water depth at the waterside face. [303 3.3.4]

**Crane.**

Commented [RH10]: PI 2494 +

A mechanical device used for lifting or moving boats. [303 3.3.5]

**Docking Facility.**

Commented [RH11]: TIA 1348 +

A covered or open, fixed or floating structure that provides access to the water and to which boats are secured. [303 3.3.7]

**Electrical Datum Plane.**

Commented [RH12]: PI 2898 +

A specified distance above a water level above which electrical equipment can be installed and electrical connections can be made.

**Floating Building.**

A building unit, as defined in Article 100, that floats on water, is moored in a permanent location, and has a premises wiring system served through connection by permanent wiring to an electrical supply system not located on the premises.

Commented [RH13]: Moved from 553.2 +

**Marina.**

A facility, generally on the waterfront, that stores and services boats in berths, on moorings, and in dry storage or dry stack storage. [303 3.3.12]

Commented [RH14]: PI 2496 +

**Marina Power Outlet.**

An enclosed assembly that can include equipment such as receptacles, circuit breakers, fused switches, fuses, a watt-hour meter(s), panelboards, and monitoring means identified for marina use. [303 3.3.13]

Commented [RH15]: Changed "Marine" to "Marina" PI 2509 +

Commented [RH16]: PI 1235 +

**Monorail.**

Overhead track and hoist system for moving material around the boatyard or moving and launching boats. [303 3.3.15]

Commented [RH17]: PI 2497 +

**Mooring(s).**

Any place where a boat is wet stored or berthed. [303 3.3.16]

Commented [RH18]: PI 2498 +

**Pier.**

A structure extending over the water and supported on a fixed foundation (fixed pier), or on flotation (floating pier), that provides access to the water. [303 3.3.17]

Commented [RH19]: PI 2500 +

**Pier, Fixed.**

Pier constructed on a permanent, fixed foundation, such as on piles, that permanently establishes the elevation of the structure deck with respect to land. [303 3.3.17]

Commented [RH20]: PI 2501 +

### **Pier, Floating.**

Pier designed with inherent flotation capability that allows the structure to float on the water surface and rise and fall with water level changes. [303 3.3.18]

Commented [RH21]: PI 2502 +

### **Shore Power.**

The electrical equipment required to power a floating vessel including but not limited to the receptacle and cords.

Commented [RH22]: PI 2506 +

### **Slip.**

A berthing space between or adjacent to piers, wharves, or docks; the water areas associated with boat occupation. (See also Berth.) [303 3.3.20]

Commented [RH23]: PI 2504 +

### **Storage, Dry Stack.**

A facility, either covered or uncovered, constructed of horizontal and vertical structural members designed to allow placement of small boats in defined slots arranged both horizontally and vertically. [303 3.23.2]

Commented [RH24]: PI 2505 +

### **Wharf.**

A structure at the shoreline that has a platform built along and parallel to a body of water with either an open deck or a superstructure. [307 3.3.24]

Commented [RH25]: PI 2671 +

## **555.3 Electrical Datum Plane Distances.**

Commented [RH26]: New section  
PI 2534 +

**(A) Floating Piers.** The electrical datum plane for floating piers and boat landing stages that are (1) installed to permit rise and fall response to water level, without lateral movement, and (2) that are so equipped that piers and landing stages can rise to the datum plane established for 555.3(B) or (C), shall be a horizontal plane 762 mm (30 in.) above the water level at the floating pier or boat landing stage and a minimum of 305 mm (12 in.) above the level of the deck.

**(B) Areas Subject to Tidal Fluctuations.** In land areas subject to tidal fluctuation, the electrical datum plane shall be a horizontal plane that is 606 mm (2 ft) above the highest tide level for the area occurring under normal circumstances, based on the highest high tide.

**(C) Areas Not Subject to Tidal Fluctuations.** In land areas not subject to tidal fluctuation, the electrical datum plane shall be a horizontal plane that is 606 mm (2 ft) above the highest water level for the area occurring under normal circumstances.

#### 555.4 Location of Service Equipment.

The service equipment for a floating building, docks, or marinas shall be located adjacent to the structure, but not on or in, the structure itself or any other floating structure.

Commented [RH27]: Old 555.7 / 553.4  
Language edited to be applicable to revised scope

#### 555.5 Maximum Voltage.

Pier power distribution systems shall not exceed 250 volts phase to phase. Pier power distribution systems, where qualified personnel service the equipment under engineering supervision, are permitted to exceed 250 volts but these systems shall not exceed 600 volts.

Commented [RH28]: Old 555.4 (was called Distribution System)  
PI 2531 +

#### 555.6 Load Calculations for Service and Feeder Conductors.

General lighting and other loads shall be calculated in accordance with Part III of Article 220, and, in addition, the demand factors set forth in Table 555.6 shall be permitted for each service and/or feeder circuit supplying receptacles that provide shore power for boats. These calculations shall be permitted to be modified as indicated in notes (1) and (2) to Table 555.6. Where demand

Commented [RH29]: Old 555.12

factors of Table 555.6 are applied, the demand factor specified in 220.61(B) shall not be permitted.

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

**Table 555.6 Demand Factors**

Number of Shore Power Receptacles	Sum of the Rating of the Receptacles (%)
1-4	100
5-8	90
9-14	80
15-30	70
31-40	60
41-50	50
51-70	40
≥71	30

Notes:

1. Where shore power accommodations provide two receptacles specifically for an individual boat slip and these receptacles have different voltages (for example, one 30 ampere, 125 volt and one 50 ampere, 125/250 volt), only the receptacle with the larger kilowatt demand shall be required to be calculated.
2. If the facility being installed includes individual kilowatt-hour submeters for each slip and is being calculated using the criteria listed in Table 555.6, the total demand amperes may be multiplied by 0.9 to achieve the final demand amperes.

### 555.7 Transformers.

Commented [RH30]: Old 555.5

**(A) General.** Transformers and enclosures shall be identified for wet locations. The bottom of transformer enclosures shall not be located below the electrical datum plane.

Commented [RH31]: PI 1236, 1237 +

**(B) Replacements.** Transformers and enclosures shall be identified for wet locations where replacements are made.

Commented [RH32]: PI 1368 +

### 555.8 Marine Hoists, Railways, Cranes, and Monorails.

Commented [RH33]: Old 555.23

Motors and controls for marine hoists, railways, cranes, and monorails shall not be located below the electrical datum plane. Where it is necessary to provide electric power to a mobile crane or hoist in the yard and a trailing cable is utilized, it shall be a listed portable power cable rated for the conditions of use and be provided with an outer jacket of distinctive color for safety.

### 555.9 Boat Hoists.

Commented [RH34]: PI 2563 +

GFCI protection for personnel shall be provided for outlets not exceeding 240 volts that supply boat hoists installed at dwelling unit docking facilities.

### 555.10 Signage.

Commented [RH35]: Old 555.24

Permanent safety signs shall be installed to give notice of electrical shock hazard risks to persons using or swimming near a docking facility, boatyard, or marina and shall comply with all of the following:

Commented [RH36]: PI 4344 +

- (1) The signage shall comply with 110.21(B)(1) and be of sufficient durability to withstand the environment.
- (2) The signs shall be clearly visible from all approaches to a marina, docking facility, or boatyard facility.

(3) The signs shall state “WARNING — POTENTIAL SHOCK HAZARD — ELECTRICAL CURRENTS MAY BE PRESENT IN THE WATER.”

#### **555.11 Motor Fuel Dispensing Stations — Hazardous (Classified) Locations.**

Commented [RH37]: Old 555.21

Electrical wiring and equipment located at or serving motor fuel dispensing locations shall comply with Article 514 in addition to the requirements of this article.

#### **555.12 Repair Facilities — Hazardous (Classified) Locations.**

Commented [RH38]: Old 555.22

Electrical wiring and equipment located at facilities for the repair of marine craft containing flammable or combustible liquids or gases shall comply with Article 511 in addition to the requirements of this article.

### **Part II. Marinas, Boatyards, and Docking Facilities**

#### **555.30 Electrical Connections.**

Commented [RH39]: Old 555.9

**(A) Floating Piers.** Electrical connections shall be located at least 305 mm (12 in.) above the deck of a floating pier. Conductor splices, within junction boxes identified for wet locations, utilizing sealed wire connector systems listed and identified for submersion shall be required for floating piers where located above the waterline but below the electrical datum plane .

Commented [RH40]: PI 1369 +

Commented [RH41]: PI 1239, 1240, 1369, 2788 +

Commented [RH42]: PI 1369, 2788 +

**(B) Fixed Piers.** All electrical connections shall be located at least 305 mm (12 in.) above the deck of a fixed pier but shall not be located below the electrical datum plane.

Commented [RH43]: PI 1369 +

**(C) Replacements.** Replacement electrical connections shall be located at least 305 mm (12 in.) above the deck of a floating pier. Conductor splices, within identified junction boxes, utilizing sealed wire connector systems listed and identified for submersion shall be required where located above the waterline but below the electrical datum plane for floating piers.

Commented [RH44]: Pl 1369, 2788 +

### 555.31 Electrical Equipment Enclosures.

Commented [RH45]: Old 555.10

**(A) Securing and Supporting.** Electrical equipment enclosures installed on piers above deck level shall be securely and substantially supported by structural members, independent of any conduit connected to them. If enclosures are not attached to mounting surfaces by means of external ears or lugs, the internal screw heads shall be sealed to prevent seepage of water through mounting holes.

**(B) Location.** Electrical equipment enclosures on piers shall be located so as not to interfere with mooring lines.

### 555.32 Circuit Breakers, Switches, Panelboards, and Marine Power Outlets.

Commented [RH46]: Old 555.11  
Change "Marine" to "Marina" to align with other such changes

Circuit breakers and switches installed in gasketed enclosures shall be arranged to permit required manual operation without exposing the interior of the enclosure. All such enclosures shall be arranged with a weep hole to discharge condensation.

### 555.33 Receptacles.

Commented [RH47]: Old 555.19

Receptacles shall be mounted not less than 305 mm (12 in.) above the deck surface of the pier and not below the electrical datum plane on a fixed pier.

**(A) Shore Power Receptacles.**

**(1) Enclosures.** Receptacles intended to supply shore power to boats shall be enclosed in listed marina power outlets, enclosures listed for wet locations, or shall be installed in listed enclosures protected from the weather. The integrity of the assembly shall not be affected when the receptacles are in use with any type of booted or nonbooted attachment plug/cap inserted.

Commented [RH48]: PI 2513 +

**(2) Strain Relief.** Means shall be provided where necessary to reduce the strain on the plug and receptacle caused by the weight and catenary angle of the shore power cord.

**(3) Branch Circuits.** Each single receptacle that supplies shore power to boats shall be supplied from a marina power outlet or panelboard by an individual branch circuit of the voltage class and rating corresponding to the rating of the receptacle.

Commented [RH49]: PI 2513 +

Informational Note: Supplying receptacles at voltages other than the voltages marked on the receptacle may cause overheating or malfunctioning of connected equipment, for example, supplying single-phase, 120/240-volt, 3-wire loads from a 208Y/120-volt, 3-wire source.

**(4) Ratings.** Shore power for boats shall be provided by single receptacles rated not less than 30 amperes.

Informational Note: For locking- and grounding-type receptacles for auxiliary power to boats, see NFPA 303-2011, *Fire Protection Standard for Marinas and Boatyards*.

(a) Receptacles rated 30 amperes and 50 amperes shall be of the locking and grounding type.

Informational Note: For various configurations and ratings of locking- and grounding-type receptacles and caps, see ANSI/NEMA WD 6-2016, *Wiring Devices – Dimensional Specifications*.

Commented [RH50]: PI 722 +

(b) Receptacles rated 60 amperes or higher shall be of the pin and sleeve type.

Informational Note: For various configurations and ratings of pin and sleeve receptacles, see ANSI/UL 1686, *UL Standard for Safety Pin and Sleeve Configurations*.

## **(B) Other Than Shore Power.**

**(1) Ground-Fault Circuit-Interrupter (GFCI) Protection for Personnel.** Receptacles in other locations shall be protected in accordance with 210.8.

Commented [RH51]: PI 1370, 2562, 3358 +

**(2) Marking.** Receptacles other than those supplying shore power to boats shall be permitted to be housed in marina power outlets with the receptacles that provide shore power to boats, provided they are marked to clearly indicate that they are not to be used to supply power to boats.

Commented [RH52]: PI 2513 +

**(C) Replacement Receptacles.** The requirements in 555.33 shall apply to the replacement of marina receptacles.

Commented [RH53]: PI 1373, 238 +

## **555.34 Wiring Methods and Installation.**

Commented [RH54]: Old 555.13

### **(A) Wiring Methods.**

**(1) General.** Wiring methods of Chapter 3 shall be permitted where identified for use in wet locations.

**(2) Portable Power Cables.** Extra-hard usage portable power cables rated not less than 75°C (167°F), 600 volts; listed for both wet locations and sunlight resistance; and having an outer jacket rated to be resistant to temperature extremes, oil, gasoline, ozone, abrasion, acids, and chemicals shall be permitted as follows:

(1) As permanent wiring on the underside of piers (floating or fixed)

(2) Where flexibility is necessary as on piers composed of floating sections

### (3) Temporary Wiring.

Temporary wiring, except as permitted by Article 590, shall not be used to supply power to boats.

#### (B) Installation.

(1) **Overhead Wiring.** Overhead wiring shall be installed to avoid possible contact with masts and other parts of boats being moved in the yard.

Conductors and cables shall be routed to avoid wiring closer than 6.0 m (20 ft) from the outer edge or any portion of the yard that can be used for moving vessels or stepping or unstepping masts.

(2) **Outdoor Branch Circuits and Feeders.** Multiple feeders and branch circuits shall be permitted. Clearances for overhead branch circuit and feeder wiring in locations of the boatyard other than those described in 555.34(B)(1) shall be located not less than 5.49 m (18 ft) above grade. Only Part I of Article 225 shall apply to marina installations.

Commented [RH55]: PI 1241 +

Commented [RH56]: PI 1241 +

Commented [RH57]: Deleted old (3) Wiring Over and Under Navigable Water  
PI 1242 +

### (3) Portable Power Cables.

(a) Where portable power cables are permitted by 555.34(A)(2), the installation shall comply with the following:

(1) Cables shall be properly supported.

(2) Cables shall be located on the underside of the pier.

(3) Cables shall be securely fastened by nonmetallic clips to structural members other than the deck planking.

(4) Cables shall not be installed where subject to physical damage.

(5) Where cables pass through structural members, they shall be protected against chafing by a permanently installed oversized sleeve of nonmetallic material.

(b) Where portable power cables are used as permitted in 555.34(A)(2)(2), there shall be a junction box of corrosion-resistant construction with permanently installed terminal blocks on each pier section to which the feeder and feeder extensions are to be connected. A listed marina power outlet employing terminal blocks/bars shall be permitted in lieu of a junction box. Metal junction boxes and their covers, and metal screws and parts that are exposed externally to the boxes, shall be of corrosion-resistant materials or protected by material resistant to corrosion.

Commented [RH58]: PI 1244 +

Commented [RH59]: PI 2511 +

**(4) Protection.** Rigid metal conduit, reinforced thermosetting resin conduit (RTRC) listed for aboveground use, or rigid polyvinyl chloride (PVC) conduit suitable for the location, shall be installed to protect wiring above decks of piers and landing stages and below the enclosure that it serves. The conduit shall be connected to the enclosure by full standard threads or fittings listed for use in damp or wet locations, as applicable.

### **555.35 Ground-Fault Protection of Equipment (GFPE) and Ground-Fault Current-Interrupter (GFCI) Protection.**

Commented [RH60]: Originally 555.3  
PI 1611, 2549, 2791, 2793, 3209, 3606 +

**(A) Ground-Fault Protection.** For other than floating buildings, ground-fault protection for docking facilities shall be provided in accordance with the following:

**(1) Receptacles Providing Shore Power.** Receptacles installed in accordance with 555.33(A) shall have individual ground-fault protection of equipment (GFPE) set to open at currents not exceeding 30 mA.

**(2) Ground-Fault Circuit-Interrupter (GFCI) Protection for Personnel.** All 125-volt, single phase 15- and 20-ampere receptacles, for other than shore power, shall be protected in accordance with 555.33(B).

**(3) Feeder and Branch Circuit Conductors With GFPE.** Feeder and branch circuit conductors that are installed on docking facilities shall be provided with ground-fault protection of equipment (GFPE) set to open at currents not exceeding 100 mA. Coordination with downstream ground-fault protection of equipment (GFPE) shall be permitted at the feeder overcurrent protective device.

**(B) Leakage Current Measurement Device.** Where more than three receptacles supply shore power to boats, a leakage current measurement device shall be available and be used to determine leakage current from each boat that will utilize shore power.

Informational Note No. 1: Leakage current measurement will provide the capability to determine when an individual boat has defective wiring or other problems contributing to hazardous voltage and current. The use of a test device will allow the facility operator to identify a boat that is creating problems. In some cases, a single boat may cause an upstream GFPE device protecting a feeder to operate even though multiple boats are supplied from the same feeder. The use of a test device will help the facility operator prevent a particular boat from contributing to hazardous voltage and current in the marina area.

Informational Note No. 2: An annual test of each boat with the leakage current measurement device is a prudent step towards determining if a boat has defective wiring that may be contributing hazardous voltage and current. Where the leakage current measurement device reveals that a boat is contributing hazardous voltage and current, repairs should be made to the boat before it is permitted to utilize shore power.

### 555.36 Disconnecting Means for Shore Power Connection(s).

Commented [RH61]: Old 555.17

Disconnecting means shall be provided to isolate each boat from its supply connection(s).

**(A) Type.** The disconnecting means shall consist of a circuit breaker, switch, or both, and shall be properly identified as to which receptacle it controls.

**(B) Location.** The disconnecting means shall be readily accessible, located not more than 762 mm (30 in.) from the receptacle it controls, and shall be located in the supply circuit ahead of the receptacle. Circuit breakers or switches located in marina power outlets complying with this section shall be permitted as the disconnecting means.

Commented [RH62]: PI 2512 +

### 555.37 Equipment Grounding Conductor.

Commented [RH63]: Old 555.15

#### **(A) Equipment to Be Connected to Equipment Grounding Conductor.**

Commented [RH64]: PI 2032 +

The following items shall be connected to an equipment grounding conductor run with the circuit conductors in the same raceway, cable, or trench:

- (1) Metal boxes, metal cabinets, and all other metal enclosures
- (2) Metal frames of utilization equipment

(3) Grounding terminals of grounding-type receptacles

**(B) Type of Equipment Grounding Conductor.**

The equipment grounding conductor shall be an insulated conductor with a continuous outer finish that is either green or green with one or more yellow stripes. The equipment grounding conductor of Type MI cable shall be permitted to be identified at terminations. For conductors larger than 6 AWG, or where multiconductor cables are used, re-identification of conductors allowed in 250.119(A)(2)b. and (A)(2)c. or 250.119(B)(2) and (B)(3) shall be permitted.

**(C) Size of Equipment Grounding Conductor.**

The insulated equipment grounding conductor shall be sized in accordance with 250.122 but not smaller than 12 AWG.

**(D) Branch-Circuit Equipment Grounding Conductor.**

The insulated equipment grounding conductor for branch circuits shall terminate at a grounding terminal in a remote panelboard or the grounding terminal in the main service equipment.

**(E) Feeder Equipment Grounding Conductors.**

Where a feeder supplies a remote panelboard, an insulated equipment grounding conductor shall extend from a grounding terminal in the service equipment to a grounding terminal in the remote panelboard.

**555.38 Equipotential Bonding**

**(A) Performance.** The equipotential bonding required by this section shall be installed to reduce voltage gradients in the marina dock area.

Commented [RH65]: New section  
PI 2792, 2423, 1372 +

**(B) Bonded Parts.** The following parts shall be bonded together using solid copper conductors; insulated, covered, or bare; not smaller than 8 AWG. Connections to bonded parts shall be made in accordance with 250.8. An 8 AWG or larger solid copper bonding conductor provided to reduce voltage gradients on the marina dock shall not be required to be extended or attached to remote panelboards, service equipment, or electrodes.

**(1) Electrical Equipment.** Metal parts of electrical equipment installed on the boat dock with the exception of double-insulated motors shall be bonded together.

**(2) Metallic Components.** All metallic parts of the dock structure shall be bonded together.

**(3) Fixed Metal Parts or Fittings.** All fixed metal parts including, but not limited to, metal sheathed cables and raceways, metal piping, metal awnings, metal fences, metal ladders, metal frames of diving boards or slides, metal tanks, metal fittings larger than 100 mm (4 in.) and attached to the dock shall be bonded together.

### Part III. Floating Buildings

#### 555.50 Service Conductors.

One set of service conductors shall be permitted to serve more than one set of service equipment.

Commented [RH66]: Old 553.5

#### 555.51 Feeder Conductors.

Each floating building shall be supplied by a single set of feeder conductors from its service equipment.

Commented [RH67]: Old 553.6

*Exception: Where the floating building has multiple occupancy, each occupant shall be permitted to be supplied by a single set of feeder conductors extended from the occupant's service equipment to the occupant's panelboard.*

### **555.52 Installation of Services and Feeders.**

Commented [RH68]: Old 553.7

#### **(A) Flexibility.**

Flexibility of the wiring system shall be maintained between floating buildings and the supply conductors. All wiring shall be installed so that motion of the water surface and changes in the water level will not result in unsafe conditions.

#### **(B) Wiring Methods.**

Liquidtight flexible metal conduit or liquidtight flexible nonmetallic conduit with approved fittings shall be permitted for feeders and where flexible connections are required for services. Extra-hard usage portable power cable listed for both wet locations and sunlight resistance shall be permitted for a feeder to a floating building where flexibility is required. Other raceways suitable for the location shall be permitted to be installed where flexibility is not required.

### **555.53 Ground-Fault Protection.**

Commented [RH69]: Extracted from old 553.4

The main overcurrent protective device that feeds the floating building shall have ground fault protection not exceeding 100 mA. Ground fault protection of each individual branch or feeder circuit shall be permitted as a suitable alternative.

### **555.54 Grounding.**

Commented [RH70]: Old 553.8

Grounding at floating buildings shall comply with 555.54(A) through (D).

#### **(A) Grounding of Electrical and Nonelectrical Parts.**

Grounding of both electrical and nonelectrical parts in a floating building shall be through connection to a grounding bus in the building panelboard.

#### **(B) Installation and Connection of Equipment Grounding Conductor.**

The equipment grounding conductor shall be installed with the feeder conductors and connected to a grounding terminal in the service equipment.

#### **(C) Identification of Equipment Grounding Conductor.**

The equipment grounding conductor shall be an insulated copper conductor with a continuous outer finish that is either green or green with one or more yellow stripes. For conductors larger than 6 AWG, or where multiconductor cables are used, re-identification of conductors allowed in 250.119(A)(2)b. and (A)(2)c. shall be permitted.

#### **(D) Grounding Electrode Conductor Connection.**

The grounding terminal in the service equipment shall be grounded by connection through an insulated grounding electrode conductor to a grounding electrode on shore.

### **555.55 Insulated Neutral.**

Commented [RH71]: Old 553.9

The grounded circuit conductor (neutral) shall be an insulated conductor identified in compliance with 200.6. The neutral conductor shall be connected to the equipment grounding

terminal in the service equipment, and, except for that connection, it shall be insulated from the equipment grounding conductors, equipment enclosures, and all other grounded parts. The neutral conductor terminals in the panelboard and in ranges, clothes dryers, counter-mounted cooking units, and the like shall be insulated from the enclosures.

### **555.56 Equipment Grounding.**

Commented [RH72]: Old 553.10

#### **(A) Electrical Systems.**

All enclosures and exposed metal parts of electrical systems shall be connected to the grounding bus.

