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: 18825 2017 NEC Changes 3

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 3

500.2 Type of Change: Relocation

2014 NEC Requirement. Fourteen definitions existed at 500.2 that applied to Articles 500 through 504 and Articles 510 through 516.

2017 NEC Change. The fourteen definitions that resided at 500.2 in previous editions of the *Code* have been relocated to Article 100 of the *NEC*.

500.5(A) Classifications of Locations

2014 NEC Requirement. Section 500.5(A) titled "Classifications of Locations" indicates that locations are to be classified depending on the properties of the flammable gas, flammable liquid-produced vapor, combustible liquid-produced vapors, combustible dusts, or fibers/flyings that could be present. This section goes on to state that each room, section, or area is to be considered individually in determining its classification. Locations where pyrophoric materials are the only materials used or handled are considered outside the scope of Article 500. Rooms and areas containing ammonia refrigeration systems equipped with "adequate mechanical ventilation" may be classified as "unclassified" locations.

2017 NEC Change. The title of 500.5(A) was changed from "Classifications of Locations" to "General" as 500.5(A) applies to all of 500.5, including 500.5(B), (C), and (D). Revisions to the text of 500.5(A) clarify that "refrigerant machinery rooms" containing ammonia refrigeration may be classified as "unclassified" locations based on the use of gas detection and adequate ventilation with this "adequate ventilation" being defined as "continuous or initiated by a detection system at a concentration not exceeding 150 ppm (parts per million)."

Table 500.8(D)(2) Equipment

2014 NEC Requirement. The provisions of 500.8(D)(2) stated that the ignition temperature for which equipment was approved prior to the requirements of 500.8(D)(2) were to be assumed to be as shown in Table 500.8(D)(2). This table was based on fixed ignition temperature limits.

2017 NEC Change. Previous Table 500.8(D)(2) has been deleted as the table is no longer applicable because the fixed ignition temperature limits referenced in the table are no longer used to evaluate Class II temperature limitations on equipment.

501.1 0(B)(1) Wiring Methods. (Class I Locations)

2014 NEC Requirement. Acceptable wiring methods for Class I Division 2locations are identified at 501.10(B). There were six list items under 501.10(B)(1) that included ten general wiring methods for Class I Division 2 locations, in addition to the wiring methods permitted in 501.10(A) for Class I Division 1locations.

2017 NEC Change. Besides the wiring methods permitted in the previous *Code*, the wiring methods permitted for Class I, Division 2 locations have been expanded to include rigid metal conduit (RMC) and intermediate metal conduit (IMC) with listed threadless fittings, as well as cablebus.

501.15(D)(1) Sealing and Drainage. (Class I Locations)

2014 NEC Requirement. The process for the installation of a cable seal in Class I, Division I location was detailed at 501.15(D)(1). The explosion proof fittings that can be installed between a cable seal and an enclosure in Class I, Division 1 location was not addressed.

2017 NEC Change. A new sentence was added to 501.15(D)(l) identifying that only explosionproof unions, couplings, reducers, elbows, and capped elbows that are not larger than the trade size of the enclosure entry are permitted between the cable sealing fitting and the enclosure in a Class I, Division 1 location.

Table 511.3(C) and Table 511.3(0) Area Classification, General. (Commercial Garages, Repair, and Storage)

2014 NEC Requirement. Classification of areas where electrical wiring and electrical utilization equipment are used where Class I liquids or gaseous fuels are stored, handled, or transferred is addressed in the *NEC* at 511.3. Major repair garages for commercial use were addressed at 511.3(C). This subsection covered floor areas as well as ceiling areas of these major repair garages. Minor repair garages for commercial use were dealt with at 511.3(D) covering floor areas, ceiling areas, and pit areas in lubrication or service rooms. This information was delivered in a paragraph text format.

2017 NEC Change. The text provisions of 511.3(C) and (D) were revised into a table format and moved to two new tables in 511.3. The previous requirements of 511.3(C) and (D) were replaced with a new Table 511.3(C) covering both major and minor repair garages where heavier than air gaseous Class I liquids are transferred or dispensed. New Table 511.3(D) covers major repair garages where vehicles using lighter than air gaseous fuels are repaired or stored.

1. The fourteen definitions that resided at 500.2 in previous editions of the *Code* have been relocated to Article ____ of the *NEC*.
    a. 500
    b. 502
    c. 504
    d. 100

2. Revisions to the text of 500.5(A) clarify that "refrigerant machinery rooms" containing ammonia refrigeration may be classified as "unclassified" locations based on the use of gas detection and adequate ventilation with this "adequate ventilation" being defined as "continuous or initiated by a detection system at a concentration not exceeding ____ ppm (parts per million)."
    a. 50
    b. 100
    c. 150
    d. 200

3. Previous Table 500.8(D)(2) has been deleted as the table is no longer applicable because the fixed ignition temperature limits referenced in the table are no longer used to evaluate _____temperature limitations on equipment.
    a. Class I
    b. Class II
    c. Class III
    d. Class V

