

National Electrical Safety Code Committee, Accredited Standards Committee C2

National Electrical Safety Code®

Interpretation

Section 23. Clearances

Rule 235F

Clearance for Wires, Conductors, or Cables Carried on the Same Supporting Structure

AND

TABLE 235-5

**Vertical Clearance Between Conductors at Supports
(22 July 1999) IR 519**

According to Rule 235F, does the neutral conductor carry a different voltage classification than the associated phase conductors of the same circuit?

Rule 235F references the column headings of Table 235-5 to define voltage classifications. Because the neutral conductor is listed in a different column than the phase conductors, the neutral could literally be viewed as a different classification than the associated phase conductors of the same circuit.

Note also, that Rule 235F uses the words “supply circuits” when describing the position of one “supply circuit” relative to another “supply circuit” of the next consecutive voltage classification. Furthermore, the NESC defines “circuit” as “a conductor or system of conductors through which an electric current is intended to flow.” We believe, because of this definition, that the NESC intended to include the neutral as a part of the “circuit” with the associated phase conductors.

Considering both the reference of Rule 235F to Table 235-5 and the use of the words “supply circuits” in Rule 235F, one could derive two different interpretations regarding the voltage classification of a neutral conductor. This could be confusing when applying the requirements of the NESC. This has significance when positioning the neutral and phase conductors on the same crossarm.

Although it is common practice to place the neutral conductor close to the pole, when the neutral and phase conductor are both supported on the same crossarm, there are circumstances (such as corner poles), where moving the neutral conductor to the outer position could enhance clearances. Even though it is not common practice, occasionally the neutral is placed in the outer position relative to phase conductors of the same circuit. Does this violate the NESC?

Is the intent of Rule 235F3 to restrict the relative position of conductors that are associated with a common circuit?

1. 1997 NESC Rule 235F. Clearances Between Supply Circuits of Different Voltage Classifications on the Same Support Arm

Supply circuits of anyone voltage classification as given in Table 235-5 may be maintained on the same support arm with supply circuits of the next consecutive voltage classification only under one or more of the following conditions:

- a. If they occupy positions, on opposite sides of the structure.
- b. If in bridge-arm or sidearm construction, the clearance is not less than the climbing space required for the higher voltage concerned and provided for in Rule 236.
- c. If the higher-voltage conductors occupy the outer positions and the lower-voltage conductors occupy the inner positions.
- d. If series lighting or similar supply circuits are ordinarily dead during periods of work on or above the support arm concerned.
- e. If the two circuits concerned are communication circuits used in the operation of supply lines, and supply circuits of less than 8.7 kV, and are owned by the same utility, provided they are installed as specified in Rule 235F1 or 235F2.

2. 1997 NESC Handbook, page 298

Regarding Rule 235F, the NESC Handbook states “...this rule will permit two circuits or sets of conductors to occupy the same support arm...provided a sufficient clearance is maintained...the classification reference is to Table 235-5, with 750, 8700, and 22 000V being the division points between classes.” The NESC Handbook is silent regarding the voltage class of the neutral.

Interpretation

The Interpretations Subcommittee has considered the subject Interpretation Request and has developed a consensus report as follows:

“Rule 235F is limited to clearances between supply circuits of different voltage classifications on the same support arm; thus the rule is concerned with horizontal clearances and conductor arrangements where subject conductors are on the same support arm. If the circuit includes a neutral conductor, that conductor is part of the supply circuit (see NESC definition of circuit). Note that a common neutral (if used) will be associated with more than one supply circuit.

Accordingly, the answer to your first question is no; the neutral conductor does not carry a different voltage classification than the associated phase conductors of the same circuit. In addition to considering the “circuit” definition, the Interpretations Subcommittee also researched the derivation of Rule 235F and Table 235-5. This rule and table first appeared as Rule 235A and Table 11 in the Fifth Edition (1941). While similar, Table 11 did not contain a separate category for neutral conductors. The revisions in the 1977 Edition, which introduced Rule 230E1 neutral conductors in the classification, were not intended to apply to Rule 235F.

The answer to your last question is also no; Rule 235F does not restrict the relative position of conductors, including the neutral conductor, that are associated with a common circuit. Thus, the neutral conductor may be placed in the outer position assuming other code requirements are not violated.

Please note that Rule 235F does not apply to the phase and neutral conductors of the same circuit where that circuit is the only one on a support arm.”