

Significant Changes in the 2011 NEC
Prepared by Bryan Holland – City of North Port

Code-Wide Code Change

Section 90.5(C). Fine Print Notes are now referred to as "Informational Notes." The purpose, intent, and format of the informational note are unchanged.

Section 90.5(D). The Annexes have been renamed to "Informative Annexes."

Many code sections have been itemized into a list format instead of the traditional paragraph form without changing the rule, intent, or content of the section.

New Articles / Tables / Informative Annexes

Article 694 – Small Wind Electric Systems

- | | |
|--------------------------|----------------------------------|
| I. General | VI. Marking |
| II. Circuit Requirements | VII. Connection to Other Sources |
| III. Disconnecting Means | VIII. Storage Batteries |
| IV. Wiring Methods | IX. Systems Over 600 Volts |
| V. Grounding | |

Article 840 – Premises-Powered Broadband Communication Systems

- | | |
|--|----------------------------------|
| I. General | IV. Grounding Methods |
| II. Cables Outside and Entering Building | V. Install. Methods Inside Blds. |
| III. Protection | VI. Listing Requirements |

Table 10, Chapter 9 – Conductor Stranding

Informative Annex I – Recommended Tightening Torque Tables from UL 486A-B

New / Revise Definitions

Arc-Fault Circuit Interrupter (AFCI) has been relocated to Article 100 from Section 210.12(A).

Automatic – Performing a function without the necessity of human intervention.

Bathroom – An area including a basin with one or more of the following: a toilet, a urinal, a tub, a shower, a bidet, or similar plumbing fixtures.

Bonding Jumper, System has been relocated to Article 100 from Section 250.2.

Ground Fault has been relocated to Article 100 from Section 250.2.

“Grounding Conductor” has been completely deleted from the code.

Nonautomatic – Requiring human intervention to perform a function.

All definitions related to “service conductors” have been significantly revised to coordinate with significant changes to Article 230 – Services.

Uninterruptible Power Supply – A power supply used to provide alternating current power to a load for some period of time in the event of a power failure.

Informational Note: In addition, it may provide a more constant voltage and frequency supply to the load, reducing the effects of voltage or frequency variations.

Article 110 – Requirements for Electrical Installations

110.3(A)(1) – Informational Note

New Sentence: “Special conditions of use or other limitations and pertinent information may be marked on the equipment, included in the product instructions, or included in the appropriate listing and labeling information.”

110.14 – Electrical Connections

New Paragraph: “Connectors and terminals for conductors more finely stranded than Class B and Class C stranding as shown in Chapter 9, Table 10, shall be identified for specific conductor class or classes.”

110.24 – Available Fault Current

New Section requiring the available fault current to be field marked on the service equipment for other than dwelling units. The new section is made up of parts:

- (A) Field Marking
- (B) Modifications w/ exception

110.26(A)(3) – Height of Working Space

New Exception No. 2: “Meters that are installed in meter sockets shall be permitted to extend beyond the other equipment. The meter socket shall be required to follow the rules of this section.”

110.28 – Enclosure Types

Expansion of listed items including: “enclosed switches, transfer switches, power outlets, circuit breakers, adjustable-speed drive systems, pullout switches, portable power distribution equipment, termination blocks, general-purpose transformers, fire pump controllers, and fire pump motors.”

Chapter 2--Wiring and Protection

200.4 – Neutral Conductors

New Section: “Neutral conductors shall not be used for more than one branch circuit, for more than one multiwire branch circuit, or for more than one set of ungrounded feeder conductors unless specifically permitted elsewhere in this code.”

210.5(C) – Identification of Ungrounded Conductors

Complete Section Rewrite into Parts:

1. Application
2. Means of Identification
3. Posting of Identification Means

210.8 – Ground-Fault Circuit-Interrupter Protection for Personnel

New Sentence: “The GFCI shall be installed in a readily accessible location.”

210.8(A) Dwelling Units

Revision to: “(7) Sinks – located in areas other than kitchens where receptacles are installed within 6’ of the outside edge of the sink.”

210.8(B) Other than Dwelling Units

New: “(6) Indoor wet locations”
“(7) Locker rooms with associated showering facilities”
“(8) Garages, service bays, and similar areas where electrical diagnostic equipment, electrical hand tools, or portable lighting equipment are to be used”

210.12 – Arc-Fault Circuit-Interrupter Protection

Definition has been moved to Article 100

New Part: “(B) Branch Circuit Extensions or Modifications – Dwelling Units”

210.52 – Dwelling Unit Receptacle Outlets

New Part: “(4) Countertop Receptacles. Receptacles installed for countertop surfaces as specified in 210.52(C) shall not be considered as the receptacles required by 210.52(A).”

