

Questions for Chapter 2— Wiring and Protection



Article 200 Use and Identification of Grounded Neutral Conductors

Article Overview

This article contains the requirements for identification of the grounded neutral conductor and its terminals. If you go back to Article 100, you will see that the *grounded conductor* isn't the same as the *grounding conductor*. Make sure you clearly understand the difference between the two before you begin your study of Article 200.

This article isn't very long, and it's not very complicated, and following these requirements can mean the difference between a safe installation and an electrocution hazard. The illustrations in the *Understanding the NEC, Volume 1* textbook will help you form mental pictures of the key points.

Grounded Conductor. Most electrical power supplies have one output terminal of the power supply bonded to the case of the power supply (system bonding jumper). The conductor that is connected to this grounded terminal is called a "grounded conductor."

Neutral Conductor. The IEEE dictionary defines a neutral conductor as the conductor with an equal potential difference between it and the other output conductors of a 3- or 4-wire system. Therefore, a neutral conductor is the white/gray wire of a 3-wire single-phase 120/240V system, or of a 4-wire three-phase 120/208V or 277/480V system.

Since a neutral conductor must have equal potential between it and all ungrounded conductors in a 3- or 4-wire system, the white wire of a 2-wire circuit, and the white wire from a 4-wire three-phase 120/240V delta-connected system are not neutral conductors—they're grounded conductors.

Author's Comment: The electrical trade industry typically uses the term "neutral," when referring to the white/gray wire. However, the proper term for this conductor is "grounded conductor."

Technically, it's improper to call a "grounded conductor" a "neutral conductor" or "neutral wire" when it's not truly a neutral conductor, but this is a long-standing industry practice. For the purpose of this workbook this conductor will be called a grounded neutral conductor. That should keep *most people happy*.

Questions

- Article 200 contains the requirements for _____.
 - identification of terminals
 - grounded neutral conductors in premises wiring systems
 - identification of grounded neutral conductors
 - all of these

(• Indicates that 75% or fewer exam takers get the question correct)



2. Premises wiring must not be electrically connected to a supply system unless the supply system contains, for any grounded neutral conductor of the interior system, a corresponding conductor that is ungrounded.
- (a) True (b) False
3. An insulated grounded neutral conductor of _____ or smaller must be identified by a continuous white or gray outer finish, or by three continuous white stripes on other than green insulation along its entire length.
- (a) 3 AWG (b) 4 AWG (c) 6 AWG (d) 8 AWG
4. Grounded neutral conductors _____ and larger must be identified by a continuous white or gray outer finish along their entire length, by three continuous white stripes along their entire length, or by distinctive white or gray markings such as tape, paint, or other effective means at their terminations.
- (a) 10 AWG (b) 8 AWG (c) 6 AWG (d) 4 AWG
5. Grounded neutral conductors larger than 6 AWG must be identified by _____.
- (a) a continuous white or gray outer finish along their entire length
(b) three continuous white stripes along their entire length
(c) distinctive white or gray tape or paint at terminations
(d) a, b, or c
6. Where grounded neutral conductors of different wiring systems are installed in the same raceway, cable, or enclosure, each grounded neutral conductor must be identified by a different one of the acceptable methods in order to distinguish the grounded neutral conductors of each system from the other.
- (a) True (b) False
7. Where grounded neutral conductors of different wiring systems are installed in the same raceway, cable, or enclosure, each grounded neutral conductor must be identified in a manner that makes it possible to distinguish the grounded neutral conductors for each system. This means of identification must be _____.
- (a) permanently posted at each branch-circuit panelboard
(b) posted inside each junction box where both system neutrals are present
(c) done using a listed labeling technique
(d) all of these
8. The white conductor within a cable can be used for the ungrounded (hot) conductor, but the white conductor must be permanently reidentified to indicate its use as an ungrounded (hot) conductor at each location where the conductor is visible and accessible. Identification must _____.
- (a) be by painting or other effective means (b) be a color other than white, gray, or green
(c) both a and b (d) none of these
9. A cable containing an insulated conductor with a white outer finish can be used for single pole, 3-way or 4-way switch loops, if it is permanently reidentified by painting or other effective means at its termination, and at each location where the conductor is visible and accessible.
- (a) True (b) False
10. The identification of _____ to which a grounded neutral conductor is to be connected must be substantially white in color.
- (a) wire connectors (b) circuit breakers (c) terminals (d) ground rods

(• Indicates that 75% or fewer exam takers get the question correct)

11. Receptacles, polarized attachment plugs, and cord connectors for plugs and polarized plugs must have the terminal intended for connection to the grounded neutral conductor identified. Identification must be by a metal or metal coating that is substantially _____ in color, or by the word white or the letter W located adjacent to the identified terminal.
- (a) green (b) white (c) gray (d) b or c
12. The screw shell of a luminaire or lampholder must be connected to the _____
- (a) grounded neutral conductor (b) ungrounded conductor
(c) equipment grounding conductor (d) forming shell terminal
13. No _____ can be attached to any terminal or lead so as to reverse designated polarity.
- (a) grounded neutral conductor (b) grounding conductor (c) ungrounded conductor (d) grounding connector

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