#### **(B) Cord-Connected Appliances.**

Where required to be grounded, cord-connected appliances shall be grounded by means of an equipment grounding conductor in the cord and a grounding-type attachment plug.

### **555.57 Bonding of Non-Current-Carrying Metal Parts.**

Commented [RH73]: Old 553.11

All metal parts in contact with the water, all metal piping, and all non-current-carrying metal parts that are likely to become energized shall be connected to the grounding bus in the panelboard using solid copper conductors; insulated, covered, or bare; not smaller than 8 AWG. Connections to bonded parts shall be made in accordance with 250.8.



## First Revision No. 8993-NFPA 70-2018 [ Global Input ]

See attached word document for the merging of parts of 550 into 545.

### Supplemental Information

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### Committee Statement and Meeting Notes

**Committee Statement:** Article title:

The requirements for “mobile homes used as other than dwelling units,” formally covered in Article 550, have been incorporated into Article 545. The term “relocatable structures” was chosen as it is already a commonly used industry term that still identifies the portable nature of these units. This will also distinguish them from other manufactured buildings. The relocation of these requirements to Article 545 will make it clear to readers of the Code that Article 550 now only covers mobile and manufactured homes that are intended to be used as dwelling units and mobile home parks.

Scope statements are the purview of the NEC Correlating Committee and CMP 7 requests confirmation of the revisions to Articles 545 and 550 relative to relocatable structures. Additionally, the CMP 7 Task Group on Relocatable Structures will be continued between the First and Second Draft meetings. The Task Group will continue reviewing Article 550 to determine if there are any other relevant requirements that should be included in new Part II of Article 545 and will review any Correlating Committee comments received and will create the appropriate comments for the Second Draft.

Part I title: The “Part I General” title was added to identify the requirements that will now apply generally and to correlate with the addition of “Part II, Relocatable Structures.”

545.1: The addition of the reference to relocatable structures and the conductors that connect them to supply of electricity are necessary to properly address structures such as mobile office units, mobile classrooms, mobile restrooms and shower facilities, mobile break rooms, mobile training centers and other non-dwelling types of relocatable structures.

545.2 Relocatable Structure Definition: Adding the definition of “relocatable structure” is necessary as the term will be used in the revision of the Article 545 to include the units formally covered in Article 550. The informational note, former text in 550.4(A), was included to provide examples of relocatable structures.

Part II Relocatable Structures: A “Part II Title” was added to make it clear to readers of the Code that Part II only applies to relocatable structures.

545.20: The text was designed after other text leading into parts of articles, such as 230.200, that apply to specific conditions or equipment.

The reference to the voltage ranges, "120-volt or 120/240-volt ac" formally included in 550.4(A) were not retained to clarify that is permissible to connect relocatable structures to other voltages.

545.22(A): These units are typically hard wired and should remain as such. Therefore the permission for a cord- and plug-connected option was not retained.

545.22(B): Due to the common design of having individual panels located in each relocatable structure, it is necessary to have more than one feeder supplying what becomes a single unit when the units are ganged together. However, currently there is no amendment to 225.30 which limits the supply to only one feeder without have to implement the documented switching procedures provided in 225.30(E). This new text will permit the common practice of having multiple feeders without having to implement documented switching procedures. The new marking requirements required in 545.22(C) provides the additional level of safety needed to allow this application by requiring identification of the supply disconnect location on the panelboard for each individual unit.

545.22(C): Currently there is no amendment to the marking requirements in 225.37, yet that section is not generally not enforced even with multiple feeders installed. The new language in this section will provide relief from having to mark the location of all the other disconnects at each location when the relocatable structures are located where the conditions of maintenance and supervision ensure qualified persons will service and maintain the electrical systems and equipment.

545.22(D): The reference to the grounding requirements were added as the current text of 545.11 is only referring to equipment grounding and bonding and not the supply system grounding.

545.22(E): The text, formally located in 550.10(I)(1) and (2) was retained as it is necessary to continue providing guidance as to the acceptable methods of installing supply conductors.

545.24(A) and (B): The text, formally located in 550.11(A) relative the disconnecting means and in 550.11(B) relative to the branch circuit protection, was retained due to allowance for the supply circuit disconnecting means to be located remote from the relocatable structure(s). It is beneficial to the occupants of the relocatable structure to have consistently located local disconnects and branch circuit overcurrent protection.

545.26: The text, formally located in 550.16(C), was retained to continue reducing the likelihood of having a difference in potential between normally non-current carrying exposed conductive metal parts.

545.28: The ground-fault circuit-interrupter requirements, formally located in 550.13(B)(1) and (2) were retained as they are necessary for relocatable structure applications. The requirements in 550.13(A) and (B)(3) through (5) were not included as they are already covered in Articles 210 and 422 and therefore, per 90.3, are not needed here.

550.4(A): Subsection 550.4(A) is no longer necessary as the text has been incorporated into Article 545. The remaining subdivisions have been re-lettered accordingly. The relocation of these requirements to Article 545 will make it clear to readers of the Code that Article 550 now only covers mobile and manufactured homes that are intended to be used as dwelling units and mobile home parks.

#### **Response Message:**

[Public Input No. 2651-NFPA 70-2017 \[Section No. 550.2\]](#)

[Public Input No. 2649-NFPA 70-2017 \[Article 550\]](#)

[Public Input No. 2653-NFPA 70-2017 \[Section No. 550.4\]](#)

[Public Input No. 4237-NFPA 70-2017 \[Section No. 545.1\]](#)

[Public Input No. 2654-NFPA 70-2017 \[New Section after 550.33\(B\)\]](#)

#### **Editorial Comment**

[Click here](#)

**CMP 7 Task Group on Relocatable Structures  
Articles 550/545**

Section	PI	PAGE	RESOLUTION
Article 545 Title 545.1 545.2 Part II (new)	4237  2649 2651 2653 2654		First Revision  The revision brings relevant text over from 550 to 545 as well as creates new text for 545. As part of this revision, the text of 550.4(A) will be deleted as the relevant portions have been incorporated in 545.  PI 4237 was for 545.1 the rest were for 550.
Text	<p>ARTICLE 545            Manufactured Buildings <u>and Relocatable Structures</u></p> <p><u>Part 1 General.</u></p> <p><b>545.1 Scope.</b> This article covers requirements for a manufactured buildings, -and building components as herein defined, <u>relocatable structures, and the conductors that connect relocatable structures to a supply of electricity.</u></p> <p><b>545.2 Definitions.</b></p> <p><u>Relocatable Structure. A factory-assembled structure or structures transportable in one or more sections that are built on a permanent chassis and designed to be used as other than a dwelling unit without a permanent foundation.</u></p> <p><u>Informational Note: Examples of relocatable structures are those units that are equipped for</u></p>		

sleeping purposes only, contractor's and other on-site offices, construction job dormitories, studio dressing rooms, banks, clinics, stores, shower facilities and restrooms, training centers, or for the display or demonstration of merchandise or machines.

## **Part II Relocatable Structures**

**545.20 Application Provisions.** Relocatable structures shall comply with the applicable preceding sections of this article and with the following sections that supplement or modify the preceding sections.

### **545.22 Power Supply.**

**(A) Feeder.** The power supply to the relocatable structure shall be a permanently installed feeder.

**(B) Number of Supplies.** Where two or more relocatable structures are ganged together to form a single unit and there is a factory installed panelboard in each relocatable structure, each panelboard shall be permitted to be supplied by a separate feeder.

**(C) Identification.** The identification requirements in 225.37 shall not apply to relocatable structures ganged together provided the conditions in (C)(1) and (C)(2) are met:

**(1) The relocatable structures are located on an industrial or commercial establishment where the conditions of maintenance and supervision ensure qualified individuals will service the installation.**

(2) The individual panelboard enclosures or covers have been marked to indicate to location of their supply disconnecting means. The marking shall be visible without removing the cover and shall be of sufficient durability to withstand the environment involved.

**(D) Grounding.** The power supply shall be grounded in accordance with Parts II and III of Article 250.

**(E) Mast Weatherhead or Raceway.** The supply conductors shall be installed by one of the following means:

**(1)** One mast weatherhead installation, installed in accordance with Article 230, containing four continuous, insulated, color-coded feeder conductors, one of which shall be an equipment grounding conductor.

**(2)** A metal raceway or rigid nonmetallic conduit from the disconnecting means in the relocatable structure to the underside of the relocatable structure, with provisions for the attachment to a suitable junction box or fitting to the raceway on the underside of the relocatable structure. The manufacturer shall provide written installation instructions stating the proper feeder conductor sizes for the raceway and the size of the junction box to be used.

**545.24 Disconnecting Means and Branch Circuit Overcurrent Protection.**

**(A) Disconnecting Means and Panelboard.** A single disconnecting means consisting of a circuit breaker, or a switch and fuses and its accessories shall be provided in each relocatable structure.

Panelboards shall be located in an accessible location but shall not be located in a bathroom or a clothes closet. A clear working space at least 750 mm (30 in.) wide and 750 mm (30 in.) in front of the panelboard shall be provided. This space shall extend from the floor to the top of the panelboard.

**(B) Branch-Circuit Protective Equipment.** Branch-circuit distribution equipment shall be installed in each mobile home and shall include overcurrent protection for each branch circuit consisting of either circuit breakers or fuses.

**545.26 Bonding of Exposed Non-Current-Carrying Metal Parts.** 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. A bonding conductor shall be connected between the panelboard and an accessible terminal on the chassis.

**545.28 Ground-Fault Circuit-Interruption. (GFCI)** All 125-volt, single-phase, 15- and 20-ampere receptacle outlets installed in the locations specified in 545.28(1) and (2) shall have GFCI protection for personnel.

(1) In compartments accessible from outside the relocatable structure

(2) Receptacles in luminaires installed in bathrooms

#### 550.4(A)

~~(A) Mobile Home Not Intended as a Dwelling Unit. A mobile home not intended as a dwelling unit — for example, those equipped for sleeping purposes only, contractor's on-site offices, construction job dormitories, mobile studio dressing rooms, banks, clinics, mobile stores, or intended for the display or demonstration of merchandise or machinery — shall not be required to meet the provisions of this article pertaining to the number or capacity of circuits required. It shall, however, meet all other applicable requirements of this article if provided with an electrical installation intended to be energized from a 120-volt or 120/240-volt ac power supply system. Where different voltage is required by either design or available power supply system, adjustment shall be made in accordance with other articles and sections for the voltage used.~~

**(BA) In Other Than Mobile Home Parks.** Mobile homes installed in other than mobile home parks shall comply with the provisions of this article.

**(CB) Connection to Wiring System.** The provisions of this article shall apply to mobile homes intended for connection to a wiring system rated 120/240 volts, nominal, 3-wire ac, with a grounded neutral conductor.

**(DC) Listed and Labeled.** All electrical materials, devices, appliances, fittings, and other equipment shall be listed and labeled by a qualified testing agency and shall be connected in an approved manner when installed.

Statement	<p>Article title:</p> <p>The requirements for “mobile homes used as other than dwelling units,” formally covered in Article 550, have been incorporated into Article 545. The term “relocatable structures” was chosen as it is already a commonly used industry term that still identifies the portable nature of these units. This will also distinguish them from other manufactured buildings. The relocation of these requirements to Article 545 will make it clear to readers of the Code that Article 550 now only covers mobile and manufactured homes that are intended to be used as dwelling units and mobile home parks.</p> <p>Scope statements are the purview of the NEC Correlating Committee and CMP 7 requests confirmation of the revisions to Articles 545 and 550 relative to relocatable structures. Additionally, the CMP 7 Task Group on Relocatable Structures will be continued between the First and Second Draft meetings. The Task Group will continue reviewing Article 550 to determine if there are any other relevant requirements that should be included in new Part II of Article 545 and will review any Correlating Committee comments received and will create the appropriate comments for the Second Draft.</p> <p>Part I title: The “Part I General” title was added to identify the requirements that will now apply generally and to correlate with the addition of “Part II, Relocatable Structures.”</p> <p>545.1: The addition of the reference to relocatable structures and the conductors that connect them to</p>
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supply of electricity are necessary to properly address structures such as mobile office units, mobile classrooms, mobile restrooms and shower facilities, mobile break rooms, mobile training centers and other non-dwelling types of relocatable structures.

545.2 Relocatable Structure Definition: Adding the definition of “relocatable structure” is necessary as the term will be used in the revision of the Article 545 to include the units formally covered in Article 550. The informational note, former text in 550.4(A), was included to provide examples of relocatable structures.

Part II Relocatable Structures: A “Part II Title” was added to make it clear to readers of the Code that Part II only applies to relocatable structures.

545.20: The text was designed after other text leading into parts of articles, such as 230.200, that apply to specific conditions or equipment.

The reference to the voltage ranges, “120-volt or 120/240-volt ac” formally included in 550.4(A) were not retained to clarify that is permissible to connect relocatable structures to other voltages.

545.22(A): These units are typically hard wired and should remain as such. Therefore the permission for a cord- and plug-connected option was not retained.

545.22(B): Due to the common design of having individual panels located in each relocatable

structure, it is necessary to have more than one feeder supplying what becomes a single unit when the units are ganged together. However, currently there is no amendment to 225.30 which limits the supply to only one feeder without have to implement the documented switching procedures provided in 225.30(E). This new text will permit the common practice of having multiple feeders without having to implement documented switching procedures. The new marking requirements required in 545.22(C) provides the additional level of safety needed to allow this application by requiring identification of the supply disconnect location on the panelboard for each individual unit.

545.22(C): Currently there is no amendment to the marking requirements in 225.37, yet that section is not generally not enforced even with multiple feeders installed. The new language in this section will provide relief from having to mark the location of all the other disconnects at each location when the relocatable structures are located where the conditions of maintenance and supervision ensure qualified persons will service and maintain the electrical systems and equipment.

545.22(D): The reference to the grounding requirements were added as the current text of 545.11 is only referring to equipment grounding and bonding and not the supply system grounding.

545.22(E): The text, formally located in 550.10(I)(1) and (2) was retained as it is necessary to continue providing guidance as to the acceptable methods of installing supply conductors.

545.24(A) and (B): The text, formally located in 550.11(A) relative the disconnecting means and in 550.11(B) relative to the branch circuit protection, was retained due to allowance for the supply circuit disconnecting means to be located remote from the relocatable structure(s). It is beneficial to the occupants of the relocatable structure to have consistently located local disconnects and branch circuit overcurrent protection.

545.26: The text, formally located in 550.16(C), was retained to continue reducing the likelihood of having a difference in potential between normally non-current carrying exposed conductive metal parts.

545.28: The ground-fault circuit-interrupter requirements, formally located in 550.13(B)(1) and (2) were retained as they are necessary for relocatable structure applications. The requirements in 550.13(A) and (B)(3) through (5) were not included as they are already covered in Articles 210 and 422 and therefore, per 90.3, are not needed here.

550.4(A): Subsection 550.4(A) is no longer necessary as the text has been incorporated into Article 545. The remaining subdivisions have been re-lettered accordingly. The relocation of these requirements to Article 545 will make it clear to readers of the Code that Article 550 now only covers mobile and manufactured homes that are intended to be used as dwelling units and mobile home parks.





## First Revision No. 8465-NFPA 70-2018 [ Detail ]

### 550.2 Definitions.

#### Appliance, Fixed.

This definition shall apply only within this article.

An appliance that is fastened or otherwise secured at a specific location.

#### Appliance, Portable.

This definition shall apply only within this article.

An appliance that is actually moved or can easily be moved from one place to another in normal use.

Informational Note: For the purpose of this article, the following major appliances, other than built-in, are considered portable if cord connected: refrigerators, range equipment, clothes washers, dishwashers without booster heaters, or other similar appliances.

#### Feeder Assembly.

This definition shall apply only within this article.

The overhead or under-chassis feeder conductors, including the equipment grounding conductor, together with the necessary fittings and equipment or a power-supply cord listed for mobile home use, identified for the delivery of energy from the source of electrical supply to the panelboard within the mobile home.

#### Laundry Area.

This definition shall apply only within this article.

An area containing or designed to contain a laundry tray, clothes washer, or a clothes dryer.

#### Manufactured Home.

This definition shall apply within this article and throughout the Code.

A structure, transportable in one or more sections, which in the traveling mode is 2.4 m (8 ft) or more in width or 12.2 m (40 ft) or more in length, or when erected on site is 29.77 m<sup>2</sup> (320 ft<sup>2</sup>) or more is built on a permanent chassis and is designed to be used as a dwelling with or without a permanent foundation, whether or not connected to the utilities, and includes plumbing, heating, air conditioning, and electrical systems contained therein. The term *manufactured home* includes any structure that meets all the requirements of this paragraph except the size requirements and with respect to which the manufacturer voluntarily files a certification required by the regulatory agency. Calculations used to determine the number of square meters (square feet) in a structure are based on the structure's exterior dimensions and include all expandable rooms, cabinets, and other projections containing interior space, but do not include bay windows. [501:1-2.141.2.13] For the purpose of this Code and unless otherwise indicated, the term *mobile home* includes manufactured homes and excludes park trailers defined in Article 552.4.

Informational Note No. 1: See the applicable building code for definition of the term *permanent foundation*.

Informational Note No. 2: See 24 CFR Part 3280, *Manufactured Home Construction and Safety Standards*, of the Federal Department of Housing and Urban Development, for additional information on the definition.

#### Mobile Home.

This definition shall apply within this article and throughout the Code.

A factory-assembled structure or structures transportable in one or more sections that are built on a permanent chassis and designed to be used as a dwelling without a permanent foundation where connected to the required utilities and that include the plumbing, heating, air-conditioning, and electrical systems contained therein.

For the purpose of this Code and unless otherwise indicated, the term *mobile home* includes manufactured homes.

#### Mobile Home Accessory Building or Structure.

This definition shall apply only within this article.

Any awning, cabana, ramada, storage cabinet, carport, fence, windbreak, or porch established for the use of the occupant of the mobile home on a mobile home lot.

Mobile Home Lot.

This definition shall apply only within this article.

A designated portion of a mobile home park designed for the accommodation of one mobile home and its accessory buildings or structures for the exclusive use of its occupants.

Mobile Home Park.

This definition shall apply only within this article.

A contiguous parcel of land that is used for the accommodation of occupied mobile homes.

Mobile Home Service Equipment.

This definition shall apply only within this article.

The equipment containing the disconnecting means, overcurrent protective devices, and receptacles or other means for connecting a mobile home feeder assembly.

Park Electrical Wiring Systems.

This definition shall apply only within this article.

All of the electrical wiring, luminaires, equipment, and appurtenances related to electrical installations within a mobile home park, including the mobile home service equipment.

## Submitter Information Verification

**Submitter Full Name:** NEC-CMP Panel 07

**Organization:** [ Not Specified ]

**Street Address:**

**City:**

**State:**

**Zip:**

**Submittal Date:** Tue Jan 16 22:00:32 EST 2018

## Committee Statement and Meeting Notes

**Committee Statement:** The new language allows these definitions to remain in this article where the definitions are of the most use to the Code user, while making it clear whether the term is used the same throughout the Code or limited to a special use in that article.

**Response Message:**

[Public Input No. 2240-NFPA 70-2017 \[Section No. 550.2\]](#)

## Editorial Comment

[Click here](#)



## First Revision No. 8471-NFPA 70-2018 [ Detail ]

### 551.2 Definitions.

(See Article 100 for additional definitions.)

#### Air-Conditioning or Comfort-Cooling Equipment.

This definition shall apply only within this article.

All of that equipment intended or installed for the purpose of processing the treatment of air so as to control simultaneously or individually its temperature, humidity, cleanliness, and distribution to meet the requirements of the conditioned space.

#### Appliance, Fixed.

This definition shall apply only within this article.

An appliance that is fastened or otherwise secured at a specific location.

#### Camping Trailer.

This definition shall apply only within this article.

A vehicular portable unit mounted on wheels and constructed with collapsible partial side walls that fold for towing by another vehicle and unfold at the campsite to provide temporary living quarters for recreational, camping, or travel use. (See *Recreational Vehicle*.)

#### Converter.

This definition shall apply only within this article.

A device that changes electrical energy from one form to another, as from alternating current to direct current.

Dead Front (as applied to switches, circuit breakers, switchboards, and panelboards).

This definition shall apply only within this article.

Designed, constructed, and installed so that no current-carrying parts are normally exposed on the front.

#### Disconnecting Means.

This definition shall apply only within this article.

The necessary equipment usually consisting of a circuit breaker or switch and fuses, and their accessories, located near the point of entrance of supply conductors in a recreational vehicle and intended to constitute the means of cutoff for the supply to that recreational vehicle.

#### Frame.

This definition shall apply only within this article.

Chassis rail and any welded addition thereto of metal thickness of 1.35 mm (0.053 in.) or greater.

#### Low Voltage.

This definition shall apply only within this article.

An electromotive force rated 24 volts, nominal, or less.

#### Motor Home.

This definition shall apply only within this article.

A vehicular unit designed to provide temporary living quarters for recreational, camping, or travel use built on or permanently attached to a self-propelled motor vehicle chassis or on a chassis cab or van that is an integral part of the completed vehicle. (See *Recreational Vehicle*.)

#### Power-Supply Assembly.

This definition shall apply only within this article.

The conductors, including ungrounded, grounded, and equipment grounding conductors, the

connectors, attachment plug caps, and all other fittings, grommets, or devices installed for the purpose of delivering energy from the source of electrical supply to the distribution panel within the recreational vehicle.

**Recreational Vehicle.**

This definition shall apply within this article and throughout the Code.

A vehicular-type unit primarily designed as temporary living quarters for recreational, camping, or travel use, which either has its own motive power or is mounted on or drawn by another vehicle.

Informational Note: The basic entities are travel trailer, camping trailer, truck camper, and motor home as referenced in NFPA 1192-2015~~2018~~, *Standard on Recreational Vehicles*. See 3.3.463.3.52, *Recreational Vehicle*, and A.3.3.46A.3.3.52 of NFPA 1192.

**Recreational Vehicle Park.**

This definition shall apply only within this article.

Any parcel or tract of land under the control of any person, organization, or governmental entity wherein two or more recreational vehicle, recreational park trailer, and/or other camping sites are offered for use by the public or members of an organization for overnight stays.

**Recreational Vehicle Site.**

This definition shall apply only within this article.

A specific area within a recreational vehicle park or campground that is set aside for use by a camping unit.

**Recreational Vehicle Site Feeder Circuit Conductors.**

This definition shall apply only within this article.

The conductors from the park service equipment to the recreational vehicle site supply equipment.

**Recreational Vehicle Site Supply Equipment.**

This definition shall apply only within this article.

The necessary equipment, usually a power outlet, consisting of a circuit breaker or switch and fuse and their accessories, located near the point of entrance of supply conductors to a recreational vehicle site and intended to constitute the disconnecting means for the supply to that site.

**Recreational Vehicle Stand.**

This definition shall apply only within this article.

That area of a recreational vehicle site intended for the placement of a recreational vehicle.

**Travel Trailer.**

This definition shall apply only within this article.

A vehicular unit, mounted on wheels, designed to provide temporary living quarters for recreational, camping, or travel use, of such size or weight as not to require special highway movement permits when towed by a motorized vehicle, and of gross trailer area less than 30 m<sup>2</sup> (320 ft<sup>2</sup>). (See *Recreational Vehicle*.)

**Truck Camper.**

This definition shall apply only within this article.

A portable unit constructed to provide temporary living quarters for recreational, travel, or camping use, consisting of a roof, floor, and sides, designed to be loaded onto and unloaded from the bed of a pickup truck. (See *Recreational Vehicle*.)

## Submitter Information Verification

**Submitter Full Name:** NEC-CMP Panel 07

**Organization:** [ Not Specified ]

**Street Address:**

**City:**

**State:**

**Zip:**

**Submittal Date:** Tue Jan 16 22:41:48 EST 2018

### Committee Statement and Meeting Notes

**Committee Statement:** The new language allows these definitions to remain in this article where the definitions are of the most use to the code user, while making it clear whether the term is used the same throughout the Code or limited to a special use in that article.