210.52(C)(5) – Receptacle Outlet Location / 210.52(D) - Bathrooms

New Sentence: “Receptacle outlet assemblies listed for the application shall be permitted to be installed in countertops.”

New Informational Note to the two above sections: “See 406.5(E) for requirements for installation of receptacles in countertops.”

210.52(I) – Foyers

New Part: “Foyers that are not part of a hallway in accordance with 210.52(H) and that have an area that is greater than 60 square feet shall have a receptacle(s) located in each wall space 3ft or more in width and unbroken by doorways, floor-to-ceiling windows, and similar openings.”

Article 220 now recognizes the need to include LED lighting loads in calculations.

225.27 – Raceway Seals

New Section: “Where a raceway enters a building or structure from an underground distribution system, it shall be sealed in accordance with 300.5(G). Spare or unused raceways shall be sealed. Sealants shall be identified for use with cable installation, shield, or other components.”

225.30 – Number of Supplies

New paragraph clarifying that only one feeder or branch circuit is permitted to supply a separate structure or be supplied by the separate to structure.

230.6 – Conductors Considered Outside the Building

New Part (5): “Where installed in overhead service masts on the outside surface of the building traveling through the eave of the building to meet the requirements of 230.24.”

230.42(A) – Minimum Size and Rating

New Exception: “Grounded conductors that are not connected to an overcurrent device shall be permitted to be sized at 100% of the continuous and noncontinuous load.”

230.66 – Marking

New Sentence: “All service equipment shall be listed.”

250.2 – Definitions

New term: “Bonding Jumper, Supply-Side”

250.21(C) – Marking

New Part: “Ungrounded systems shall be legibly marked “Ungrounded System” at the source or first disconnecting means of the system. The marking shall be of sufficient durability to withstand the environment involved.”

250.30 – Grounding Separately Derived Alternating-Current Systems

This Section of Article 250 has been significantly rewritten to include new terms and clarify requirements.

250.32 – Building or Structures Supplied by a Feeder(s) or Branch Circuit(s)

This section has been significantly revised to include provisions for circuits of separately derived systems and ungrounded systems.

250.52(A)(2) – Metal Frame of Building or Structure / 250.52(A)(3) – Concrete-Encased Electrode

These two sections have been rewritten into a list format to clarify requirements for these electrode types.

250.53 – Grounding Electrode System Installation

This section has been completely rewritten and reformatted to clarify the requirements for grounding electrode installations.

250.56 – Resistance of Rod, Pipe, and Plate Electrodes

This section has been deleted and written into the requirements of section 250.53.

250.64 – Grounding Electrode Conductor Installation

This section has been rewritten to clarify requirements for GEC installation.

250.68(C) – Metallic Water Pipe and Structural Metal

This new part includes requirements for connection of the GEC to these two electrode types.

250.92(A)&(B) – Services (Bonding)

These two parts have been rewritten to provide clarity.

250.94 – Bonding for Other Systems

This section has been rewritten and expanded to include more requirements.

250.102 – Bonding Conductors and Jumpers

This section has been completely reformatted and rewritten to include new terms and clarify requirements.

250.121 – Use of Equipment Grounding Conductors

New Section: “An equipment grounding conductor shall not be used as a grounding electrode conductor.”

Chapter 3 – Wiring Methods

300.4(E) – Cables, Raceways, or Boxes Installed in or Under Roof Decking

This section has been revised and expanded to include new requirements.

300.4(H) – Structural Joints

New Section: “A listed expansion / deflection fitting or other approved means shall be used where a raceway crosses structural joint intended for expansion, contraction or deflection, used in buildings, bridges, parking garages, or other structures.”

Table 300.5 – Minimum Cover Requirements

“Type MC or Type MI cable identified for direct burial” has been added to the Table.

300.11(A)(2) – Non-Fire Rated Assemblies

A new sentence has been added that is identical to the last sentence and requirement in Part (1) of the Section.

300.22 – Wiring in Ducts Not Used for Air Handling, Fabricated Ducts for Environmental Air, and Other Spaces for Environmental Air (Plenums)

This section has been expanded and revised to include new requirements and to clarify the rules more compatible with the Mechanical Code.

