Instructions: **Fee $20**

1. Print these pages.
2. Circle the correct answers and transfer them to the answer sheet.
3. Page down to the last page for the verification forms and mailing instructions.
4. Use the included information as your reference materials.
5. 60 questions are listed in a straight order mini-section format throughout the complete quiz.

Course: 18824 2017 NEC Changes 2

This course is valid for these credentials:

Credential Description	Cred Code	Credit Hours
Registered/Beginner Electrician	BE	2.0
Commercial Electrical Inspector	CEI	2.0
Industrial Journeyman Electrician	IJE	2.0
Journeyman Electrician	JE	2.0
Master Electrician	ME	2.0
Residential Journeyman Electrician	RJE	2.0
Residential Master Electrician	RME	2.0
UDC-Electrical Inspector	UEI	2.0

2017 NEC Changes 2

Table 310.15(B)(7) Ampacities for Conductors Rated 0-2000 Volts

2014 NEC Requirement. The provisions of 310.15(B)(7) for sizing dwelling unit service and certain feeder conductors were permitted for single-phase, 120/240-volt systems only. The previous Table 310.15(B)(7) was deleted entirely. For sizing service conductors and the "main power feeder" for dwelling units, the user of the *Code* can use a conductor sized from Table 310.15(8)(16) at no less than 83% of the service or feeder rating. An informational note takes users of the *Code* to Example D7 in Annex D for an example of bow to perform this dwelling unit service and feeder calculation.

2017 NEC Change. The provisions of 310.15(B)(7) for sizing dwelling unit service and certain feeder conductors was expanded to single-phase, 208Y/120-volt systems as well as single-phase, 120/240-volt systems. Explanatory language was added to address the permitted application of correction or adjustment factors required by 310.15(B)(2) or (3) applied to the ampacity associated with the temperature rating of the conductors. A new informational note directs the user of the *Code* to 240.6(A) for service ratings based on standard ampacity ratings for application of 310.15(B)(7). Previous Table 310.15(B)(7) was added back into the *Code* as part of Example D7 in Informational Annex D.

312.5(C), Exception, Item (g) Cabinets, Cutout Boxes, and Meter Socket Enclosures.

2014 NEC Requirement. For conductor fill requirements for the "sleeve" of conduit or tubing required by 312.5(C), Exception, List Item (g) of this exception states that where installed as conduit or tubing, the cable :6.11 cannot exceed the amount that would be permitted for complete conduit or tubing systems by Table 1 of Chapter 9· This requirement went on to indicate that "all applicable notes thereto" applied to the section of raceway.

2017 NEC Change. A new sentence was added to 312.5(C), Exception, Item (g) to indicate that Note 2 to the tables in Chapter 9 does not apply to this "sleeve" of conduit or tubing required if 312.5(C), Exception is employed.

312.6(A) Deflection of Conductors

2014 NEC Requirement. For wire-bending space at terminals, the conductors must comply with either Table 312.6(A) or Table 312.6(B), depending on the conditions involved. Table 312.6(A) applies where the conductor *does not* enter or leave the enclosure through the wall opposite its terminal. Table 312.6(B) applies where the conductor *does* enter or leave the enclosure through the wall opposite its terminal. While Table 312.6(B) entertained compact stranded AA-8000 aluminum alloy conductors, Table 312.6(A) did not.

2017 NEC Change. The requirements for wire-bending space at terminals and the use of Table 312.6(A) or Table 312.6(B) remained the same. A new column was added to Table 312.6(A) addressing wire-bending space for compact stranded AA-8000 aluminum alloy conductors for consistency.

312.8(B) Switch and Overcurrent Device Enclosures

2014 NEC Requirement. Section 312.8 contained information and regulations pertaining to conductors feeding through, spliced, or tapping off to other enclosures, switches, or overcurrent devices permitted in the wiring space of enclosures for switches or overcurrent devices. This section did not address other types of equipment such as power monitoring equipment being installed in these wiring spaces.

2017 *NEC* Change. A new 312.8(B) was added to allow power monitoring equipment within the wiring space of enclosures for switches or overcurrent devices with specific conditions.

314.16(A) and (B) Number of Conductors in Outlet, Device, and Junction Boxes, and Conduit Bodies

2014 NEC Requirement. The permitted number of conductors in an outlet, device, or junction boxes, along with conduit bodies is addressed at 314.16. The total volume (space) within a box or enclosure is calculated at 314.16(A) with box fill calculations covered at 314.16(B). A box fill calculation based on the 2014 *NEC* had to take into consideration conductor fill, internal clamps, support fittings, devices (switches and receptacles), and equipment grounding conductors when determining the minimum volume of space needed inside a box or enclosure.

2017 NEC Change. The volume or space that is occupied by an internal barrier in a box or enclosure was added to the items previously addressed for preforming a box fill calculation.

314.17(B) Conductors Entering Boxes, Conduit Bodies, or Fittings

2014 NEC Requirement. Provisions located at 314.17(C) mandate that the sheath of nonmetallic sheathed (Type NM) cable or multiconductor Type UF cable is used with nonmetallic Boxes or nonmetallic conduit bodies extend not less than 6 mm (1/4 in.) inside the box or conduit body and beyond any cable clamp.

No similar requirement exists for Type NM cable or multiconductor Type UF cables used with metal boxes or metal conduit bodies.

2017 NEC Change. New text added at 314.17(B) will now require nonmetallic-sheathed (Type NM) cable or multiconductor Type UF cable used with metal boxes or conduit bodies to have its sheath extend not less than 6 mm (1/4 in.) inside the box and beyond any cable clamp.

1. Explanatory language was _____ to address the permitted application of correction or adjustment factors required by 310.15(B)(2) or (3) applied to the ampacity associated with the temperature rating of the conductors.
    a. amended
    b. removed
    c. added
    d. deleted
2. A new sentence was added to 312.5(C), Exception, Item (g) to indicate that Note 2 to the tables in Chapter 9 does not apply to this "_____" of conduit or tubing required if 312.5(C), Exception is employed.
    a. conduit
    b. sleeve
    c. jacket
    d. cover
3. A new column was _____ to Table 312.6(A) addressing wire-bending space for compact stranded AA-8000 aluminum alloy conductors for consistency.
    a. amended
    b. removed
    c. added
    d. deleted
4. A new 312.8(B) was _____ to allow power monitoring equipment within the wiring space of enclosures for switches or overcurrent devices with specific conditions.
    a. amended
    b. removed
    c. added
    d. deleted

5. The _____ that is occupied by an internal barrier in a box or enclosure was added to the items previously addressed for preforming a box fill calculation.

a. volume
b. space
c. both a or b
d. none of the above

6. New text added at 314.17(B) will now require nonmetallic-sheathed (Type NM) cable or multiconductor Type UF cable used with metal boxes or conduit bodies to have its sheath extend not less than _____ inside the box and beyond any cable clamp

a. 6 mm
b. 1/4 in.
c. both a & b
d. none of the above

314.27(E) Outlet Boxes

2014 NEC Requirement. As required by 314.27(A), a box listed for the support of a luminaire or lampholder in a ceiling is required to be designed for the purpose and is required to support a luminaire weighing a minimum of 23 kg (50 lb.). Boxes used at luminaire, or lampholder outlets are required to be designed for the purpose and are required to be marked on the interior of the box itself to indicate the maximum weight of the luminaire that is permitted to be supported by that box [if other than 23 kg (50 lb.)]. Vertical surface or wall-mounted device boxes are permitted to support luminaires that weigh not more than 3 kg (6lb.). These device boxes may not be marked as being suitable for luminaire support since that is not their primary purpose. The luminaire or its supporting yoke must be secured to the box with at least two 6-32 screws.

