

N 235.5 Conductor Identification for Branch Circuits.

N (A) Grounded Conductor. The grounded conductor of a branch circuit shall be identified in accordance with 200.6.

N (B) Equipment Grounding Conductor. The equipment grounding conductor shall be identified in accordance with 250.119.

N (C) Ungrounded Conductors. Ungrounded conductors shall be identified in accordance with 235.5(C)(1) or (C)(2), as applicable.

N (1) Branch Circuits Supplied from More Than One Nominal Voltage System. Where the premises wiring system has branch circuits supplied from more than one nominal voltage system, each ungrounded conductor of a branch circuit shall be identified by phase or line and by nominal system voltage at all termination, connection, and splice points in accordance with 235.5(C)(1)(a) and (C)(1)(b). Different systems within the same premises that have the same nominal voltage shall be permitted to use the same identification.

(a) *Means of Identification.* The means of identification shall be permitted to be by separate color coding, marking tape, tagging, or other approved means.

(b) *Posting of Identification Means.* The method used for conductors originating within each branch-circuit panelboard or similar branch-circuit distribution equipment shall be documented in a manner that is readily available or shall be permanently posted at each branch-circuit panelboard or similar branch-circuit distribution equipment. The label shall be of sufficient durability to withstand the environment involved and shall not be handwritten.

Exception: In existing installations where a voltage system(s) already exists and a different voltage system is being added, it shall be permissible to mark only the new system voltage. Existing unidentified systems shall not be required to be identified at each termination, connection, and splice point in accordance with 235.5(C)(1)(a) and (C)(1)(b). Labeling shall be required at each voltage system distribution equipment to identify that only one voltage system has been marked for a new system(s). The new system label(s) shall include the words "other unidentified systems exist on the premises."

N (2) Branch Circuits Supplied from Direct-Current Systems. Where a branch circuit is supplied from a dc system operating at more than 1500 volts, each ungrounded conductor of 4 AWG or larger shall be identified by polarity at all termination, connection, and splice points by marking tape, tagging, or other approved means and each ungrounded conductor of 6 AWG or smaller shall be identified by polarity at all termination, connection, and splice points in compliance with 235.5(C)(2)(a) and (C)(2)(b). The identification methods used for conductors originating within each branch-circuit panelboard or similar branch-circuit distribution equipment shall be documented in a

manner that is readily available or be permanently posted at each branch-circuit panelboard or similar branch-circuit distribution equipment.

(a) *Positive Polarity, Sizes 6 AWG or Smaller.* Where the positive polarity of a dc system does not serve as the connection point for the grounded conductor, each positive ungrounded conductor shall be identified by one of the following means:

- (1) A continuous red outer finish
- (2) A continuous red stripe durably marked along the conductor's entire length on insulation of a color other than green, white, gray, or black
- (3) Imprinted plus signs (+) or the word POSITIVE or POS durably marked on insulation of a color other than green, white, gray, or black and repeated at intervals not exceeding 610 mm (24 in.) in accordance with 310.8(B)
- (4) An approved permanent marking means such as sleeving or shrink-tubing that is suitable for the conductor size, at all termination, connection, and splice points, with imprinted plus signs (+) or the word POSITIVE or POS durably marked on insulation of a color other than green, white, gray, or black

(b) *Negative Polarity, Sizes 6 AWG or Smaller.* Where the negative polarity of a dc system does not serve as the connection point for the grounded conductor, each negative ungrounded conductor shall be identified by one of the following means:

- (1) A continuous black outer finish
- (2) A continuous black stripe durably marked along the conductor's entire length on insulation of a color other than green, white, gray, or red
- (3) Imprinted minus signs (–) or the word NEGATIVE or NEG durably marked on insulation of a color other than green, white, gray, or red and repeated at intervals not exceeding 610 mm (24 in.) in accordance with 310.8(B)
- (4) An approved permanent marking means such as sleeving or shrink-tubing that is suitable for the conductor size, at all termination, connection, and splice points, with imprinted minus signs (–) or the word NEGATIVE or NEG durably marked on insulation of a color other than green, white, gray, or red

N 235.6 Branch-Circuit Voltage Limitations Over 1000 volts ac or 1500 volts dc, Nominal, Between Conductors. Circuits exceeding 1000 volts ac or 1500 volts dc, nominal, between conductors shall be permitted to supply utilization equipment in installations where conditions of maintenance and supervision ensure that only qualified persons service the installation.

N 235.9 Circuits Derived from Autotransformers. Branch circuits shall not be derived from autotransformers unless the circuit supplied has a grounded conductor that is electrically connected to a grounded conductor of the system supplying the autotransformer.