4. Besides the wiring methods permitted in the previous *Code*, the wiring methods permitted for Class I, Division 2 locations have been expanded to include rigid metal conduit (RMC) and intermediate metal conduit (IMC) with _____ threadless fittings.
    a. approved
    b. marked
    c. listed
    d. recognized

5. A new sentence was added to 501.15(D)(l) identifying that only explosionproof unions, couplings, reducers, elbows, and capped elbows that are not larger than the trade size of the enclosure entry are permitted between the cable sealing fitting and the enclosure in a _____ location.

a. Class I, Division 1
b. Class 2, Division 1
c. Class I, Division 2
d. Class 2, Division 2

6. New Table _____ covers major repair garages where vehicles using lighter than air gaseous fuels are repaired or stored.

a. 511.3(A)
b. 511.3(B)
c. 511.3(C)
d. 511.3(D)

7. The previous requirements of 511.3(C) and (D) were replaced with a new Table 511.3(C) covering _____ where heavier than air gaseous Class I liquids are transferred or dispensed.

a. major repair garages
b. minor repair garages
c. storage garages
d. both a & b

8. The text provisions of 511.3(C) and (D) were revised into a table format and moved to ____ new tables in 511.3.

a. 1
b. 2
c. 3
d. 4

511.8 Underground Wiring. (Commercial Garages, Repair and Storage)

2014 NEC Requirement. For an underground raceway installation under a commercial repair garage, Article 511 offered little guidance. Depending on what the area is classified, wiring methods described in 501.10(A) (for a Class I Division I location) would apply. Some users of the *Code* would migrate to 514.8 for an underground wiring method below a commercial garage, but 514.8 applies only if motor fuel dispensing facilities are involved.

2017 NEC Change. A new section (511.8) was added to Article 511 requiring the underground wiring method for a commercial repair garage to be installed in threaded rigid metal conduit (RMC) or threaded steel intermediate metal conduit (IMC). A new exception at 511.8 permits PVC conduit, RTRC conduit, and high-density polyethylene (HDPE) conduit to be used where buried under not less than 600 mm (2 ft) of cover.

514.3(B)(3) Classification of Location

2014 NEC Requirement. Section 514.3(B)(2) and Table 514.3(B)(2) contain information concerning area classification for compressed natural gas, liquefied natural gas, and liquefied petroleum gas for dispensing devices. No detailed information existed at this section for area classification of fuel storage of these gases.

2017 NEC Change. Specific requirements for fuel storage of compressed natural gas, liquefied natural gas, and liquefied petroleum gas were put in place, along with references to other NFPA documents that offer further detail were added to the 2017 *NEC*.

514.8 Ex. No.2 Underground Wiring. (Motor Fuel Dispensing Facilities)

2014 NEC Requirement. Underground wiring for motor fuel dispensing facilities is required to be installed in threaded rigid metal conduit (RMC) or threaded steel intermediate metal conduit (IMC). Mineral-insulated, metal-sheathed (Type MD cable is permitted where it is installed in accordance with Article 332. Rigid polyvinyl chloride conduit (PVC) conduit and reinforced thermosetting resin conduit (RTRC) where buried under not less than 600 mm (2 ft) of cover is also permitted as a wiring method under motor fuel dispensing facilities.

2017 NEC Change. In addition to the permitted wiring methods allowed in the 2014 *NEC*, high density polyethylene (HDPE) conduit was added to 514.8, Ex. No. 2 as an acceptable wiring method for underground installations for motor fuel dispensing facilities where buried under not less than *600* mm (2 ft) of cover.

514.11(A), (B), and (C) Circuit Disconnects. (Motor Fuel Dispensing Facilities)

2014 NEC Requirement. Each circuit leading to or through motor fuel dispensing facility equipment, including all associated power, communications, data, and video circuits, and equipment for remote pumping systems was required to be provided with a clearly identified and readily accessible switch or other approved means. This switching device was required to be located remote from the dispensing devices. This switching device was also required to provide simultaneous disconnection from the source of supply power for all conductors of the circuits, including the grounded conductor. Single-pole breakers utilizing handle ties were not permitted to be utilized as this switching device.

Emergency controls for attended self-service facilities were required to be installed at a location acceptable to the authority having jurisdiction, but not more than 30 m (100 ft) from the dispensers. Emergency controls for unattended self-service facilities were required to be installed at a location acceptable to the authority having jurisdiction, more than 6 m (20ft) but less than 30 m (1oo ft) from the dispensers.

2017 NEC Change. The same basic requirements for the emergency shutoff devices still exist for the 2017 *NEC.* Fuel dispensing systems are required to be provided with one or more clearly identified emergency shutoff devices or electrical disconnects. Such devices or disconnects shall be installed in approved locations but not less than 6 m (20 ft) or more than 30 m (100 ft) from the fuel dispensing devices that they serve. Language was revised at 514.11 to clearly indicate that these minimum and maximum distances hold true at both attended and unattended motor fuel dispensing facilities.

Article 516 Spray Application, Dipping, Coating, and Printing Processes Using Flammable or Combustible Materials

2014 *NEC* Requirement. Article 516 covered spray application, dipping, coating, and printing processes using flammable or combustible materials. There were no parts to the article.