A box used at ceiling fan outlets is not permitted to be used as the sole support for ceiling-suspended (paddle) fans unless it is specifically listed for the application and for the weight of the fan to be supported. This requirement applies to both metal and nonmetallic boxes. Outlet boxes or outlet box systems used as the sole support for a ceiling-suspended (paddle) fan must be listed, marked by the manufacturer as suitable for ceiling-suspended paddle fan support, and cannot support fans that weigh more than 32 kg (70 lb.). This box or system must be rigidly supported from a structural member of the building [see 314.27(C)].

2017 NEC Change. In addition to the previous requirements at 314.27(A) through (D) for a box supporting a luminaire, lampholder, ceiling-suspended (paddle) fan, or other types of utilization equipment, 314.27(E) will now permit listed locking support and mounting receptacles and support means for supporting a luminaire, lampholder, or ceiling-suspended (paddle) fan.

320.6 Listing Requirements. (Armored Cable: Type AC)

2014 NEC Requirement. Section 110.3(B) requires listed or labeled equipment to be installed and used in accordance with any instructions included in the listing or labeling, but there was no specific listing requirement for many of the cable type wiring methods and their associated fittings.

2017 NEC Change. New listing requirements were added in a number of the cable-type wiring method articles that will require the wiring method (cable) and associated fittings to be listed.

324.12(5) Uses Not Permitted. (Flat Conductor Cable: Type FCC)

2014 NEC Requirement. Type FCC cable systems are not permitted to be used in outdoor or in wet locations, where subject to corrosive vapors, in any hazardous (classified) location or residential, school, or hospital buildings.

2017 NEC Change. Type FCC cable systems are still prohibited in outdoor or in wet locations, where subject to corrosive vapors, in any hazardous (classified) location, or in residential buildings. Type FCC cable is still prohibited in school and hospital buildings, but not in the "administrative office areas" of a school or hospital building.

336.10(9) Uses Permitted. (Power and Control Tray Cable: Type TC)

2014 NEC Requirement. There were 7 different list items under "Uses Permitted" for Type TC cables in Article 336. None of these included permission to use Type TC or Type TC-ER as a wiring method at one- and two-family dwelling units.

2017 NEC Change. There are now 11 different list items under "Uses Permitted" for Type TC cable. New List Item (9) now permits Type TC-ER cable containing both power and control conductors that are identified for pulling through structural members to be installed in one- and two-family dwelling units.

344.14 Dissimilar Metals. (Rigid Metal Conduit: Type RMC)
2014 NEC Requirement. Where dissimilar metals and metallic raceways are concerned, contact between dissimilar metals anywhere in the system should be avoided to eliminate the possibility of galvanic action. Aluminum fittings and enclosures are permitted to be used with steel RMC, and steel fittings and enclosures are permitted to be used with aluminum RMC where not subject to severe corrosive influences. Stainless steel RMC was not mentioned at 344.14.
2017 NEC Change. Revisions occurred at 344.14 to clarify the acceptable fittings that can be used with different types of RMC, based on galvanic compatibility. With this revision, stainless steel RMC can only be used with stainless steel fittings, approved accessories, stainless steel outlet boxes, and stainless steel enclosures.
350.28 Trimming. (Liquidtight Flexible Metal Conduit: Type LFMC)
2014 NEC Requirement. Requirements were in place at ".28" of seven different articles, requiring that all cut ends of conduits be trimmed inside and outside to remove rough edges. This requirement was absent in Article 350 for liquidtight flexible metal conduit (Type LFMC).
2017 NEC Change. Language was added at 350.28 requiring cut ends of LFMC to be trimmed inside and outside to remove rough edges.

7. 314.27(E) will now permit listed locking support and mounting receptacles and support means for supporting a _____.
    a. luminaire
    b. lampholder
    c. ceiling-suspended (paddle) fan
    d. all of the above

8. New listing requirements were added in a number of the cable-type wiring method articles that will require the _____ to be listed.
    a. wiring method (cable)
    b. associated fittings
    c. both a & b
    d. none of the above
9. Type FCC cable is still prohibited in _____ buildings
    a. school
    b. hospital
    c. administrative office areas in schools for hospitals
    d. both a & b
10. New List Item (9) now permits Type TC-ER cable containing _____ that are identified for pulling through structural members to be installed in one- and two-family dwelling units.
    a. both power
    b. control conductors
    c. both a & b
    d. none of the above
11. With this _____, stainless steel RMC can only be used with stainless steel fittings, approved accessories, stainless steel outlet boxes, and stainless steel enclosures.
    a. deletion
    b. removal
    c. addition
    d. revision
12. Language was added at 350.28 requiring cut ends of LFMC to be trimmed _____ to remove rough edges.
    a. inside
    b. outside
    c. both a & b
    d. none of the above

358.10 Uses Permitted. (Electrical Metallic Tubing: Type EMT)

2014 NEC Requirement. "Uses Permitted" for EMT permitted the use of EMT in both exposed and concealed locations. Ferrous (steel) or nonferrous (aluminum) EMT, elbows, couplings, and fittings were permitted to be installed in concrete, in direct contact with the earth, or in areas subject to severe corrosive influences where protected by corrosion protection and approved as suitable for the condition. All supports, bolts, straps, screws, etc., had to be made of corrosion-resistant materials or protected against corrosion by corrosion-resistant materials when installed in a wet location. Under the banner of "Uses Not Permitted," EMT was permitted to be installed in cinder concrete or cinder fill where subject to permanent moisture when it was protected on all sides by a layer of non-cinder concrete at least 50 mm (2 in.) thick or if the tubing was at least 450 mm (18 in.) under the fill. EMT was prohibited to be installed in any hazardous (classified) location "except as permitted by other articles in the *NEC."*

2017 NEC Change. Section 358.10 for "Uses Permitted" for EMT was revised for consistency with other steel conduit articles. The requirements for installations in cinder concrete and hazardous (classified) locations for EMT were moved from 358.12 for "Uses Not Permitted" for EMT and reworded into positive text. Provisions for stainless steel EMT were also added to 358.10.

