



Analysis of Changes 2023 NEC Part 2

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

Course Description

This course is an extensive and popular program analyzing the major changes to the National Electrical 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 80 of the most significant *Code* changes in Chapter 3 through Article 517. Specifically, the course covers code changes related to wiring methods, equipment for general use, and special occupancies.

Performance Objectives

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

- Describe changes to wiring methods and conductors for general wiring
- Discuss changes to ampacities of conductor tables as well as screw and fastener updates
- Explain changes regarding box dimensions, cable runs and taps
- Identify code changes for rigid metal, high density polyethylene (HDPE) and electrical metallic conduit (EMT) conduits
- Recognize updates to insulated bus pipe (IBP) and flexible bus systems
- Express code changes to wall mounted control devices, snap switch terminations and switch enclosures
- Discuss updates to reconditioned equipment, ground-fault protection, faceplates and tamper-resistant receptacles
- Understand changes related to panelboards, control panels, reconditioned equipment, and luminaires
- Explain changes in appliances, installations in walls, deicing and snow-melting equipment
- Summarize code updates for motors, air-conditioning and refrigeration equipment, generators and transformers
- Recognize changes to special occupancies including hazardous locations and cannabis oil equipment
- Express code changes for motor fuel dispensers and health care facilities

Timed Agenda of the Course Outline

(4 Continuing Education Hours)

Introduction (10 minutes)

(0:00 - 9:32)

- Welcome to Pace (0:00)
- Interface Instructions (0:18)

(18 secs)

(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 2 (5:26) (36 secs)
- Character Illustrations (6:02) (38 secs)
- closedSyllabus (6:42) (32 secs)
- opensyllabus (7:14) (32 secs)
- Closed Course Description (7:48) (54 secs)
- Open Course Description (8:42) (50 secs)

Module 1 (9:32 - 35:54)

Lesson 1 - Articles 300 through 312 (26 minutes)

- Performance Objectives (9:32) (20 secs)
- Multiple Articles - Various Chapter 3 Raceway Titles (9:53) (1 min 52 secs)
- 300.2(A) Limitations, Voltage (11:44) (59 secs)
- 300.4(E) Ex. No. 1 and 2 Cables, Raceways, or Boxes Installed in or Under Metal-Corrugated Roof Decking (12:43) (1 min 44 secs)
- Expert Commentary - 300.4(E) Metal Corrugated Roof (14:28) (1 min 40 secs)
- 300.4(G) Fittings (16:08) (1 min 22 secs)
- Expert Commentary - 300.4(G) Fittings (17:31) (2 mins 24 secs)
- Table 300.5 Minimum Cover Requirements (19:55) (1 min 22 secs)
- 300.5(D) Direct Buried Conductors and Cables (21:18) (42 secs)
- Expert Commentary - 300.5 Underground Installations (22:00) (1 min 13 secs)
- 300.6(A) Ferrous Metal Equipment (23:13) (1 min 00 secs)
- 300.11(C) Raceways Used as Means of Support (24:13) (54 secs)
- 300.14 Length of Free Conductors at Outlets, Junctions, and Switch Points (25:07) (1 min 17 secs)
- 300.17 Conductors and Cables in Raceway (26:25) (1 min 08 secs)
- 300.25 Exit Enclosures (Stair Towers) (27:33) (1 min 29 secs)
- 300.26 Remote-Control and Signaling Circuits Classification (29:03) (1 min 07 secs)
- Article 305 General Requirements for Wiring Methods and Materials for Systems Rated Over 1000 Volts ac, 1500 Volts dc, Nominal (30:09) (1 min 14 secs)
- Tables 310.16, 310.17 and 310.20 Ampacities of Conductor Tables (31:23) (1 min 18 secs)
- 312.10 Screws and Other Fasteners (32:42) (49 secs)
- Expert Commentary - 312.10 Screws and Fasteners (33:31) (2 mins 14 secs)
- Lesson Test (35:45) (00 secs)

Module 2 (35:54 - 63:38)

Lesson 2 - Articles 314 through 398 (28 minutes)

- Performance Objectives (35:54) (29 secs)