**Response Message:**

[Public Input No. 2241-NFPA 70-2017 \[Section No. 551.2\]](#)

### Editorial Comment

[Click here](#)



## First Revision No. 9006-NFPA 70-2018 [ Detail ]

Move what was 551.75(B) to 551.76(A) and renumber 551.76 as needed.

### Submitter Information Verification

**Submitter Full Name:** NEC-CMP Panel 07

**Organization:** [ Not Specified ]

**Street Address:**

**City:**

**State:**

**Zip:**

**Submittal Date:** Tue Jan 30 14:34:18 EST 2018

### Committee Statement and Meeting Notes

**Committee Statement:** 551.75(B) is moved to 551.76(A) to improve enforceability and clarity.

**Response Message:**



## First Revision No. 8169-NFPA 70-2018 [ Section No. 547.5(G) ]

### (G) Receptacles.

All 125-volt, single-phase, 15- and 20-ampere receptacles installed in the following locations listed in ~~(1) through (4)~~ shall have ground-fault circuit-interrupter protection:

- (1) Areas having an equipotential plane
- (2) Outdoors
- (3) Damp or wet locations
- (4) Dirt confinement areas for livestock

The additional ground-fault circuit-interrupter protection requirements in 210.8(B) shall not apply.

### Submitter Information Verification

**Submitter Full Name:** NEC-CMP Panel 07

**Organization:** [ Not Specified ]

**Street Address:**

**City:**

**State:**

**Zip:**

**Submission Date:** Mon Jan 15 11:01:31 EST 2018

### Committee Statement and Meeting Notes

**Committee Statement:** CMP 19 (now CMP 7) was not consulted prior to the changes in 210.8(B) for the 2017 NEC and may not have taken into account the special occupancies of Article 547. Data was not provided to substantiate the expansion of GFCIs in agricultural buildings.

**Response Message:**

Public Input No. 2383-NFPA 70-2017 [Section No. 547.5(G)]

### Editorial Comment

[Click here](#)



## First Revision No. 8464-NFPA 70-2018 [ Definition: Feeder Assembly. ]

### **Feeder Assembly.**

This definition shall apply only within this article.

The overhead or under-chassis feeder conductors, including the equipment grounding conductor, together with the necessary fittings and equipment or a power-supply cord listed for mobile home use, identified for the delivery of energy from the source of electrical supply to the panelboard within the mobile home.

### **Submitter Information Verification**

**Submitter Full Name:** NEC-CMP Panel 07

**Organization:** [ Not Specified ]

**Street Address:**

**City:**

**State:**

**Zip:**

**Submittal Date:** Tue Jan 16 21:55:23 EST 2018

### **Committee Statement and Meeting Notes**

**Committee Statement:** The term “equipment” was added to grounding conductor” to provide a defined term.

#### **Response Message:**

Public Input No. 2021-NFPA 70-2017 [Definition: Feeder Assembly.]

Public Input No. 2407-NFPA 70-2017 [Definition: Feeder Assembly.]



## First Revision No. 8467-NFPA 70-2018 [ Section No. 550.15(D) ]

(D) Metal Faceplates.

Where metal faceplates are used, ~~they~~ the installation shall ~~be grounded~~ comply with 404.9(B) and 406.6(B).

### Submitter Information Verification

**Submitter Full Name:** NEC-CMP Panel 07

**Organization:** [ Not Specified ]

**Street Address:**

**City:**

**State:**

**Zip:**

**Submission Date:** Tue Jan 16 22:24:12 EST 2018

### Committee Statement and Meeting Notes

**Committee Statement:** CMP 7 recognizes there should be a reference to other related sections for clarity and coordination. Removing the words “be grounded” and replacing them with “comply with 404.9(B) and 406.6(B)” will provide clarity and enforceability.

**Response Message:**

Public Input No. 2023-NFPA 70-2017 [Section No. 550.15(D)]

### Editorial Comment

[Click here](#)



## First Revision No. 8299-NFPA 70-2018 [ Section No. 550.15 [Excluding any Sub-Sections] ]

Except as specifically limited in this section, the wiring methods and materials included in this *Code* shall be used in mobile homes. Aluminum conductors, aluminum alloy conductors, and aluminum core conductors such as copper-clad aluminum shall ~~not be acceptable~~ permitted for use as ~~branch-circuit wiring~~ where used with equipment listed for aluminum conductor connections .

### Submitter Information Verification

**Submitter Full Name:** NEC-CMP Panel 07

**Organization:** [ Not Specified ]

**Street Address:**

**City:**

**State:**

**Zip:**

**Submittal Date:** Tue Jan 16 08:27:22 EST 2018

### Committee Statement and Meeting Notes

**Committee Statement:** Aluminum conductors have been used safely in all other occupancies for decades, there is no justification for denying owners of mobile or manufactured homes the option to use a safe and practical conductor option that is available to all other home owners.

**Response Message:**

[Public Input No. 4308-NFPA 70-2017 \[Section No. 550.15 \[Excluding any Sub-Sections\]\]](#)



## First Revision No. 8404-NFPA 70-2018 [ New Section after 551.40(C) ]

### (D) Reverse Polarity Device.

A reverse polarity indicating device that provides a continuous visible or audible signal shall be installed in the recreational vehicle in accordance with the installation instructions and shall respond to the reversal of the ungrounded and the grounded conductors in the 120-volt ac system.

## Submitter Information Verification

**Submitter Full Name:** NEC-CMP Panel 07

**Organization:** [ Not Specified ]

**Street Address:**

**City:**

**State:**

**Zip:**

**Submission Date:** Tue Jan 16 15:45:23 EST 2018

## Committee Statement and Meeting Notes

**Committee Statement:** Reverse polarity is a known cause of many incidents of people receiving an electrical shock from an RV. The chance of having reverse polarity to the RV is increased because RVs are often plugged in at locations other than an RV campground. These sources of power, unknown to the RV consumer, can have reverse polarity. Reverse polarity incidents are also more prevalent because customers use non-listed adapters that can be inserted backwards at the receptacle. Reverse polarity indicating devices are readily available.

**Response Message:**

Public Input No. 2566-NFPA 70-2017 [New Section after 551.40(C)]

## Editorial Comment

[Click here](#)



## First Revision No. 8356-NFPA 70-2018 [ Section No. 551.44 [Excluding any Sub-Sections] ]

Each recreational vehicle shall have only one of the main power-supply assemblies covered in 551.44(A) through (D) and be powered by only one source of externally connected power to the recreational vehicle .

### Submitter Information Verification

**Submitter Full Name:** NEC-CMP Panel 07

**Organization:** [ Not Specified ]

**Street Address:**

**City:**

**State:**

**Zip:**

**Submittal Date:** Tue Jan 16 11:37:44 EST 2018

### Committee Statement and Meeting Notes

**Committee Statement:** This will prevent modified RV's from plugging into more that one receptacle to provide power to their RV.

This is not intended to prevent the use of the 20 amp circuit not connected to the RV while using the 30 or the 50 amp circuits.

Many RV parks are seeing coaches arrive wanting to plug into two 50 amp circuits. they have had their

coaches locally modified to power additional loads on their coach.

Supplying the coach from two sources is a dangerous practice and many park operators are looking for direction on preventing this practice.

**Response Message:**

Public Input No. 551-NFPA 70-2017 [Section No. 551.44 [Excluding any Sub-Sections]]



## First Revision No. 8809-NFPA 70-2018 [ New Section after 555.5 ]

### 555.3 Electrical Datum Plane Distances.

#### (A) Floating Piers.

The electrical datum plane for floating piers and boat landing stages that are (1) installed to permit rise and fall response to water level, without lateral movement, and (2) that are so equipped that piers and landing stages can rise to the datum plane established for 555.3(B) or (C), shall be a horizontal plane 762 mm (30 in.) above the water level at the floating pier or boat landing stage and a minimum of 305 mm (12 in.) above the level of the deck.

#### (B) Areas Subject to Tidal Fluctuations.

In land areas subject to tidal fluctuation, the electrical datum plane shall be a horizontal plane that is 606 mm (2 ft) above the highest tide level for the area occurring under normal circumstances, based on the highest high tide.

#### (C) Areas Not Subject to Tidal Fluctuations.

In land areas not subject to tidal fluctuation, the electrical datum plane shall be a horizontal plane that is 606 mm (2 ft) above the highest water level for the area occurring under normal circumstances.

## Submitter Information Verification

**Submitter Full Name:** NEC-CMP Panel 07

**Organization:** [ Not Specified ]

**Street Address:**

**City:**

**State:**

**Zip:**

**Submission Date:** Fri Jan 19 12:38:43 EST 2018

## Committee Statement and Meeting Notes

**Committee Statement:** Add the Electrical Datum Plane distances for specific areas under the scope of Article 555. The requirements reflect "new" definitions proposed. The change adds clarity and usability with respect to definitions.

**Response Message:**

Public Input No. 2534-NFPA 70-2017 [New Section after 555.5]

## Editorial Comment

[Click here](#)



## First Revision No. 8450-NFPA 70-2018 [ Section No. 604.100(A)(2) ]

### (2) Conduits.

Conduit shall be listed flexible metal conduit or listed liquidtight flexible conduit containing nominal 600-volt, 8 to 12 AWG insulated copper conductors with a bare or insulated copper equipment grounding conductor equivalent in size to the ungrounded conductor.

*Exception No. 1 to (1) and (2): A luminaire tap, no longer than 1.8 m (6 ft) and intended for connection to a single luminaire, shall be permitted to contain conductors smaller than 12 AWG but not smaller than 18 AWG.*

*Exception No. 2 to (1) and (2): Listed manufactured wiring assemblies containing conductors smaller than 12 AWG shall be permitted for remote-control, signaling, or communication communications circuits.*

*Exception No. 3 to (2): Listed manufactured wiring systems containing unlisted flexible metal conduit of noncircular cross section or trade sizes smaller than permitted by 348.20(A), or both, shall be permitted where the wiring systems are supplied with fittings and conductors at the time of manufacture.*

### Submitter Information Verification

**Submitter Full Name:** NEC-CMP Panel 07

**Organization:** [ Not Specified ]

**Street Address:**

**City:**

**State:**

**Zip:**

**Submittal Date:** Tue Jan 16 18:18:56 EST 2018

### Committee Statement and Meeting Notes

**Committee Statement:** This is an editorial change to the plural “communications”.

**Response Message:**

Public Input No. 174-NFPA 70-2017 [Section No. 604.100(A)(2)]

**First Revision No. 8819-NFPA 70-2018 [ Section No. 725.24 ]****725.24 Mechanical Execution of Work.**

Class 1, Class 2, and Class 3 circuits shall be installed in a neat and workmanlike manner. Cables and conductors installed exposed on the surface of ceilings and sidewalls shall be supported by the building structure in such a manner that the cable will not be damaged by normal building use. Such cables shall be supported by straps, staples, hangers, cable ties, or similar fittings designed and installed so as not to damage the cable. The installation shall also comply with 300.4(D).

Informational Note: Paint, plaster, cleaners, abrasives, corrosive residues, or other contaminants can result in an undetermined alteration of Class 1, Class 2, Class 3, and PLTC cable properties.

**Submitter Information Verification**

**Submitter Full Name:** NEC-CMP Panel 03

**Organization:** [ Not Specified ]

**Street Address:**

**City:**

**State:**

**Zip:**

**Submittal Date:** Fri Jan 19 13:04:44 EST 2018

**Committee Statement and Meeting Notes**

**Committee Statement:** Deleterious conditions can adversely affect cable assemblies covered in Article 725.

**Response Message:**

Public Input No. 154-NFPA 70-2017 [Section No. 725.24]



## First Revision No. 8137-NFPA 70-2018 [ Section No. 545.2 ]

### 545.2 Definitions.

The definitions in this section shall apply only within this article.

#### **Building Component.**

Any subsystem, subassembly, or other system designed for use in or integral with or as part of a structure, which can include structural, electrical, mechanical, plumbing, and fire protection systems, and other systems affecting health and safety.

#### **Building System.**

Plans, specifications, and documentation for a system of manufactured building or for a type or a system of building components, which can include structural, electrical, mechanical, plumbing, and fire protection systems, and other systems affecting health and safety, and including such variations thereof as are specifically permitted by regulation, and which variations are submitted as part of the building system or amendment thereto.

#### **Closed Construction.**

Any building, building component, assembly, or system manufactured in such a manner that all concealed parts of processes of manufacture cannot be inspected after installation at the building site without disassembly, damage, or destruction.

#### **Manufactured Building.**

Any building that is of closed construction and is made or assembled in manufacturing facilities on or off the building site for installation, or for assembly and installation on the building site, other than manufactured homes, mobile homes, park trailers, or recreational vehicles.

[Global FR-8993](#)

#### **Relocatable Structure.**

A factory-assembled structure or structures transportable in one or more sections that are built on a permanent chassis and designed to be used as other than a dwelling unit without a permanent foundation.

Informational Note: Examples of relocatable structures are those units that are equipped for sleeping purposes only, contractor's and other on-site offices, construction job dormitories, studio dressing rooms, banks, clinics, stores, shower facilities and restrooms, training centers, or for the display or demonstration of merchandise or machines.

## Submitter Information Verification

**Submitter Full Name:** NEC-CMP Panel 07

**Organization:** [ Not Specified ]

**Street Address:**

**City:**

**State:**

**Zip:**

**Submission Date:** Mon Jan 15 08:51:08 EST 2018

## Committee Statement and Meeting Notes

**Committee Statement:** CMP 7 supports the correlating committee task group decision to state that definitions in this article only apply within this article as it adds clarity.

**Response Message:**

**Committee Notes:**

<u>Date</u>	<u>Submitted By</u>	
Jan 15, 2018	NEC-CMP Panel	Only the sentence following "Definitions." is new. Everything else is existing.

Public Input No. 1908-NFPA 70-2017 [Section No. 545.2]

**Editorial Comment**

[Click here](#)



## First Revision No. 8146-NFPA 70-2018 [ Section No. 547.1 [Excluding any Sub-Sections] ]

~~The provisions of this article shall apply~~ This article applies to the following agricultural buildings or that part of a building or adjacent areas of similar or like nature as specified in 547.1(A) or (B).

### Submitter Information Verification

**Submitter Full Name:** NEC-CMP Panel 07

**Organization:** [ Not Specified ]

**Street Address:**

**City:**

**State:**

**Zip:**

**Submittal Date:** Mon Jan 15 09:52:47 EST 2018

### Committee Statement and Meeting Notes

**Committee Statement:** CMP 7 understands that the scope of articles is under the purview of the Correlating Committee. However, CMP 7 offers the following recommendation for Correlating Committee consideration. The phrase "The provisions of" is unnecessary and redundant and is being deleted to increase usability.

**Response Message:**



## First Revision No. 8145-NFPA 70-2018 [ Section No. 547.2 ]

### 547.2 Definitions.

The definitions in this section apply only within this article.

#### **Distribution Point.**

An electrical supply point from which service drops, service conductors, feeders, or branch circuits to buildings or structures utilized under single management are supplied.

Informational Note No. 1: Distribution points are also known as the center yard pole, meterpole, or the common distribution point.

Informational Note No. 2: The service point as defined in Article 100 is typically at the distribution point.

#### **Equipotential Plane.**

An area where wire mesh or other conductive elements are embedded in or placed under concrete, bonded to all metal structures and fixed nonelectrical equipment that may become energized, and connected to the electrical grounding system to minimize voltage differences within the plane and between the planes, the grounded equipment, and the earth.

#### **Site-Isolating Device.**

A disconnecting means installed at the distribution point for the purposes of isolation, system maintenance, emergency disconnection, or connection of optional standby systems.

## Submitter Information Verification

**Submitter Full Name:** NEC-CMP Panel 07

**Organization:** [ Not Specified ]

**Street Address:**

**City:**

**State:**

**Zip:**

**Submittal Date:** Mon Jan 15 09:50:52 EST 2018

## Committee Statement and Meeting Notes

**Committee Statement:** CMP 7 supports the Correlating Committee Task Group decision to state that definitions in this article only apply within this article.

**Response Message:**

**Committee Notes:**

<u>Date</u>	<u>Submitted By</u>
Jan 15, 2018	NEC-CMP Panel 07 Only the sentence after "Definitions." is new. Everything else is existing text.

Public Input No. 1909-NFPA 70-2017 [Section No. 547.2]

## Editorial Comment

[Click here](#)



## First Revision No. 8149-NFPA 70-2018 [ Section No. 547.4 ]

### 547.4 Surface Temperatures.

Electrical equipment or devices installed in accordance with ~~the provisions of~~ this article shall be installed in a manner such that they will function at full rating without developing surface temperatures in excess of the specified normal safe operating range of the equipment or device.

## Submitter Information Verification

**Submitter Full Name:** NEC-CMP Panel 07

**Organization:** [ Not Specified ]

**Street Address:**

**City:**

**State:**

**Zip:**

**Submission Date:** Mon Jan 15 09:57:25 EST 2018

## Committee Statement and Meeting Notes

**Committee Statement:** The phrase "The provisions of" is unnecessary and redundant and is being deleted to increase usability.

**Response Message:**



## First Revision No. 8155-NFPA 70-2018 [ Section No. 547.5(F) ]

(F) Separate Equipment Grounding Conductor.

Where ~~an equipment~~ a separate grounding conductor, not part of a listed cable assembly, is installed underground within a location falling under the scope of Article 547, it shall be insulated.

Informational Note: For further information on aluminum and copper-clad aluminum conductors, see 250.120(B).

### Submitter Information Verification

**Submitter Full Name:** NEC-CMP Panel 07

**Organization:** [ Not Specified ]

**Street Address:**

**City:**

**State:**

**Zip:**

**Submittal Date:** Mon Jan 15 10:11:45 EST 2018

### Committee Statement and Meeting Notes

**Committee Statement:** cableThe intent of the section is to require insulation for separate, underground equipment grounding conductors. Listed cable assemblies would have integral grounding conductors and therefore not separate. The revision in wording brings clarity.

**Response Message:**

[Public Input No. 2267-NFPA 70-2017 \[Section No. 547.5\(F\)\]](#)

### Editorial Comment

[Click here](#)



## First Revision No. 8175-NFPA 70-2018 [ Section No. 547.9 ]

### **547.9** Electrical Supply to Building(s) or Structure(s) from a Distribution Point.

~~A distribution point shall be permitted to supply any Any agricultural building or structure for livestock located on the same premises shall be supplied from a distribution point . More than one distribution point on the same premises shall be permitted.~~ The overhead electrical supply shall comply with 547.9(A) and (B), or with 547.9(C). The underground electrical supply shall comply with 547.9(C).

Any existing agricultural building or structure for other than livestock and any existing buildings and structures not under the scope of Article 547 shall be permitted to be supplied in accordance with 250.32(B)(1) Exception No. 1.

#### **(A)** Site-Isolating Device.

Site-isolating devices shall comply with 547.9(A)(1) through (A)(10).

##### **(1)** Where Required.

A site-isolating device shall be installed at the distribution point where two or more buildings or structures are supplied from the distribution point.

##### **(2)** Location.

The site-isolating device shall be pole-mounted and be not less than the height above grade required by 230.24 for the conductors it supplies.

##### **(3)** Operation.

The site-isolating device shall simultaneously disconnect all ungrounded service conductors from the premises wiring.

##### **(4)** Bonding Provisions.

The site-isolating device enclosure shall be connected to the grounded circuit conductor and the grounding electrode system.

##### **(5)** Grounding.

At the site-isolating device, the system grounded conductor shall be connected to a grounding electrode system via a grounding electrode conductor.

##### **(6)** Rating.

The site-isolating device shall be rated for the calculated load as determined by Part V of Article 220.

##### **(7)** Overcurrent Protection.

The site-isolating device shall not be required to provide overcurrent protection.

##### **(8)** Accessibility.

The site-isolating device shall be capable of being remotely operated by an operating handle installed at a readily accessible location. The operating handle of the site-isolating device, when in its highest position, shall not be more than 2.0 m (6 ft 7 in.) above grade or a working platform.

##### **(9)** Series Devices.

An additional site-isolating device for the premises wiring system shall not be required where a site-isolating device meeting all applicable requirements of this section is provided by the serving utility as part of their service requirements.

##### **(10)** Marking.

A site-isolating device shall be permanently marked to identify it as a site-isolating device. This marking shall be located on the operating handle or immediately adjacent thereto.

#### **(B)** Service Disconnecting Means and Overcurrent Protection at the Building(s) or Structure(s).

Where the service disconnecting means and overcurrent protection are located at the building(s) or structure(s), the requirements of 547.9(B)(1) through (B)(3) shall apply.

**(1) Conductor Sizing.**

The supply conductors shall be sized in accordance with Part V of Article 220.

**(2) Conductor Installation.**

The supply conductors shall be installed in accordance with the requirements of Part II of Article 225.

**(3) Grounding and Bonding.**

For each building or structure, grounding and bonding of the supply conductors shall be in accordance with the requirements of 250.32, and the following conditions shall be met:

- (1) The equipment grounding conductor is not smaller than the largest supply conductor if of the same material, or is adjusted in size in accordance with the equivalent size columns of Table 250.122 if of different materials.
- (2) The equipment grounding conductor is connected to the grounded circuit conductor and the site-isolating device enclosure at the distribution point.

**(C) Service Disconnecting Means and Overcurrent Protection at the Distribution Point.**

~~Where the~~ The service disconnecting means and overcurrent protection for each set of feeders or branch circuits ~~are shall be~~ located at the distribution point, ~~the~~ . The service disconnecting means shall be installed in accordance with Part VI of Article 230 . The feeders or branch circuits supplied to buildings or structures shall comply with ~~the provisions of~~ 250.32 and Article 225, Parts I and II.

Informational Note: Methods to reduce neutral-to-earth voltages in livestock facilities include supplying buildings or structures with 4-wire single-phase services, sizing 3-wire single-phase service and feeder conductors to limit voltage drop to 2 percent, and connecting loads line-to-line.

**(D) Identification.**

Where a site is supplied by more than one distribution point, a permanent plaque or directory shall be installed at each of these distribution points denoting the location of each of the other distribution points and the buildings or structures served by each.

## Submitter Information Verification

**Submitter Full Name:** NEC-CMP Panel 07

**Organization:** [ Not Specified ]

**Street Address:**

**City:**

**State:**

**Zip:**

**Submission Date:** Mon Jan 15 11:14:10 EST 2018

## Committee Statement and Meeting Notes

**Committee Statement:** The permissive language is removed to help with applicability and enforcement. The revision will also provide clarity that a distribution point is required for agricultural buildings and structures that are for livestock to assure they are supplied by a grounded four wire distribution to reduce stray voltages that may affect livestock. The verbiage also clarifies that for existing agricultural buildings and structures for other than livestock such as for grain handling, poultry and fish containment systems and for existing buildings or structures other than those covered under the scope of Article 547 such as a house or machine shed on the premises may be supplied in accordance with 250.32(B)(1)Exception No. 1 permitting a three wire distribution.

CMP 7 also agrees with the verbiage changed in 547.9(C) to remove the ambiguity with the term “where” and clarify the requirements for the disconnecting means and overcurrent protection at the distribution point as referenced in 547.9 for an underground supply or an overhead supply wired in accordance with 547.9(C).

The phrase “The provisions of” is unnecessary and redundant and is being deleted to increase usability.

**Response**

**Message:**

[Public Input No. 2270-NFPA 70-2017 \[Section No. 547.9\]](#)

**Editorial Comment**

[Click here](#)



## First Revision No. 8181-NFPA 70-2018 [ Section No. 547.10(B) ]

### (B) Bonding.

Equipotential planes shall be connected to the electrical grounding system. The bonding conductor shall be solid copper, insulated, covered or bare, and not smaller than 8 AWG. The means of bonding to wire mesh or conductive elements shall be by pressure connectors or clamps of brass, copper, copper alloy, or an equally substantial approved means. Slatted floors that are supported by structures that are a part of an equipotential plane shall not require bonding.