366.20 Conductors Connected in Parallel

2014 NEC Requirement. No provisions or guidance was given for the installation of parallel conductors in an auxiliary gutter. Parallel conductor installation requirement for conduits and raceways is found at 310.10(H) and for a cable tray at 392.20(C).

2017 NEC Change. The new requirements were added at 366.20 for the safe and proper installation of parallel conductors in an auxiliary gutter.

370.80 Ampacity of Conductors. (Cablebus)

2014 NEC Requirement. Under the requirements of 370.80, the ampacity of conductors in cablebus comply with Table 310.15(B)(17) and Table 310.15(B)(19) for installations up to and including 2000 volts, or with Table 310.60(C)(69) and Table 310.6o(C)(70) for installations 2001 to 35,000 volts. Without a thorough knowledge of the *NEC,* no link was provided in Article 370 to the conductor termination provisions found in Article 110. No allowances were found in Article 370 for temperature and ampacity correction factors for conductors installed in a cablebus.

2017 NEC Change. With the same requirements for ampacity tables to use with cablebus remaining, new requirements have been added for ampacities of typical cablebus that align with the same requirements for single conductors installed in a cable tray. New informational notes will direct users of Article 370 back to the conductor termination requirements of 110.14(C) and 110-40.

404.2(C) Switch Connections

2014 NEC Requirement. A grounded conductor is required at every location where switches control lighting loads supplied by a grounded general purpose branch circuit. This main rule was followed by seven specific conditions by which a grounded conductor was not required to be installed at a switch location.

The first condition permitted the grounded circuit conductor to be omitted from the switch enclosure where the wiring method employed was a raceway system with sufficient cross-sectional area that would allow the grounded conductor to be added to the switch location at a later date when and if needed.

The second condition dealt with cable assemblies entering the switch box through a framing cavity that allowed for the installation of an additional or replacement cable without removing finish materials.

The third condition referenced snap switches with integral enclosures that comply with 300.15(E) where the enclosure itself would only accept theassociated snap switch.

The fourth condition exempted rooms other than habitable rooms or bathrooms.

The fifth condition limited the presence of the grounded conductor to only one switch location where multiple switch locations control the same lighting load such that the entire floor area of the room or space is visible from the single or combined switch locations.

The sixth condition dealt with switch locations where lighting in the area is controlled by automatic means as an occupancy sensor switching device would be redundant.

The seventh condition involved a switch controlling a receptacle load as no occupancy sensor will likely ever be listed for use with receptacle outlets, there is no need for a grounded conductor at this switch location.

2017 NEC Change. The previous seven conditions in which a grounded conductor was not required to be installed at lighting switch locations has been revised and reduced to only five conditions.

Previous conditions (4) and (5) were moved to the parent text of 404.2(C) and reworded into positive language. Enforceable language was added to require the grounded conductor to be connected and used by the switching device rather than simply be "present" at the switch enclosure.
A new exception was also added to exclude replacement or retrofit switches installed in locations before the local adoption of 404.2(C) where the grounded conductor cannot be extended without removing finish materials. This new exception also puts a limit to the number of electronic lighting control switches on a branch circuit or feeder.

404.22 Branch-Circuit Voltage Limitations

2014 NEC Requirement. This provision did not exist in the 2014 *NEC.* A grounded conductor was required to be installed at switching locations where switches control lighting loads supplied by a grounded general-purpose branch circuit by the requirements of 404.2(C). This rule had seven conditions where the grounded conductor did not have to be present, but had no requirement for the switching device to be listed or prohibit intentionally introduced current onto the equipment grounding system as a result of the installation of electronic switching devices such as an occupancy sensor.
2017 NEC Change. In conjunction with revisions to 404.2(C), new text was added at 404.22 stating that electronic lighting control switching devices are required to be listed and "shall not introduce current on the equipment grounding conductor during normal operation." This prohibition on introducing current on the equipment grounding conductor has a future effective date of January 1, 2020.

406.2 Receptacles, Cord Connectors, and Attachment Plugs (Caps)

2014 NEC Requirement. While the term "outlet box hood" appeared and was used at two locations [314.15 and 406.9(B)(1)], no definition existed for this term.
2017 NEC Change. A clear and expressive definition for the term "outlet box hood" was added at 406.2.

13. "Uses Permitted" for EMT was _____ for consistency with other steel conduit articles.
    a. added
    b. revised
    c. deleted
    d. relocated
14. The new requirements were _____ at 366.20 for the safe and proper installation of parallel conductors in an auxiliary gutter.
    a. added
    b. revised
    c. deleted
    d. relocated
15. The previous seven conditions in which a grounded conductor was not required to be installed at lighting switch locations has been revised and reduced to only _____conditions.
    a. 4
    b. 5
    c. 6
    d. 3
16. With the same requirements for ampacity tables to use with cablebus remaining, new requirements have been _____ for ampacities of typical cablebus that align with the same requirements for single conductors installed in a cable tray.
    a. added
    b. revised
    c. deleted
    d. relocated
17. A new exception was also _____ to exclude replacement or retrofit switches installed in locations before the local adoption of 404.2(C) where the grounded conductor cannot be extended without removing finish materials.
    a. added
    b. revised
    c. deleted
    d. relocated

18. In conjunction with revisions to 404.2(C), new text was added at 404.22 stating that electronic lighting control switching devices are required to be listed and "shall not introduce current on the equipment grounding conductor during normal operation." This prohibition on introducing current on the equipment grounding conductor has a future effective date of January 1, _____.

a. 2017
b. 2018
c. 2019
d. 2020

19. A clear and expressive definition for the term "outlet box hood" was _____ at 406.2.

a. added
b. revised
c. deleted
d. relocated

406.3(E) Receptacle Rating and Type

2014 NEC Requirement. Receptacle outlets that are under an automatic control device or an automatic energy management system were required to be marked as indicated at 406.3(E), Controlled Receptacle Marking. This subsection required a marking symbol for receptacle outlets controlled by an automatic control device or by an automatic energy management system. The controlled receptacle marking symbol was displayed at Figure 406.3(E). An exception follows this rule to indicate that this marking is not required for receptacle outlets controlled by a wall switch to provide the required room lighting outlet(s) as permitted by 210.70(A)(1) Ex. No. 1.

2017 NEC Change. The word "Controlled" is now required to be placed on the controlled receptacle along with the previous symbol. The word "Controlled" was also added to Figure 406.3(E). The controlled receptacle symbol and the word "Controlled" are to be placed on the controlled receptacle face (not the faceplate or cover) and visible after installation.

406.3 Receptacle Rating and Type

2014 NEC Requirement. No provisions existed requiring a receptacle providing power to Class 2 equipment to be listed or that the Class 2 circuitry be an integral part of the receptacle.

2017 NEC Change. New provisions were added pertaining to 125-volt 15- or 20-ampere receptacle that additionally provides Class 2 power in the form of a USB charger. These new provisions require these devices to be listed and constructed such that the Class 2 circuitry is integral with the receptacle.

