



Analysis of Changes 2023 NEC - Part 1 - Code-Wide Chapters 1 and 2

Course Description, Performance Objectives and Timed Agenda of the Course Outline (4 Continuing Education Hours)

Course Description

This online course is an extensive and popular program analyzing the major changes to the National Electric Code (NEC®) for the 2023 cycle. Members of the eighteen NEC® code-making panels contributed to the development of the authoritative text used in this online course. The course covers more than 100 of the most significant code-wide, and Chapter 1 and 2 code changes. Specifically, the course covers code-wide changes, Article 100 definitions, Article 110 requirements for electrical installations and Chapter 2 requirements for wiring and protection.

Performance Objectives

Upon successful completion of this course, the participant will be able to:

- Describe code-wide changes
- Understand Article 100 definition changes
- Identify changes to requirements for electrical installations
- Explain changes related to branch-circuits wiring
- Understand changes in branch-circuits and feeders and service calculations
- Describe changes to outside branch circuits and feeders
- Identify code changes related to wiring services
- Explain overcurrent protection code changes
- Discuss code changes related to overvoltage protection
- Recognize new grounding and bonding code changes

Timed Agenda of the Course Outline

(4 Continuing Education Hours)

Introduction (10 minutes)

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|--|----------------------------|
| • Welcome to Pace (0:00) | (0:00 - 9:38)
(18 secs) |
| • Interface Instructions (0:18) | (25 secs) |
| • Interface Instructions (0:43) | (1 min 14 secs) |
| • closedbook (1:58) | (49 secs) |
| • openbook (2:47) | (28 secs) |
| • Print Certificate of Completion (3:15) | (36 secs) |
| • Course Forward (3:52) | (1 min 34 secs) |
| • Contributors (5:27) | (1 min 14 secs) |
| • Character Illustrations (6:03) | (1 min 14 secs) |

- closedSyllabus (6:42) (32 secs)
- opensyllabus (7:15) (32 secs)
- Closed Course Description (7:48) (56 secs)
- Open Course Description (8:44) (53 secs)

Module 1

(9:38 - 40:53)

Lesson 1 - Code-Wide and Article 100

(30 minutes)

- Performance Objectives (9:38) (14 secs)
- Article 100 - Definitions Code-Wide Changes (9:53) (1 min 03 secs)
- NEC Style Manual Code-Wide Changes (10:56) (2 mins 33 secs)
- Video - Code Wide Style Manual (13:30) (2 mins 33 secs)
- 90.5(C) Mandatory Rules, Permissive Rules (16:02) (1 min 06 secs)
- Article 100 - Definitions Code-Wide Changes (17:09) (58 secs)
- Article 100 - Definitions (Multiple Definitions) (18:07) (54 secs)
- Article 100 - Definitions Accessible (applied to wiring methods) (19:01) (1 min 24 secs)
- Article 100 - Definitions Class 4 Circuit (20:25) (2 mins 09 secs)
- Article 100 - Definitions Counter (Countertop) (22:34) (1 min 04 secs)
- Article 100 - Definitions Energy Management System (23:39) (1 min 16 secs)
- Article 100 - Definitions Feeder Assembly (24:55) (1 min 17 secs)
- Article 100 - Definitions Fibers/Flyings, Combustible (26:12) (1 min 06 secs)
- Article 100 - Definitions Ground-Fault (27:18) (25 secs)
- Article 100 - Definitions Impedance Grounding Conductor (27:43) (55 secs)
- Article 100 - Definitions Impedance Grounded System (28:38) (39 secs)
- Article 100 - Definitions In Sight From (Within Sight From), (Within Sight). (29:17) (55 secs)
- Article 100 - Definitions Likely to Become Energized (30:12) (1 min 19 secs)
- Article 100 - Definitions Load Management (31:31) (56 secs)
- Article 100 - Definitions Normal High-Water Level (32:28) (50 secs)
- Article 100 - Definitions PV DC Circuit, PV Source Circuit, PV String Circuit (33:18) (1 min 13 secs)
- Article 100 - Definitions Restricted Industrial Establishment [hazardous (classified) locations] (34:32) (1 min 40 secs)
- Article 100 - Definitions Servicing (36:12) (1 min 18 secs)
- Article 100 - Definitions Short Circuit (37:31) (1 min 18 secs)
- Article 100 - Definitions Transformer (38:49) (48 secs)
- Article 100 - Definitions Work Surface (39:37) (1 min 06 secs)
- Lesson Test (40:44) (00 secs)

Module 2

(40:53 - 74:26)

Lesson 2 - Article 110

(34 minutes)

- Performance Objective (40:53) (1 min 51 secs)
- 110.3(A) Examination, Identification, Installation, Use, and Listing (41:04) (1 min 51 secs)