Informational Note No. 1: Methods to establish equipotential planes are described in American Society of Agricultural and Biological Engineers (ASABE) EP473.2-2001 (R2015), *Equipotential Planes in Animal Containment Areas*.

Informational Note No. 2: Methods for safe installation of livestock waterers are described in American Society of Agricultural and Biological Engineers (ASABE) EP342.3-2010 (R2015), *Safety for Electrically Heated Livestock Waterers*.

Informational Note No. 3: Low grounding electrode system resistances may reduce voltage differences in livestock facilities.

## Submitter Information Verification

**Submitter Full Name:** NEC-CMP Panel 07

**Organization:** [ Not Specified ]

**Street Address:**

**City:**

**State:**

**Zip:**

**Submittal Date:** Mon Jan 15 11:28:17 EST 2018

## Committee Statement and Meeting Notes

**Committee Statement:** The standards edition of the codes referenced in the Inf.Notes have not changed. The standards are still the current editions, only they were reaffirmed in 2015 which does not warrant a change in the edition.

**Response Message:**

[Public Input No. 718-NFPA 70-2017 \[Section No. 547.10\(B\)\]](#)

## Editorial Comment

[Click here](#)



## First Revision No. 8236-NFPA 70-2018 [ Section No. 550.1 ]

### 550.1 Scope.

~~The provisions of this article cover~~ This article covers the electrical conductors and equipment installed within or on mobile and manufactured homes, the conductors that connect mobile and manufactured homes to a supply of electricity, and the installation of electrical wiring, luminaires, equipment, and appurtenances related to electrical installations within a mobile home park up to the mobile home service-entrance conductors or, if none, the mobile home service equipment.

Informational Note: For additional information on manufactured housing see NFPA 501-2013 2017, *Standard on Manufactured Housing*, and Part 3280, *Manufactured Home Construction and Safety Standards*, of the Federal Department of Housing and Urban Development.

### Submitter Information Verification

**Submitter Full Name:** NEC-CMP Panel 07

**Organization:** [ Not Specified ]

**Street Address:**

**City:**

**State:**

**Zip:**

**Submittal Date:** Mon Jan 15 15:32:09 EST 2018

### Committee Statement and Meeting Notes

**Committee Statement:** CMP 7 understands that the scope of articles is under the purview of the Correlating Committee. However, CMP 7 offers the following recommendation for Correlating Committee consideration. The phrase "The provisions of" is unnecessary and redundant and is being deleted to increase usability.

**Response Message:**

### Editorial Comment

[Click here](#)



## First Revision No. 8291-NFPA 70-2018 [ Section No. 550.4(C) ]

(B) Connection to Wiring System.

The provisions of this ~~This~~ article shall apply to mobile homes intended for connection to a wiring system rated 120/240 volts, nominal, 3-wire ac, with a grounded neutral conductor.

### Submitter Information Verification

**Submitter Full Name:** NEC-CMP Panel 07

**Organization:** [ Not Specified ]

**Street Address:**

**City:**

**State:**

**Zip:**

**Submittal Date:** Tue Jan 16 08:05:41 EST 2018

### Committee Statement and Meeting Notes

**Committee Statement:** The phrase "The provisions of" is unnecessary and redundant and is being deleted to increase usability.

**Response Message:**



## First Revision No. 8466-NFPA 70-2018 [ Section No. 550.10(B) ]

### (B) Power-Supply Cord.

If the mobile home has a power-supply cord, it shall be permanently attached to the panelboard, or to a junction box permanently connected to the panelboard, with the free end terminating in an attachment plug cap.

Cords with adapters and pigtail ends, extension cords, and similar items shall not be attached to, or shipped with, a mobile home.

A suitable clamp or the equivalent shall be provided at the panelboard knockout to afford strain relief for the cord to prevent strain from being transmitted to the terminals when the power-supply cord is handled in its intended manner.

The cord shall be a listed type with four conductors, one of which shall be identified by a continuous green color or a continuous green color with one or more yellow stripes for use as the equipment grounding conductor.

## Submitter Information Verification

**Submitter Full Name:** NEC-CMP Panel 07

**Organization:** [ Not Specified ]

**Street Address:**

**City:**

**State:**

**Zip:**

**Submittal Date:** Tue Jan 16 22:08:19 EST 2018

## Committee Statement and Meeting Notes

**Committee Statement:** The term “grounding conductor” is one that is no longer defined. As part of a Correlating Committee Task Force activity on grounding and bonding in general, this term and its related definition was removed from the NEC during the 2008 NEC cycle. The term had been found to be misapplied in a number of instances and the definition of “grounding conductor” was determined to be very close to the definition of “grounding electrode conductor” yet, many uses of the term in previous editions of the NEC were found to be more correctly to be either “equipment grounding conductor”.

**Response Message:**

[Public Input No. 2022-NFPA 70-2017 \[Section No. 550.10\(B\)\]](#)

[Public Input No. 2408-NFPA 70-2017 \[Section No. 550.10\(B\)\]](#)



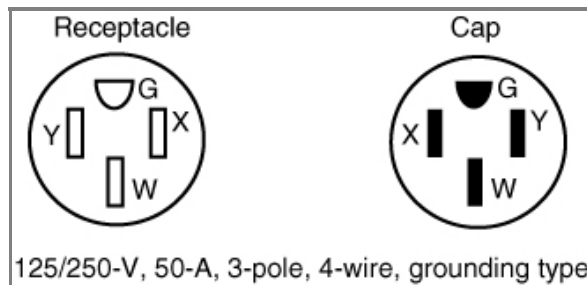
## First Revision No. 8256-NFPA 70-2018 [ Section No. 550.10(C) ]

### (C) Attachment Plug Cap.

The attachment plug cap shall be a 3-pole, 4-wire, grounding type, rated 50 amperes, 125/250 volts with a configuration as shown in Figure 550.10(C) and intended for use with the 50-ampere, 125/250-volt receptacle configuration shown in Figure 550.10(C). It shall be listed, by itself or as part of a power-supply cord assembly, for the purpose and shall be molded to or installed on the flexible cord so that it is secured tightly to the cord at the point where the cord enters the attachment plug cap. If a right-angle cap is used, the configuration shall be oriented so that the grounding member is farthest from the cord.

Informational Note: Complete details of the 50-ampere plug and receptacle configuration can be found in ANSI/NEMA WD 6-2002 (R2008) 2016 , *Standard for Dimensions of Attachment Plugs and Receptacles Wiring Devices — Dimensional Specifications* , Figure 14-50.

**Figure 550.10(C) 50-Ampere, 125/250-Volt Receptacle and Attachment Plug Cap Configurations, 3-Pole, 4-Wire, Grounding-Types, Used for Mobile Home Supply Cords and Mobile Home Parks.**



## Submitter Information Verification

**Submitter Full Name:** NEC-CMP Panel 07

**Organization:** [ Not Specified ]

**Street Address:**

**City:**

**State:**

**Zip:**

**Submittal Date:** Mon Jan 15 16:30:23 EST 2018

## Committee Statement and Meeting Notes

**Committee Statement:** Update standard to reference current editions of National Consensus Standards.

**Response Message:**

[Public Input No. 848-NFPA 70-2017 \[Section No. 550.10\(C\)\]](#)

## Editorial Comment

[Click here](#)



## First Revision No. 8293-NFPA 70-2018 [ Section No. 550.13(B) ]

### (B) Ground-Fault Circuit Interrupters (GFCI).

All 125-volt, single-phase, 15- and 20-ampere receptacle outlets installed in the ~~locations specified in 550.13(B)(1) through (5)~~ following locations shall have GFCI protection for personnel. :

- (1) Outdoors, including compartments accessible from outside the unit
- (2) Bathrooms, including receptacles in luminaires
- (3) Kitchens, where receptacles are installed to serve countertop surfaces
- (4) Sinks, where receptacles are installed within 1.8 m (6 ft) ~~of from~~ the outer top inside edge of the sink
- (5) Dishwashers

Informational Note: For information on protection of dishwashers, see 422.5.

## Submitter Information Verification

**Submitter Full Name:** NEC-CMP Panel 07

**Organization:** [ Not Specified ]

**Street Address:**

**City:**

**State:**

**Zip:**

**Submission Date:** Tue Jan 16 08:15:21 EST 2018

## Committee Statement and Meeting Notes

**Committee Statement:** This revised language will be consistent with changes made in 210.8 in the 2017 NEC Code cycle. With this revised language, this will bring consistency between these 2 Code sections, which apply to receptacles within 6' of the sinks in both types of dwellings. Since manufactured homes are dwellings, the language in 210.8 is appropriate.

**Response Message:**

[Public Input No. 476-NFPA 70-2017 \[Section No. 550.13\(B\)\]](#)

## Editorial Comment

[Click here](#)



## First Revision No. 8469-NFPA 70-2018 [ Section No. 550.15(G) ]

### (G) Switches.

Switches shall be rated as follows:

- (1) For lighting circuits, switches shall be rated not less than 10 amperes, 120 to 125 volts, and in no case less than the connected load.
- (2) Switches for motor or other loads shall comply with ~~the provisions of~~ 404.14.

### Submitter Information Verification

**Submitter Full Name:** NEC-CMP Panel 07

**Organization:** [ Not Specified ]

**Street Address:**

**City:**

**State:**

**Zip:**

**Submittal Date:** Tue Jan 16 22:34:01 EST 2018

### Committee Statement and Meeting Notes

**Committee Statement:** The phrase "the provisions of" is unnecessary and redundant and is being deleted to increase usability.

**Response Message:**



## First Revision No. 8468-NFPA 70-2018 [ Section No. 550.32(B) ]

### (B) Manufactured Home Service Equipment.

The manufactured home service equipment shall be permitted to be installed in or on a manufactured home, provided that all of the following conditions are met:

- (1) The manufacturer shall include in its written installation instructions information indicating that the home shall be secured in place by an anchoring system or installed on and secured to a permanent foundation.
- (2) The installation of the service shall comply with Part I through Part VII of Article 230.
- (3) Means shall be provided for the connection of a grounding electrode conductor to the service equipment and routing it outside the structure.
- (4) Bonding and grounding of the service shall be in accordance with Part I through Part V of Article 250.
- (5) The manufacturer shall include in its written installation instructions one method of grounding the service equipment at the installation site. The instructions shall clearly state that other methods of grounding are found in Article 250.
- (6) The minimum size grounding electrode conductor shall be specified in the instructions.
- (7) A ~~red~~ warning label shall be mounted on or adjacent to the service equipment. The label shall meet the requirements in 110.21(B) and shall state the following:

WARNING

DO NOT PROVIDE ELECTRICAL POWER  
UNTIL THE GROUNDING ELECTRODE(S)  
IS INSTALLED AND CONNECTED  
(SEE INSTALLATION INSTRUCTIONS).

Where the service equipment is not installed in or on the unit, the installation shall comply with the other ~~provisions~~ requirements of this section.

## Submitter Information Verification

**Submitter Full Name:** NEC-CMP Panel 07

**Organization:** [ Not Specified ]

**Street Address:**

**City:**

**State:**

**Zip:**

**Submission Date:** Tue Jan 16 22:28:56 EST 2018

## Committee Statement and Meeting Notes

**Committee Statement:** CMP 7 replaces the term provisions with the term requirements.

According to the provisions of ANSI Z535.4, the signal word "Warning" initiates the color Orange to be used in developing hazard signs and labels. Further to that end, when the color red is used, ANSI Z535.4 indicates that this is for use in developing "Danger" signs and labels which is the highest degree of hazard in the signal word hierarchy. This revision removes the word "red" that creates an inconsistency between the NEC and ANSI Z535 and addresses the inconsistencies created within the NEC in sections where other hazard warning signs or labels are required. Section 110.21(B) provides the general text that promotes compliance. The additional sentence added to refer to 110.21(B) will provide additional correlation and consistency.

**Response**

**Message:**

[Public Input No. 1697-NFPA 70-2017 \[Section No. 550.32\(B\)\]](#)



## First Revision No. 8306-NFPA 70-2018 [ Section No. 550.32(C) ]

### (C) Rating.

Mobile home service equipment shall be rated at not less than 100 amperes at 120/240 volts, and provisions shall be made for connecting a mobile home feeder assembly by a permanent wiring method. Power outlets used as mobile home service equipment shall also be permitted to contain receptacles rated up to 50 amperes with appropriate overcurrent protection. Fifty-ampere receptacles shall conform to the configuration shown in Figure 550.10(C).

Informational Note: Complete details of the 50-ampere plug and receptacle configuration can be found in ANSI/NEMA WD 6-2002 (Rev. 2008) 2016 , ~~Standard for Wiring Devices — Dimensional Requirements Specifications~~ , Figure 14-50.

### Submitter Information Verification

**Submitter Full Name:** NEC-CMP Panel 07

**Organization:** [ Not Specified ]

**Street Address:**

**City:**

**State:**

**Zip:**

**Submittal Date:** Tue Jan 16 08:57:15 EST 2018

### Committee Statement and Meeting Notes

**Committee Statement:** CMP 7 updates the standard to reference current editions of National Consensus Standards.

#### Response Message:

[Public Input No. 849-NFPA 70-2017 \[Section No. 550.32\(C\)\]](#)



## First Revision No. 8310-NFPA 70-2018 [ Section No. 550.33(A) ]

### (A) Feeder Conductors.

Feeder conductors shall comply with the following:

- (1) Feeder conductors shall consist of either a listed cord, factory installed in accordance with 550.10(B), or a permanently installed feeder consisting of four insulated, color-coded conductors that shall be identified by the factory or field marking of the conductors in compliance with 310.6. Equipment grounding conductors shall not be identified by stripping the insulation.
- (2) Feeder conductors shall be installed in compliance with 250.32(B).

*Exception: For an An existing feeder that is installed between the service equipment and a disconnecting means as covered in 550.32(A), it installed without an equipment grounding conductor shall be permitted to omit the equipment grounding conductor where the grounded circuit conductor is grounded at the disconnecting means in accordance comply with 250.32(B) (1)250.32(B) Exception No. 1.*

## Submitter Information Verification

**Submitter Full Name:** NEC-CMP Panel 07

**Organization:** [ Not Specified ]

**Street Address:**

**City:**

**State:**

**Zip:**

**Submission Date:** Tue Jan 16 09:07:56 EST 2018

## Committee Statement and Meeting Notes

**Committee Statement:** The revised text will clearly identify the intent of requiring an equipment grounding conductor for most new installations while also making provisions to comply with existing installations where an equipment grounding conductor was not installed based on 250.32, (B)(1), Exception No. 1.

**Response Message:**

[Public Input No. 2025-NFPA 70-2017 \[Section No. 550.33\(A\)\]](#)

## Editorial Comment

[Click here](#)



## First Revision No. 8315-NFPA 70-2018 [ Section No. 550.33(B) ]

### (B) Feeder Capacity.

Mobile home and manufactured home lot-feeder circuit conductors shall have a capacity not less than the loads supplied, shall be rated at have an ampacity of not less than 100 amperes, and shall be permitted to be sized in accordance with 310.12.

## Submitter Information Verification

**Submitter Full Name:** NEC-CMP Panel 07

**Organization:** [ Not Specified ]

**Street Address:**

**City:**

**State:**

**Zip:**

**Submission Date:** Tue Jan 16 09:17:24 EST 2018

## Committee Statement and Meeting Notes

**Committee Statement:** "Ampacity" is a correct term referring to Conductors. "Lot" is not required as a description of the type of feeders necessary for mobile homes and manufactured homes.

**Response Message:**

Public Input No. 4311-NFPA 70-2017 [Section No. 550.33(B)]



## First Revision No. 8325-NFPA 70-2018 [ Section No. 551.1 ]

### 551.1 Scope.

The provisions of this ~~This~~ article covers the electrical conductors and equipment other than low-voltage and automotive vehicle circuits or extensions thereof, installed within or on recreational vehicles, the conductors that connect recreational vehicles to a supply of electricity, and the installation of equipment and devices related to electrical installations within a recreational vehicle park.

Informational Note: For information on low-voltage systems, refer to NFPA 1192-2015 ~~2018~~, *Standard on Recreational Vehicles*, and ANSI/RVIA LV-2014, *Standard for Low Voltage Systems in Conversion and Recreational Vehicles*.

### Submitter Information Verification

**Submitter Full Name:** NEC-CMP Panel 07

**Organization:** [ Not Specified ]

**Street Address:**

**City:**

**State:**

**Zip:**

**Submittal Date:** Tue Jan 16 09:38:51 EST 2018

### Committee Statement and Meeting Notes

**Committee Statement:** CMP 7 understands that the scope of articles is under the purview of the correlating committee. However, CMP7 offers the following recommendation for correlating committee consideration. The phrase 'the provisions of' is unnecessary and redundant and is being deleted to increase usability

**Response Message:**

### Editorial Comment

[Click here](#)



## First Revision No. 8470-NFPA 70-2018 [ Definition: Recreational Vehicle. ]

### Recreational Vehicle.

This definition shall apply within this article and throughout the *Code*.

A vehicular-type unit primarily designed as temporary living quarters for recreational, camping, or travel use, which either has its own motive power or is mounted on or drawn by another vehicle.

Informational Note: The basic entities are travel trailer, camping trailer, truck camper, and motor home as referenced in NFPA 1192-2015 2018, *Standard on Recreational Vehicles*. See ~~3.3.46~~ 3.3.52, *Recreational Vehicle*, and ~~A.3.3.46~~ A.3.3.52 of NFPA 1192.

### Submitter Information Verification

**Submitter Full Name:** NEC-CMP Panel 07

**Organization:** [ Not Specified ]

**Street Address:**

**City:**

**State:**

**Zip:**

**Submission Date:** Tue Jan 16 22:39:54 EST 2018

### Committee Statement and Meeting Notes

**Committee Statement:** The reference to NFPA 1192 is updated to the most current edition.

**Response Message:**

### Editorial Comment

[Click here](#)



## First Revision No. 8377-NFPA 70-2018 [ Section No. 551.4(A) ]

**(A)** Not Covered.

A recreational vehicle not used for the purposes as defined in 551.2 shall not be required to meet the ~~provisions~~ requirements of Part IV pertaining to the number or capacity of circuits required. It shall, however, meet all other applicable requirements of this article if the recreational vehicle is provided with an electrical installation intended to be energized from a 120-volt, 208Y/120-volt, or 120/240-volt, nominal, ac power-supply system.

### Submitter Information Verification

**Submitter Full Name:** NEC-CMP Panel 07

**Organization:** [ Not Specified ]

**Street Address:**

**City:**

**State:**

**Zip:**

**Submission Date:** Tue Jan 16 13:27:37 EST 2018

### Committee Statement and Meeting Notes

**Committee Statement:** The term “provisions” is replaced with “requirements” to provide clarity and enforceability.

**Response Message:**



## First Revision No. 8328-NFPA 70-2018 [ Section No. 551.41(A) ]

### (A) Spacing.

Receptacle outlets shall be installed at wall spaces 600 mm (2 ft) wide or more so that no point along the floor line is more than 1.8 m (6 ft), measured horizontally, from an outlet in that space.

*Exception No. 1: Bath and hallway areas shall not be required to comply with 551.41(A).*

*Exception No. 2: Wall spaces occupied by kitchen cabinets, wardrobe cabinets, built-in furniture, behind doors that may can open fully against a wall surface, or similar facilities shall not be required to comply with 551.41(A).*

*Exception No. 3: Wall spaces in the special transportation area of a recreational vehicle designed to transport internal combustion vehicles shall not be required to comply with 551.41(A).*

## Submitter Information Verification

**Submitter Full Name:** NEC-CMP Panel 07

**Organization:** [ Not Specified ]

**Street Address:**

**City:**

**State:**

**Zip:**

**Submittal Date:** Tue Jan 16 09:57:54 EST 2018

## Committee Statement and Meeting Notes

**Committee Statement:** These areas are specifically designed for transporting internal combustion engine vehicles. Receptacle requirements that apply to regular useable living space within the RV does not apply to these special transportation areas. Language was added to Exception No.1 and Exception No.2 to make the existing exceptions complete sentences for compliance with the NEC Style Manual.

**Response Message:**

[Public Input No. 2568-NFPA 70-2017 \[New Section after 551.41\(A\)\]](#)

## Editorial Comment

[Click here](#)



## First Revision No. 8333-NFPA 70-2018 [ Section No. 551.41(B) ]

### (B) Location.

Receptacle outlets shall be installed as follows:

- (1) Adjacent to countertops in the kitchen [at least one on each side of the sink if countertops are on each side and are 300 mm (12 in.) or over in width and depth].
- (2) Adjacent to the refrigerator and gas range space, except where a gas-fired refrigerator or cooking appliance, requiring no external electrical connection, is factory installed.
- (3) Adjacent to countertop spaces of 300 mm (12 in.) or more in width and depth that cannot be reached from a receptacle required in 551.41(B)(1) by a cord of 1.8 m (6 ft) without crossing a traffic area, cooking appliance, or sink.
- (4) Rooftop decks that are accessible from inside the RV recreational vehicle shall have at least one receptacle installed within the perimeter of the rooftop deck. The receptacle shall not be located more than 1.2 m (4 ft) above the balcony, deck, or porch surface. The receptacle shall comply with the requirements of 406.9(B) for wet locations.
- (5) A special transportation area of recreational vehicles designed to transport internal combustion engine vehicles shall have at least one receptacle installed.

## Submitter Information Verification

**Submitter Full Name:** NEC-CMP Panel 07

**Organization:** [ Not Specified ]

**Street Address:**

**City:**

**State:**

**Zip:**

**Submittal Date:** Tue Jan 16 10:23:18 EST 2018

## Committee Statement and Meeting Notes

**Committee Statement:** The new text requires at least one receptacle to improve safety and reduce extension cord use in these areas.

**Response Message:**



## First Revision No. 8341-NFPA 70-2018 [ Section No. 551.41(C) ]

### (C) Ground-Fault Circuit-Interrupter Protection.

Where provided, each 125-volt, single-phase, 15- or 20-ampere receptacle outlet shall have ground-fault circuit-interrupter protection for personnel in the following locations:

- (1) Adjacent to a bathroom lavatory
- (2) Where the receptacles are installed to serve the countertop surfaces and are within 1.8 m (6 ft) of any lavatory or sink

*Exception No. 1: Receptacles installed for appliances in dedicated spaces, such as for dishwashers, disposals, refrigerators, freezers, and laundry equipment shall not require ground-fault circuit-interrupter protection .*

*Exception No. 2: Single receptacles for interior connections of expandable room sections shall not require ground-fault circuit-interrupter protection .*

*Exception No. 3: De-energized receptacles that are within 1.8 m (6 ft) of any sink or lavatory due to the retraction of the expandable room section shall not require ground-fault circuit-interrupter protection .*

- (3) In the area occupied by a toilet, shower, tub, or any combination thereof
- (4) On the exterior of the vehicle

*Exception: Receptacles that are located inside of an access panel that is installed on the exterior of the vehicle to supply power for an installed appliance shall not be required to have ground-fault circuit-interrupter protection.*

- (5) In the special transportation area of a recreational vehicle designed to transport internal combustion engine vehicles

The receptacle outlet shall be permitted in a listed luminaire. A receptacle outlet shall not be installed in a tub or combination tub–shower compartment.

## Supplemental Information

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
Panel_7_FR-8341_551.41_C_leg_changes.docx	For staff use--final	✓

## Submitter Information Verification

**Submitter Full Name:** NEC-CMP Panel 07

**Organization:** [ Not Specified ]

**Street Address:**

**City:**

**State:**

**Zip:**

**Submittal Date:** Tue Jan 16 10:35:52 EST 2018

## Committee Statement and Meeting Notes

**Committee Statement:** GFCI protection of a receptacle is necessary in a special transportation area based on the potential storage of large, metallic and wet vehicles.