406.4(D)(4), Ex. No. 1 and Ex. No.2 General Installation Requirements

2014 NEC Requirement. Where existing receptacles were replaced and that receptacle outlet was supplied by a branch circuit that under the most current edition of the *Code* would require AFCI protection, that replacement receptacle would have to be AFCI-protected either at the receptacle outlet itself by a listed outlet branch-circuit (OBC) type AFCI receptacle, or at the origin of the branch circuit by a listed combination AFCI overcurrent device.

2017 NEC Change. The main requirement of AFCI protection at replacement receptacles as described in the 2014 *NEC* holds true with two new exceptions added. The first new exception recognizes applications where an existing two wire receptacle is replaced and no equipment grounding conductor can be installed. The second new exception stipulates that the exception to 210.12(8) does not apply when replacing existing receptacles.

406.4(D)(5) General Installation Requirements

2014 NEC Requirement. Listed tamper-resistant receptacles are required to be provided where replacements are made at receptacle outlets that are required to be tamper-resistant elsewhere in the *Code.* Non-grounding receptacles used as a replacement for another non-grounding receptacle as permitted in 406-4(D)(2)(a) are not required to be tamper-resistant by the requirements of 406.12, Exception to (A), (B), and (C), List Item (4).

2017 NEC Change. 406-4(D)(5) still requires listed tamper-resistant receptacles where replacements are made at receptacle outlets that are required to be tamper-resistant elsewhere in the *Code* "except where a non-grounding receptacle is replaced with another non-grounding receptacle." The tamper-resistant receptacle requirements at 406.12 remained basically the same for dwelling units, guest rooms and guest suites of hotels and motels and for a child care facility (see complete change report for 406.12 in this periodical).

406.6(D) Receptacle Faceplates (Cover Plates).

2014 NEC Requirement. There were no provisions included for receptacle faceplates with integral night lights and/or USB chargers.
2017 NEC Change. New requirements were added at 406.6(D) about receptacle faceplates with integral night lights and/or USB chargers. These faceplates must be listed and constructed such that the night light and/or Class 2 circuitry is "integral with the flush device cover plate."

406.9(B)(1) Receptacles in Damp or Wet Locations

2014 NEC Requirement. All 15- and 20-ampere, I2S- and 250-volt receptacles installed in a wet location must have an enclosure and covers that are weatherproof whether an attachment plug cap is inserted or not. For all types of occupancies, all outlet box hood covers installed in wet locations for I5- and 20-ampere, I2S- and 250-volt receptacles must be listed and of the "extra duty" type. All 15- and 20-ampere, I2S- and 250-volt nonlocking-type receptacles must be listed as the weather-resistant type.
2017 NEC Change. The previous requirements for 15- and 20-ampere, 125- and 250-volt receptacles installed in a wet location still holds true with language added to indicate that other listed products, enclosures, or assemblies providing weatherproof protection that do not utilize an outlet box hood need not be marked "extra duty."

20. The controlled receptacle symbol and the word "Controlled" are to be placed on the controlled _____and visible after installation.
    a. receptacle face
    b. faceplate
    c. cover
    d. all of the above

21. New provisions were added pertaining to 125-volt 15- or 20-ampere receptacle that additionally provides Class 2 power in the form of a USB charger. These new provisions require these devices to be listed and constructed such that the Class 2 circuitry is _____ with the receptacle.
    a. integral
    b. central
    c. principal
    d. none of the above

22. The main requirement of AFCI protection at replacement receptacles as described in the 2014 *NEC* holds true with ___ new exceptions added.
    a. 1
    b. 2
    c. 3
    d. 4

23. 406-4(D)(5) still requires listed tamper-resistant receptacles where replacements are made at receptacle outlets that are required to be tamper-resistant elsewhere in the *Code* "except where a non-grounding receptacle is replaced with another _____receptacle."
    a. non-grounding
    b. grounding
    c. both a & b
    d. none of the above

24. New requirements were added at 406.6(D) about receptacle faceplates with integral night lights and/or USB chargers. These faceplates must be _____ such that the night light and/or Class 2 circuitry is "integral with the flush device cover plate."
    a. listed
    b. approved
    c. constructed
    d. both a & c

25. The previous requirements for 15- and 20-ampere, 125- and 250-volt receptacles installed in a wet location still holds true with language added to indicate that other listed _____ providing weatherproof protection that do not utilize an outlet box hood need not be marked "extra duty."
    a. products
    b. enclosures

c. assemblies
d. all of the above

406.12 Tamper-Resistant Receptacles

2014 NEC Requirement. In all areas specified in 210.52 (which is the majority, but not all, areas of a dwelling unit), all nonlocking-type 125-volt, 15- and 20-ampere receptacles were required to be listed tamper-resistant receptacles, with an exception for four specific locations or areas. All nonlocking-type 125-volt, 15- and 20-ampere receptacles located in guest rooms and guest suites of hotels and motels, and in child care facilities were required to be listed tamper-resistant receptacles. The same exception applied for four specific locations or areas in dwelling units. Receptacles exempted from the tamper-resistant requirement are those located more than 1.7 m (5 1/2 ft) above the floor, receptacles that are part of a luminaire or appliance, receptacles located in a dedicated appliance space, and nongrounding-type replacement receptacles.

2017 NEC Change. Along with the tamper-resistant receptacle requirements of the 2014 *NEC,* tamper-resistant receptacle requirements were expanded to mobile and manufactured homes, preschools and elementary education facilities, dormitories, business offices, corridors, waiting rooms and the like in clinics, medical and dental offices and outpatient facilities, assembly occupancies including places of waiting, transportation, gymnasiums, skating rinks, and auditoriums. The voltage rating at which tamper-resistant receptacle requirements are applicable was expanded to include both 125 volts and 250 volts.

406.15 Type of Change: Deletion

2014 NEC Requirement. A new section was added at 406.15 to permit specific receptacles to be controlled by a dimmer under specific conditions. A receptacle supplying lighting loads can be connected to a dimmer if the plug/ receptacle combination is a nonstandard configuration type and specifically listed and identified for each such unique combination.

2017 NEC Change. The requirements for dimmer-controlled receptacles at 406.15 have been deleted. This section sought to correct incompatibilities between certain types of dimmers and certain cord-and-plug connected loads. Such incompatibilities are currently dealt with in the listing of specific load types and the listing of specific dimmer types.