- Expert Commentary - 110.3(A) (42:45) (3 mins 00 secs)
- 110.3(B) Installation and Use (45:45) (1 min 11 secs)
- 110.14(A) Electrical Connections (46:55) (48 secs)
- 110.16(B) Arc-Flash Hazard Warnings - Service Equipment (47:44) (1 min 30 secs)
- Expert Commentary 110.16(B) (49:14) (4 mins 10 secs)
- 110.17 Servicing and Maintenance of Equipment (53:24) (1 min 45 secs)
- 110.20 Reconditioned Equipment (55:09) (2 mins 05 secs)
- 110.21(A)(1) Equipment Markings (57:15) (1 min 06 secs)
- 110.21(A)(2) Markings - Reconditioned Equipment (58:21) (1 min 00 secs)
- Expert Commentary - 110.21 Markings (59:22) (2 mins 19 secs)
- 110.21(B)(1) Markings - Field-Applied Hazard Marking (61:41) (1 min 26 secs)
- 110.22(A) Identification of Disconnecting Means (63:08) (44 secs)
- Expert Commentary - 110.22(A) Identification of Disconnecting Means (63:53) (2 mins 35 secs)
- 110.26 Spaces About Electrical Equipment (66:28) (1 min 28 secs)
- 110.26(A)(6) Grade, Floor, or Working Platform (67:56) (1 min 23 secs)
- Expert Commentary - 110.26 Spaces About Electrical Equipment (69:19) (2 mins 09 secs)
- 110.29 In Sight From (Within Sight From, Within Sight) (71:28) (1 min 05 secs)
- 110.33(A) Entrance to Enclosures and Access to Working Space (72:33) (55 secs)
- 110.34(A) Work Space and Guarding (73:28) (54 secs)
- Lesson Test (74:23) (00 secs)

Module 3

(74:26 - 104:26)

Lesson 3 - Articles 210.2 through 210.8

(30 minutes)

- Performance Objective (74:26) (1 min 18 secs)
- 210.2 Reconditioned Equipment (74:40) (1 min 18 secs)
- 210.8(A)(6) Dwelling Units - Kitchens (75:44) (1 min 15 secs)
- Expert Commentary - 210.8(A) GFCI Dwelling (6) (77:00) (2 mins 04 secs)
- 210.8(A) Dwelling Unit Bathroom - Exception No. 4 Exhaust Fan Receptacle(s) (79:04) (1 min 03 secs)
- Expert Commentary - 210.8(A) GFCI Dwelling Exception 4 (80:07) (2 mins 00 secs)
- 210.8(A) Exception 3 and 210.8(B) GFCI Protection for Personnel (82:06) (1 min 38 secs)
- Expert Commentary - 210.8(A) (83:45) (3 mins 24 secs)
- Expert Commentary - 210.8(A) GFCI Dwelling (7) (87:09) (1 min 33 secs)
- 210.8(B)(4) Other Than Dwelling Units (88:41) (1 min 16 secs)
- Expert Commentary - 210.8(B) Other Than Dwellings (89:58) (4 mins 29 secs)
- 210.8(B)(7) GFCI Protection for Personnel (94:27) (1 min 21 secs)
- 210.8(B)(13) Aquariums and Bait Wells (95:48) (1 min 17 secs)
- 210.8(D) Dwelling Units - Specific Appliances (97:05) (1 min 25 secs)
- Expert Commentary - 210.8(D) Specific Appliances (98:30) (2 mins 38 secs)
- 210.8(F) Outdoor Outlets (101:08) (46 secs)

- Expert Commentary - 210.8(F) Outdoor Outlets (101:55) (2 mins 29 secs)
- Lesson Test (104:23) (00 secs)

Module 4

(104:26 - 135:06)

Lesson 4 - Articles 210.11 through 225

(31 minutes)

- Performance Objectives (104:26) (1 min 49 secs)
- 210.11(C)(4) Garage Branch Branch Circuits (104:45) (1 min 49 secs)
- 210.12 Arc-Fault Circuit-Interrupter Protection (107:24) (1 min 56 secs)
- 210.12(D)(3) AFCI, Other Occupancies (109:21) (1 min 15 secs)
- 210.17 Guest Rooms and Guest Suites (110:36) (1 min 04 secs)
- 210.19 Conductors - Minimum Ampacity and Size (111:40) (1 min 33 secs)
- 210.23 Permissible Loads, Multiple-Outlet Branch Circuits 10 Ampere Branch Circuits - Permitted and Not Permitted (113:13) (1 min 18 secs)
- 210.52(C) Island and Peninsular Countertops and Work Surfaces (114:32) (2 mins 04 secs)
- 210.52(G) Basements, Garages, and Accessory Buildings (116:36) (1 min 15 secs)
- 210.70 Lighting Outlets Required (117:51) (2 mins 40 secs)
- 210.15 Barriers (feeders) (119:10) (2 mins 40 secs)
- 215.18 Surge Protection (feeders) (120:32) (1 min 24 secs)
- 220.1 Scope (121:56) (1 min 06 secs)
- Expert Commentary - 220.1 Scope (123:02) (3 mins 39 secs)
- 220.5(C) Floor Areas (126:33) (1 min 02 secs)
- 220.57 Electric Vehicle Supply Equipment (EVSE) Load (127:35) (1 min 11 secs)
- 220.70 Energy Management Systems (EMSs) (128:47) (1 min 33 secs)
- 220.110 Receptacle Loads (130:21) (1 min 32 secs)
- 220.120 Marinas, Boatyards, Floating Buildings, and Commercial and Noncommercial Docking Facilities (131:53) (1 min 48 secs)
- 225.5 and 225.7 Deletion of Sections (132:59) (1 min 48 secs)
- 225.41 Emergency Disconnects Emergency Disconnects (133:41) (1 min 22 secs)
- Lesson Test (135:03) (00 secs)