Text is added to exceptions 1, 2, and 3 to form complete sentences in compliance with the NEC Style Manual.

**Committee Notes:**

<u>Date</u>	<u>Submitted By</u>
Jan 16, 2018	NEC-CMP Panel (4) is not new text. It is existing language and should not be shown as new. 07
Jan 16, 2018	NEC-CMP Panel For (C) Exceptions 1, 2, and 3 all language is existing except for "shall not require 07 ground-fault circuit-interrupter protection"
Jan 16, 2018	NEC-CMP Panel (5) is new text 07



## First Revision No. 8472-NFPA 70-2018 [ Section No. 551.46(C) ]

### (C) Attachment Plugs.

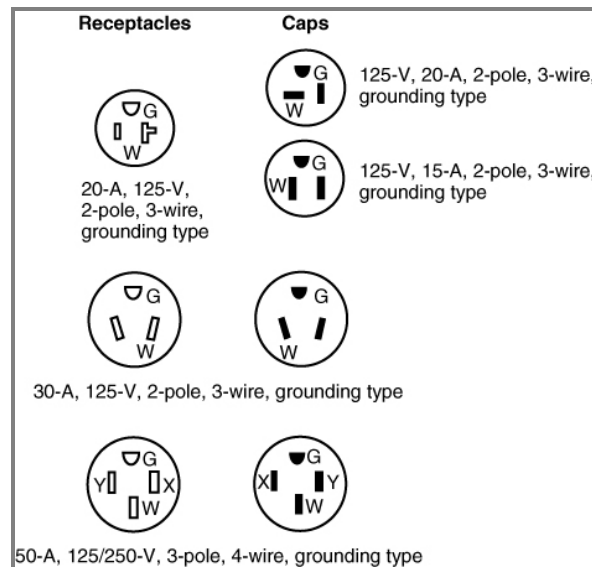
Each recreational vehicle shall have externally connected power from only one source.

#### (1) Units with One 15-Ampere Branch Circuit.

Recreational vehicles having only one 15-ampere branch circuit as permitted by 551.42(A) shall have an attachment plug that shall be 2-pole, 3-wire grounding type, rated 15 amperes, 125 volts, conforming to the configuration shown in Figure 551.46(C)(1).

Informational Note: Complete details of this configuration can be found in ANSI/NEMA WD 6-2002 2016, *Standard for Dimensions of Attachment Plugs and Receptacle Wiring Devices — Dimensional Specifications*, Figure 5.15.

**Figure 551.46(C)(1) Configurations for Grounding-Type Receptacles and Attachment Plug Caps Used for Recreational Vehicle Supply Cords and Recreational Vehicle Lots.**



#### (2) Units with One 20-Ampere Branch Circuit.

Recreational vehicles having only one 20-ampere branch circuit as permitted in 551.42(B) shall have an attachment plug that shall be 2-pole, 3-wire grounding type, rated 20 amperes, 125 volts, conforming to the configuration shown in Figure 551.46(C)(1).

Informational Note: Complete details of this configuration can be found in ANSI/NEMA WD 6-2002 2016, *National Electrical Manufacturers Association's Standard for Dimensions of Attachment Plugs and Receptacles Wiring Devices — Dimensional Specifications*, Figure 5.20.

#### (3) Units with Two to Five 15- or 20-Ampere Branch Circuits.

Recreational vehicles wired in accordance with 551.42(C) shall have an attachment plug that shall be 2-pole, 3-wire grounding type, rated 30 amperes, 125 volts, conforming to the configuration shown in Figure 551.46(C)(1) intended for use with units rated at 30 amperes, 125 volts.

Informational Note: Complete details of this configuration can be found in ANSI/NEMA WD 6-2002 2016, *National Electrical Manufacturers Association's Standard for Dimensions of Attachment Plugs and Receptacles Wiring Devices — Dimensional Specifications*, Figure TT.

**(4) Units with 50-Ampere Power-Supply Assembly.**

Recreational vehicles having a power-supply assembly rated 50 amperes as permitted by 551.42(D) shall have a 3-pole, 4-wire grounding-type attachment plug rated 50 amperes, 125/250 volts, conforming to the configuration shown in Figure 551.46(C)(1).

Informational Note: Complete details of this configuration can be found in ANSI/NEMA WD 6-2002 2016 , *Standard for Dimensions of Attachment Plugs and Receptacles Wiring Devices — Dimensional Specifications* , Figure 14.50.

**Submitter Information Verification**

**Submitter Full Name:** NEC-CMP Panel 07

**Organization:** [ Not Specified ]

**Street Address:**

**City:**

**State:**

**Zip:**

**Submittal Date:** Tue Jan 16 22:48:52 EST 2018

**Committee Statement and Meeting Notes**

**Committee Statement:** In addition to updating references, this will prevent modified RV's from plugging into more than one receptacle to provide power to their RV.

The use of the 20 amp circuit is still permitted while using the 30 or the 50 amp circuits supplying the recreational vehicle.

Many RV parks are seeing coaches arrive wanting to plug into two 50 amp circuits. They have had the coaches locally modified to power additional loads on their coach.

Supplying the coach from two sources is a dangerous practice and many park operators are looking for direction on preventing this practice.

**Response Message:**

[Public Input No. 552-NFPA 70-2017 \[Section No. 551.46\(C\)\]](#)

**Editorial Comment**

[Click here](#)



## First Revision No. 8359-NFPA 70-2018 [ Section No. 551.46(D) ]

### (D) Labeling at Electrical Entrance.

Each recreational vehicle shall have a safety label with the signal word WARNING in minimum 6-mm (1/4-in.) high letters and body text in minimum 3-mm (1/8-in.) high letters on a contrasting background. The safety label shall be affixed to the exterior skin, at or near the point of entrance of the power-supply cord(s), and shall read, using one of the following warnings, as appropriate:

#### WARNING

THIS CONNECTION IS FOR 110-125-VOLT AC,  
60 HZ, \_\_\_\_ AMPERE SUPPLY.

DO NOT EXCEED CIRCUIT RATING.

EXCEEDING THE CIRCUIT RATING CAN CAUSE A  
FIRE AND RESULT IN DEATH OR SERIOUS INJURY.

or

#### WARNING

THIS CONNECTION IS FOR 208Y/120-VOLT or 120/240-VOLT AC, 3-POLE, 4-WIRE,  
60 HZ, \_\_\_\_\_ AMPERE SUPPLY.

DO NOT EXCEED CIRCUIT RATING.

EXCEEDING THE CIRCUIT RATING MAY CAN CAUSE A  
FIRE AND RESULT IN DEATH OR SERIOUS INJURY.

The correct ampere rating shall be marked in the blank space.

## Submitter Information Verification

**Submitter Full Name:** NEC-CMP Panel 07

**Organization:** [ Not Specified ]

**Street Address:**

**City:**

**State:**

**Zip:**

**Submittal Date:** Tue Jan 16 11:46:17 EST 2018

## Committee Statement and Meeting Notes

**Committee Statement:** This clarifies that the text regarding "DO NOT EXCEED CIRCUIT RATING..." and the "WARNING" must be included in both safety labels regardless of which one is chosen. In addition, this same revision was made in 552.44(D) by CMP-19 during the 2017 NEC code cycle. See First Revision No. 5416-NFPA 70-2015.

**Response Message:**

### Committee Notes:

<u>Date</u>	<u>Submitted By</u>
Jan 16, 2018	NEC-CMP Panel "60 HZ, ____ AMPERE SUPPLY." is existing text. 07

Public Input No. 2573-NFPA 70-2017 [Section No. 551.46(D)]

## Editorial Comment

[Click here](#)



## First Revision No. 8473-NFPA 70-2018 [ Section No. 551.47(M) ]

**(M)** Metal Faceplates Grounded.

~~Where metal~~ Metal faceplates are used, they shall be grounded installed in compliance with 404.9(B) and 404.6(B).

### Submitter Information Verification

**Submitter Full Name:** NEC-CMP Panel 07

**Organization:** [ Not Specified ]

**Street Address:**

**City:**

**State:**

**Zip:**

**Submission Date:** Tue Jan 16 22:53:59 EST 2018

### Committee Statement and Meeting Notes

**Committee Statement:** A reference to other related sections provides clarity and enforceability while making it clear to the Code user.

**Response Message:**

Public Input No. 2026-NFPA 70-2017 [Section No. 551.47(M)]

### Editorial Comment

[Click here](#)

**First Revision No. 8374-NFPA 70-2018 [ Section No. 551.47(P) ]****(P) Method of Connecting Expandable Units.**

The method of connecting expandable units to the main body of the vehicle shall comply with 551.47(P)(1) or (P)(2):

**(1) Cord-and-Plug-Connected.**

Cord-and-plug connections shall comply with 551.47(P)(1) (a) through (P)(1) (d).

(a) That portion of a branch circuit that is installed in an expandable unit shall be permitted to be connected to the portion of the branch circuit in the main body of the vehicle by means of an attachment plug and cord listed for hard usage. The cord and its connections shall comply with ~~all provisions Part I and Part II, as applicable,~~ of Article 400 and shall be considered as a permitted use under 400.10. Where the attachment plug and cord are located within the vehicle's interior, use of plastic thermoset or elastomer parallel cord Type SPT-3, SP-3, or SPE shall be permitted.

(b) Where the receptacle provided for connection of the cord to the main circuit is located on the outside of the vehicle, it shall be protected with a ground-fault circuit interrupter for personnel and be listed for wet locations. A cord located on the outside of a vehicle shall be identified for outdoor use.

(c) Unless removable or stored within the vehicle interior, the cord assembly shall have permanent provisions for protection against corrosion and mechanical damage while the vehicle is in transit.

(d) The attachment plug and cord shall be installed so as not to permit exposed live attachment plug pins.

**(2) Direct Wired.**

That portion of a branch circuit that is installed in an expandable unit shall be permitted to be connected to the portion of the branch circuit in the main body of the vehicle by means of flexible cord installed in accordance with 551.47(P)(2)(a) through (P)(2)(e) or other approved wiring method.

(a) The flexible cord shall be listed for hard usage and for use in wet locations.

(b) The flexible cord shall be permitted to be exposed on the underside of the vehicle.

(c) The flexible cord shall be permitted to pass through the interior of a wall or floor assembly or both a maximum concealed length of 600 mm (24 in.) before terminating at an outlet or junction box.

(d) Where concealed, the flexible cord shall be installed in nonflexible conduit or tubing that is continuous from the outlet or junction box inside the recreational vehicle to a weatherproof outlet box, junction box, or strain relief fitting listed for use in wet locations that is located on the underside of the recreational vehicle. The outer jacket of the flexible cord shall be continuous into the outlet or junction box.

(e) Where the flexible cord passes through the floor to an exposed area inside of the recreational vehicle, it shall be protected by means of conduit and bushings or equivalent.

Where subject to physical damage, the flexible cord shall be protected with RMC, IMC, Schedule 80 PVC, reinforced thermosetting resin conduit (RTRC) listed for exposure to physical damage, or other approved means and shall extend at least 150 mm (6 in.) above the floor. A means shall be provided to secure the flexible cord where it enters the recreational vehicle.

**Submitter Information Verification**

**Submitter Full Name:** NEC-CMP Panel 07

**Organization:** [ Not Specified ]

**Street Address:**

**City:**

**State:**

**Zip:**

**Submittal Date:** Tue Jan 16 13:15:01 EST 2018

### **Committee Statement and Meeting Notes**

**Committee Statement:** The phrase 'all provisions of' is unnecessary and redundant and is being deleted to increase usability.

CMP 7 updates the reference to specific parts of Article 400 to comply with the NEC Style Manual.

**Response Message:**

### **Editorial Comment**

[Click here](#)

**First Revision No. 8411-NFPA 70-2018 [ Section No. 551.47(R) ]****(R) Prewiring for Generator Installation.**

Prewiring installed for the purpose of facilitating future generator installation shall comply with the other applicable portions of this article and the following:

- (1) Circuit conductors shall be appropriately sized in relation to the anticipated load as stated on the label required in (R)(4).
- (2) Where junction boxes are utilized at either of the circuit originating or terminus points, free ends of the conductors shall be adequately capped or taped.
- (3) Where devices such as receptacle outlet, transfer switch, and so forth, are installed, the installation shall be complete, including circuit conductor connections.
- (4) A safety label with the signal word WARNING in minimum 6-mm (¼-in.) high letters and body text in minimum 3-mm (⅛-in.) high letters on a contrasting background shall be affixed on the cover of each junction box containing incomplete circuitry and shall read, using one of the following warnings, as appropriate:

WARNING  
GENERATOR  
ONLY INSTALL A GENERATOR LISTED  
SPECIFICALLY FOR RV USE  
HAVING OVERCURRENT PROTECTION  
RATED 110–125-VOLT AC,  
60 HZ, \_\_\_\_\_ AMPERES MAXIMUM.

or

WARNING  
GENERATOR  
ONLY INSTALL A GENERATOR LISTED  
SPECIFICALLY FOR RV USE  
HAVING OVERCURRENT PROTECTION  
RATED 120–240-VOLT AC,  
60 HZ, \_\_\_\_\_ AMPERES MAXIMUM.

The correct ampere rating shall be legibly marked in the blank space.

**Submitter Information Verification**

**Submitter Full Name:** NEC-CMP Panel 07

**Organization:** [ Not Specified ]

**Street Address:**

**City:**

**State:**

**Zip:**

**Submittal Date:** Tue Jan 16 15:58:30 EST 2018

**Committee Statement and Meeting Notes**

**Committee Statement:** This clarifies that "WARNING" must be included in both safety labels regardless of which one is chosen.

**Response Message:**

**Committee Notes:**

<u>Date</u>	<u>Submitted By</u>
Jan 16, 2018	NEC-CMP Panel Only thing that is new is the word "WARNING" added to the second option 07



## First Revision No. 8376-NFPA 70-2018 [ Section No. 551.51(A)(2) ]

(2) Motors or Other Loads.

Switches for motors or other loads shall comply with the provisions of 404.14.

### Submitter Information Verification

**Submitter Full Name:** NEC-CMP Panel 07

**Organization:** [ Not Specified ]

**Street Address:**

**City:**

**State:**

**Zip:**

**Submittal Date:** Tue Jan 16 13:25:05 EST 2018

### Committee Statement and Meeting Notes

**Committee Statement:** The phrase "the provisions of" is unnecessary and redundant and is being deleted to increase usability.

**Response Message:**

### Editorial Comment

[Click here](#)

**First Revision No. 8474-NFPA 70-2018 [ Section No. 551.54 ]****551.54** Grounding.

(See also 551.56 on bonding of non-current-carrying metal parts.)

**(A)** Power-Supply Grounding.

The equipment grounding conductor in the supply cord or feeder shall be connected to the equipment grounding bus or other approved equipment grounding means in the panelboard.

**(B)** Panelboard.

The panelboard shall have a an equipment grounding bus with terminals for all equipment grounding conductors or other approved equipment grounding means.

**(C)** Insulated Grounded Conductor (Neutral Conductor).

The grounded circuit conductor (neutral conductor) shall be insulated from the equipment grounding conductors and from equipment enclosures and other grounded parts. The grounded circuit conductor (neutral conductor) terminals in the panelboard and in ranges, clothes dryers, counter-mounted cooking units, and wall-mounted ovens shall be insulated from the equipment enclosure. Bonding screws, straps, or buses in the panelboard or in appliances shall be removed and discarded. Connection of electric ranges and electric clothes dryers utilizing a grounded conductor, if cord-connected, shall be made with 4-conductor cord and 3-pole, 4-wire grounding-type plug caps and receptacles.

**Submitter Information Verification**

**Submitter Full Name:** NEC-CMP Panel 07

**Organization:** [ Not Specified ]

**Street Address:**

**City:**

**State:**

**Zip:**

**Submittal Date:** Tue Jan 16 22:56:31 EST 2018

**Committee Statement and Meeting Notes**

**Committee Statement:** Addition of equipment for accuracy.

Calling the white wire the “grounded conductor” is wrong terminology for the RV industry. In a house, the terminology “grounded conductor”, is the correct terminology since the white wire is in fact connected to the equipment grounding buss bar at the distribution panelboard. The requirement in 551-54(C) makes an RV different than a house since the white wire is not permitted to be connected to the equipment grounding conductors in the distribution panelboard. This is because unlike a house an RV has a power cord for connection and therefore polarity can easily be reversed. If the white wire was permitted to be connected to the equipment grounding conductors like in a house, and the power cord is inserted backwards, or the source receptacle has reverse polarity, the entire skin of the RV would become energized. The term “neutral” is not removed because it is the more industry specific term for the RV application.

**Response Message:**

[Public Input No. 2409-NFPA 70-2017 \[Section No. 551.54\]](#)

[Public Input No. 2028-NFPA 70-2017 \[Section No. 551.54\]](#)



## First Revision No. 8382-NFPA 70-2018 [ Section No. 551.55(E) ]

### (E) Grounding Continuity.

Where more than one equipment grounding or bonding conductor of a branch circuit enters a box, all such conductors shall be ~~in good electrical contact with each other~~ 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.

## Submitter Information Verification

**Submitter Full Name:** NEC-CMP Panel 07

**Organization:** [ Not Specified ]

**Street Address:**

**City:**

**State:**

**Zip:**

**Submission Date:** Tue Jan 16 13:36:06 EST 2018

## Committee Statement and Meeting Notes

**Committee Statement:** In some cases it is not always a conductor, such as raceways, when dealing with continuity, therefore no change is needed in title. The term "grounding continuity" is a well understood term used through the NEC.

**Response Message:**

Public Input No. 1699-NFPA 70-2017 [Section No. 551.55(E)]



## First Revision No. 8384-NFPA 70-2018 [ Section No. 551.56(B) ]

### (B) Bonding Chassis.

A bonding conductor shall be connected between any panelboard and an accessible terminal on the chassis. ~~Aluminum or copper-clad aluminum conductors shall not be used for bonding if such conductors or their terminals are exposed to corrosive elements~~ 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.*

### Submitter Information Verification

**Submitter Full Name:** NEC-CMP Panel 07

**Organization:** [ Not Specified ]

**Street Address:**

**City:**

**State:**

**Zip:**

**Submittal Date:** Tue Jan 16 13:42:04 EST 2018

### Committee Statement and Meeting Notes

**Committee Statement:** References to specific metals is removed to permit their use while retaining the requirement for environmental protection.

**Response Message:**

Public Input No. 2136-NFPA 70-2017 [Section No. 551.56(B)]



## First Revision No. 8475-NFPA 70-2018 [ Section No. 551.71 ]

### 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 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.

#### (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 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.

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.

#### (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.

#### (F) GFCI Protection.

##### (1)

All 125-volt, single-phase, 15- and 20-ampere receptacles shall have listed ground-fault circuit-interrupter protection for personnel. ~~The GFCI devices used in RV site electrical equipment shall not be required to be weather or tamper resistant in accordance with 406.9 and 406.12 .~~

##### (2)

Thirty- and 50-ampere receptacles used in recreational vehicle site equipment shall not be required to meet the requirements of 210.8(B) .

## Supplemental Information

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
Panel_7_FR-8475_551.71_leg_changes.docx	For staff use	✓

## Submitter Information Verification

**Submitter Full Name:** NEC-CMP Panel 07

**Organization:** [ Not Specified ]

**Street Address:**

**City:**

**State:**

**Zip:**

**Submittal Date:** Tue Jan 16 23:02:28 EST 2018

## Committee Statement and Meeting Notes

**Committee Statement:** Weather-resistant receptacles are now required to reflect changes to the product standard for power outlet s. The exemption to 20 amp tamper-resistant receptacles is relocated to (A) from (F) as it only applies to the 20 amp receptacle required by (A).

The informational note previously found at the end of this section was relocated to below list item (C) to which it pertains.

List item (F) was separated into (1) 15 and 20 ampere receptacles and (2) 30 and 50 ampere receptacles to clarify that compliance with Section 210.8(B) is not required for list item (2).

### Response

#### Message:

[Public Input No. 2386-NFPA 70-2017 \[Section No. 551.71\(F\)\]](#)

[Public Input No. 553-NFPA 70-2017 \[Section No. 551.71\(A\) 20-Ampere. ...\]](#)

[Public Input No. 22-NFPA 70-2017 \[Section No. 551.71\(F\)\]](#)

[Public Input No. 555-NFPA 70-2017 \[Section No. 551.71\(F\) GFCI Protecti...\]](#)

[Public Input No. 21-NFPA 70-2017 \[Section No. 551.71\(F\)\]](#)

[Public Input No. 2691-NFPA 70-2017 \[Section No. 551.71\]](#)

[Public Input No. 1280-NFPA 70-2017 \[Section No. 551.71\(F\)\]](#)

## Editorial Comment

[Click here](#)



## First Revision No. 8414-NFPA 70-2018 [ New Section after 551.72(D) ]

### (E) Connected Devices.

The use of autotransformers shall not be permitted. The use of listed surge protective devices shall be permitted.

## Submitter Information Verification

**Submitter Full Name:** NEC-CMP Panel 07

**Organization:** [ Not Specified ]

**Street Address:**

**City:**

**State:**

**Zip:**

**Submission Date:** Tue Jan 16 16:04:13 EST 2018

## Committee Statement and Meeting Notes

**Committee Statement:** The use of autotransformers places severe additional stress on the surrounding electrical infrastructure not accounted for in the load calculations in this section. Park operators report that low voltage conditions typically exist when surrounding sites use these add-on devices

**Response Message:**

Public Input No. 554-NFPA 70-2017 [Section No. 551.72]



## First Revision No. 8424-NFPA 70-2018 [ Section No. 551.75 ]

### ~~551.75~~ Grounding.

#### ~~(A)~~ General.

~~All electrical equipment and installations in recreational vehicle parks shall be grounded as required by Article 250 .~~

[Detail FR-9006](#)

#### ~~(B)~~ Grounding Electrode.

~~Power outlets or 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.~~

## Submitter Information Verification

**Submitter Full Name:** NEC-CMP Panel 07

**Organization:** [ Not Specified ]

**Street Address:**

**City:**

**State:**

**Zip:**

**Submittal Date:** Tue Jan 16 16:28:30 EST 2018

## Committee Statement and Meeting Notes

**Committee Statement:** 551.75(A) is removed because it refers to an entire article. 551.75(B) is moved to 551.76(A) to improve enforceability and clarity.

**Response Message:**

### Committee Notes:

<u>Date</u>	<u>Submitted By</u>	
Jan 31, 2018	NEC-CMP Panel 07	See Detail FR-9006 for move of (B) into 551.76.

[Public Input No. 1704-NFPA 70-2017 \[Section No. 551.75\(A\)\]](#)



## First Revision No. 8427-NFPA 70-2018 [ Section No. 551.81 ]

### 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: Complete details of these configurations can be found in ANSI/NEMA WD 6-2002 2016, ~~National Electrical Manufacturers Association's~~ *Standard for Dimensions of Attachment Plugs and Receptacles Wiring Devices — Dimensional Specifications*, Figures 14-50, TT, and 5-20.

### Submitter Information Verification

**Submitter Full Name:** NEC-CMP Panel 07

**Organization:** [ Not Specified ]

**Street Address:**

**City:**

**State:**

**Zip:**

**Submission Date:** Tue Jan 16 16:37:44 EST 2018

### Committee Statement and Meeting Notes

**Committee Statement:** Update standard to reference current editions of National Consensus Standards.

**Response Message:**

### Editorial Comment

[Click here](#)



## First Revision No. 8476-NFPA 70-2018 [ Section No. 552.2 ]

### 552.2 Definition.

The definition in this section shall apply within this article and throughout the Code.