Article 310 – Conductors for General Wiring

The entire Article has been rewritten, revised, and renumbered. Significant changes have been included in the rewrite.

310.2 – Definitions

Two new terms: “Electrical Ducts”
 “Thermal Resistivity”

310.15 – Ampacity for Conductors

Table 310.16 is now Table 310.15(B)(16). The “Ambient Temperature Correction Factors” have been removed from the Table and relocated to its own new section and table, “310.15(B)(2) and Table 310.15(B)(2)(a).

312.8 – Switch and Overcurrent Device Enclosures with Splices, Taps, and Feed-Through Conductors

This section has been rewritten and reformatted to include new requirements.

314.16(C) – Conduit Bodies

New Part: “(3) Short Radius Conduit Bodies”

314.27 – Outlet Boxes

Rewrite: “(A) Boxes at Luminaire or Lampholder Outlets”
 “(1) Wall Outlets”
 “(2) Ceiling Outlets”
 “(B) Floor Boxes”
 “(C) Boxes at Ceiling-Suspended (Paddle) Fan Outlets”
 “(D) Utilization Equipment”

314.28(E) – Power Distribution Blocks

New Part: “(1) Installation”
 “(2) Size”
 “(3) Wire Bending Space”
 “(4) Live Parts”
 “(5) Through Conductors”

334.10 – Uses Permitted

New / Revised Parts: “(1) One- and two-family dwellings and their attached or detached garages, and their storage buildings.”
“(5) Types I and II construction where installed within raceways permitted to be installed in Types I and II construction.”

338.10(B)(4)(A) – Interior Installations

This section now includes requirements for conductor derating.

All non-metallic raceway articles have a new section that permit the installation of conductors with a higher temperature rating than the listed rating of the raceway type provided the conductors are not operated at a temperature exceeding the raceways rating.

Chapter 4--Equipment for General Use

404.2(C) – Switches Controlling Lighting Loads

New Part: “Where switches control lighting loads supplied by a grounded general purpose branch circuit, the grounded conductor for the controlled lighting circuit shall be provided at the switch location.” Two exceptions and an informational note have been added as well.

404.14(F) – Cord-and-Plug Connected Loads

This new part includes requirements for switch rating when controlling cord-and-plug connected loads.

406.2 – Definition

New Definition: “Child Care Facility”

406.4(D) – Replacements

Three New Parts Added: “(4) AFCI Protection”
“(5) Tamper-Resistant Receptacles”
“(6) Weather-Resistant Receptacles”

406.9(B)(1) – 15- and 20-Ampere Receptacles in a Wet Location

New requirement added to this section for other than dwelling units and includes a new informational note.

406.12 – Tamper-Resistant Receptacles in Dwelling Units

4 new exceptions have been added to this section.

406.13 – Tamper-Resistant Receptacles in Guest Rooms and Guest Suites

Adds TR requirements in hotel and motel occupancy types.

406.14 – Tamper-Resistant Receptacles in Child Care Facilities

Adds TR requirements in Child Care Facilities.

404.4(B) – Source of Supply

New Part: “All switchboards and panelboards supplied by a feeder in other than one- or two-family dwellings shall be marked to indicate the device or equipment where power supply originates.”

Article 410

Many sections have been revised to now include LED lighting types.

410.64 – Luminaires as Raceways

Revised Section: “(A) Listed”
“(B) Through-Wiring”
“(C) Luminaires Connected Together”
New Informational Note

410.130(G)(1) – Disconnecting Means (General)

New Sentence: “For existing installed luminaires without disconnecting means, at the time a ballast is replaced, a disconnecting means shall be installed.”

422.2 – Definition

Relocated Definition from 422.51: “Vending Machine”

450.14 Disconnecting Means

New Section: “Transformers, other than Class 2 or Class 3 transformers, shall have a disconnecting means located either in sight of the transformer or in a remote location. Where located in a remote location, the disconnecting means shall be lockable, and the location shall be field marked on the transformer.”

480.2 – Definition

New Definition: “Battery System”
“Nominal Battery Voltage” w/ Informational Note
“Sealed Cell or Battery”

Chapter 5--Special Occupancies

500.2 – Definitions

New Definition: “Combustible Dust”

500.8(E) – Threading

Complete rewrite and revision of the part.

500.17 – Process Sealing

New Section for requirements for the use of process seals.