408.3(A)(2) Support and Arrangement of Busbars and Conductors. (Switchboards, Switchgear, and Panelboards)

2014 NEC Requirement. The requirement of 408.3(A)(2) insisted that barriers be in place for all service *switchboards and switchgear* so that that no uninsulated, ungrounded service busbar or service terminal was exposed to inadvertent contact by persons or maintenance equipment while servicing load terminations. No such barrier provision existed for *panelboards.*

2017 NEC Change. The barrier requirements of 408.3(A)(2) were expanded to all service panelboards as well as service switchboards and switchgear. An exception also was added eliminating the barriers at panelboards installed to comply with the requirements of 408.36, Ex. No. 1, 2, and 3·

409.22(B) Short-Circuit Current Rating. (Industrial Control Panels)

2014 NEC Requirement. An industrial control panel was required not to be installed where the available fault current (short-current) exceeded its short-circuit current rating marked on the equipment as required by 409.110(4). However, there was no companion requirement demanding the actual available short-circuit current be documented and available to the AHJ, in order for the AHJ to verify that the equipment installed was rated within its established short-circuit current rating.

2017 NEC Change. The missing companion component for documentation of the available short-circuit current (fault current) at industrial control panels was added at 409.22(B). This new requirement also required documentation of the date the short-circuit current calculation was performed.

410.62(C)(1) Cord-Connected Lampholders and Luminaires

2014 NEC Requirement. Electric-discharge and LED luminaires are permitted to be cord connected when the following conditions apply: the luminaire is located directly below the outlet or busway, the flexible cord is visible for its entire length outside the luminaire, is not subject to strain or physical damage, and is terminated in a grounding-type attachment plug cap or busway plug, or is a part of a listed assembly incorporating a manufactured wiring system connector in accordance with 604.6(C), or has a lumina ire assembly with a strain relief and canopy having a maximum 152 mm (6 in.) long section of raceway for attachment to an outlet box above a suspended ceiling.

2017 NEC Change. The same basic requirements still apply to cord-connected electric discharge and LED luminaires with the information re-organized into an easier to understand list format that improves the clarity of the content.

Article 411 Low-Voltage Lighting

2014 NEC Requirement. Article 411 applied to lighting systems operating at 30 volts or less and their associated components. The article also covered lighting equipment connected to a Class 2 power source. These Class 2 power sources were basically limited to the low voltage power supplies of *NEC* Chapter 9, Tables 11(A) or Table 11(B).

2017 NEC Change. The limitations of 411.3(A) and (B) for low-voltage lighting systems operating at 30 volts or less and the limitations of Class 2 low-voltage lighting systems conforming to *NEC* Chapter 9, Table 11(A) or Table 11(B) was removed for the 2017 *NEC*. These low-voltage lighting systems addressed by Article 411 are now basically limited by the maximum rating of 25 amperes for the output circuits of the power supply under all load conditions.

26. The voltage rating at which tamper-resistant receptacle requirements are applicable was expanded to include _____ volts.
    a. 50
    b. 75
    c. 250
    d. none of the above

27. The requirements for dimmer-controlled receptacles at 406.15 have been _____.
    a. added
    b. revised
    c. deleted
    d. relocated

28. The barrier requirements of 408.3(A)(2) were expanded to all _____.
    a. service panelboards
    b. service switchboards
    c. switchgear
    d. all of the above

29. The missing companion component for documentation of the available short-circuit current (fault current) at industrial control panels was ____ at 409.22(B).
    a. added
    b. revised
    c. deleted
    d. relocated

30. 409.22(B) This new requirement also required documentation of the date the _____ calculation was performed.
    a. voltage
    b. ampere
    c. short-circuit current
    d. all of the above

31. The same basic requirements still apply to cord-connected _____ with the information re-organized into an easier to understand list format that improves the clarity of the content.
    a. electric discharge
    b. LED luminaires
    c. both a & b
    d. none of the above

32. The limitations of 411.3(A) and (B) for low-voltage lighting systems operating at 30 volts or less and the limitations of Class 2 low-voltage lighting systems conforming to *NEC* Chapter 9, Table 11(A) or Table 11(B) was _____ for the 2017 *NEC*
    a. added
    b. revised
    c. removed

d. relocated

422.2 Definition. (Appliances)

2014 NEC Requirement. Vending machines were required to be GFCI-protected by the provisions of 422.51. To lend assistance in the GFCI requirements of vending machines, a definition for "Vending Machine" was included at 422.2.

2017 NEC Change. Vending machines are still required to be GFCI-protected, but the requirement has been relocated to 422.5(A)(5). All appliances operating at 50 volts or more are now required be listed (see new 422.6). In determining what constitutes a vending machine, the user of the *Code* will need to rely on the listing and the product standards for vending machines.

422.5 Ground-Fault Circuit-Interrupter (GFCI) Protection for Personnel

2014 NEC Requirement. GFCI protection was required for five specific appliances within Article 422. GFCI protection was required for tire inflation machines and automotive vacuum machines provided for public use at 422.23; cord- and plug-connected high-pressure spray washing machines at 422-49; cord and plug-connected and hard-wired vending machines at 422.51; and electric drinking fountains at 422.52. Most of these GFCI provisions had specifics as to the location and type of GFCI protection delivery methods were required. The device providing the GFCI protection required throughout Article 422 was required to be readily accessible by the requirements of 422.5.

2017 NEC Change. The five appliances requiring GFCI protection in Article 422 were grouped together, and the GFCI requirements for these appliances were relocated to one location at 422.5(A). A new 422.5(B) was also added allowing five options for the location and type of GFCI protective device provided to deliver GFCI protection to the specific appliances listed at 422.5(A).

422.6 Listing Required. (Appliances)

2014 NEC Requirement. There was no specific requirement for specific appliances addressed in Article 422 to be listed. Listed equipment was referenced in eleven different locations in Article 422, but not any requirement for the equipment covered to be specifically listed.

2017 NEC Change. A new section has been added to Article 422 requiring that all appliances operating at 50 volts or more must be listed.

422.14 Type of Change: Deletion/Relocation

2014 NEC Requirement. Requirements pertaining to industrial infrared lamp heating appliances were located in Article 422 for appliances at 22.14.

2017 NEC Change. Section 422.14 titled, "Infrared Lamp Industrial Heating Appliances," was deleted and the information relocated to new Article 425 at 425.14.

422.16(B)(2) Flexible Cords. (Appliances)

2014 NEC Requirement. A built-in dishwasher or a trash compactor is permitted to be cord- and plug-connected with a flexible cord identified for the purpose and terminated with a grounding-type attachment plug cap. The length of the flexible cord is permitted, for both a dishwasher and a trash compactor, to be 0.9 m to 1.2 m (3 ft to 4ft) with the length measured from the face of the attachment plug to the plane created by the back of the appliance. The receptacles must be located so that the potential for physical damage to the flexible cord and attachment plug is minimized. The receptacle outlet for both a built-in dishwasher and a trash compactor could be located in the space occupied by the appliance or adjacent to it, and the receptacle must be accessible.

2017 NEC Change. Dishwashers are now only permitted to have the receptacle outlet for a cord- and plug-connected built-in dishwasher to be located in the space adjacent to the space occupied by the dishwasher. The maximum length of a cord for a built-in dishwasher was extended from the previous maximum length of 1.2 m (4ft) to 2.0 m (6.5 ft) measured from the face of the attachment plug to the plane of the rear of the appliance. Other requirements for dishwashers and trash compactors remain the same as in the 2014NEC.