2017 NEC Change. Article 516 was re-arranged and revised to give the article a clearer outline. Four individual parts were added to the article. The requirements now align with the requirements of NFPA 33 and NFPA 34.

517.2 Definitions. (Health Care Facilities)

2014 NEC Requirement. The term *governing body* appeared in Informational Note No. 1 and Informational Note No.5 following the definition of "patient care space," but the term was not defined in Article 517 or Article 100.

2017 NEC Change. The term "governing body" appears at seven different locations in Article 517 for the 2017 *NEC* and a new definition has been added at 517.2.

9. A new section (511.8) was added to Article 511 requiring the underground wiring method for a commercial repair garage to be installed in _____.

a. threaded rigid metal conduit (RMC)
b. threaded steel intermediate metal conduit (IMC)
c. threaded steel electric metal tubing
d. both a & b

10. A new exception at 511.8 permits _____conduit to be used where buried under not less than 600 mm (2 ft) of cover.

a. PVC conduit
b. RTRC conduit
c. high-density polyethylene (HDPE)
d. all of the above

11. Specific requirements for fuel storage of _____were put in place, along with references to other NFPA documents that offer further detail were added to the 2017 *NEC.*

a. compressed natural gas
b. liquefied natural gas
c. liquefied petroleum gas
d. all of the above

12. In addition to the permitted wiring methods allowed in the 2014 *NEC*, high density polyethylene (HDPE) conduit was added to 514.8, Ex. No. 2 as an acceptable wiring method for underground installations for motor fuel dispensing facilities where buried under not less than _____of cover.

a. 600 m
b. 2 ft
c. 600 mm

d. both b & c

13. Fuel dispensing systems are required to be provided with one or more clearly identified emergency shutoff devices or electrical disconnects. Such _____shall be installed in approved locations but not less than 6 m (20 ft) or more than 30 m (100 ft) from the fuel dispensing devices that they serve.

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

14. Language was _____ at 514.11 to clearly indicate that these minimum and maximum distances hold true at both attended and unattended motor fuel dispensing facilities.

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

15. Article 516 was re-arranged and revised to give the article a clearer outline. Four individual parts were added to the article. The requirements now align with the requirements of _____.

a. NFPA 33
b. NFPA 34
c. NFPA 35
d. both a & b

16. The term "governing body" appears at _____different locations in Article 517 for the 2017 *NEC* and a new definition has been added at 517.2.

a. 5
b. 6
c. 7
d. 8

517.2 Definitions. (Health Care Facilities)

2014 NEC Requirement. The term *Health Care Facility* was defined at 517.2 in the 2014 *NEC*. Though it did not exclude a mobile facility, it did not include this term in the definition. Examples of health care facilities were included in the definition.

2017 NEC Change. The definition of a *Health Care Facility* was revised for the 2017 *NEC* and now includes the term "mobile enclosures." The examples of a health care facility that were included in the definition in the previous edition of the *Code* are now found in an informational note below the revised definition.

517.2 Definitions. (Health Care Facilities)

2014 NEC Requirement. The term, *medical and dental offices* was used at six different locations throughout Article 517 in the 2014 *NEC*, but the term was not defined.

2017 NEC Change. To define a well-used term in Article 517, a new definition for *Medical Office (Dental Office)* was added at 517.2 for the 2017 *NEC*.

517.2 Definitions. (Health Care Facilities)

2014 NEC Requirement. The definition of a *Patient Care Space* was located at 517.2. The four types of patient care spaces were described following the definition of a patient care space. This description was followed by five informational notes.

2017 NEC Change. The four types of patient care spaces were revised to include NFPA 99 numbered categories assigned to each of these types of patient care spaces. Bracketed NFPA 99s were added after each description and informational note. Informational notes were relocated after each definition, and these informational notes contain examples of each of the different categories.

517.16 Use of Isolated Ground Receptacles. (Health Care Facilities)

2014 NEC Requirement. Isolated ground receptacles were not permitted to be installed within a patient care vicinity of a health care facility by the provisions of 517.16. Provisions for installing an isolated ground receptacle outside of a patient care vicinity were not addressed in Article 517.

2017 NEC Change. New provisions were added to 517.16 pertaining to the proper installation of isolated ground receptacles located outside of a patient care vicinity. The prohibition of isolated ground receptacle inside

a patient care vicinity are addressed at 517.16(A) and isolated ground receptacles installed outside a patient care vicinity are addressed at 517.16(B).

517.30 Sources of Power. (Health Care Facilities)

2014 NEC Requirement. The requirements for Sources of Power for essential electrical system of a health care facility was located at 517.35. Two independent sources of power were required with one being the normal power source and one or more alternate power sources for use when the normal power source is interrupted. The alternate power source can be and is typically one or more generator sets or battery systems where permitted, intended to provide power during the interruption of the normal electrical services, or a second public utility electrical service intended to provide power during interruption of service normally provided by the generating facilities on the premises.

2017 NEC Change. The same basic provisions that were located at 517.35 were relocated to 517.30. Fuel cell systems will now be permitted to serve as the alternate source for all or part of an essential electrical system as any reference to a battery system has been deleted.