(See Articles 100, 550, and 551 for additional definitions.)

#### **Park Trailer.**

A unit that is built on a single chassis mounted on wheels and has a gross trailer area not exceeding 37 m<sup>2</sup> (400 ft<sup>2</sup>) in the set-up mode.

### Submitter Information Verification

**Submitter Full Name:** NEC-CMP Panel 07

**Organization:** [ Not Specified ]

**Street Address:**

**City:**

**State:**

**Zip:**

**Submission Date:** Tue Jan 16 23:10:37 EST 2018

### Committee Statement and Meeting Notes

**Committee Statement:** The new language allows these definitions to remain in this article where the definitions are of the most use to the code user, while making it clear whether the term is used the same throughout the Code or limited to a special use in that article.

**Response Message:**

Public Input No. 2227-NFPA 70-2017 [Section No. 552.2]

### Editorial Comment

[Click here](#)



## First Revision No. 8434-NFPA 70-2018 [ Section No. 552.10(B)(2) ]

### (2) Conductor Types.

Conductors shall conform to the requirements for Type GXL, HDT, SGT, SGR, or Type SXL or shall have insulation in accordance with Table 310.4(A) or the equivalent. Conductor sizes 6 AWG through 18 AWG or SAE shall be listed. Single-wire, low-voltage conductors shall be of the stranded type.

Informational Note: See SAE J1128-2014 2015 , *Low Tension Voltage Primary Cable*, for Types GXL, HDT, and SXL, and SAE J1127-2010 2015 , *Low Voltage Battery Cable*, for Types SGT and SGR.

### Submitter Information Verification

**Submitter Full Name:** NEC-CMP Panel 07

**Organization:** [ Not Specified ]

**Street Address:**

**City:**

**State:**

**Zip:**

**Submission Date:** Tue Jan 16 17:00:48 EST 2018

### Committee Statement and Meeting Notes

**Committee Statement:** Update standard to reference current editions of National Consensus Standards.

**Response Message:**



## First Revision No. 8437-NFPA 70-2018 [ Section No. 552.10(D) ]

### (D) Battery Installations.

Storage batteries subject to ~~the provisions of~~ this *Code* shall be securely attached to the unit and installed in an area vaportight to the interior and ventilated directly to the exterior of the unit. Where batteries are installed in a compartment, the compartment shall be ventilated with openings having a minimum area of 1100 mm<sup>2</sup> (1.7 in.<sup>2</sup>) at both the top and at the bottom. Where compartment doors are equipped for ventilation, the openings shall be within 50 mm (2 in.) of the top and bottom. Batteries shall not be installed in a compartment containing spark- or flame-producing equipment.

### Submitter Information Verification

**Submitter Full Name:** NEC-CMP Panel 07

**Organization:** [ Not Specified ]

**Street Address:**

**City:**

**State:**

**Zip:**

**Submittal Date:** Tue Jan 16 17:06:16 EST 2018

### Committee Statement and Meeting Notes

**Committee Statement:** The phrase "the provisions of" is unnecessary and redundant and is being deleted to increase usability

**Response Message:**



## First Revision No. 8438-NFPA 70-2018 [ Section No. 552.20(C) ]

### (C) Bonding Voltage Converter Enclosures.

The non-current-carrying metal enclosure of the voltage converter shall be connected to the frame of the unit with an 8 AWG copper conductor minimum. The equipment grounding conductor for the battery and the metal enclosure shall be permitted to be the same conductor.

## Submitter Information Verification

**Submitter Full Name:** NEC-CMP Panel 07

**Organization:** [ Not Specified ]

**Street Address:**

**City:**

**State:**

**Zip:**

**Submission Date:** Tue Jan 16 17:08:24 EST 2018

## Committee Statement and Meeting Notes

**Committee Statement:** The term “grounding conductor” is one that is no longer defined. As part of a Correlating Committee Task Force activity on grounding and bonding in general, this term and its related definition was removed from the NEC during the 2008 NEC cycle. The term had been found to be misapplied in a number of instances and the definition of “grounding conductor” was determined to be very close to the definition of “grounding electrode conductor” yet, many uses of the term in previous editions of the NEC were found to be more correctly to be either “equipment grounding conductor”.

**Response Message:**

[Public Input No. 2410-NFPA 70-2017 \[Section No. 552.20\(C\)\]](#)



## First Revision No. 8439-NFPA 70-2018 [ Section No. 552.43(B) ]

### (B) Power-Supply Cord.

If the park trailer has a power-supply cord, it shall be permanently attached to the panelboard, or to a junction box permanently connected to the panelboard, with the free end terminating in a molded-on attachment plug cap.

Cords with adapters and pigtail ends, extension cords, and similar items shall not be attached to, or shipped with, a park trailer.

A suitable clamp or the equivalent shall be provided at the panelboard knockout to afford strain relief for the cord to prevent strain from being transmitted to the terminals when the power-supply cord is handled in its intended manner.

The cord shall be a listed type with 3-wire, 120-volt or 4-wire, 120/240-volt conductors, one of which shall be identified by a continuous green color or a continuous green color with one or more yellow stripes for use as the equipment grounding conductor.

## Submitter Information Verification

**Submitter Full Name:** NEC-CMP Panel 07

**Organization:** [ Not Specified ]

**Street Address:**

**City:**

**State:**

**Zip:**

**Submittal Date:** Tue Jan 16 17:10:28 EST 2018

## Committee Statement and Meeting Notes

**Committee Statement:** The term “grounding conductor” is one that is no longer defined. As part of a Correlating Committee Task Force activity on grounding and bonding in general, this term and its related definition was removed from the NEC during the 2008 NEC cycle. The term had been found to be misapplied in a number of instances and the definition of “grounding conductor” was determined to be very close to the definition of “grounding electrode conductor” yet, many uses of the term in previous editions of the NEC were found to be more correctly to be either “equipment grounding conductor”.

**Response Message:**

Public Input No. 2411-NFPA 70-2017 [Section No. 552.43(B)]



## First Revision No. 8441-NFPA 70-2018 [ Section No. 552.44(C)(1) ]

(1) Units with Two to Five 15- or 20-Ampere Branch Circuits.

Park trailers wired in accordance with 552.46(A) shall have an attachment plug that shall be 2-pole, 3-wire grounding type, rated 30 amperes, 125 volts, conforming to the configuration shown in Figure 552.44(C)(1) intended for use with units rated at 30 amperes, 125 volts.

Informational Note: Complete details of this configuration can be found in ANSI/NEMA WD 6-2002 (Rev. 2008) 2016, *Standard for Dimensions of Attachment Plugs and Receptacles Wiring Devices — Dimensional Specifications*, Figure TT.

### Submitter Information Verification

**Submitter Full Name:** NEC-CMP Panel 07

**Organization:** [ Not Specified ]

**Street Address:**

**City:**

**State:**

**Zip:**

**Submission Date:** Tue Jan 16 17:12:06 EST 2018

### Committee Statement and Meeting Notes

**Committee Statement:** Update standard to reference current editions of National Consensus Standards.

**Response Message:**

### Editorial Comment

[Click here](#)



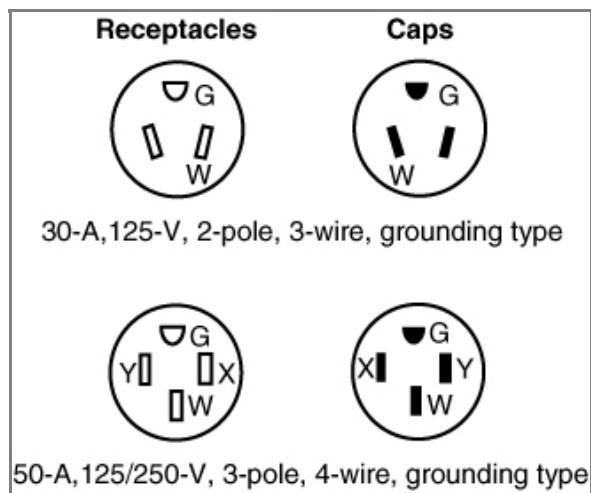
## First Revision No. 8442-NFPA 70-2018 [ Section No. 552.44(C)(2) ]

### (2) Units with 50-Ampere Power Supply Assembly.

Park trailers having a power-supply assembly rated 50 amperes as permitted by 552.43(B) shall have a 3-pole, 4-wire grounding-type attachment plug rated 50 amperes, 125/250 volts, conforming to the configuration shown in Figure 552.44(C)(1).

Informational Note: Complete details of this configuration can be found in ANSI/NEMA WD 6-2002 (Rev. 2008) 2016, *Standard for Dimensions of Attachment Plugs and Receptacles Wiring Devices — Dimensional Specifications*, Figure 14-50.

**Figure 552.44(C)(1) Attachment Cap and Receptacle Configurations.**



## Submitter Information Verification

**Submitter Full Name:** NEC-CMP Panel 07

**Organization:** [ Not Specified ]

**Street Address:**

**City:**

**State:**

**Zip:**

**Submission Date:** Tue Jan 16 17:14:21 EST 2018

## Committee Statement and Meeting Notes

**Committee Statement:** Update standard to reference current editions of National Consensus Standards.

**Response Message:**

## Editorial Comment

[Click here](#)



## First Revision No. 8477-NFPA 70-2018 [ Section No. 552.44(D) ]

### (D) Labeling at Electrical Entrance.

Each park trailer shall have a safety label with the signal word WARNING in minimum 6 mm (¼ in.) high letters and body text in minimum 3 mm (⅛ in.) high letters on a contrasting background. The safety label shall be affixed to the exterior skin, at or near the point of entrance of the power-supply assembly and shall read, as appropriate:

WARNING:

THIS CONNECTION IS FOR 110–125-VOLT AC,  
60 HZ, 30-AMPERE SUPPLY

or

WARNING:

THIS CONNECTION IS FOR 208Y/120-VOLT OR 120/240-VOLT AC, 3-POLE, 4-WIRE, 60 HZ, \_\_\_\_\_ -  
AMPERE SUPPLY.

followed by

DO NOT EXCEED THE CIRCUIT RATING. EXCEEDING THE CIRCUIT RATING ~~MAY~~ CAN CAUSE A  
FIRE AND RESULT IN DEATH OR SERIOUS INJURY.

The correct ampere rating shall be marked in the blank space and the label shall meet the requirements in 110.21(B).

## Submitter Information Verification

**Submitter Full Name:** NEC-CMP Panel 07

**Organization:** [ Not Specified ]

**Street Address:**

**City:**

**State:**

**Zip:**

**Submission Date:** Tue Jan 16 23:13:53 EST 2018

## Committee Statement and Meeting Notes

**Committee Statement:** The requirement calls for a safety label with the word "WARNING" but the specified text below never included the word. This revision adds the word WARNING as required by the section. The added text in the last sentence is required to meet the requirements in 110.21(B) to be consistent with other label requirements provided throughout the NEC.

**Response Message:**

**Committee Notes:**

<u>Date</u>	<u>Submitted By</u>
Jan 16, 2018	NEC-CMP Panel Only "WARNING" was added to the example text 07

[Public Input No. 3571-NFPA 70-2017 \[Section No. 552.44\(D\)\]](#)

## Editorial Comment

[Click here](#)

**First Revision No. 8445-NFPA 70-2018 [ Section No. 552.48(O)(1) ]****(1) Cord-and-Plug Connected.**

Cord-and-plug connections shall comply with 552.48(O)(1)(a) through (O)(1)(d).

(a) The portion of a branch circuit that is installed in an expandable unit shall be permitted to be connected to the portion of the branch circuit in the main body of the vehicle by means of an attachment plug and cord listed for hard usage. The cord and its connections shall comply with ~~all provisions~~ Parts I and II of Article 400 and shall be considered as a permitted use under 400.10. Where the attachment plug and cord are located within the park trailer's interior, use of plastic thermoset or elastomer parallel cord Type SPT-3, SP-3, or SPE shall be permitted.

(b) Where the receptacle provided for connection of the cord to the main circuit is located on the outside of the park trailer, it shall be protected with a ground-fault circuit interrupter for personnel and be listed for wet locations. A cord located on the outside of a park trailer shall be identified for outdoor use.

(c) Unless removable or stored within the park trailer interior, the cord assembly shall have permanent provisions for protection against corrosion and mechanical damage while the park trailer is in transit.

(d) The attachment plug and cord shall be installed so as not to permit exposed live attachment plug pins.

**Submitter Information Verification**

**Submitter Full Name:** NEC-CMP Panel 07

**Organization:** [ Not Specified ]

**Street Address:**

**City:**

**State:**

**Zip:**

**Submission Date:** Tue Jan 16 17:22:19 EST 2018

**Committee Statement and Meeting Notes**

**Committee Statement:** The phrase "all provisions of" is unnecessary and redundant and is being deleted to increase usability. "Parts I and II" of Article 400 is added to refer to a specific part of an article to comply with the NEC Style Manual.

**Response Message:**

**First Revision No. 8478-NFPA 70-2018 [ Section No. 552.55 ]****552.55** Grounding.

(See also 552.57 on bonding of non-current-carrying metal parts.)

**(A)** Power-Supply Grounding.

The equipment grounding conductor in the supply cord or feeder shall be connected to the equipment grounding bus or other approved equipment grounding means in the panelboard.

**(B)** Panelboard.

The panelboard shall have a an equipment grounding bus with sufficient terminals for all equipment grounding conductors or other approved grounding means.

**(C)** Insulated Grounded Conductor.

The grounded circuit conductor shall be insulated from the equipment grounding conductors and from equipment enclosures and other grounded parts. The grounded circuit conductor terminals in the panelboard and in ranges, clothes dryers, counter-mounted cooking units, and wall-mounted ovens shall be insulated from the equipment enclosure. Bonding screws, straps, or buses in the panelboard or in appliances shall be removed and discarded. Connection of electric ranges and electric clothes dryers utilizing a grounded conductor, if cord-connected, shall be made with 4-conductor cord and 3-pole, 4-wire, grounding-type plug caps and receptacles.

**Submitter Information Verification**

**Submitter Full Name:** NEC-CMP Panel 07

**Organization:** [ Not Specified ]

**Street Address:**

**City:**

**State:**

**Zip:**

**Submission Date:** Tue Jan 16 23:18:06 EST 2018

**Committee Statement and Meeting Notes**

**Committee Statement:** The term “grounding conductor” is one that is no longer defined. As part of a Correlating Committee Task Force activity on grounding and bonding in general, this term and its related definition was removed from the NEC during the 2008 NEC cycle. The term had been found to be misapplied in a number of instances and the definition of “grounding conductor” was determined to be very close to the definition of “grounding electrode conductor” yet, many uses of the term in previous editions of the NEC were found to be more correctly to be either “equipment grounding conductor”.

**Response Message:**

Public Input No. 2412-NFPA 70-2017 [Section No. 552.55]



## First Revision No. 8448-NFPA 70-2018 [ Section No. 552.57(B) ]

### (B) Bonding Chassis.

A bonding conductor shall be connected between any panelboard and an accessible terminal on the chassis. ~~Aluminum or copper-clad aluminum conductors shall not be used for bonding if such conductors or their terminals are exposed to corrosive elements~~ Bonding terminations shall be suitable for the environment in which the conductors and terminations are installed .

*Exception: Any park trailer 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.*

### Submitter Information Verification

**Submitter Full Name:** NEC-CMP Panel 07

**Organization:** [ Not Specified ]

**Street Address:**

**City:**

**State:**

**Zip:**

**Submittal Date:** Tue Jan 16 17:30:31 EST 2018

### Committee Statement and Meeting Notes

**Committee Statement:** References to specific metals is removed to permit their use while retaining the requirement for environmental protection.

**Response Message:**

Public Input No. 2138-NFPA 70-2017 [Sections 552.57(B), 552.57(C)]



## First Revision No. 8951-NFPA 70-2018 [ Section No. 555.1 ]

### 555.1 Scope.

This article covers the installation of wiring and equipment in the areas comprising fixed or floating piers, wharves, docks, floating buildings, and other areas in marinas, boatyards, boat basins, boathouses, yacht clubs, boat condominiums, docking facilities associated with one-family dwellings, two-family dwellings, multifamily dwellings, and residential condominiums; any multiple docking facility or similar occupancies; and facilities that are used, or intended for use, for the purpose of repair, berthing, launching, storage, or fueling of small craft and the moorage of floating buildings.

Informational Note No. 1: See NFPA 303-2014 2016 , *Fire Protection Standard for Marinas and Boatyards*, for additional information.

Informational Note No. 2: Where boats, floating buildings, docks, and so forth are connected to a source of electric supply, hazardous voltages and currents may create serious safety concerns.

## Submitter Information Verification

**Submitter Full Name:** NEC-CMP Panel 07

**Organization:** [ Not Specified ]

**Street Address:**

**City:**

**State:**

**Zip:**

**Submission Date:** Wed Jan 24 10:25:54 EST 2018

## Committee Statement and Meeting Notes

**Committee Statement:** The change in the scope language is to include the addition of “floating buildings”. The addition of the second informational note is to address the potential electrical hazards that could exist when external power sources (separately derived systems) are used on docks, boats and floating buildings.

**Response Message:**

[Public Input No. 2203-NFPA 70-2017 \[Section No. 555.1\]](#)

[Public Input No. 2893-NFPA 70-2017 \[New Section after 555.1\]](#)

## Editorial Comment

[Click here](#)

**First Revision No. 8952-NFPA 70-2018 [ Section No. 555.2 ]****555.2 Definitions.**

The definitions in this section shall apply only within this article.

**Berth.**

The water space to be occupied by a boat or other vessel alongside or between bulkheads, piers, piles, fixed and floating docks, or any similar access structure. (See also Slip.) [ 303: 3.3.1]

**Boatyard.**

A facility used for constructing, repairing, servicing, hauling from the water, storing (on land and in water), and launching of boats. [ 303: 3.3.2]

**Bulkhead.**

A vertical structural wall, usually of stone, timber, metal, concrete, or synthetic material, constructed along and generally parallel to, the shoreline to retain earth as an extension of the upland, and often to provide suitable water depth at the waterside face. [ 303: 3.3.4]

**Crane.**

A mechanical device used for lifting or moving boats. [ 303: 3.3.5]

**Docking Facility.**

A covered or open, fixed or floating structure that provides access to the water and to which boats are secured. [ 303: 3.3.6]

**Electrical Datum Plane.**

The electrical datum plane is defined as follows: A specified distance above a water level above which electrical equipment can be installed and electrical connections can be made.

- (0) In land areas subject to tidal fluctuation, the electrical datum plane is a horizontal plane 606 mm (2 ft) above the highest tide level for the area occurring under normal circumstances, that is, highest high tide.
- (0) In land areas not subject to tidal fluctuation, the electrical datum plane is a horizontal plane 606 mm (2 ft) above the highest water level for the area occurring under normal circumstances.
- (0) The electrical datum plane for floating piers and landing stages that are (a) installed to permit rise and fall response to water level, without lateral movement, and (b) that are so equipped that they can rise to the datum plane established for (1) or (2), is a horizontal plane 762 mm (30 in.) above the water level at the floating pier or landing stage and a minimum of 305 mm (12 in.) above the level of the deck.

**Floating Building.**

A building unit, as defined in Article 100, that floats on water, is moored in a permanent location, and has a premises wiring system served through connection by permanent wiring to an electrical supply system not located on the premises.

**Marina.**

A facility, generally on the waterfront, that stores and services boats in berths, on moorings, and in dry storage or dry stack storage. [ 303: 3.3.12]

**Marine Marina Power Outlet.**

An enclosed assembly that can include equipment such as receptacles, circuit breakers, fused switches, fuses, a watt-hour meter(s), panelboards, and monitoring means approved identified for marine marina use. [ 303: 3.3.13]

**Monorail.**

Overhead track and hoist system for moving material around the boatyard or moving and launching boats. [ 303: 3.3.15]

**Mooring(s).**

Any place where a boat is wet stored or berthed. [ **303:** 3.3.16]

**Pier.**

A structure extending over the water and supported on a fixed foundation (fixed pier), or on flotation (floating pier), that provides access to the water. [ **303:** 3.3.17]

**Pier, Fixed.**

Pier constructed on a permanent, fixed foundation, such as on piles, that permanently establishes the elevation of the structure deck with respect to land. [ **303:** 3.3.17.2]

**Pier, Floating.**

Pier designed with inherent flotation capability that allows the structure to float on the water surface and rise and fall with water level changes. [ **303:** 3.3.17.3]

**Shore Power.**

The electrical equipment required to power a floating vessel including, but not limited to, the receptacle and cords.

**Slip.**

A berthing space between or adjacent to piers, wharves, or docks; the water areas associated with boat occupation. (See also *Berth*.) [ **303:** 3.3.20]

**Storage, Dry Stack.**

A facility, either covered or uncovered, constructed of horizontal and vertical structural members designed to allow placement of small boats in defined slots arranged both horizontally and vertically. [ **303:** 3.3.23.2]

**Wharf.**

A structure at the shoreline that has a platform built along and parallel to a body of water with either an open deck or a superstructure. [ **307:** 3.3.24]

## Submitter Information Verification

**Submitter Full Name:** NEC-CMP Panel 07

**Organization:** [ Not Specified ]

**Street Address:**

**City:**

**State:**

**Zip:**

**Submission Date:** Wed Jan 24 10:32:19 EST 2018

## Committee Statement and Meeting Notes

**Committee Statement:** Adding new definitions for terms which were not previously defined in this section adds clarity for the user. New definitions were extracted from NFPA 303-2016, "Fire Protection Standard for Marinas and Boatyards".

The heading language was changed to clarify that the definitions in this section only apply within this article.

The definition of "Marine Power Outlet" was changed to "Marina Power Outlet" to correlate with NFPA 303.

The term "Electrical Datum Plane" was revised to remove requirements and measurements to comply with the NEC Style Manual since definitions cannot contain code requirements.

**Response****Message:**

[Public Input No. 2493-NFPA 70-2017 \[New Definition after Definition: Marine Power Outlet.\]](#)

[Public Input No. 2497-NFPA 70-2017 \[New Definition after Definition: Marine Power Outlet.\]](#)

[Public Input No. 2671-NFPA 70-2017 \[New Definition after Definition: Electrical Datum Plane.\]](#)

[Public Input No. 2504-NFPA 70-2017 \[New Definition after Definition: Marine Power Outlet.\]](#)

[Public Input No. 2501-NFPA 70-2017 \[New Definition after Definition: Marine Power Outlet.\]](#)

[Public Input No. 2496-NFPA 70-2017 \[New Definition after Definition: Marine Power Outlet.\]](#)

[Public Input No. 2502-NFPA 70-2017 \[New Definition after Definition: Marine Power Outlet.\]](#)

[Public Input No. 2494-NFPA 70-2017 \[New Definition after Definition: Marine Power Outlet.\]](#)

[Public Input No. 2509-NFPA 70-2017 \[Definition: Marine Power Outlet.\]](#)

[Public Input No. 2506-NFPA 70-2017 \[New Definition after Definition: Marine Power Outlet.\]](#)

[Public Input No. 2498-NFPA 70-2017 \[New Definition after Definition: Marine Power Outlet.\]](#)

[Public Input No. 2488-NFPA 70-2017 \[New Definition after Definition: Electrical Datum Plane.\]](#)

[Public Input No. 2492-NFPA 70-2017 \[New Definition after Definition: Marine Power Outlet.\]](#)

[Public Input No. 1910-NFPA 70-2017 \[Section No. 555.2\]](#)

[Public Input No. 2505-NFPA 70-2017 \[New Definition after Definition: Marine Power Outlet.\]](#)

[Public Input No. 2898-NFPA 70-2017 \[New Definition after Definition: Electrical Circuit Protect...\]](#)

[Public Input No. 2500-NFPA 70-2017 \[New Definition after Definition: Marine Power Outlet.\]](#)

[Public Input No. 1235-NFPA 70-2017 \[Definition: Marine Power Outlet.\]](#)

**Editorial Comment**

[Click here](#)

**First Revision No. 8954-NFPA 70-2018 [ Section No. 555.3 ]****555.35** Ground-Fault Protection of Equipment (GFPE) and Ground-Fault Circuit-Interrupter (GFCI) Protection .

