Professional Affordable Continuing Education

Course Description, Performance Objectives and Outline
Analysis of Changes 2020 NEC - Part 1 - Code-Wide, Chapters 1 and 2

Course Description

Welcome to the course "Analysis of Changes 2020 NEC - Part 1 - Code-Wide, Chapters 1 and 2". The instructor for this course is Keith Lofland, Director of Education at the International Association of Electrical Inspectors (IAEI).

This online course is an extensive and popular program analyzing the major changes to the National Electric Code (NFPA 70™) for the 2020 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 70 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 Learning Objectives

Upon successful completion of this course participants will be able to:

- Describe code-wide changes.
- Understand Article 100 definition changes and requirements for electrical installations.
- Define changes to the proper use and identification of grounded conductors.
- Explain changes in branch-circuits, feeder and service calculations.
- Describe changes to outside branch circuits and feeders.
- Identify code changes related to services, overcurrent and overvoltage protection.
- Recognize new grounding and bonding code changes.

Timed Course Outline – 4 Online CE Hours

*Note: **Timing based on actual audio running time, analysis of change text @ 500 words per minute, quiz questions @ 30 seconds each** and **final exam questions @ 1 minute each**. No seat time allotted introduction for Summary of Change tab.*

I. Introduction and Copyright (0 minutes used in seat time calculation)

- Welcome to IAEI and Pace - NFPA, NEC Copyright Information 2020
- Course Orientation
- Performance Learning Objectives
- Course Syllabus
- Course Interface Instructions
- Ask the instructor

II. Code-Wide and New Articles (14 minutes)

- National Electrical Code Code-Wide Changes
- National Electrical Code New Articles for the 2020 NEC
- 90.2(A)(5) Scope
- Code-Wide and New Articles Quiz

III. Articles 100 – Definitions (27 minutes)

- 100 Part III Hazardous (Classified) Locations
- 100 Definitions — Accessible
- 100 Definitions — Supply-Side Bonding Jumper
- 100 Definitions — Dormitory Unit
- 100 Definitions — Equipotential Plane
- 100 Definitions — Fault Current and Fault Current, Available (Available Fault Current)
- 100 Definitions — Free Air (as applied to conductors)
- 100 Definitions — Grounded Conductor
- 100 Definitions — Habitable Room
- 100 Definitions — Island Mode
- 100 Definitions — Labeled
- 100 Definitions — Reconditioned
- Articles 100 – Definitions Quiz

IV. Article 110 (21 minutes)

- 110.3(B) Examination, Identification, Installation, Use, and Listing (Product Certification) of Equipment
- 110.12(C) Mechanical Execution of Work
- 110.14(D) Electrical Connections, Terminal Connection Torque
- 110.22(A) Identification of Disconnecting Means
- 110.26(C)(2) Spaces About Electrical Equipment
- 110.26(C)(3) Spaces About Electrical Equipment
- Article 110 Quiz

V. Articles 200 – 210.8 (46 minutes)

- 210.5(C)(1), Exception - Identification for Ungrounded Conductors
- 210.8 - Measurements for GFCI Protection
- 210.8(A)(7) - GFCI Protection at Sinks
- 210.8(B) - Three-Phase GFCI Protection
- 210.8(B)(9) - Non-Dwelling Unit Crawl Space
- 210.8(B)(10) - GFCI Protection for Receptacles in Non-Dwelling Unit Unfinished Basements
- 210.8(E) - GFCI Protection for Lighting Outlets in Crawl Spaces
- 210.11(C)(4) - Garage Branch Circuit(s)
- 210.12(C) - AFCI Protection in Guest Rooms and Guest Suites
- 210.17 - Electric Vehicle Branch Circuit
- Articles 200 – 210.8 Quiz

VI. Articles 210.11 – 215 (46 minutes)

- 210.11(C)(3) Bathroom Branch Circuits
- 210.11(C)(4) Garage Branch Circuits
- 210.12(C) AFCI Protection in Patient Sleeping Rooms in Nursing Homes and Limited-Care Facilities
- 210.12(D) AFCI Protection in Guest Rooms and Guest Suites
- 210.15 Devices Not Allowed to be Reconditioned
- 210.52(C) Receptacle Outlets for Countertop or Work Surfaces
- 210.52(C)(1), (C)(2), and (C)(3) Receptacles in Wall Spaces, Island and Peninsular Countertops and Work Spaces
- 210.52(E)(3) Receptacle Outlet for Balconies, Decks, and Porches
- 210.65 Receptacle Outlets in Meeting Rooms
- 215.9 Feeders in GFCI in Readily Accessible Location
- 215.10, Ex. No. 3 Exception to Permit Temporary Feeders
- Articles 210.11 - 215 Quiz

VII. Articles 220 - 230 (41 minutes)

- 220.12 and Table 220.12 Lighting Load for Non-Dwelling Occupancies
- 220.14(J) Unit Loads for Dwelling Units
- 220.42 Lighting Load Demand Factors
- 220.53 Appliance Load — Dwelling Unit
- 225.30(B) Special Conditions for More than One Outside Feeder
- 230.46 Spliced and Tapped Conductors
- 230.62(C) Barriers at Service Panels, Switchboards, and Switchgear
- 230.67 Surge Protection Devices in Dwelling Units

