



Interpretation

Section 235.

Clearance for wires, conductors, or cables carried on the same supporting structure

Rule 235C1a **Vertical clearance between line conductors -- Basic clearance for conductors of same or different circuits -- Between supply lines of the same or different circuits – Table 235-5 (2007 Edition, pages 137, 151)**

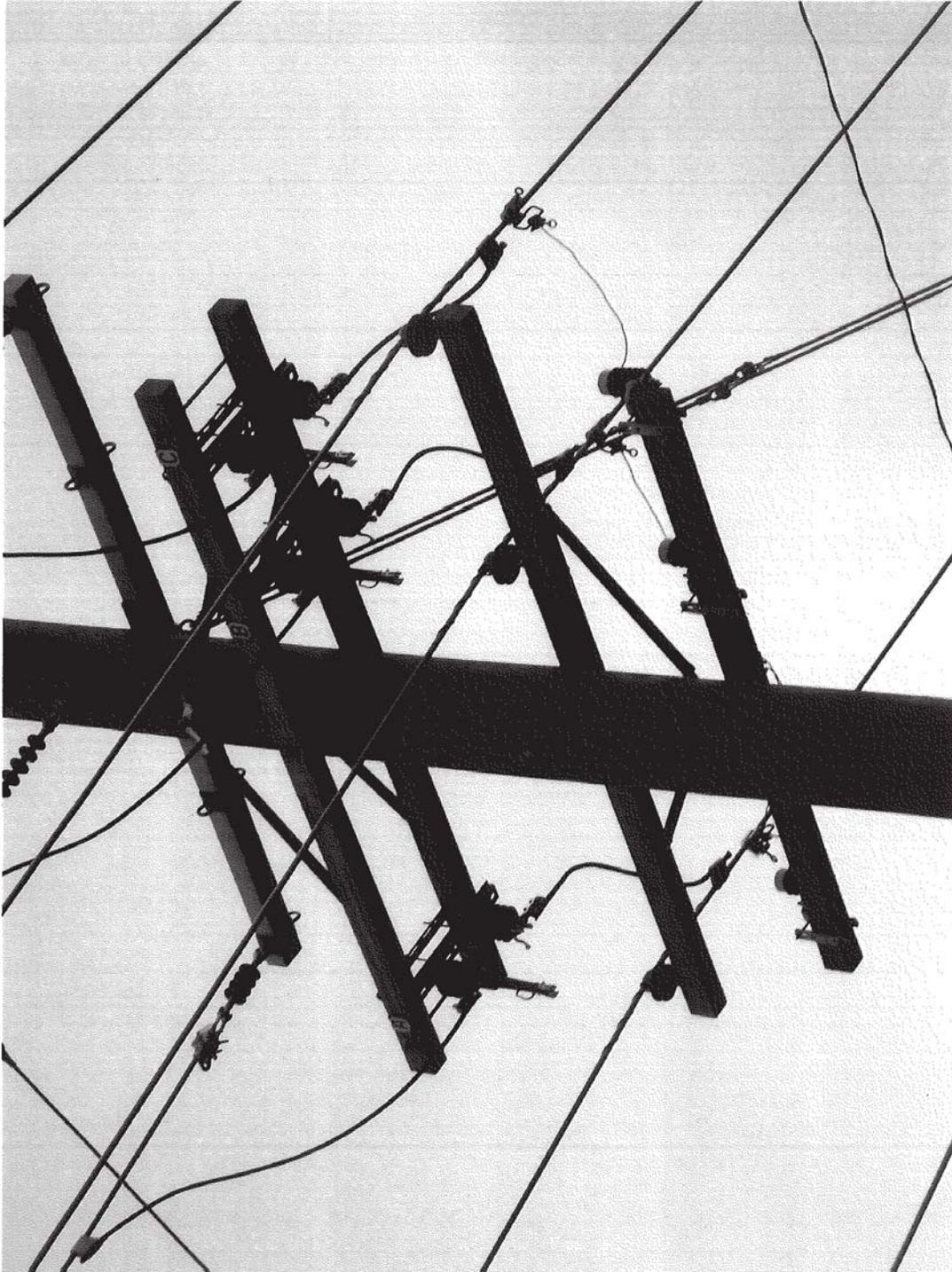
Rule 235E1 **Clearances in any direction from line conductors to supports, and to vertical or lateral conductors, span, or guy wires attached to the same support -- Fixed supports – Table 235-6 (2007 Edition, pages 140, 155)**

(15 November 2011) IR560

Question: The picture below shows one 12.47 kV circuit with under-hung normally open disconnect switches with another 12.47 kV under-build circuit on the same structure. Which rule (235Ca or 235E1) applies to the required vertical clearance from the under-build conductor to the ends of the open disconnect switches?