517.34(B) Critical Branch. (Essential Electrical System-Health Care Facilities)

2014 NEC Requirement. Task illumination lighting was permitted to be controlled and supplied from the critical branch of the essential electrical system, but to some users of the *Code*, this was not specifically stated.

2017 NEC Change. Positive language was added at 517.34(B) to specifically permit the control of task illumination on the critical branch of the essential electrical system.

17. The definition of a *Health Care Facility* was _____ for the 2017 *NEC* and now includes the term "mobile enclosures."
    a. relocated
    b. removed
    c. revised
    d. added
18. To define a well-used term in Article 517, a new definition for *Medical Office (Dental Office)* was ____at 517.2 for the 2017 *NEC*.
    a. relocated
    b. removed
    c. revised
    d. added
19. The ____ types of patient care spaces were revised to include NFPA 99 numbered categories assigned to each of these types of patient care spaces.
    a. 2
    b. 3
    c. 4
    d. 5
20. New provisions were added to _____ pertaining to the proper installation of isolated ground receptacles located outside of a patient care vicinity.
    a. 517.15
    b. 517.16
    c. 517.17
    d. none of the above
21. The prohibition of isolated ground receptacle inside a patient care vicinity are addressed at _____.
    a. 517.16(A)
    b 517.16(B)
    c. 517.16(C)
    d. none of the above
22. Isolated ground receptacles installed outside a patient care vicinity are addressed at 517.16(B).
    a. 517.16(A)
    b 517.16(B)
    c. 517.16(C)
    d. none of the above

23. The same basic provisions that were located at 517.35 were relocated to 517.30. Fuel cell systems will now be permitted to serve as the alternate source for ____ of an essential electrical system as any reference to a battery system has been deleted.

a. all
b. part
c. none
d. both a & b

24. Positive language was _____ at 517.34(B) to specifically permit the control of task illumination on the critical branch of the essential electrical system.

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

520.2 Definitions. (Theaters, Audience Areas of Motion Picture and Television Studios, Performance Areas, and Similar Locations): Adapter

2014 NEC Requirement. The term *Adapter* was used several times in Article 520 but was not defined.

2017 NEC Change. A new definition of *Adapter* was added at 520.2 to address misapplication of this term in Article 520.

520.2 **Definitions. (Theaters, Audience Areas of Motion Picture and Television Studios, Performance Areas, and Similar Locations)**

2014 NEC Requirement. The 2014 *NEC* contained a definition for "Stage Switchboard." This definition was broad in nature and did not distinguish between permanently installed stage switchboards and stage switchboards of the portable type.

2017 NEC Change. A new definition for "Stage Switchboard, Portable" was added to Article 520 and the phrase "permanently installed" was added to the existing definition of "Stage Switchboard."

525.23(D) Ground-Fault Circuit-Interrupter (GFCI) Protection. (Carnivals, Circuses, Fairs, and Similar Events)

2014 NEC Requirement. GFCI protection requirements for carnivals, circuses, fairs, and similar events were addressed at 525.23(A) through (C). The use of a standard GFCI receptacle supplied by a flexible cord was limited by 110.3(B), but there was no language in Article 525 prohibiting this application at carnivals, circuses, fairs, and similar events.

2017 NEC Change. New requirements were imposed at 525.23(D) requiring GFCI protection to be listed, labeled, and identified for portable use when said GFCI protection is provided through the use of GFCI receptacles, and the branch circuits supplying these receptacles utilize a flexible cord.

547.5(F) Wiring Methods. (Agricultural Buildings)

2014 NEC Requirement. Provisions at 547.5(F) permitted an equipment grounding conductor installed underground at an agricultural building location to be an insulated or covered aluminum or copper conductor.

2017 NEC Change. A revision at 547·5(F) eliminated the permission to use a "covered" equipment grounding conductor for an underground installation at agricultural buildings.

550.2 Definitions. (Mobile Homes, Manufactured Homes, and Mobile Home Parks)

2014 NEC Requirement. A manufactured home was defined at 550.2.

2017 NEC Change. The existing definition for a "manufactured home" was revised for consistency with the definition of a "manufactured home" found in NFPA 501 *(Standard on Manufactured Housing).* The last sentence of the definition was revised to exclude park trailers.

550.13(B) Receptacle Outlets. (Mobile Homes, Manufactured Homes, and Mobile Home Parks)

2014 NEC Requirement. GFCI requirements for mobile and manufactured homes were found at 550.13(B) and consisted of a long paragraph with several sentences. These provisions called for GFCI protection for outlets installed outdoors, and those outdoor outlets installed "in compartments accessible from outside the unit." GFCI protection was demanded for receptacle outlets serving bathrooms (including receptacles in luminaires), kitchen countertops, and receptacle outlets located within 1.8 m (6ft) of a wet bar sink (not all sinks, just wet bar sinks). The GFCI protection could be delivered in a feeder supplying the associated branch circuits for these receptacle outlets.