~~The overcurrent protective devices that supply the marina, boatyards, and commercial and noncommercial docking facilities shall have ground-fault protection not exceeding 30 mA.~~

**(A)** Ground-Fault Protection.

For other than floating buildings, ground-fault protection for docking facilities shall be provided in accordance with the following:

**(1)** Receptacles Providing Shore Power.

Receptacles installed in accordance with 555.19(A) shall have individual GFPE set to open at currents not exceeding 30 milliamperes.

**(2)** GFCI Protection for Personnel.

All 125-volt, single-phase, 15- and 20-ampere receptacles for other than shore power shall be protected in accordance with 555.19(B)(1) and (B)(2).

**(3)** Feeder and Branch-Circuit Conductors with GFPE.

Feeder and branch-circuit conductors that are installed on docking facilities shall be provided with GFPE set to open at currents not exceeding 100 milliamperes. Coordination with downstream GFPE shall be permitted at the feeder overcurrent protective device.

**(B)** Leakage Current Measurement Device.

Where more than three receptacles supply shore power to boats, a leakage current measurement device shall be available and be used to determine leakage current from each boat that will utilize shore power.

Informational Note No. 1: Leakage current measurement will provide the capability to determine when an individual boat has defective wiring or other problems contributing to hazardous voltage and current. The use of a test device will allow the facility operator to identify a boat that is creating problems. In some cases a single boat may cause an upstream GFPE device protecting a feeder to operate even though multiple boats are supplied from the same feeder. The use of a test device will help the facility operator prevent a particular boat from contributing to hazardous voltage and current in the marina area.

Informational Note No. 2: An annual test of each boat with the leakage current measurement device is a prudent step toward determining if a boat has defective wiring that may be contributing hazardous voltage and current. Where the leakage current measurement device reveals that a boat is contributing hazardous voltage and current, repairs should be made to the boat before it is permitted to utilize shore power.

**Submitter Information Verification**

**Submitter Full Name:** NEC-CMP Panel 07

**Organization:** [ Not Specified ]

**Street Address:**

**City:**

**State:**

**Zip:**

**Submittal Date:** Wed Jan 24 10:47:07 EST 2018

**Committee Statement and Meeting Notes**

**Committee** To clarify the requirements for ground fault protection, the language is divided into two parts. Subpart (A)

**Statement:** addresses the shore power receptacles, as well as the feeders and branch circuits supplying the receptacles from shore. Review of "Electric Shock Drowning" (ESD) incidents show that 50% of the ESD instances may be avoided by the 30 mA protection at the shore power receptacles. The informational notes were added to address the concerns regarding vessel testing to alleviate potential leakage current that contributes to ESD.

#### **Response**

##### **Message:**

##### **Committee Notes:**

<u>Date</u>	<u>Submitted By</u>
-------------	---------------------

Jan 24, 2018	NEC-CMP Panel "Ground-Fault Protection" in heading is not new 07
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[Public Input No. 1611-NFPA 70-2017 \[Section No. 555.3\]](#)

[Public Input No. 2793-NFPA 70-2017 \[Section No. 555.3\]](#)

[Public Input No. 2549-NFPA 70-2017 \[Section No. 555.3\]](#)

[Public Input No. 3209-NFPA 70-2017 \[Section No. 555.3\]](#)

[Public Input No. 3606-NFPA 70-2017 \[Section No. 555.3\]](#)

[Public Input No. 2791-NFPA 70-2017 \[Section No. 555.3\]](#)

#### **Editorial Comment**

[Click here](#)



## First Revision No. 8955-NFPA 70-2018 [ Section No. 555.4 ]

### 555.5 Distribution System Maximum Voltage .

~~Yard and pier~~ Pier power distribution systems shall not exceed 4000 250 volts phase to phase. Pier power distribution systems, where qualified personnel service the equipment under engineering supervision, are permitted to exceed 250 volts but these systems shall not exceed 600 volts.

## Submitter Information Verification

**Submitter Full Name:** NEC-CMP Panel 07

**Organization:** [ Not Specified ]

**Street Address:**

**City:**

**State:**

**Zip:**

**Submission Date:** Wed Jan 24 10:58:52 EST 2018

## Committee Statement and Meeting Notes

**Committee Statement:** The maximum voltage limit of 600 V is necessary because of the increased risks arising from shock hazards in these pier distribution systems.

**Response Message:**

Public Input No. 2531-NFPA 70-2017 [Section No. 555.4]

## Editorial Comment

[Click here](#)



## First Revision No. 8957-NFPA 70-2018 [ Section No. 555.5 ]

### 555.7 Transformers.

#### (A) General.

Transformers and enclosures shall be ~~specifically approved for the intended location~~ identified for wet locations . The bottom of transformer enclosures ~~for transformers~~ shall not be located below the electrical datum plane.

#### (B) Replacements.

Transformers and enclosures shall be identified for wet locations where replacements are made.

## Submitter Information Verification

**Submitter Full Name:** NEC-CMP Panel 07

**Organization:** [ Not Specified ]

**Street Address:**

**City:**

**State:**

**Zip:**

**Submission Date:** Wed Jan 24 11:00:43 EST 2018

## Committee Statement and Meeting Notes

**Committee Statement:** This revision divides the section in two sub-parts – (A) General and (B) Replacements for clarity. The transformers in these wet locations should be “identified” for use in wet locations, however, the identification for “marina use” would not be required. New subpart (B) addresses transformer replacements, and requires that the transformers to be identified for a wet location.

### **Response Message:**

[Public Input No. 1236-NFPA 70-2017 \[Section No. 555.5\]](#)

[Public Input No. 1237-NFPA 70-2017 \[Section No. 555.5\]](#)

[Public Input No. 1368-NFPA 70-2017 \[Section No. 555.5\]](#)

## Editorial Comment

[Click here](#)



## First Revision No. 8959-NFPA 70-2018 [ Section No. 555.9 ]

### 555.30 Electrical Connections.

#### (A) Floating Piers.

Electrical connections shall be located at least 305 mm (12 in.) above the deck of a floating pier. Conductor splices, ~~within approved~~ junction boxes identified for wet locations, utilizing sealed wire connector systems listed and identified for submersion shall be ~~permitted~~ required for floating piers where located above the waterline but below the electrical datum plane for floating piers.

#### (B) Fixed Piers.

All electrical connections shall be located at least 305 mm (12 in.) above the deck of a fixed pier but shall not be located below the electrical datum plane.

#### (C) Replacements.

Replacement electrical connections shall be located at least 305 mm (12 in.) above the deck of a floating pier. Conductor splices, within junction boxes identified for wet locations, utilizing sealed wire connector systems listed and identified for submersion shall be required where located above the waterline but below the electrical datum plane for floating piers.

## Submitter Information Verification

**Submitter Full Name:**

**Organization:** [ Not Specified ]

**Street Address:**

**City:**

**State:**

**Zip:**

**Submittal Date:** Wed Jan 24 11:06:49 EST 2018

## Committee Statement and Meeting Notes

**Committee Statement:** This section is divided in two sub-parts - (A) General and (B) Replacements for clarity. New installations and the replacement of existing electrical connections and junction boxes in these floating piers must be "identified" for wet locations to protect electrical connections and equipment to enhance electrical safety.

The permissive language is removed and requires the sealed connectors where used.

**Response Message:**

[Public Input No. 1239-NFPA 70-2017 \[Section No. 555.9\]](#)

[Public Input No. 1369-NFPA 70-2017 \[Section No. 555.9\]](#)

[Public Input No. 2788-NFPA 70-2017 \[Section No. 555.9\]](#)

[Public Input No. 1240-NFPA 70-2017 \[Section No. 555.9\]](#)

## Editorial Comment

[Click here](#)



## First Revision No. 8965-NFPA 70-2018 [ Section No. 555.13(B)(2) ]

(2) Outside Outdoor Branch Circuits and Feeders.

Outside Multiple feeders and branch circuits and feeders shall comply with Article 225 -except that shall be permitted and clearances for overhead branch-circuit and feeder wiring in portions locations of the yard boatyard other than those described in 555.34(B)(1) shall be located not be less than 5.49 m (18 ft) above grade. Only Part I of Article 225 shall apply to marina installations.

### Submitter Information Verification

**Submitter Full Name:**

**Organization:** [ Not Specified ]

**Street Address:**

**City:**

**State:**

**Zip:**

**Submission Date:** Wed Jan 24 13:30:08 EST 2018

### Committee Statement and Meeting Notes

**Committee Statement:** Due to the nature of these particular installations at a marina, referencing all of the installation requirements of Article 225 would be impossible to enforce. By limiting the Article 225 requirements, the installation will be more relevant with current methods of construction and enforcement in the field.

**Response Message:**

[Public Input No. 1241-NFPA 70-2017 \[Section No. 555.13\(B\)\(2\)\]](#)

### Editorial Comment

[Click here](#)



## First Revision No. 8966-NFPA 70-2018 [ Section No. 555.13(B)(3) ]

~~(3) Wiring Over and Under Navigable Water.~~

~~Wiring over and under navigable water shall be subject to approval by the authority having jurisdiction.~~

~~Informational Note: See NFPA 303 -2011, *Fire Protection Standard for Marinas and Boatyards*, for warning sign requirements.~~

### Submitter Information Verification

**Submitter Full Name:** NEC-CMP Panel 07

**Organization:** [ Not Specified ]

**Street Address:**

**City:**

**State:**

**Zip:**

**Submission Date:** Wed Jan 24 13:33:34 EST 2018

### Committee Statement and Meeting Notes

**Committee Statement:** Many AHJ's can be involved in approving the installation of the electrical infrastructure at a dock. This information is assumed, and it doesn't bring clarity to whom may be the potential authority having jurisdiction. The location of the marina typically will dictate the AHJ's involved in the inspections.

**Response Message:**

[Public Input No. 1242-NFPA 70-2017 \[Section No. 555.13\(B\)\(3\)\]](#)



## First Revision No. 8967-NFPA 70-2018 [ Section No. 555.13(B)(4) ]

### (3) Portable Power Cables.

(a) Where portable power cables are permitted by 555.34(A)(2), the installation shall comply with the following:

- (1) Cables shall be properly supported.
- (2) Cables shall be located on the underside of the pier.
- (3) Cables shall be securely fastened by nonmetallic clips to structural members other than the deck planking.
- (4) Cables shall not be installed where subject to physical damage.
- (5) Where cables pass through structural members, they shall be protected against chafing by a permanently installed oversized sleeve of nonmetallic material.

(b) Where portable power cables are used as permitted in 555.34(A)(2)(2), there shall be an ~~approved~~ a junction box of corrosion-resistant construction with permanently installed terminal blocks on each pier section to which the feeders and feeder extensions are to be connected. A listed ~~marine marina~~ marina power outlet employing terminal blocks/bars shall be permitted in lieu of a junction box. Metal junction boxes and ~~their~~ covers, and metal screws and parts that are exposed externally to the boxes, shall be of corrosion-resistant materials or protected by material resistant to corrosion.

### Submitter Information Verification

**Submitter Full Name:** NEC-CMP Panel 07  
**Organization:** [ Not Specified ]  
**Street Address:**  
**City:**  
**State:**  
**Zip:**  
**Submittal Date:** Wed Jan 24 13:34:42 EST 2018

### Committee Statement and Meeting Notes

**Committee Statement:** The use of approved is redundant because section 110.2 requires approved equipment and material.

The change of "marine" to "marina" when referring to power outlets aligns with the UL standard for these solutions, UL 231, "Power Outlets".

### Response Message:

#### Committee Notes:

<u>Date</u>	<u>Submitted By</u>
Jan 24, 2018	NEC-CMP Panel No changes in (a)1-5 07
Jan 24, 2018	NEC-CMP Panel Renumber Protection to (4) 07

[Public Input No. 2511-NFPA 70-2017 \[Section No. 555.13\(B\)\(4\)\]](#)

[Public Input No. 1244-NFPA 70-2017 \[Section No. 555.13\(B\)\(4\)\]](#)



**First Revision No. 8968-NFPA 70-2018 [ Section No. 555.15 ]****555.37 Equipment Grounding Conductor .**

~~Wiring and equipment within the scope of this article shall be grounded as specified in Article 250 and as required by 555.15(A) through (E).~~

**(A) Equipment to Be Grounded Connected to Equipment Grounding Conductor .**

The following items shall be connected to an equipment grounding conductor run with the circuit conductors in the same raceway, cable, or trench:

- (1) Metal boxes, metal cabinets, and all other metal enclosures
- (2) Metal frames of utilization equipment
- (3) Grounding terminals of grounding-type receptacles

**(B) Type of Equipment Grounding Conductor.**

The equipment grounding conductor shall be an insulated conductor with a continuous outer finish that is either green or green with one or more yellow stripes. The equipment grounding conductor of Type MI cable shall be permitted to be identified at terminations. For conductors larger than 6 AWG, or where multiconductor cables are used, re-identification of conductors allowed in 250.119(A)(2)b. and (A)(2)c. or 250.119(B)(2) and (B)(3) shall be permitted.

**(C) Size of Equipment Grounding Conductor.**

The insulated equipment grounding conductor shall be sized in accordance with 250.122 but not smaller than 12 AWG.

**(D) Branch-Circuit Equipment Grounding Conductor.**

The insulated equipment grounding conductor for branch circuits shall terminate at a grounding terminal in a remote panelboard or the grounding terminal in the main service equipment.

**(E) Feeder Equipment Grounding Conductors Conductor .**

Where a feeder supplies a remote panelboard, an insulated equipment grounding conductor shall extend from a grounding terminal in the service equipment to a grounding terminal in the remote panelboard.

**Submitter Information Verification**

**Submitter Full Name:** NEC-CMP Panel 07

**Organization:** [ Not Specified ]

**Street Address:**

**City:**

**State:**

**Zip:**

**Submittal Date:** Wed Jan 24 13:40:04 EST 2018

**Committee Statement and Meeting Notes**

**Committee Statement:** The addition of equipment grounding conductor in the title and in the text provides proper clarity. The deletion of the text removes a reference to an entire article to comply with the NEC Style Manual.

**Response Message:**

[Public Input No. 2032-NFPA 70-2017 \[Section No. 555.15\]](#)

**Editorial Comment**

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## First Revision No. 8969-NFPA 70-2018 [ Section No. 555.17(B) ]

### (B) Location.

The disconnecting means shall be readily accessible, located not more than 762 mm (30 in.) from the receptacle it controls, and shall be located in the supply circuit ahead of the receptacle. Circuit breakers or switches located in ~~marine~~ marina power outlets complying with this section shall be permitted as the disconnecting means.

## Submitter Information Verification

**Submitter Full Name:** NEC-CMP Panel 07

**Organization:** [ Not Specified ]

**Street Address:**

**City:**

**State:**

**Zip:**

**Submittal Date:** Wed Jan 24 13:43:30 EST 2018

## Committee Statement and Meeting Notes

**Committee Statement:** The change of "marine" to "marina" when referring to power outlets aligns with the UL standard for these solutions, UL 231, "Power Outlets".

**Response Message:**

Public Input No. 2512-NFPA 70-2017 [Section No. 555.17(B)]



## First Revision No. 8973-NFPA 70-2018 [ New Section after 555.19 ]

### 555.38 Equipotential Bonding.

#### (A) Performance.

The equipotential bonding required by this section shall be installed to reduce voltage gradients in the marina dock area.

#### (B) Bonded Parts.

The following parts shall be bonded together using solid copper conductors; insulated, covered, or bare and not smaller than 8 AWG. Connections to bonded parts shall be made in accordance with 250.8 . An 8 AWG or larger solid copper bonding conductor provided to reduce voltage gradients on the marina dock shall not be required to be extended or attached to remote panelboards, service equipment, or electrodes.

#### (1) Electrical Equipment.

Metal parts of electrical equipment installed on the boat dock with the exception of double-insulated motors shall be bonded.

#### (2) Metallic Components.

All metallic parts of the dock structure shall be bonded together.

#### (3) Fixed Metal Parts or Fittings.

All fixed metal parts including, but not limited to, metal-sheathed cables, metal raceways, metal piping, metal awnings, metal fences, metal ladders, metal frames of diving boards or slides, metal tanks, and metal fittings larger than 100 mm (4 in.) and attached to the dock shall be bonded together.

## Submitter Information Verification

**Submitter Full Name:** NEC-CMP Panel 07

**Organization:** [ Not Specified ]

**Street Address:**

**City:**

**State:**

**Zip:**

**Submission Date:** Wed Jan 24 14:18:00 EST 2018

## Committee Statement and Meeting Notes

**Committee Statement:** Equipotential bonding is important to reduce voltage gradients. The content of this public input was taken from a few areas in the NEC. Articles 680 and 682 include text that seeks to establish bonding and grounding to reduce voltage gradients.

### **Response Message:**

[Public Input No. 1372-NFPA 70-2017 \[New Section after 555.19\]](#)

[Public Input No. 2423-NFPA 70-2017 \[New Section after 555.17\]](#)

[Public Input No. 2792-NFPA 70-2017 \[New Section after 555.19\]](#)

## Editorial Comment

[Click here](#)



## First Revision No. 8970-NFPA 70-2018 [ Section No. 555.19(A) ]

### (A) Shore Power Receptacles.

#### (1) Enclosures.

Receptacles intended to supply shore power to boats shall be ~~housed~~ enclosed ~~in marine power outlets~~ listed as marina power outlets ~~or~~ enclosures listed for ~~set wet~~ locations, or shall be installed in listed enclosures protected from the weather ~~or in listed weatherproof enclosures~~. The integrity of the assembly shall not be affected when the receptacles are in use with any type of booted or nonbooted attachment plug/cap inserted.

#### (2) Strain Relief.

Means shall be provided where necessary to reduce the strain on the plug and receptacle caused by the weight and catenary angle of the shore power cord.

#### (3) Branch Circuits.

Each single receptacle that supplies shore power to boats shall be supplied from a ~~marine~~ marina power outlet or panelboard by an individual branch circuit of the voltage class and rating corresponding to the rating of the receptacle.

Informational Note: Supplying receptacles at voltages other than the voltages marked on the receptacle may cause overheating or malfunctioning of connected equipment, for example, supplying single-phase, 120/240-volt, 3-wire loads from a 208Y/120-volt, 3-wire source.

#### (4) Ratings.

Shore power for boats shall be provided by single receptacles rated not less than 30 amperes.

Informational Note: For locking- and grounding-type receptacles for auxiliary power to boats, see NFPA 303-2011 2016, *Fire Protection Standard for Marinas and Boatyards*.

#### (a) Receptacles rated 30 amperes and 50 amperes shall be of the locking and grounding type.

Informational Note: For various configurations and ratings of locking- and grounding-type receptacles and caps, see ANSI/NEMA WD 6-2002 (Rev. 2008) 2016, *Standard for Dimensions of Attachment Plugs and Receptacles Wiring Devices — Dimensional Specifications*.

#### (b) Receptacles rated 60 amperes or higher shall be of the pin and sleeve type.

Informational Note: For various configurations and ratings of pin and sleeve receptacles, see ANSI/UL 1686, *UL Standard for Safety Pin and Sleeve Configurations*.

## Submitter Information Verification

**Submitter Full Name:** NEC-CMP Panel 07

**Organization:** [ Not Specified ]

**Street Address:**

**City:**

**State:**

**Zip:**

**Submission Date:** Wed Jan 24 13:55:17 EST 2018

## Committee Statement and Meeting Notes

**Committee Statement:** The change of "marine" to "marina" when referring to power outlets aligns with the UL standard for these solutions, UL 231, "Power Outlets".

The ANSI/NEMA reference document was changed to reflect the 2016 edition.

There are no UL approved SPGFCI devices for protecting people.

[Public Input No. 1373-NFPA 70-2017 \[Section No. 555.19\]](#)

[Public Input No. 2513-NFPA 70-2017 \[Section No. 555.19\(A\)\(1\)\]](#)

[Public Input No. 722-NFPA 70-2017 \[Section No. 555.19\(A\)\(4\)\]](#)

## **Editorial Comment**

[Click here](#)



## First Revision No. 8974-NFPA 70-2018 [ New Section after 555.19(B) ]

(C) Replacement Receptacles.

The requirements in 555.33 shall apply to the replacement of marina receptacles.

### Submitter Information Verification

**Submitter Full Name:** NEC-CMP Panel 07

**Organization:** [ Not Specified ]

**Street Address:**

**City:**

**State:**

**Zip:**

**Submission Date:** Wed Jan 24 14:53:05 EST 2018

### Committee Statement and Meeting Notes

**Committee Statement:** The section will now explicitly states that requirements shall apply to replacement of marina receptacles.

**Response Message:**

Public Input No. 238-NFPA 70-2017 [New Section after 555.19(A)(4)]

### Editorial Comment

[Click here](#)



## First Revision No. 8975-NFPA 70-2018 [ Section No. 555.19(B) ]

(B) Other Than Shore Power.

(1) Ground-Fault Circuit-Interrupter (GFCI) Protection for Personnel.

~~Fifteen- and 20-ampere, single-phase, 125-volt receptacles installed outdoors, in boathouses, in buildings or structures used for storage, maintenance, or repair shall be provided with GFCI protection for personnel.~~ Receptacles in other locations shall be protected in accordance with ~~240.8(B)~~ 210.8.

(2) Marking.

Receptacles other than those supplying shore power to boats shall be permitted to be ~~housed~~ enclosed in ~~marine~~ marina power outlets with the receptacles that provide shore power to boats, provided ~~they~~ the receptacles are marked to clearly indicate that ~~they~~ the receptacles are not to be used to supply power to boats.

### Submitter Information Verification

**Submitter Full Name:** NEC-CMP Panel 07

**Organization:** [ Not Specified ]

**Street Address:**

**City:**

**State:**

**Zip:**

**Submittal Date:** Wed Jan 24 14:54:15 EST 2018

### Committee Statement and Meeting Notes

**Committee Statement:** With the expansion of the title and scope to Article 555 including dwellings. The reference to 210.8 clarifies the GFCI protection requirements will include both dwelling and non-dwelling installations for "other than shore power" receptacles around marinas.

**Response Message:**

[Public Input No. 1370-NFPA 70-2017 \[Section No. 555.19\]](#)

[Public Input No. 3358-NFPA 70-2017 \[Section No. 555.19\(B\)\(1\)\]](#)

[Public Input No. 2562-NFPA 70-2017 \[Section No. 555.19\(B\)\]](#)

### Editorial Comment

[Click here](#)



## First Revision No. 8976-NFPA 70-2018 [ New Section after 555.24 ]

### 555.9 Boat Hoists.

GFCI protection for personnel shall be provided for outlets not exceeding 240 volts that supply a boat hoist installed at dwelling unit docking facilities.

## Submitter Information Verification

**Submitter Full Name:** NEC-CMP Panel 07

**Organization:** [ Not Specified ]

**Street Address:**

**City:**

**State:**

**Zip:**

**Submission Date:** Wed Jan 24 15:10:38 EST 2018

## Committee Statement and Meeting Notes

**Committee Statement:** The GFCI protection for boat hoist outlets is more appropriately addressed in Article 555. The placement of the proposed language improves usability.

**Response Message:**

Public Input No. 2563-NFPA 70-2017 [New Section after 555.21]



## First Revision No. 8977-NFPA 70-2018 [ Section No. 555.24 ]

### 555.10 Signage.

Permanent safety signs shall be installed to give notice of electrical shock hazard risks to persons using or swimming near a boat dock docking facility, boatyard, or marina and shall comply with all of the following:

- (1) The signage shall comply with 110.21(B)(1) and be of sufficient durability to withstand the environment.
- (2) The signs shall be clearly visible from all approaches to a marina, docking facility, or boatyard facility.
- (3) The signs shall state "WARNING — POTENTIAL SHOCK HAZARD — ELECTRICAL CURRENTS MAY BE PRESENT IN THE WATER."

