



2020 NEC Significant Changes

Webinar October 15, 2019

Instructors

Michael Johnston – NECA Executive Director of Standards and Safety James T. Dollard – Philadelphia Electrical JATC/Local 98 IBEW



NECA

Textbook Development

This presentation is based on the Electrical Training Alliance 2020 NEC Significant Changes textbook and training program.

Dollard and Johnston were coauthors and contributing developers.



<text><text><list-item><image>

New Articles in the 2020 NEC

- Article 242 Overvoltage
 Protection
- Article 311 Medium Voltage Cable
- Article 337 Type P Cable
- Article 800 General Requirements for Communications Systems
- Article 805 Communications Circuits

- Deleted Articles
- Article 280-Surge Arrestors Over 1000 V
- Article 285-Surge Protective Devices (SPDs) 1000 V and Less
- Article 328 Type MV Cable
- Article 553 Floating Buildings



90.2(A)(5) and (6) • Two new list items (5) and (6) have been added to 90.2(A). • List item (5) addresses installations supplying shore power to ships and watercraft in marinas and boatyards and monitoring for leakage current. • List (6) has been added to 90.2(A) to address installations used to export power from electric vehicles to premises wiring. • Bidirectional flow of power is typically accomplished using utility interactive inverters.





Article 100 Fault Current, Fault Current, Available

- New definitions of the terms "fault current" and "fault current, available" have been added to Article 100.
- A new informational not and associated figure have been added to enhance clarity and usability.
- This revision aligns with similar recent revisions in other standards that use the terms, such as NFPA 70E.

Article 100 Fault Current, Fault Current, Available

- Fault Current. The current delivered at a point on the system during a short-circuit condition. (CMP-10)
- Fault Current, Available. The largest amount of current capable of being delivered at a point on the system during a short-circuit condition. (CMP-10)
- Informational Note: A short-circuit can occur during abnormal conditions such as a fault between circuit conductors or a ground fault. See Informational Note Figure 100.1.



NECA







Article 100 Reconditioned

- The term "reconditioned" has been added in multiple articles of the NEC and is now defined in Article 100.
- The process of reconditioning equipment differs from normal servicing of equipment that remains in place.
- Reconditioned equipment is often referred to as rebuilt, refurbished, or remanufactured.

Article 100 Reconditioned

- Reconditioned. Electromechanical systems, equipment, apparatus, or components that are restored to operating conditions. This process differs from normal servicing of equipment that remains within a facility, or replacement of listed equipment on a one-to-one basis. (CMP-10)
- Informational Note: The term *reconditioned* is frequently referred to as *rebuilt, refurbished,* or *remanufactured*.









110.3(B) Installation and Use

- Section 110.3(B) was revised and reworded to include the words "or both" in the rule.
- Equipment that is listed (certified), either bears the listing mark, bears a label, or both, often in combination.
- The revision aligns with the fact that most, but not all, listed (certified) equipment is labeled.









110.21(A)(2) Exception

- The exception has been revised to provide clarification as to when this exception can be applied.
- New IN No. 2 explains that terms such as refurbished, rebuilt, or remanufactured that are often used interchangeably with the term reconditioned.
- New IN No. 3 explains that the original listing mark could include the mark of the certifying body, and not an entire label.





110.24(A) Field Marking

- Section 110.24(A) has been revised for accuracy and clarification.
- The word "maximum" has been deleted in front of "available fault current" because it is not necessary.
- New IN No.2 explains that available fault current values are typically provided and published by utilities.



<section-header><list-item><list-item><list-item><list-item>



110.28 Enclosure Types Two new informational notes have been added to Section 110.28. Informational Note No. 3 references the specific "uses permitted" sections with Articles 502, 503 and 506.

• Informational Note No. 4 indicates that these types of enclosures are permitted in any unclassified location and limited to Class II, Division 2; Class III, and Zone 22 hazardous (classified) locations.



















<section-header><list-item><list-item><list-item>





- The requirements of 408.3(A)(2) are relocated and expanded in new 230.62(C)
- All service equipment is now required to be provided with barriers to prevent line side inadvertent contact
- This includes but is not limited to panelboards, switchboards, switchgear, motor control centers, individual circuit breaker enclosures, SUSE rated transfer switches and fused disconnects.













240.67(C)/240.87(C) Performance Testing

- New Subdivision (C) has been added to each Section.
- Arc-energy reduction methods must be performance tested when first installed on site
- Testing must be performed by qualified persons in accordance with the manufacturers instructions
- A written record of this testing must be made available to the AHJ







250.92(B) Method of Bonding at Service

- The words "listed threaded hubs" have been incorporated into list item (2) of this section.
- Standard hubs that have not been evaluated and listed for use in service bonding applications are not permitted.
- Listed products are identified for the uses for which they are permitted.









Article 311 Medium Voltage Conductors and Cables

- Article 328 has been deleted.
- New Article 311 is added to cover the use, installation, construction specifications, and ampacities for Type MV medium voltage conductors and cable.
- Requirements for conductors rated over 2000 volts are removed from article 310 and incorporated into new Article 311





404.9 and 404.10 ... Dimmers and Control Switches

- The words "Dimmers and Control Switches have been incorporated into these two sections.
- These rules are not limited in application to just general use snap switches.
- The revision is consistent with how this section is being applied in the field.





404.22 Electronic Control Switches

- The word "lighting" has been removed from this section.
- Expands the requirements to other than just lighting control switches.
- Similar revisions made in 210.70.





408.43 Panelboard Orientation Panelboards shall not be installed in the face-up position. Installing panelboards in a face-up position increases the likelihood that contaminants accumulate on the breakers and panelboard bussing, creating a hazard, and additionally creates a challenge with applying work space requirements.



450.9 Ventilation

- Section 450.9 now requires the top of transformers that are horizontal and readily accessible be marked to prohibit storage.
- The concept is to eliminate hazards created by storing material on top of transformers.















430.7(A) Usual Motor Applications New item (16) allows electronic protection of motors marked "Electronically Protected" or E.P." to be suitable for overload protection. (16) Motors that are electronically protected from overloads in accordance with 430.32(A)(2) and (B)(2) shall be marked "electronically protected" or "E.P."







517.2 Dental Office A building or part thereof in which the following occur: Examinations and minor treatments/procedures are performed under the continuous supervision of a dental professional; The use of limited to minimal sedation and treatment or procedures that do not render the patient incapable of selfpreservation under emergency conditions; and No overnight stays for patients or 24-hour operations. [99:3.3.38]











2020 NEC Significant Changes

Webinar October 15, 2019