2017 NEC Change. The GFCI provisions for mobile and manufactured homes were revised into a list format. Along with the previous GFCI requirements, GFCI requirements for all sinks (not just wet bar sinks), dishwashers and other locations similarly found at 210.8(A) were incorporated into 550.13(B). Clarification was added to the GFCI provisions for outdoor receptacle outlets to include all outdoor receptacle outlets including (but not limited to) outdoor receptacle outlets located in compartments accessible from outside the unit. The option of delivering the required GFCI protection through a feeder that supplied the branch circuits associated with the receptacle outlets requiring GFCI protection was removed.

25. A new definition of *Adapter* was ____ at 520.2 to address misapplication of this term in Article 520.
    a. relocated
    b. removed
    c. revised
    d. added
26. A new definition for "Stage Switchboard, Portable" was added to Article _____.
    a. 510
    b. 515
    c. 520
    d. 252
27. The phrase "permanently installed" was ____ to the existing definition of "Stage Switchboard."
    a. relocated
    b. removed
    c. revised
    d. added
28. New requirements were imposed at 525.23(D) requiring GFCI protection to be _____ for portable use when said GFCI protection is provided through the use of GFCI receptacles, and the branch circuits supplying these receptacles utilize a flexible cord.
    a. listed
    b. labeled
    c. identified
    d. all of the above
29. A revision at 547·5(F) eliminated the permission to use a "_____" equipment grounding conductor for an underground installation at agricultural buildings.
    a. shielded
    b. guarded
    c. covered
    d. all of the above
30. The existing definition for a "manufactured home" was revised for consistency with the definition of a "manufactured home" found in _____*(Standard on Manufactured Housing).*
    a. NFPA 500
    b. NFPA 501
    c. NFPA 502
    d. NFPA 503
31. The last sentence of the definition was revised to exclude_____.
    a. park models
    b. park homes
    c. park trailers
    d. none of the above
32. The GFCI provisions for mobile and manufactured homes were revised into a list format. Along with the previous GFCI requirements, GFCI requirements for all sinks (not just wet bar sinks), dishwashers and other locations similarly found at 210.8(A) were incorporated into _____.
    a. 550.13(A)
    b. 550.13(B)
    c. 550.13(C)
    d. 550.13(D)

33. Clarification was _____ to the GFCI provisions for outdoor receptacle outlets to include all outdoor receptacle outlets including (but not limited to) outdoor receptacle outlets located in compartments accessible from outside the unit.

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

34. The option of delivering the required GFCI protection through a feeder that supplied the branch circuits associated with the receptacle outlets requiring GFCI protection was removed.

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

550.25(B) Arc-Fault Circuit-Interrupter Protection. (Mobile Homes, Manufactured Homes, and Mobile Home Parks

2014 NEC Requirement. For mobile and manufactured homes, AFCI protection was required by 550.25(B) at all12o-volt branch circuits that supply 15- and 20-ampere outlets installed in family rooms, dining rooms, living rooms, parlors, libraries, dens, bedrooms, sunrooms, recreation rooms, closets, hallways, or similar rooms.

2017 NEC Change. AFCI protection at mobile and manufactured homes was revised by eliminating the specific list of rooms and areas requiring AFCI protection at mobile and manufactured homes and simply requiring compliance with 210.12

551.2 Definitions. (Recreational Vehicles and Recreational Vehicle Parks)

2014 NEC Requirement. The definition of "Recreational Vehicle Park" stated that an RV park was "a plot of land upon which two or more recreational vehicle sites are located, established, or maintained for occupancy by recreational vehicles of the general public as temporary living quarters for recreation or vacation purposes."

2017 NEC Change. The definition of "Recreational Vehicle Park" was revised to correlate with the same definition in NFPA 1194 *(Standard or Recreational Vehicle Parks and Campgrounds).*

551.71 Type Receptacles Provided. (Recreational Vehicle Parks)

2014 NEC Requirement. Every RV site (with electrical power provided) must be equipped with a certain number and type of receptacles (see *Code* language above). For the 2014 *NEC,* language was added to require every recreational vehicle site equipped with a 50-ampere receptacle to also be equipped with a 30-ampere, 125-volt receptacle. All of the information concerning the type of receptacles required at an RV park was delivered in a long paragraph with multiple requirements involved.

2017 NEC Change. The section has been broken into six separate first level subdivisions with titles. The number of RV sites required to be equipped with 50-ampere, 125/250-volt receptacles has increased from 20 percent to 40 percent for all new recreational vehicle sites. GFCI devices used in RV site electrical equipment are not required to be weather- or tamper-resistant in accordance with 406.9 and 406.12.

551.73(A) Calculated Load. (Recreational Vehicle Parks)

2014 NEC Requirement. Electrical services and feeders for RV parks were required to be calculated on the basis of not less than 9600 volt-amperes per site equipped with 50-ampere, 208Yj120 or 120/240-volt supply facilities; 3600 volt-amperes per site equipped with both 20-ampere and 30-ampere supply facilities; 2400 volt-amperes per site equipped with only 20-ampere supply facilities; and 6oo volt-amperes per site equipped with only 20-ampere supply facilities that are dedicated to tent sites.

2017 NEC Change. The minimum calculated load for RV parks sites equipped with 50 ampere, 208Yj120 or 120/240-volt supply facilities has increased from 9600 volt-amperes to 12,000 volt-amperes per site. The calculated loads for 20-ampere and 30-ampere supply facilities remained the same.