422.16(B)(4) Flexible Cords. (Appliances) Range Hoods

2014 *NEC* Requirement. Range hoods were permitted to be cord- and plug-connected with a flexible cord where the flexible cord was terminated with a grounding-type attachment plug (with an exception for system of double insulation); the length of the cord could not be less than 450 mm (18 in.) and not over 900 mm (36 in.); the receptacle had to be accessible, located to avoid physical damage to the flexible cord, and supplied by an individual branch circuit (in the event of the employment of a microwave oven).

2017 NEC Change. The requirements for a cord- and plug-connected range hood are much the same as the 2014 *NEC* with the length of the flexible cord expanded to 1.2 m (4 ft). The language pertaining to the receptacle

needing to be located to "avoid" physical damage was changed to "protect against" physical damage to incorporate more enforceable language.

33. All appliances operating at 50 volts or more are now required be listed (see new 422.6). In determining what constitutes a vending machine, the user of the *Code* will need to rely on the _____.
    a. listing
    b. product standards for vending machines
    c. both a & b
    d. none of the above
34. The _____ appliances requiring GFCI protection in Article 422 were grouped together, and the GFCI requirements for these appliances were relocated to one location at 422.5(A).
    a. 3
    b. 4
    c. 5
    d. 6
35. A new section has been added to Article 422 requiring that all appliances operating at 50 volts or more must be _____.
    a. approved
    b. identified
    c. listed
    d. marked
36. Section 422.14 titled, "Infrared Lamp Industrial Heating Appliances," was deleted and the information _____ to new Article 425 at 425.14.
    a. added
    b. revised
    c. removed
    d. relocated
37. Dishwashers are now only permitted to have the receptacle outlet for a cord- and plug-connected built-in dishwasher to be located in the space _____ the space occupied by the dishwasher.
    a. inside
    b. below
    c. above
    d. adjacent to
38. The maximum length of a cord for a built-in dishwasher was extended from the previous maximum length of _____ measured from the face of the attachment plug to the plane of the rear of the appliance.
    a. 1.2 m to 2.0 m
    b. 4’ to 6.5’
    c. both a & b
    d. none of the above
39. The requirements for a cord- and plug-connected range hood are much the same as the 2014 *NEC* with the length of the flexible cord expanded to _____.
    a. 1.2 m
    b. 4 ft
    c. both a & b
    d. none of the above
40. The language pertaining to the range hood receptacle needing to be located to "avoid" physical damage was changed to "_____" physical damage to incorporate more enforceable language.
    a. guard against
    b. protect against
    c. shield against
    d. safeguard against

2014 NEC Requirement. Part V of Article 424 addressed electric space-heating cables. These requirements encompassed sections 424.35 through 424-45.
2017 NEC Change. Part V of Article 424 was revised for simpler interpretation and application. Two new sections were added. These sections (424-45 and 424.47) address proper installations of cables under floor coverings and labels provided by the manufacturer. The previous edition of the *Code* did not properly address these added items in Part V.

424.45 Installation of Cables Under Floor Coverings

2014 NEC Requirement. Requirements found in Part IX of Article 424-specifi.cally, 424.99-are explicit for the installation of electric heating panels and heating panel sets installed under floor coverings. There were no such requirements in Part V of Article 424 for electric space-heating cables.
2017 NEC Change. New requirements were added at 424.45 (Part V of Article 424) to give direction for the installation of heating cables installed under floor coverings.

424.47 Label Provided by Manufacturer

2014 *NEC* Requirement. Manufacturer's label requirements for the marking of heating panels and panel sets are located at 424.92(D). These requirements call for the manufacturer to provide marking labels that indicate that heating panels and panel sets are part of the space-heating installation. These labels must also provide instruction for applying these labels to the supply panelboards, and the label must further identify which branch circuits supply the heating panels and panel sets. This label requirement is located in Part IX of Article 424 with application for heating panels and panel sets. There were no such requirements in Part V of Article 424 for electric space-heating cables.
2017 NEC Change. New requirements for manufacturer's labels were added at 424-47 in Part V of Article 424 for application to electric space-heating cables. The manufacturer's label requirements for heating panels and panel sets at 424.92(D) remained the same.

Article 424 Part X Fixed Electric Space-Heating Equipment

2014 NEC Requirement. The 2014 *NEC* did not address low-voltage fixed electric space-heating equipment in Article 424.
2017 NEC Change. To address products identified as low-voltage fixed electric space-heating equipment, a new Part X was added to Article 424 for the 2017 *NEC.*

Article 425 Fixed Resistance and Electrode Industrial Process Heating Equipment

2014 NEC Requirement. The 2014 *NEC* did not completely address requirements for industrial process heating equipment. Section 422.14 covered some requirements for infrared heat lamps.
2017 NEC Change. New Article 425 (Fixed Resistance and Electrode Industrial Process Heating Equipment) has been incorporated into the 2017 *NEC.* In previous editions, the *NEC* did not adequately address requirements for industrial process heating equipment. Section 422.14, which covered appliances with infrared heat lamps, has been relocated to new Article 425 at 425.14.

426.32 Voltage Limitations. (Fixed Outdoor Electric Deicing and Snow-Melting Equipment)

2014 NEC Requirement. The secondary winding of an isolation transformer connected to an impedance heating element for fixed outdoor electric deicing and snow melting equipment could not have an output voltage greater than 30 volts ac unless it was protected by ground-fault circuit-interrupter (GFCI) for personnel. With GFCI protection of personnel, the voltage was permitted to be greater than 30 volts, but not more than 50 volts.
2017 NEC Change. The secondary winding of an isolation transformer connected to an impedance heating element cannot have an output voltage greater than 30 volts ac. The allowance for voltage output greater than 30 volts ac if the system is provided with Class A GFCI protection has been deleted.

41. Two new sections were added. These sections (_____) address proper installations of cables under floor coverings and labels provided by the manufacturer.
    a. 424-45
    b. 424.46
    c. 424.47
    d. both a & c
42. New requirements were added at 424.45 (Part V of Article 424) to give direction for the installation of heating cables installed _____.
    a. under wood surfaces
    b. under floor coverings

c. under concrete floors
d. all of the above

43. New requirements for manufacturer's labels were added at 424-47 in Part V of Article 424 for application to electric space-heating _____.
a. components
b. cables
c. units
d. mechanism

44. _____ Article 425 (Fixed Resistance and Electrode Industrial Process Heating Equipment) has been incorporated into the 2017 *NEC.*
a. Relocated
b. Amended
c. Revised
d. New

45. The secondary winding of an isolation transformer connected to an impedance heating element cannot have an output voltage greater than ___ volts ac.
a. 20
b. 30
c. 40
d. 50

430.2 and 430.4 Definitions. (Motors, Motor Circuits, and Controllers)
2014 NEC Requirement. The definition of a part-winding motor was located at the beginning of 430-4.
2017 NEC Change. The definition of a part-winding motor was moved from 430-4 to its proper location at 430.2.