Module 5

(135:06 - 171:48)

Lesson 5 - Articles 230 through 242

(37 minutes)

- Performance Objectives (135:06) (58 secs)
- 230.62(C) Barriers (135:23) (58 secs)
- 230.67(A) Surge-Protective Devices (136:04) (1 min 45 secs)
- Expert Commentary - 230.67(A) Surge Protective Devices (137:50) (2 mins 29 secs)
- 230.71(B) Two to Six Service Disconnecting Means (140:19) (1 min 19 secs)
- 230.71(B) Exception Two to Six Service Disconnecting Means (1 min 05 secs)
- Expert Commentary - 230.71(B) Two to Six Disconnects (142:43) (3 mins 38 secs)
- 230.85 Emergency Disconnects (146:22) (1 min 53 secs)
- Expert Commentary - 230.85 Emergency Disconnect (148:15) (3 mins 52 secs)
- Article 235 Branch Circuits, Feeders and Services Over 1000 Volts ac, 1500 Volts dc, Nominal (152:07) (1 min 19 secs)

- 240.2 Reconditioned Equipment (153:27) (1 min 20 secs)
- 240.4(B) Overcurrent Devices Rated 800 Amperes or Less (154:46) (1 min 03 secs)
- 240.4(D)(3) 14 AWG Copper-Clad Aluminum (155:50) (54 secs)
- Table 240.6(A) Standard Ampere Ratings for Fuses and Inverse Time Circuit Breakers (156:44) (31 secs)
- 240.6(D) Remotely Accessible Adjustable-Trip Circuit Breakers (157:15) (1 min 11 secs)
- Expert Commentary - 240.6(D) Cybersecurity (158:27) (2 mins 01 sec)
- 240.7 Listing Requirements (160:28) (2 mins 06 secs)
- 240.11 Selective Coordination (161:15) (2 mins 06 secs)
- Expert Commentary - 240.11 Selective Coordination (162:35) (4 mins 26 secs)
- 240.16 Interrupting Ratings (167:01) (1 min 04 secs)
- 240.24(A) Accessibility - Exception (168:05) (1 min 23 secs)
- 240.24(E) Overcurrent Protective Devices in Bathrooms (169:28) (1 min 05 secs)
- 242.2 Reconditioned Equipment (170:33) (37 secs)
- 242.9 SPD Indicating (171:10) (34 secs)
- Lesson Test (171:45) (00 secs)

Module 6

(171:48 - 191:16)

Lesson 6 - Articles 245 through 250

(19 minutes)

- Performance Objectives (171:48) (1 min 16 secs)
- Articles 245 Overcurrent Protection for Systems Rated Over 100 Volts ac, 1500 Volts dc (172:04) (1 min 16 secs)
- 250.24 Grounding of Service-Supplied Alternating-Current Systems (173:04) (1 min 43 secs)
- 250.24(D)(2) Grounding of Service-Supplied Alternating-Current Systems (174:47) (1 min 03 secs)
- 250.30(C) Outdoor Source, Exception (175:51) (55 secs)
- 250.36 Impedance Grounded Systems - 480 Volts to 1000 Volts (176:46) (1 min 19 secs)
- 250.50, 250.52(A)(3)(1), 250.52(B)(2) Grounding Electrodes (178:05) (1 min 06 secs)
- 250.64(G) Enclosures with Ventilation Openings (179:11) (1 min 17 secs)
- 250.70 Grounding and Bonding Conductor Connection to Electrodes (180:28) (1 min 35 secs)
- 250.94(A) The Intersystem Bonding Termination Device (182:03) (1 min 47 secs)
- 250.106 Lightning Protection Systems (183:51) (1 min 09 secs)
- 250.118(A) Types of Equipment Grounding Conductors (185:00) (1 min 05 secs)
- 250.130 Equipment Grounding Conductor Connections (186:05) (1 min 33 secs)
- 250.140 Frames of Ranges and Clothes Dryers (187:39) (1 min 54 secs)
- 250.148 Continuity of Equipment Grounding Conductors and Attachment in Boxes (189:33) (1 min 43 secs)
- Lesson Test (191:16) (00 secs)

Timeline Adjustments:

Question Totals -

- 40 formative questions @ 30 seconds each: 20 minutes

Total Course Time:

211 minutes