- 230.71 Maximum Number of Disconnects in Single Enclosure
- 230.85 Emergency Disconnect at a Readily Accessible Location
- Articles 220 - 230 Quiz

VII. Articles 240 – 250.68 (29 minutes)

- 240.6(C) Restricted Access Adjustable-Trip Circuit Breakers
- 240.87 Arc Energy Reduction Method to Reduce Clearing Time
- 240.88 Reconditioned Equipment
- Article 242 Overvoltage Protection
- 250.25 Grounding Systems Permitted to Be Connected on the Supply Side of the Disconnect
- 250.64(A) Grounding Electrode Conductor Installation in Aluminum or Copper-Clad Aluminum Conductors
- 250.64(B)(2) and (B)(3) Grounding Electrode Conductor Protection from Physical Damage
- 250.68(C)(3) Grounding Electrode Conductor Connections in Rebar System
- Article 240 – 250.68 Quiz

VII. Articles 250.104 - 250.187 (28 minutes)

- 240.6(C) Restricted Access Adjustable-Trip Circuit Breakers
- 240.87 Arc Energy Reduction Method to Reduce Clearing Time
- 240.88 Reconditioned Equipment
- Article 242 Overvoltage Protection
- 250.25 Grounding Systems Permitted to Be Connected on the Supply Side of the Disconnect
- 250.64(A) Grounding Electrode Conductor Installation in Aluminum or Copper-Clad Aluminum Conductors
- 250.64(B)(2) and (B)(3) Grounding Electrode Conductor Protection from Physical Damage
- 250.68(C)(3) Grounding Electrode Conductor Connections in Rebar System
- Article 250.104 - 250.187 Quiz

Total Seat Time: 251 minutes

Utah Electrician (DOPL)

Continuing Education Course Completion Certificate

David Arnold

License Number: 123456

This certifies that the individual named has successfully completed the course requirements for:

Analysis of Changes 2020 NEC - Part 1 - Code-Wide and Chapters 1 and 2

Course Approval Number: xxxxx

*which was completed on **4/21/2022***
*and has earned **4.00 continuing education hours**.*

Online course provided by:

The Media Factory, Inc. (d/b/a PacePDH.com)
Tampa, FL 33609
(813) 830-6523
Instructor Name: Jody Wages

PACE
Professional Affordable Continuing Education

www.pacepdh.com

Ron May, Vice President

Course Syllabus

Sponsor / Facilitator Information

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Assignments and Homework:

This is an online course. All course work is contained within the course itself. There are no additional assignments or homework outside the course itself.

Broadcast Schedules:

All portions of this course may be taken at any time 24/7, at the student's discretion.

Student Material Requirements:

This course requires an Internet connection. While the course will play using a slower connection, a higher speed connection (e.g. DSL or cable modem) is recommended because of the extensive use of audio in the course. The course also can be played on a tablet or smart phone.

Testing and Grading Information:

The course includes quizzes throughout the course, typically about every half hour. The

passing score for the quizzes is 70%. The *NEC*® 2020 code book may be used as a reference during testing.

Library and Resource Information:
Strikethrough code language, showing previous 2017 code language that has been changed or deleted in the 2020 *NEC,* is available in the Summary of Change tab at the end of each code change slide.

Deadlines:
There are no deadlines imposed by PacePDH.com and our courses do not expire. However, to receive credit, the course should be completed before the Board/jurisdiction course approval date expires. The system will not allow you to launch a course that is expired. Obviously, you should try to complete the course before your individual license renewal period ends.

Registration Period:
You may register for this course at any time.

Fees and Refunds:
PacePDH.com typically receives course tuition payments in advance via student credit or debit card payments through its secure online Web portal. Checks are also accepted; in which case courses are assigned once the check is received. For company or group purchases, payment terms may be given.

PacePDH.com's refund policy is simple, a full cash refund is offered for up to 90 days or until the course has been completed, whichever comes first. After the 90 day period courses that have not been completed can be converted into course credits for other Pace offerings. For example, if a student has completed one hour of a four-hour online course and then decides they do not want to complete the course, a full refund is still offered if it is within 90 days of the purchase date, otherwise a course credit is offered. Once the online course has been completed, as determined by our LMS (learning management system), a refund is no longer offered.

ADA Information:
This course is not compliant with Section 508 of the U.S. Rehabilitation Act.

Technology Support Services:
Tech support for students is available Monday through Friday 8AM to 6PM eastern time. Afterhours and weekend support is offered at times. Support is available by phone at

(800) 576-4341, via Web form at http://www.pacepdh.com/index.cfm?fuseaction=custom.contact or via e-mail at PaceSupport@PacePDH.com .

Completion and Assignment Time Lines:

See “Deadlines” above.

Prior Learning Assessments / Prerequisites:

There are no prerequisites for this course. Course interface/navigation instructions, “Ask the Instructor” and directions on how to take personal course notes are provided at the beginning of the course.