430.53(D)(4) Several Motors or Loads on One Branch Circuit
2014 NEC Requirement. Single motor taps for group installations were limited to a 3 m (10 ft) length by the provisions of 430.53(D)(3). Feeder tap conductors for motors were allowed as much as a 7-5 m (25ft) tap length by the requirements found at 430.28(2).
2017 NEC Change. New 430.53(D)(4) increases the maximum length of the conductors of any tap supplying a single motor to 7-5 m (25 ft) when the ampacity is not less than one-third that of the branch-circuit conductors.

210.7 Available Fault Current. (Motors, Motor Circuits, and Controllers)
2014 NEC Requirement. Nondwelling unit service equipment is required to have the maximum available fault current legibly marked in the field with the date the fault-current calculation was performed on service equipment. There was no such available fault current documentation required for a motor control center.
2017 NEC Change. New provisions were added at 430.99 requiring documentation of the available short-circuit current (fault current) at motor control centers along with the date the short-circuit current calculation was performed.

440.9 Grounding and Bonding. (Air-Conditioning and Refrigerating Equipment)
2014 *NEC* Requirement. By their respective articles, metallic raceway systems-such as liquidtight flexible metal conduit (LFMC) (Article 3·50) and electrical metallic tubing (EM1) (Article 358)-are permitted as acceptable wiring methods for outdoor multimotor and combination-load equipment such as heating and air-conditioning equipment. For the 2014 *NEC,* these two wiring methods were also permitted as their equipment grounding conductor (EGC) in outdoor portions of these metallic raceway systems installed on a roof in accordance with 250.118. No wire-type EGC was required in addition to these wiring methods.
2017 NEC Change. The outdoor portions of metallic raceway systems that use non-threaded fittings are now required to contain a wire-type equipment grounding conductor when installed outdoors on a roof to supply multimotor and combination-load equipment.

440.65 Branch-Circuit Receptacle Requirements
2014 NEC Requirement. Single-phase, cord- and plug-connected room air conditioners were required to be provided with factory installed leakage-current detector interrupter (LCDI) or arc-fault circuit interrupter (AFCI) protection. This protection is required to be located within 300 mm (12 in.) of the attachment plug or an integral part of the attachment plug.

2017 NEC Change. In addition to the previously allowed protection for single-phase, cord and plug-connected room air conditioners of LCDI or AFCI protection, a new form of protection was introduced at 440.65 allowing heat detecting circuit interrupter (HDCI) protection for room air conditioners. These three forms of protection for room air conditioners were placed in a list format for better clarity to the user of the *Code.*

445.11 Marking. (Generators)

2014 NEC Requirement. Marking requirements for generators required each generator to be provided with a nameplate. This nameplate was to indicate the manufacturer's name, the rated frequency, number of phases if of alternating current, the rating in kilowatts or kilovolt amperes, the normal volts and amperes corresponding to the rating, rated revolutions per minute, and rated ambient temperature or rated temperature rise. The power factor, the subtransient and transient impedances, the insulation system class, and the time rating markings are required for stationary and portable generators rated more than 15 kW. Manufacturer's marking provision requires indication of whether or not the generator neutral is bonded to the generator frame. This neutral bonding provision goes further to require additional marking to indicate whether the generator neutral is bonded to the generator frame whenever the bonding of a generator is modified in the field.

2017 NEC Change. This section involving a generator's nameplate marking was revised into a list format for stationary and portable generators rated more than 15 kW. The word "impedance" was replaced with the word "reactance." Generators rated more than 15 kW are now also required to be marked with the maximum short-circuit current for inverter-based generators. The requirement for the nameplate to provide the "power factor" for all stationary and portable generators rated more than 15 kW has been moved to the first sentence of 445.11 so as to apply to all sizes of generators. For stationary and portable generators rated more than 15 kW, the term "time rating" was replaced with "power rating category."

46. The definition of a part-winding motor was moved from 430-4 to its proper location at _____.
    a. 430.1
    b. 430.2
    c. 430.3
    d. 430.4

47. New 430.53(D)(4) increases the maximum length of the conductors of any tap supplying a single motor to _____ when the ampacity is not less than one-third that of the branch-circuit conductors.
    a. 7-5 m
    b. 25 ft
    c. both a & b
    d. none of the above

48. New 430.53(D)(4) increases the maximum length of the conductors of any tap supplying a single motor to (use answer from above) when the ampacity is not less than _____that of the branch-circuit conductors.
    a. 1/8
    b. 1/4
    c. 1/3
    d. none of the above

49. New provisions were added at 430.99 requiring documentation of the available _____at motor control centers.
    a. short-circuit current
    b. fault current
    c. both a & b
    d. none of the above

50. New provisions were added at 430.99 requiring date the _____ calculation was performed.
    a. short-circuit current
    b. fault current
    c. both a & b
    d. none of the above

51. The outdoor portions of metallic raceway systems that use non-threaded fittings are now required to contain a wire-type equipment grounding conductor when installed outdoors on a roof to supply _____.
    a. multimotor
    b. combination-load equipment

c. both a & b
d. none of the above

52. In addition to the previously allowed protection for single-phase, cord and plug-connected room air conditioners of _____protection,

a. LCDI
b. AFCI
c. both a & b
d. none of the above

53. A new form of protection was introduced at 440.65 allowing heat detecting circuit interrupter _____ protection for room air conditioners.

a. HDGI
b. HDAI
c. HDCI
d. none of the above

54. 445.11 Marking. (Generators) This section involving a generator's nameplate marking was revised into a list format for stationary and portable generators rated more than __ kW

a. 10
b. 12
c. 15
d. 20

55. For stationary and portable generators rated more than 15 kW, the term "time rating" was replaced with "_____."

a. current rating category
b. voltage rating category
c. power rating category
d. none of the above

445.13(B) Ampacity of Conductors. (Generators)

2014 NEC Requirement. The ampacity of conductors between a generator and the first overcurrent protection device cannot be less than 115 percent of the nameplate current rating on the generator's nameplate. An exception permits these conductors to have an ampacity of not less than 100 percent of the generator's nameplate current rating if the generator is designed to operate to prevent overloading. The neutral conductor(s) can be sized in accordance with 220.61. Conductors designed to transmit ground-fault currents cannot be smaller than required by 250.30(A) for grounding of a separately derived system. Neutral conductor(s) of dc generators designed to carry groundfault currents are not permitted to be smaller than the minimum required size of the largest conductor.