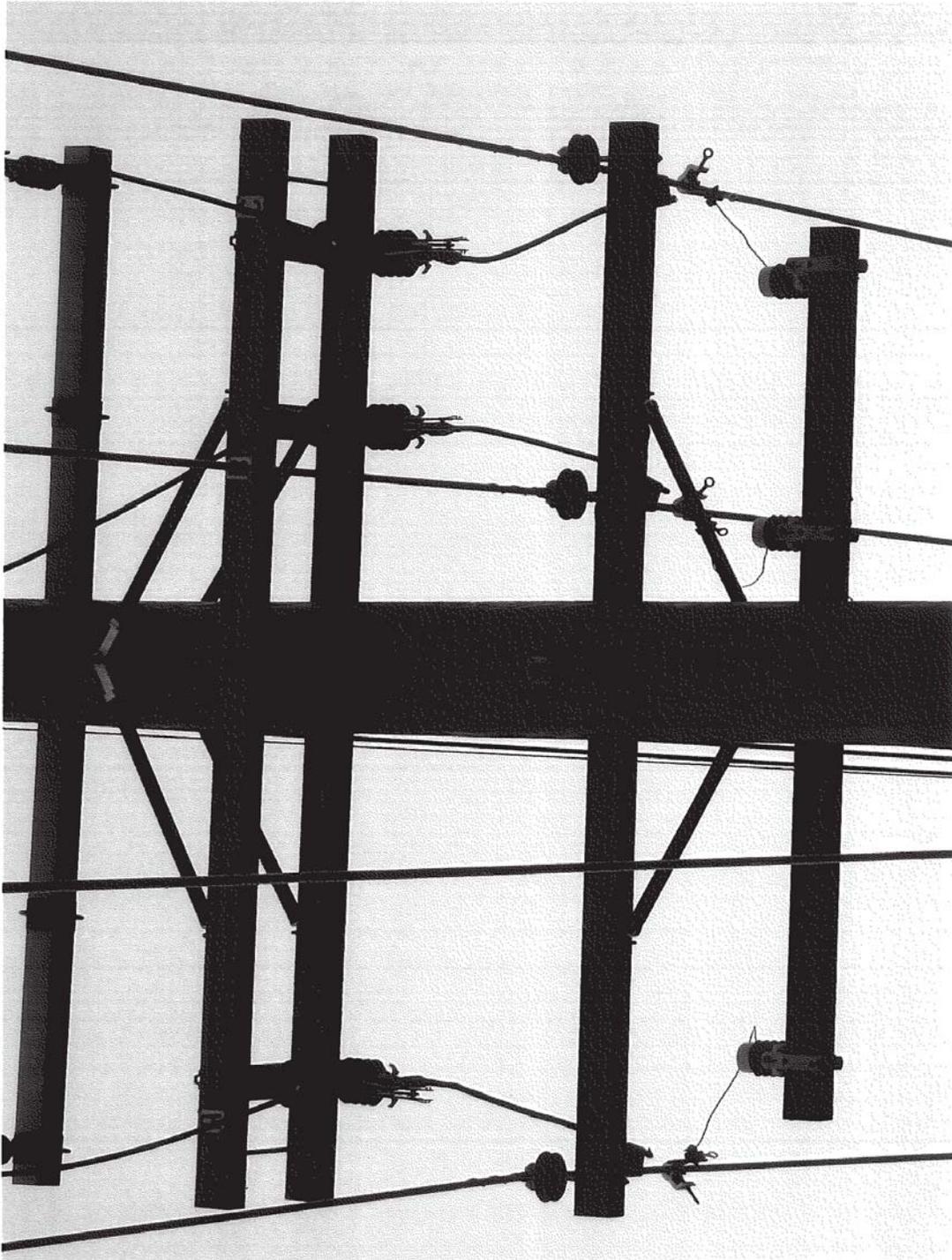


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Discussion: It is not clear in the NESC whether the open disconnect switch blades are considered to be line conductors and there is no definition of vertical conductor in the NESC so it is not clear if we can treat the switch blades as vertical conductors even though the disconnect blades are certainly hanging in a vertical position. If we abide by 235C1a (Table 235-5), we are required to have a vertical separation of 16 inches (assuming the two circuits are in phase with each other). If we abide by 235E1 (Table 235-6), we are only required to have a vertical separation of 6 inches. The answer to this question will determine whether or not we are in violation of the NESC clearance requirements on this structure.

Interpretation

The Interpretations Subcommittee has considered the subject Interpretation Request for Rule 235C1a and Rule 235E1 and has developed a consensus report as follows:

“This interpretation is based on two circuits in phase with each other, as stated by the requestor. The utility is responsible for ensuring that circuits are in phase or for determining the applicable voltage between conductors in other switching situations. The switch blade in subject installation is considered to be a vertical conductor for clearance purposes when the blade is open. Consequently, Rule 235E1 and Table 235-6 apply. The clearance requirement from the under-built line conductor to the open switch blade is 6 inches since the voltage to be used for this determination is phase-to-ground or 7.2kV, because the phase relationship from the switch blade to the line conductor is essentially zero. Note that this clearance is required in any direction; it is not limited to a vertical clearance.

Similarly, the switch blade when closed is a lateral conductor and the same 6-inch clearance is required. Because this clearance is required with the blade in any position, the general answer to your question is: ‘Rule 235E1 and Table 235-6 apply in subject case. A 6-inch clearance in any direction is required between the under-built line conductor and all possible positions of the switch blade (open, closed, and all intermediate positions between open and closed).’

Note that Rule 235C1a and Table 235-5 specify vertical clearances between line conductors. Rule 235C1a does not apply in this case because the switch blade is not a line conductor.”

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