- 314.5 Screws and Other Fasteners (36:23) (1 min 18 secs)
- 314.16(B)(6) Terminal Block Fill (37:42) (1 min 28 secs)
- 315.24 Dimensions of Boxes (39:10) (3 mins 27 secs)
- 315.1 Scope (41:28) (3 mins 27 secs)
- 320.23(A) Cables Run Across the Top of Framing Members. (In Accessible Attics) (42:37) (1 min 02 secs)
- 322.56(B) Taps (43:39) (48 secs)
- 330.112(A) 1000 Volts or Less (MC Cable) (44:27) (1 min 24 secs)
- Article 337 Industrial Mobile Cable: Type IM (45:51) (58 secs)
- 342.20(B) Intermediate Metal Conduit (46:50) (1 min 05 secs)
- 344.28 Reaming and Threading (Rigid Metal Conduit) (47:54) (1 min 32 secs)
- 352.4 Reaming and Threading (Rigid Metal Conduit) (49:26) (1 min 30 secs)
- Expert Commentary - 352.44 Expansion Fittings (50:57) (1 min 30 secs)
- 353.48 High Density Polyethylene Conduit (HDPE) (52:27) (1 min 23 secs)
- 358.20(B) Electrical Metallic Conduit (EMT) (53:50) (1 min 25 secs)
- Article 369 Insulated Bus Pipe (IBP)/Tubular Covered Conductors (TCC), Systems (55:15) (2 mins 22 secs)
- Article 371 Flexible Bus Systems (57:37) (2 mins 15 secs)
- Expert Commentary - Article 371 Flexible Bus Systems (59:53) (2 mins 32 secs)
- 398.15(C) High-Density Polyethylene Conduit (HDPE Conduit) (62:25) (1 min 10 secs)
- Lesson Test (63:35) (00 secs)

Module 3

(63:38 - 93:57)

Lesson 3 - Articles 404 through 406

(30 minutes)

- Performance Objectives (63:38) (24 secs)
- Expert Commentary - 404.1 Scope (64:02) (1 min 31 secs)
- 404.1 Wall-Mounted Control Devices (65:33) (48 secs)
- 404.14(D) Snap Switch Terminations (66:21) (1 min 43 secs)
- Expert Commentary - 404.14(D) Snap Switch Terminations (68:04) (1 min 58 secs)
- 404.16 Reconditioned Equipment (70:02) (45 secs)
- 404.30 Switch Enclosures with Doors (70:48) (1 min 00 secs)
- Expert Commentary - 404.30 Switch Enclosures with Doors (71:48) (1 min 40 secs)
- 406.2 Reconditioned Equipment (73:28) (1 min 05 secs)
- 406.3(D) Receptacle Terminations (74:33) (2 mins 44 secs)
- 406.4(D)(3) Ground-Fault Circuit-Interrupter Protection (77:18) (2 mins 21 secs)
- 406.4(D)(8) Ground-Fault Protection of Equipment (GFPE) (79:38) (1 min 53 secs)
- Expert Commentary - 406.4(D)(8) GFPE (81:31) (1 min 36 secs)
- 406.6(D) Receptacle Faceplates (83:07) (2 mins 13 secs)
- Expert Commentary - 406.6(D) Faceplates (85:20) (2 mins 02 secs)
- 406.9(C) Bathtub and Shower Space (87:22) (2 mins 01 sec)
- 406.12 Tamper-Resistant Receptacles (89:23) (2 mins 21 secs)
- Expert Commentary - 406.12 TRR (91:44) (2 mins 10 secs)
- Lesson Test (93:54) (00 secs)

Module 4	(93:57 - 120:29)
Lesson 4 - Articles 408 through 410	(26 minutes)
• Performance Objective (93:57)	(16 secs)
• 408.4 Descriptions Required (94:14)	(1 min 31 secs)
• 408.9 Replacement Panelboards (95:45)	(1 min 27 secs)
• Expert Commentary - 408.9 Replacement Panelboards (97:12)	(3 mins 08 secs)
• 408.38 Enclosure (100:20)	(1 min 27 secs)
• 408.43 Panelboard Orientation (101:48)	(1 min 16 secs)
• Expert Commentary - 408.43 Panelboard Orientation (103:03)	(1 min 06 secs)
• 409.60 Industrial Control Panels (104:09)	(1 min 16 secs)
• 409.70 Surge Protection for Industrial Control Panels (105:25)	(1 min 48 secs)
• 410.2 Reconditioned Equipment (107:14)	(1 min 16 secs)
• 410.10(F) Luminaires Installed in or Under Roof Decking (108:30)	(2 mins 15 secs)
• Expert Commentary - 410.10(F) Luminaires under roof decking (110:45)	(1 min 27 secs)
• 410.71 Disconnecting Means for Fluorescent or LED Luminaires (112:12)	(1 min 52 secs)
• Article 410, Part XVII Germicidal Irradiation (114:05)	(2 mins 13 secs)
• 410.184 GFCI (116:17)	(2 mins 08 secs)
• Expert Commentary - 410.184 GFCI and SPGFCI (118:25)	(2 mins 01 sec)
• Lesson Test (120:26)	(00 secs)