2017 NEC Change. The existing provisions of the 2014 *NEC* for ampacity of conductors for generators were carried forward for the 2017 *NEC* and reassigned to 445.13(A) and exception. New provisions were added at 445.13(B) to clarify that the feeder tap rules of 240.21(B) can be used if the generator or generator set is equipped with an overcurrent relay or other overcurrent device, unless the tapped conductors are for portable generators rated 15 kW or less where field wiring connection terminals are not accessible.

445.18 Disconnecting Means and Shutdown of Prime Mover

2014 NEC Requirement. Generators are required to be equipped with disconnect(s) that are lockable in the open position. This lockable disconnecting means must be able to disconnect the generator and all protective devices and control apparatus entirely from the circuits supplied by the generator. A couple of conditions existed that permit the disconnecting means requirements for generators to be omitted. (1) For portable generators that supply power from a self-contained receptacle outlet, which would accept a cord-and plug connection, the cord and plug can serve as the disconnecting means. (2) For generators where the driving means can be readily shut down, they must also be rendered incapable of restarting and lockable in the off or "open" position in accordance with the locking provisions of 110.25, and the generator is not arranged to operate in parallel with another generator or with other source of voltage.

2017 NEC Change. Revisions and new requirements were incorporated into 445.18 by installing three subsections for disconnecting means for a generator. The provisions of 445.18(A) retain the existing requirements, with revisions, for a disconnecting means for a generator.

New 445.18(B) adds requirements for the shutdown of the prime mover for a generator or generator set. New 445.18(C) was added to clarify that when generators are installed in parallel, it is not necessary to provide a disconnecting means at each generator and the paralleling equipment as long as the generator is capable of isolating the generator output terminals from the paralleling equipment.

445.20 Ground-Fault Circuit-Interrupter Protection for Receptacles on 15-kW or Smaller Portable Generators

2014 NEC Requirement. A new 445.20 titled, "Ground-Fault Circuit-Interrupter Protection for Receptacles on 15-kW or Smaller, Portable Generators" was added to Article 445. This section required all 125-volt, single-phase, 15- and 20- ampere receptacle outlets that are a part of a 15 kW or smaller portable generator to be equipped either with GFCI protection integral to the generator or receptacle or the generator had to be capable of rendering the 125-volt, single-phase, 15-and 20 ampere receptacle outlets unavailable for use when the 125/250-volt locking-type receptacles were in use. This requirement also indicated that if the generator did not have a 125/250-volt locking-type receptacle, this GFCI requirement was not applicable.

2017 NEC Change. The requirements of 445.20 were revised to separate GFCI requirements for unhanded (floating neutral) generators at 445.20(A) and bonded neutral generators at 445.20(B). Unhanded (floating neutral) generators requires GFCI protection at al1125-volt, 15- and 20-ampere receptacles, but only where both 125-volt and 125/250-volt receptacles exist on the generator. An exception to 445.20(A) eliminates GFCI protection where the 125-volt receptacle outlets(s) is interlocked such that it is not available for use when any 125/250-volt receptacle(s) is in use.

New 445.20(B) requires all125-volt, 15- and 20-ampere receptacles on bonded neutral generators to be provided with GFCI protection. An exception to 445.20(A) and (B) permits GFCI protection in the form of listed cord sets or devices incorporating listed GFCI protection if the generator was manufactured or remanufactured prior to January 1, 2015.

480.3 Equipment. (Storage Batteries)

2014 *NEC* Requirement. Article 480 contained requirements and information for storage batteries, but there was no listing requirement for these storage batteries in this article.

2017 NEC Change. New listing requirement was added at 480.3, which will require storage batteries and battery management equipment to be listed. This listing requirement does not apply to lead-acid batteries.

56. New provisions were added at 445.13(B) to clarify that the feeder tap rules of 240.21(B) can be used if the generator or generator set is equipped with an_____, unless the tapped conductors are for portable generators rated 15 kW or less where field wiring connection terminals are not accessible.

a. overcurrent relay
b. other overcurrent device
c. both a & b
d. none of the above

57. New 445.18(C) was added to clarify that when generators are installed in parallel, it is not necessary to provide a disconnecting means at each generator and the paralleling equipment as long as the generator is capable of isolating the generator output terminals from the _____equipment.

a. corresponding
b. comparable
c. paralleling
d. none of the above

58. New 445.20(B) requires all125-volt, 15- and 20-ampere receptacles on bonded neutral generators to be provided with _____ protection.

a. GFCI
b. GFCI/AFCI
c. AFCI
d. all of the above

59. An exception to 445.20(A) and (B) permits GFCI protection in the form of listed cord sets or devices incorporating listed GFCI protection if the generator was _____ prior to January 1, 2015.

a. manufactured
b. remanufactured
c. both a & b

d. mass-produced

60. 2017 *NEC* Change. New listing requirement was added at 480.3, which will require storage batteries and battery management equipment to be _____.

a. approved
b. identified
c. listed
d. marked

2017 NEC Changes 2-Quiz Answer Sheet

1	a b c d	21	a b c d	41	a b c d
2	a b c d	22	a b c d	42	a b c d
3	a b c d	23	a b c d	43	a b c d
4	a b c d	24	a b c d	44	a b c d
5	a b c d	25	a b c d	45	a b c d
6	a b c d	26	a b c d	46	a b c d
7	a b c d	27	a b c d	47	a b c d
8	a b c d	28	a b c d	48	a b c d
9	a b c d	29	a b c d	49	a b c d
10	a b c d	30	a b c d	50	a b c d
11	a b c d	31	a b c d	51	a b c d
12	a b c d	32	a b c d	52	a b c d
13	a b c d	33	a b c d	53	a b c d
14	a b c d	34	a b c d	54	a b c d
15	a b c d	35	a b c d	55	a b c d
16	a b c d	36	a b c d	56	a b c d
17	a b c d	37	a b c d	57	a b c d
18	a b c d	38	a b c d	58	a b c d
19	a b c d	39	a b c d	59	a b c d
20	a b c d	40	a b c d	60	a b c d

To obtain your Continuing Education Credits follow the below instructions

1. Print out first.
2. Fill in all fields applicable. Fee $20.00
3. Include your certification or license number.
4. We'll take care of crediting with the state and mailing back to you the quiz results.

Send by mail

1. Mail just the answer sheet and keep the quiz for your records.
2. Fill out this form below completely.
3. Applicable fees by check payable to our business name: **GaryKlinka.com**
4. Mail to: **GaryKlinka.com** at 1316 Cardinal Circle, Neenah, WI 54956.

Live Support at 920-381-6714 or tmklinka@hotmail.com

----------Educational Course Attendance Verification Form ----------

Attendee's name_____Date_____

Address_____

Credential Number_____Phone#_____

Course Title and Name 2017 NEC Changes 2 Course ID# 18824

List the name of each credential held by attendee_____

_____Credited 2 hrs

Email address_____

Fax#_____Course Fee $20

To be completed by GaryKlinka.com

Attendee passed the course with a greater than 70% score on date_____

Instructor's signature _____