551.75(B) Grounding. (RV Parks)

2014 NEC Requirement. This section simply stated that all electrical equipment and installations in RV parks were required to be grounded as required by Article 250. This reference to the entirety of Article 250 was too broad in nature and left a wide variety of interpretation.

2017 NEC Change. A new 551.75(B) was added indicating that power outlets or RV site supply equipment (other than those used as service equipment) are not required to have a grounding electrode established at RV site electrical equipment.

Article 555 Marinas, Boatyards, and Commercial and Non-commercial Docking Facilities

*2014 NEC Req*uirement. The requirements for boatyards and marinas are found in Article 555· For the 2014 *NEC*, private, noncommercial docking facilities constructed or occupied for the use of the owner or residents of the associated single family dwelling were not covered by this article.

2017 NEC Change. The title of Article 555 was changed from "Marinas and Boatyards" to "Marinas, Boatyards, and Commercial and Noncommercial Docking Facilities." Revisions to 555.1 make Article 555 relevant to dwelling unit docking facilities as well as commercial docking facilities.

35. AFCI protection at mobile and manufactured homes was revised by eliminating the specific list of rooms and areas requiring AFCI protection at mobile and manufactured homes and simply requiring compliance with _____.

a. 210.11
b. 210.12
c. 210.13
d. 210.10

36. The definition of "Recreational Vehicle Park" was _____ to correlate with the same definition in NFPA 1194 *(Standard or Recreational Vehicle Parks and Campgrounds).*

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

37. The section has been broken into six separate first level subdivisions with titles. The number of RV sites required to be equipped with 50-ampere, 125/250-volt receptacles has increased from 20 percent to ___ percent for all new recreational vehicle sites.

a. 30
b. 40
c. 50
d. 60

38. GFCI devices used in RV site electrical equipment are not required to be weather- or tamper-resistant in accordance with 406.9 and 406.12.

a. true
b. false

39. The minimum calculated load for RV parks sites equipped with 50 ampere, 208Y/120 or 120/240-volt supply facilities has increased from 9600 volt-amperes to _____ volt-amperes per site. The calculated loads for 20-ampere and 30-ampere supply facilities remained the same.

a. 10,000
b. 11,000
c. 12,000
d. 13,000

40. A new 551.75(B) was _____indicating that power outlets or RV site supply equipment (other than those used as service equipment) are not required to have a grounding electrode established at RV site electrical equipment.

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

41. The title of Article 555 was changed from "Marinas and Boatyards" to "Marinas, Boatyards, and Commercial and Noncommercial Docking Facilities." _____ to 555.1 make Article 555 relevant to dwelling unit docking facilities as well as commercial docking facilities.

a. Relocation
b. Deletions

c. Revisions
d. Additions

555.3 Ground-Fault Protection. (Marinas, Boatyards and Commercial and Noncommercial Docking Facilities)

2014 NEC Requirement. Ground-fault protection (GFP) was required for the main overcurrent protective device (OCPD) for a marina. This GFP protection could not exceed 100 mA. Individual GFCI protection of each individual branch or feeder was permitted in lieu of the maximum 100 mA GFP protection at the main OCPD.

2017 NEC Change. The ground-fault protection required for overcurrent protective devices for marinas, and now boatyards, and commercial and noncommercial docking facilities as well was reduced to a maximum of 30 mA rather than 100 mA. This GFP protection is required in all supply overcurrent protective devices, not necessarily in the main OCPD. The allowance of GFCI protection in each individual branch or feeder was deleted as this 30 mA GFP protection is required in all supply OCPDs. GFCI protection is still required for 15- and 20-ampere, single-phase, 125-volt receptacles by the requirements of 555.19(B)(1).

555.19(8)(1) Receptacles. (Marinas, Boatyards, and Commercial and Noncommercial Docking Facilities)

2014 NEC Requirement. GFCI protection for personnel was required for all12S-volt, single-phase, IS- and 20-ampere receptacles installed outdoors, in boathouses, and in buildings or structures used for storage, maintenance, or repair, but only in areas where electrical diagnostic equipment, electrical hand tools, or portable lighting equipment were to be used.

2017 NEC Change. The statement, "where portable electrical hand tools, electrical diagnostic equipment, or portable lighting equipment are to be used" was deleted. GFCI protection for personnel will now be required for alli2s-volt, single-phase, 15- and 2o-ampere receptacles installed outdoors, in boathouses, and in buildings or structures used for storage, maintenance, or repair regardless of the intended use of these receptacles.

555.24 Signage. (Marinas, Boatyards and Commercial and Noncommercial Docking Facilities)

2014 NEC Requirement. There were no requirements in the *NEC* or Article 555 requiring electrical shock hazard risk signage at marinas and boatyards.

2017 NEC Change. New requirements were added for permanent safety signs to be installed to give notice of electrical shock hazard risks to persons using or swimming near a boat dock or marina. The signage must comply with 110.21(B) (1) and be clearly visible from all approaches to a marina or boatyard facility. The signs shall state "WARNING - POTENTIAL SHOCK HAZARD -ELECTRICAL CURRENTS MAY BE PRESENT IN THE WATER"

590.4 General. (Temporary Installations)

2014 NEC Requirement. The only permitted cable assembly wiring methods for temporary installations for branch circuits and feeders were Type NM and Type NMC cables.