Module 5	(120:29 - 151:41)
Lesson 5 - Articles 422 through 495	(32 minutes)
• Performance Objectives (120:29)	(24 secs)
• Article 422 Appliances (120:53)	(59 secs)
• 422.16(B)(2) Built-in Dishwashers and Trash Compactors (121:52)	(53 secs)
• 422.18 Ceiling-Suspended (Paddle) Fans (122:45)	(57 secs)
• 424.10 General (123:43)	(57 secs)
• 424.48 Installation of Cables in Walls (124:40)	(1 min 02 secs)
• 424.93(C) Installation of Heating Panels in Walls (125:42)	(1 min 04 secs)
• 425.10 General (126:47)	(57 secs)
• 426.14 Fixed Outdoor Electric Deicing and Snow-Melting Equipment (127:44)	(58 secs)
• 426.28 Fixed Outdoor Electric Deicing and Snow-Melting Equipment (128:42)	(1 min 54 secs)
• 427.35 Line Frequency Induction Heating Equipment (130:36)	(53 secs)
• 430.1 Motor Circuits (131:29)	(1 min 28 secs)
• 430.2 Reconditioned Motors (132:58)	(1 min 42 secs)
• Expert Commentary - 430.2 Reconditioned Motors (134:40)	(2 mins 18 secs)
• 440.8 Mini-Split Heating and Cooling Systems (136:58)	(1 min 07 secs)
• 440.11 Disconnects with Covers (138:05)	(2 mins 03 secs)
• 440.14 Air-Conditioning and Refrigerating Equipment (140:08)	(1 min 14 secs)
• 445.18(A) (141:23)	(2 mins 16 secs)

- Expert Commentary - 445.18(A) Disconnecting Means (143:39) (1 min 55 secs)
- Expert Commentary - 445.19 Emergency Shutdown (145:34) (2 mins 54 secs)
- 450.2 Interconnection of Transformers (148:28) (50 secs)
- 470.2 Reconditioned Equipment (149:18) (1 min 14 secs)
- Article 495 Equipment Over 1000 Volts AC, 1500 Volts DC, Nominal (150:33) (1 min 04 secs)
- Lesson Test (151:38) (00 secs)

Module 6

(151:41 - 186:38)

Lesson 6 - Articles 500 through 517

(35 minutes)

- Performance Objectives (151:41) (21 secs)
- 500.4 Documentation (152:03) (1 min 29 secs)
- 500.5(D)(1)(a) Combustible Fibers/Flyings (153:32) (1 min 15 secs)
- Expert Commentary - 500.5 Classification of Locations (154:47) (1 min 32 secs)
- 500.8(D)(2) and (3) Class II and Class III Temperature (156:19) (1 min 17 secs)
- 505.9(C) Chapter 9 Table 13 Equipment Suitable for Hazardous (Classified) Locations (157:36) (1 min 25 secs)
- Article 512 Cannabis Oil Equipment and Cannabis Oil Systems Using Flammable Materials (159:01) (1 min 13 secs)
- Expert Commentary - Article 512 (160:14) (2 mins 45 secs)
- 515.10 Motor Fuel Dispensers (162:59) (50 secs)
- Expert Commentary - 515.10 Motor fuel (163:49) (51 secs)
- Article 517 Health Care Facilities (164:40) (1 min 43 secs)
- Expert Commentary - 517 Category Migration (166:24) (2 mins 19 secs)
- 517.6 Patient Care-Related Electrical Equipment (168:43) (59 secs)
- Expert Commentary - 517.6 Reconditioning (169:42) (1 min 35 secs)
- 517.13 Equipment in Patient Care Spaces (171:17) (1 min 44 secs)
- Expert Commentary - 517.13 EGC (173:01) (1 min 08 secs)
- 517.22 Demand Factors (174:09) (1 min 43 secs)
- Expert Commentary - 517.22 Demand Factors (175:53) (2 mins 19 secs)
- 517.30 Sources of Power (178:12) (2 mins 31 secs)
- Expert Commentary - 517.30 Sources of Power (180:43) (2 mins 41 secs)
- 517 Part V Diagnostic Imaging and Treatment Equipment (184:24) (46 secs)
- Expert Commentary - 517 Part V Diagnostic Imaging (185:10) (1 min 28 secs)
- Lesson Test (186:38) (00 secs)

Timeline Adjustments:

Question Totals -

- 40 formative questions @ 30 seconds each: 20 minutes

Total Course Time:

207 minutes