514.11(A) General / 514.13 – Provisions for Maintenance and Service of Dispensing Equipment

Revision to these sections for disconnecting requirements to include, “all associated power, communications, data, and video circuits.”

517.2 – Definitions

New Definition: “Battery-Powered Lighting Units”

517.13(B)(1) – Insulated Equipment Grounding Conductor

Complete rewrite of the part for clarity of the rule.

517.20 – Wet Procedure Location

Rewrite of Part (A) for clarity of the requirement

553.4 – Location of Service Equipment / 555.3 – Ground-Fault Protection

A new sentence has been added to these sections identifying ground-fault protection requirements for floating buildings, marinas, and boatyards.

590.4(D) – Receptacles

This section has been broken into two new parts: “(1) All Receptacles”
“ (2) Receptacles in Wet Locations”

590.6 – Ground-Fault Protection for Personnel

A complete rewrite and reformat of the section:

“(A) Receptacle Outlets”

“(1) Receptacle Outlets Not Part of Permanent Wiring”

“(2) Receptacle Outlets Existing or Installed as Permanent Wiring”

“(3) Receptacles on 15-kw or less Portable Generators”

“(B) Use of Other Outlets”

Chapter 6--Special Equipment

600.2 – Definitions

New Definition: “LED Sign Illumination System”

600.4(C) – Visibility

New Section: “The markings required in 600.4(A) and listing labels shall not be required to be visible after installation but shall be permanently applied in a location visible during servicing.”

600.4(D) – Durability

New Section: “Marking labels shall be permanent, durable and, when in wet locations, shall be weatherproof.”

600.5(B) – Rating

New Sentence: “shall be considered to be continuous loads for the purpose of calculations.”

600.33 – LED Sign Illumination Systems, Secondary Wiring

New Section for LED lighting: “(A) Insulation and sizing of Class 2 conductors”
 “(1) Wet Locations”
 “(2) Other Locations”
 “(B)(1)(2) Installation”
 “(C) Protection Against Physical Damage”
 “(D) Grounding and Bonding”

Article 645 has been extensively rewritten and revised criteria.

645.2 – Definitions

New Definitions: “Critical Operations Data Systems”
 “Information Technology Equipment (ITE) w/ Informational Note”
 “Information Technology Equipment Room”
 “Remote Disconnecting Means”
 “Zone”

680.2 – Definitions

New Definition: “Low Voltage Contact Limit”

680.22(B) has been relocated to 680.21(C).

680.26 – Equipotential Bonding

Several revisions made to the section clarifying the requirements.

680.73 – Accessibility

New Sentence: “Where the hydromassage tub is cord-and-plug connected with the supply receptacle accessible only through a service access opening, the receptacle shall be installed so that its face is within direct view and not more than 1ft of the opening.”

680.74 – Bonding

New Sentence identifying the required length of the bonding jumper associated with bonding of the equipment.

682.14 – Submersible or Floating Equipment Power Connections

This section has been completely reformatted and revised to clarify the rule.

Article 690 has been completely rewritten and revised to include new requirements and updates for new technology.

Chapter 7--Special Conditions

700.2 – Definitions

New Definitions: “Emergency Systems w/ Informational Note”
“Relay, Automatic Load Control w/ Informational Note”

700.7 / 701.7 / 702.7 – Signs

New requirement in Part (B) identifying special requirements for grounding and bonding signage at emergency, legally required, and optional standby systems.

700.24 – Automatic Load Control Relay

This is a new section specifying the rule for use of this relay on emergency circuits.

725.3 / 760.3 (H), (I), and (J)

These new parts are added to link limited energy and fire alarm circuits to new requirements found in Article 300.

760.41 / 760.121(A) and (B)

These two parts identify new requirements for disconnecting means and directory marking for fire alarm circuits which coordinate with the NFPA 72.

Chapter 8--Communications Systems

Article 800 / 810 / 820 – Extensive rewriting with the use of grounding and bonding terms found in Article 100 and Article 250.

800.2 – Definitions

New Definition: “Communication Raceway”

800.3 / 810.3 / 820.3 – Other Articles

New parts added to these sections linking to new requirements found in Article 300.

Article 800 / 810 / 820, Part II – Wiring Outside and Entering the Building

Complete rewrite and reformat of these sections

Article 800 / 810 / 820, Part V – Installation Methods Within Buildings

Complete rewrite and reformat of these sections