2017 NEC Change. Along with Type NM and Type NMC cables, Type SE cable has been added to the acceptable cable assembly wiring methods for temporary installations. Type SE cable is now permitted to be installed in a raceway in a temporary underground installation as well.

590.6(A)(1) Ground-Fault Protection for Personnel. (Temporary Installations)

2014 NEC Requirement. Al1125-volt, single-phase, 15-, 20-, and 30-ampere receptacle outlets that are not a part of the permanent wiring of the building or structure and that are in use by personnel are required to have GFCI protection for personnel. Listed cord sets or devices incorporating listed GFCI protection for personnel identified for portable use were permitted as well.

2017 NEC Change. The phrase "In addition to this required ground-fault circuit-interrupter protection for personnel," was added in front of "listed cord sets or devices incorporating listed ground-fault circuit-interrupter protection for personnel identified for portable use shall be permitted." This added language was to clarify that these portable GFCI cord sets or devices are permitted *in addition to* the GFCI protection required for all125-volt, single-phase, 15-, 20-, and 30-ampere receptacle outlets that are not a part of the permanent wiring of the building or structure.

600.4(8) Signs with a Retrofitted Illumination System

2014 NEC Requirement. Article 100 defines a *Retrofit Kit.* Retrofit kits are required to be listed by the provisions of 600.3. Installation instructions are required by 6oo-4(E). In 600.12, field-installed secondary circuit wiring for retrofit kits is required to be installed according to the installation instructions. No marking or label is required for a sign with a retrofit kit installed.

2017 NEC Change. A new marking requirement was added to 600-4(B) to indicate that the illumination system has been replaced with a listed retrofit kit.

42. The ground-fault protection required for overcurrent protective devices for marinas, and now boatyards, and commercial and noncommercial docking facilities as well was reduced to a maximum of _____ mA rather than 100 mA.
    a. 20
    b. 30
    c. 40
    d. 50

43. This GFP protection is required in all supply overcurrent protective devices, not necessarily in the main OCPD.
    a. true
    b. false

44. The allowance of GFCI protection in each individual branch or feeder was _____ as this 30 mA GFP protection is required in all supply OCPDs. GFCI protection is still required for 15- and 20-ampere, singlephase, 125-volt receptacles by the requirements of 555.19(B)(1).
    a. relocated
    b. removed
    c. revised
    d. deleted

45. The statement, "where portable _____ are to be used" was deleted.
    a. electrical hand tools
    b. electrical diagnostic equipment
    c. portable lighting equipment
    d. all of the above

46. GFCI protection for personnel will now be required for all 125-volt, single-phase, 15- and 20-ampere receptacles installed outdoors, in boathouses, and in buildings or structures used for _____ regardless of the intended use of these receptacles.
    a. storage
    b. maintenance
    c. repair
    d. all of the above

47. New requirements were added for permanent safety signs to be installed to give notice of electrical shock hazard risks to persons using or swimming near a _____. The signage must comply with 110.21(B) (1) and be clearly visible from all approaches to a marina or boatyard facility. The signs shall state "WARNING - POTENTIAL SHOCK HAZARD -ELECTRICAL CURRENTS MAY BE PRESENT IN THE WATER"
    a. boat dock
    b. marina
    c. both a & b
    d. none of the above

48. 590.4 General. (Temporary Installations) _____ are acceptable cable assembly wiring methods for temporary installations.
    a. Type NM cables
    b. Type NMC cables
    c. Type SE cable
    d. all of the above

49. Type _____ is now permitted to be installed in a raceway in a temporary underground installation as well.
    a. Type NM cables
    b. Type NMC cables
    c. Type SE cable
    d. all of the above

50. The phrase "In addition to this required ground-fault circuit-interrupter protection for personnel," was _____ in front of "listed cord sets or devices incorporating listed ground-fault circuit-interrupter protection for

personnel identified for portable use shall be permitted."

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

51. This added language was to clarify that these portable GFCI cord sets or devices are permitted *in addition to* the GFCI protection required for all 125-volt, single-phase, _____-ampere receptacle outlets that are not a part of the permanent wiring of the building or structure.

a. 15
b. 20
c. 30
d. all of the above

52. A new marking requirement was added to 600-4(B) to indicate that the illumination system has been replaced with a _____ retrofit kit.

a. listed
b. labeled
c. identified
d. all of the above

600.6(A)(1), Ex. No. 2 Disconnects. (Electric Signs and Outline Lighting)

2014 NEC Requirement. A new 600.6(A)(l) titled, "At Point of Entry to a Sign Enclosure," was added to this subsection. This addition required the sign disconnect to be located at the point the feeder(s) or branch circuit(s) supplying a sign or outline lighting system enters a sign enclosure or pole. This new 2014 *NEC* provision also required disconnection of all wiring where it entered the enclosure of the sign or pole. The previous provisions for the disconnecting means to be within sight of the sign and the controller were pushed to 6oo.6(A)(2) and (A)(3) respectively.