### Submitter Information Verification

**Submitter Full Name:** NEC-CMP Panel 07

**Organization:** [ Not Specified ]

**Street Address:**

**City:**

**State:**

**Zip:**

**Submission Date:** Wed Jan 24 15:13:54 EST 2018

### Committee Statement and Meeting Notes

**Committee Statement:** The revised text provides consistency by using terminology as defined in 555.2.

**Response Message:**

[Public Input No. 4344-NFPA 70-2017 \[Section No. 555.24\]](#)

### Editorial Comment

[Click here](#)



## First Revision No. 8204-NFPA 70-2018 [ Section No. 604.1 ]

### 604.1 Scope.

The provisions of this article apply ~~This article applies~~ to field-installed wiring using off-site manufactured subassemblies for branch circuits, remote-control circuits, signaling circuits, and communications circuits in accessible areas.

## Submitter Information Verification

**Submitter Full Name:** NEC-CMP Panel 07

**Organization:** [ Not Specified ]

**Street Address:**

**City:**

**State:**

**Zip:**

**Submission Date:** Mon Jan 15 13:10:22 EST 2018

## Committee Statement and Meeting Notes

**Committee Statement:** CMP 7 understands that the scope of the article is under the purview of the Correlating Committee. However, CMP 7 offers the following recommendation for Correlating Committee consideration. The phrase "The provisions of" is unnecessary and redundant and is being deleted to increase usability.

**Response Message:**



## First Revision No. 8449-NFPA 70-2018 [ Section No. 604.100(A)(1) ]

### (1) Cables.

Cable shall be one of the following: listed Type AC cable or listed Type MC cable containing nominal 600-volt, 8 to 12 AWG insulated copper conductors.

- (0) ~~Listed Type AC cable containing nominal 600-volt, 8 to 12 AWG insulated copper conductors with a bare or insulated copper equipment grounding conductor equivalent in size to the ungrounded conductor.~~
- (0) ~~Listed Type MC cable containing nominal 600-volt, 8 to 12 AWG insulated copper conductors with a bare or insulated copper equipment grounding conductor equivalent in size to the ungrounded conductor.~~
- (0) ~~Listed Type MC cable containing nominal 600-volt, 8 to 12 AWG insulated copper conductors with a grounding conductor and armor assembly listed and identified for grounding in accordance with 250.118(10). The combined metallic sheath and grounding conductor shall have a current-carrying capacity equivalent to that of the ungrounded copper conductor.~~

Other cables as listed in 725.154, 800.113, 820.113, and 830.179 shall be permitted in manufactured wiring systems for wiring of equipment within the scope of their respective articles.

## Submitter Information Verification

**Submitter Full Name:** NEC-CMP Panel 07

**Organization:** [ Not Specified ]

**Street Address:**

**City:**

**State:**

**Zip:**

**Submittal Date:** Tue Jan 16 17:50:45 EST 2018

## Committee Statement and Meeting Notes

**Committee Statement:** CMP 7 deletes the list format and the cable construction information since it is covered by the listing of the cables.

**Response Message:**

[Public Input No. 2413-NFPA 70-2017 \[Section No. 604.100\(A\)\(1\)\]](#)

## Editorial Comment

[Click here](#)



## First Revision No. 8218-NFPA 70-2018 [ Section No. 675.1 ]

### 675.1 Scope.

~~The provisions of this article apply~~ This article applies to electrically driven or controlled irrigation machines, and to the branch circuits and controllers for such equipment.

## Submitter Information Verification

**Submitter Full Name:** NEC-CMP Panel 07

**Organization:** [ Not Specified ]

**Street Address:**

**City:**

**State:**

**Zip:**

**Submittal Date:** Mon Jan 15 14:07:53 EST 2018

## Committee Statement and Meeting Notes

**Committee Statement:** CMP 7 understands that the scope of articles is under the purview of the Correlating Committee. However, CMP 7 offers the following recommendation for Correlating Committee consideration. The phrase "The provisions of" is unnecessary and redundant and is being deleted to increase usability.

**Response Message:**



## First Revision No. 8222-NFPA 70-2018 [ Section No. 675.2 ]

### 675.2 Definitions.

The definitions in this section shall apply only within this article.

#### **Center Pivot Irrigation Machine.**

A multimotored irrigation machine that revolves around a central pivot and employs alignment switches or similar devices to control individual motors.

#### **Collector Rings.**

An assembly of slip rings for transferring electric energy from a stationary to a rotating member.

#### **Irrigation Machine.**

An electrically driven or controlled machine, with one or more motors, not hand-portable, and used primarily to transport and distribute water for agricultural purposes.

## Submitter Information Verification

**Submitter Full Name:** NEC-CMP Panel 07

**Organization:** [ Not Specified ]

**Street Address:**

**City:**

**State:**

**Zip:**

**Submission Date:** Mon Jan 15 14:12:01 EST 2018

## Committee Statement and Meeting Notes

**Committee Statement:** CMP 7 supports the task group decision to state that definitions in this article only apply within this article.

**Response**

**Message:**

Public Input No. 1963-NFPA 70-2017 [Section No. 675.2]



## First Revision No. 8225-NFPA 70-2018 [ Section No. 675.4(A) ]

### (A) Construction.

The cable used to interconnect enclosures on the structure of an irrigation machine shall be an assembly of stranded, insulated conductors with nonhygroscopic and nonwicking filler in a core of moisture- and flame-resistant nonmetallic material overlaid with a metallic covering and jacketed with a moisture-, corrosion-, and sunlight-resistant nonmetallic material.

The conductor insulation shall be of a type listed in Table 310.4(A) for an operating temperature of 75°C (167°F) or higher and for use in wet locations. The core insulating material thickness shall not be less than 0.76 mm (30 mils), and the metallic overlay thickness shall be not less than 0.20 mm (8 mils). The jacketing material thickness shall be not less than 1.27 mm (50 mils).

A composite of power, control, and grounding conductors in the cable shall be permitted.

### Submitter Information Verification

**Submitter Full Name:** NEC-CMP Panel 07

**Organization:** [ Not Specified ]

**Street Address:**

**City:**

**State:**

**Zip:**

**Submittal Date:** Mon Jan 15 14:35:23 EST 2018

### Committee Statement and Meeting Notes

**Committee Statement:** CMP 7 adds the term “or higher” to allow the use of conductors that are referenced in Table 310.104(A).

**Response Message:**

Public Input No. 2095-NFPA 70-2017 [Sections 675.4(A), 675.4(B)]

### Editorial Comment

[Click here](#)



## First Revision No. 8219-NFPA 70-2018 [ Section No. 675.7 [Excluding any Sub-Sections] ]

Where intermittent duty is not involved, ~~the provisions of~~ Article 430 shall be used for determining ratings for controllers, disconnecting means, conductors, and the like. Where irrigation machines have inherent intermittent duty, the determinations of equivalent current ratings in 675.7(A) and (B) shall be used.

### Submitter Information Verification

**Submitter Full Name:** NEC-CMP Panel 07

**Organization:** [ Not Specified ]

**Street Address:**

**City:**

**State:**

**Zip:**

**Submittal Date:** Mon Jan 15 14:09:46 EST 2018

### Committee Statement and Meeting Notes

**Committee Statement:** The phrase "The provisions of" is unnecessary and redundant and is being deleted to increase usability.

**Response Message:**



## First Revision No. 8229-NFPA 70-2018 [ Section No. 675.8(B) ]

### (B) Main Disconnecting Means.

The main disconnecting means for the machine shall provide overcurrent protection, shall be at the point of connection of electric power to the machine, or shall be in sight from the machine, and it shall be readily accessible and lockable open in accordance with 110.25. This disconnecting means shall have a horsepower and current rating not less than required for the main controller.

*Exception No. 1: Circuit breakers without marked horsepower ratings shall be permitted in accordance with 430.109.*

*Exception No. 2: A listed molded case switch without marked horsepower ratings shall be permitted.*

### Submitter Information Verification

**Submitter Full Name:** NEC-CMP Panel 07

**Organization:** [ Not Specified ]

**Street Address:**

**City:**

**State:**

**Zip:**

**Submittal Date:** Mon Jan 15 14:47:56 EST 2018

### Committee Statement and Meeting Notes

**Committee Statement:** The verbiage should agree with 110.25.

**Response Message:**

[Public Input No. 1583-NFPA 70-2017 \[Section No. 675.8\(B\)\]](#)



## First Revision No. 8230-NFPA 70-2018 [ Section No. 675.13 ]

### **675.13** Methods of Grounding.

Machines that require grounding shall have a non-current-carrying equipment grounding conductor provided as an integral part of each cord, cable, or raceway. This equipment grounding conductor shall be sized not less than the largest supply conductor in each cord, cable, or raceway. Feeder circuits supplying power to irrigation machines shall have an equipment grounding conductor sized according to Table 250.122.

### Submitter Information Verification

**Submitter Full Name:** NEC-CMP Panel 07

**Organization:** [ Not Specified ]

**Street Address:**

**City:**

**State:**

**Zip:**

**Submission Date:** Mon Jan 15 14:49:58 EST 2018

### Committee Statement and Meeting Notes

**Committee Statement:** The term "equipment" is added to provide a defined term.

**Response Message:**

[Public Input No. 2418-NFPA 70-2017 \[Section No. 675.13\]](#)



## First Revision No. 8231-NFPA 70-2018 [ Section No. 675.14 ]

### 675.14 Bonding.

Where electrical grounding is required on an irrigation machine, the metallic structure of the machine, metallic conduit, or metallic sheath of cable shall be connected to the equipment grounding conductor. Metal-to-metal contact with a part that is connected to the equipment grounding conductor and the non-current-carrying parts of the machine shall be considered as an acceptable bonding path.

### Submitter Information Verification

**Submitter Full Name:** NEC-CMP Panel 07

**Organization:** [ Not Specified ]

**Street Address:**

**City:**

**State:**

**Zip:**

**Submittal Date:** Mon Jan 15 14:52:12 EST 2018

### Committee Statement and Meeting Notes

**Committee Statement:** The term "equipment" is added to provide a defined term.

**Response Message:**

Public Input No. 2419-NFPA 70-2017 [Section No. 675.14]



## First Revision No. 8220-NFPA 70-2018 [ Section No. 675.21 ]

### 675.21 General.

The provisions of Part II are intended to cover Part II covers additional special requirements that are peculiar to center pivot irrigation machines. See 675.2 for the definition of *Center Pivot Irrigation Machine*.

## Submitter Information Verification

**Submitter Full Name:** NEC-CMP Panel 07

**Organization:** [ Not Specified ]

**Street Address:**

**City:**

**State:**

**Zip:**

**Submission Date:** Mon Jan 15 14:10:44 EST 2018

## Committee Statement and Meeting Notes

**Committee Statement:** The phrase "The provisions of" is unnecessary and redundant and is being deleted to increase usability.

**Response Message:**



## First Revision No. 8812-NFPA 70-2018 [ Section No. 725.3(M) ]

### (M) Cable Routing Assemblies.

Class 2, Class 3, and Type PLTC cables shall be permitted to be installed in plenum cable routing assemblies, riser cable routing assemblies, and general-purpose cable routing assemblies selected in accordance with Table 800.154(c) , listed in accordance with ~~the provisions of~~ 800.182, and installed in accordance with 800.110(C) and 800.113.

## Submitter Information Verification

**Submitter Full Name:** NEC-CMP Panel 03

**Organization:** [ Not Specified ]

**Street Address:**

**City:**

**State:**

**Zip:**

**Submission Date:** Fri Jan 19 12:47:53 EST 2018

## Committee Statement and Meeting Notes

**Committee Statement:** This is an editorial change to delete superfluous text.

**Response Message:**

[Public Input No. 151-NFPA 70-2017 \[Section No. 725.3\(M\)\]](#)

[Public Input No. 56-NFPA 70-2017 \[Section No. 725.3\(M\)\]](#)



## First Revision No. 8814-NFPA 70-2018 [ Section No. 725.3(N) ]

### (N) Communications Raceways.

Class 2, Class 3, and Type PLTC cables shall be permitted to be installed in plenum communications raceways, riser communications raceways, and general-purpose communications raceways selected in accordance with ~~the provisions of~~ Table 800.154(b) , listed in accordance with 800.182, and installed in accordance with 800.113 and 362.24 through 362.56, where the requirements applicable to electrical nonmetallic tubing (ENT) apply.

### Submitter Information Verification

**Submitter Full Name:** NEC-CMP Panel 03

**Organization:** [ Not Specified ]

**Street Address:**

**City:**

**State:**

**Zip:**

**Submission Date:** Fri Jan 19 12:50:30 EST 2018

### Committee Statement and Meeting Notes

**Committee Statement:** This is an editorial change to delete superfluous text.

[Public Input No. 152-NFPA 70-2017 \[Section No. 725.3\(N\)\]](#)

[Public Input No. 1011-NFPA 70-2017 \[Section No. 725.3\(N\)\]](#)



## First Revision No. 8835-NFPA 70-2018 [ Section No. 725.121(A) ]

### (A) Power Source.

The power source for a Class 2 or a Class 3 circuit shall be as specified in 725.121(A)(1), (A)(2), (A)(3), (A)(4), or (A)(5) follows :

Informational Note No. 1: Informational Note Figure 725.121, ~~No. 4~~ illustrates the relationships between Class 2 or Class 3 power sources, their supply, and the Class 2 or Class 3 circuits.

Informational Note No. 2: Table 11(A) and Table 11(B) in Chapter 9 provide the requirements for listed Class 2 and Class 3 power sources.

- (1) A listed Class 2 or Class 3 transformer
- (2) A listed Class 2 or Class 3 power supply
- (3) Other listed equipment marked to identify the Class 2 or Class 3 power source

*Exception No. 1 to (3): Thermocouples shall not require listing as a Class 2 power source.*

*Exception No. 2 to (3): Limited power circuits of listed equipment where these circuits have energy levels rated at or below the limits established in Chapter 9, Table 11(A) and Table 11(B).*

Informational Note: Examples of other listed equipment are as follows:

- (1) A circuit card listed for use as a Class 2 or Class 3 power source where used as part of a listed assembly
- (2) A current-limiting impedance, listed for the purpose, or part of a listed product, used in conjunction with a non-power-limited transformer or a stored energy source, for example, storage battery, to limit the output current
- (3) A thermocouple
- (4) Limited voltage/current or limited impedance secondary communications circuits of listed industrial control equipment
- (4) Listed audio/video, information technology (computer), communications, and industrial equipment limited-power circuits

Informational Note: One way to determine applicable requirements for listing of information technology (computer) equipment is to refer to UL 60950-1-2011, *Standard for Safety of Information Technology Equipment*. Another way to determine applicable requirements for listing of audio/video, information technology, and communication technology communications equipment is to refer to UL 62368-1-2014, *Safety of audio/video, information and communication technology equipment*. Typically such circuits are used to interconnect data circuits for the purpose of exchanging information data. One way to determine applicable requirements for listing of industrial equipment is to refer to UL 61010-2-201, *Safety requirements for electrical equipment for measurement, control, and laboratory use — Part 2-201: Particular requirements for control equipment*, and/or UL 61800-5-1, *Adjustable speed electrical power drive systems — Part 5-1: Safety requirements — Electrical, thermal and energy*.

- (5) A dry-cell battery shall be considered an inherently limited Class 2 power source, provided the voltage is 30 volts or less and the capacity is equal to or less than that available from series connected No. 6 carbon-zinc cells. listed battery source or battery source system identified as Class 2

## Submitter Information Verification

**Submitter Full Name:** NEC-CMP Panel 03

**Organization:** [ Not Specified ]

**Street Address:**

**City:**

**State:**

**Zip:**

**Submittal Date:** Fri Jan 19 13:46:22 EST 2018

## Committee Statement and Meeting Notes

**Committee Statement:** Panel 3 has added the comma as indicated for clarity. This section applies to both "audio/video" and "information technology (computer)" equipment.

(A)(5) currently deals with outdated technology. The Panel 3 also recognizes that for today's battery technologies, it is impossible to generalize if a battery source is Class 2 without evaluation. Many battery packs have internal capacities far exceeding Class 2 limits but are suitably limited to Class 2 at the outputs.

Deletion of (A)(5) would put the burden of determining if a bank of dry cells can meet Class 2 limits. This would require voltmeters, ammeters and loads or reliance on manufacturer's specification sheets which might not be reliable. Listing of the source as a Class 2 power source would make sure it meets the appropriate limits and would provide the desired verification.

### Response Message:

[Public Input No. 2484-NFPA 70-2017 \[Section No. 725.121\(A\)\]](#)

[Public Input No. 1179-NFPA 70-2017 \[Section No. 725.121\(A\)\]](#)

## Editorial Comment

[Click here](#)



## First Revision No. 8859-NFPA 70-2018 [ Section No. 725.121(C) ]

### (C) Marking.

The power sources for limited power circuits in 725.121(A)(3) and limited power circuits for listed audio/video equipment, listed information technology (equipment), listed communications equipment, and listed industrial equipment in 725.121(A)(4) shall have a label indicating the maximum voltage and maximum current or maximum voltage and nominal current output per conductor for each connection point. The effective date shall be January 1, 2018 on the power source. Where multiple connection points have the same rating, a single label shall be permitted to be used.

## Submitter Information Verification

**Submitter Full Name:** NEC-CMP Panel 03

**Organization:** [ Not Specified ]

**Street Address:**

**City:**

**State:**

**Zip:**

**Submittal Date:** Fri Jan 19 15:14:52 EST 2018

## Committee Statement and Meeting Notes

**Committee Statement:** There are several proposed revisions to Article 725 to accommodate circuits that transmit power and data to a powered device. The proposed revisions to Section 725.121(C) include identification of communications equipment as an appropriate component of remote powering technology, identification of the necessary labeling (marking) to help ensure that proper current limits are observed and, with the term "nominal current", alerting the NEC user that current may vary (within acceptable limits) because of circuit imbalances. Changing the labeling to align with the 'nominal current' specification of the other changes removes this burden.

The text as written would require a label per connection point. However, the changes applied to 725.121(C) in the 2017 NEC code cycle were intended to apply to high-density multi-port power sources, such as Power over Ethernet switches. These have many connection points of the same rating in a small front panel space, making a label per connection point impractical. The proposed change inserts text (which was omitted in the 2017 NEC) to specifically permit a single label in the case where multiple connection points have the same voltage and current outputs.

"Per conductor" was added to prevent confusion in the required marking.

Indicating that the marking for the source of system indicates that the marking does not apply to downstream equipment.

The implementation date of January 1, 2018 is not applicable for the 2020 NEC and was deleted.

Action taken as a result of TIA 70-17-10.

## Response

### Message:

[Public Input No. 1022-NFPA 70-2017 \[Section No. 725.121\(C\)\]](#)

[Public Input No. 3659-NFPA 70-2017 \[Section No. 725.121\(C\)\]](#)

[Public Input No. 58-NFPA 70-2017 \[Section No. 725.121\(C\)\]](#)

[Public Input No. 3664-NFPA 70-2017 \[Section No. 725.121\(C\)\]](#)



## First Revision No. 8862-NFPA 70-2018 [ Section No. 725.135(B) ]

### (B) Ducts Specifically Fabricated for Environmental Air.

The following ~~wires and~~ cables shall be permitted in ducts specifically fabricated for environmental air as described in 300.22(B) if directly associated with the air distribution system:

- (1) Types CL2P and CL3P cables in lengths as short as practicable to perform the required function
- (2) Types CL2P, CL3P, CL2R, CL3R, CL2, CL3, CL2X, CL3X, and PLTC cables installed in raceways that are installed in compliance with 300.22(B)

Informational Note: For information on fire protection of wiring installed in fabricated ducts, see 4.3.4.1 and 4.3.11.3.3 of NFPA 90A-2015 2018 , *Standard for the Installation of Air-Conditioning and Ventilating Systems*.

## Submitter Information Verification

**Submitter Full Name:** NEC-CMP Panel 03

**Organization:** [ Not Specified ]

**Street Address:**

**City:**

**State:**

**Zip:**

**Submission Date:** Fri Jan 19 16:11:39 EST 2018

## Committee Statement and Meeting Notes

**Committee Statement:** The term “wires” was deleted as since the wiring methods covered in this section are cables only. The edition date of NFPA 90A was updated to the 2018 edition. The use of the word “cables” is not redundant since its removal does not improve the usability of the section.

**Response Message:**

[Public Input No. 89-NFPA 70-2017 \[Section No. 725.135\(B\)\]](#)

## Editorial Comment

[Click here](#)



## First Revision No. 8863-NFPA 70-2018 [ Section No. 725.139(D)(1) ]

(1) ~~Classified as~~ Communications Circuits Cables .

Conductors of one or more Class 2 and or Class 3 circuit conductors circuits shall be permitted in the same cable with conductors of communications circuits, ~~in which case the Class 2 and Class 3 circuits shall be classified as communications circuits and provided the cable is a listed communications cable that~~ shall be installed in accordance with the requirements of Part V of Article 800. The cables shall be listed as communications cables.

### Submitter Information Verification

**Submitter Full Name:** NEC-CMP Panel 03

**Organization:** [ Not Specified ]

**Street Address:**

**City:**

**State:**

**Zip:**

**Submission Date:** Fri Jan 19 16:35:39 EST 2018

### Committee Statement and Meeting Notes

**Committee Statement:** The revised wording makes it clear that the requirement is for conductors in a cable.

**Response Message:**

Public Input No. 71-NFPA 70-2017 [Section No. 725.139(D)(1)]

### Editorial Comment

[Click here](#)



## First Revision No. 8876-NFPA 70-2018 [ Section No. 725.179(J) ]

### (J) Marking.

Cables shall be marked in accordance with 310.8(A)(2), (A)(3), (A)(4), (A)(5), and Table 725.179(J). Voltage ratings shall not be marked on the cables.

Informational Note: Voltage markings on cables may be misinterpreted to suggest that the cables may be suitable for Class 1 electric light and power applications.

*Exception: Voltage markings shall be permitted where the cable has multiple listings and a voltage marking is required for one or more of the listings.*

~~Temperature~~ The temperature rating shall be marked on the jacket of Class 2 and Class 3 cables that have a temperature rating exceeding 60°C (140°F).

Table 725.179(J) Cable Marking

<u>Cable Marking</u>	<u>Type</u>
CL3P	Class 3 plenum cable
CL2P	Class 2 plenum cable
CL3R	Class 3 riser cable
CL2R	Class 2 riser cable
PLTC	Power-limited tray cable
CL3	Class 3 cable
CL2	Class 2 cable
CL3X	Class 3 cable, limited use
CL2X	Class 2 cable, limited use

Informational Note: Class 2 and Class 3 cable types are listed in descending order of fire ~~resistance~~ rating performance, and Class 3 cables are listed above Class 2 cables because Class 3 cables can substitute for Class 2 cables.

### Submitter Information Verification

**Submitter Full Name:** NEC-CMP Panel 03

**Organization:** [ Not Specified ]

**Street Address:**

**City:**

**State:**

**Zip:**

**Submittal Date:** Fri Jan 19 18:44:42 EST 2018

### Committee Statement and Meeting Notes

**Committee Statement:** This editorial revision Improves improves the readability of the code. The term “performance” in the Informational Note replaces “resistance rating” since it is a more appropriate term for the cable.

[Public Input No. 160-NFPA 70-2017 \[Section No. 725.179\(J\)\]](#)

[Public Input No. 60-NFPA 70-2017 \[Section No. 725.179\(J\)\]](#)

### Editorial Comment

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