2017 NEC Change. A new exception was added to specifically address a sign enclosure or sign body that supplies an internal panelboard(s) in that same sign enclosure or sign body. A field-applied permanent warning label that is visible during servicing is required to be applied to the raceway containing these energized conductors at or near the point of entry into the sign enclosure or sign body complying with no.21(B). The marking on the warning label must include the location of the disconnecting means for the energized conductor(s), with the disconnecting means being capable of being locked in the open position in accordance with 110.25.

600.33 Class 2 Sign Illumination Systems, Secondary Wiring.

2014 NEC Requirement. The title of 600.33 was "LED Sign Illumination Systems, Secondary Wiring." This section governed the wiring method and materials for light-emitting diode (LED) type sign systems.

2017 NEC Change. The title of 600.33 was changed to "Class 2 Sign Illumination Systems, Secondary Wiring," and the section was expanded to cover all types of Class 2lighting systems, not just LED lighting systems.

Table 600.33(A)(1) Applications of Power Limited Cable in Signs and Outline Lighting Table

600.33(A)(2) Class 2 Cable Substitutions

2014 NEC Requirement. Listed Class 2 cable that complied with Table 725.154 was required to be installed on the load side of the Class 2 power source.

2017 NEC Change. Two new tables were added to 600.33(A). Table 6o0.33(A)(1) provides a list of acceptable Class 2 cables listed for the application in signs and outline lighting. Table 600.33(A)(2) provides a list of permitted cable substitutions in these sign applications.

600.34, 600.2 Photovoltaic (PV) Powered Sign

2014 NEC Requirement. There were no provisions in Article 6oo for PV powered signs.

2017 NEC Change. Along with this new definition for a *Photovoltaic (PV Powered) Sign,* a new 600.34 titled "Photovoltaic (PV Powered) Sign," was added to Article 6oo covering field wiring and installation of PV powered signs.

605.9(C) **Freestanding-Type Office Furnishings, Cord- and Plug-Connected**

2014 NEC Requirement. An individual office furnishing or groups of interconnected individual office furnishings cannot contain more than thirteen Is-ampere, I2S-volt receptacle outlets. Receptacle outlets can have "one or more receptacles installed."

2017 NEC Change. An individual office furnishing or groups of interconnected individual office furnishings now cannot contain more than thirteen 15-ampere, 125 volt receptacles. For purposes of this requirement, a receptacle is considered up to two (simplex) receptacles provided within a single enclosure and that are within 0.3 m (1 ft.) of each other, or one duplex receptacle.

610.42(B)(3) Branch-Circuit Short-Circuit and Ground-Fault Protection. (Cranes and Hoists)

2014 NEC Requirement. Where two or more motors are connected to the same branch circuit, each tap conductor to an individual motor is required to have individual overcurrent protection. Where taps to control circuits originate on the load side of a branch-circuit protective device, each tap and piece of equipment is required to have overcurrent protection. Brake coil taps were permitted for cranes or hoists without separate overcurrent protection.

2017 NEC Change. Brake coil taps for cranes or hoists without separate overcurrent protection have been deleted.

53. A new exception was added to specifically address a sign enclosure or sign body that supplies an internal panelboard(s) in that same sign enclosure or sign body. A field-applied permanent warning label that is visible during servicing is required to be applied to the raceway containing these energized conductors at or near the point of entry into the sign enclosure or sign body complying with _____.

a. 110.21(A)
b. 110.21(B)
c. 110.21(C)
d. 110.21(D)

54. The marking on the warning label must include the location of the disconnecting means for the energized conductor(s), with the disconnecting means being capable of being _____ in the open position in accordance with 110.25.

a. left open
b. disconnected
c. locked
d. none of the above

55. The title of 600.33 was changed to "Class 2 Sign Illumination Systems, Secondary Wiring," and the section was expanded to cover all types of _____ lighting systems, not just LED lighting systems.

a. Class 1
b. Class 2
c. Class 3
d. Class 4

56. Two new tables were added to 600.33(A). Table 600.33(A)(1) provides a list of acceptable Class 2 cables listed for the application in _____.

a. signs
b. outline lighting
c. both a & b
d. none of the above

57. Table _____ provides a list of permitted cable substitutions in these sign applications.

a. 600.33(A)(1)
b. 600.33(A)(2)
c. 600.33(A)(3)
d. 600.33(A)(4)

58. Along with this new definition for a *Photovoltaic (PV Powered) Sign*, a new 600.34 titled "Photovoltaic (PV Powered) Sign," was _____ to Article 600 covering field wiring and installation of PV powered signs.

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

59. An individual office furnishing or groups of interconnected individual office furnishings now cannot contain more than ____ 15-ampere, 125 volt receptacles.

a. 10

b. 12
c. 13
d. 15

60. For purposes of this requirement, a receptacle is considered up to _____ receptacles provided within a single enclosure and that are within 0.3 m (1 ft.) of each other, or one duplex receptacle.

a. two (simplex)
b. one
c. three (triplex)
d. all of the above

2017 NEC Changes 3-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

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