



National Electrical Safety Code®

Interpretation

Section 2. Definitions of special terms

supporting structure

(2017 Edition, page 17)

(20 April 2021) IR593

Question: Do the poles of a multi-pole structure need to be joined either electrically and/or mechanically to be considered one supporting structure? If so, are there any limitations as to what constitutes the mechanical or electrical connection?

Discussion: The intent of this question is to better understand when to apply clearances to the “Same Supporting Structure” versus clearances to “Other Supporting Structure.” Below is an example that describes a specific situation that captures the nature of the question.

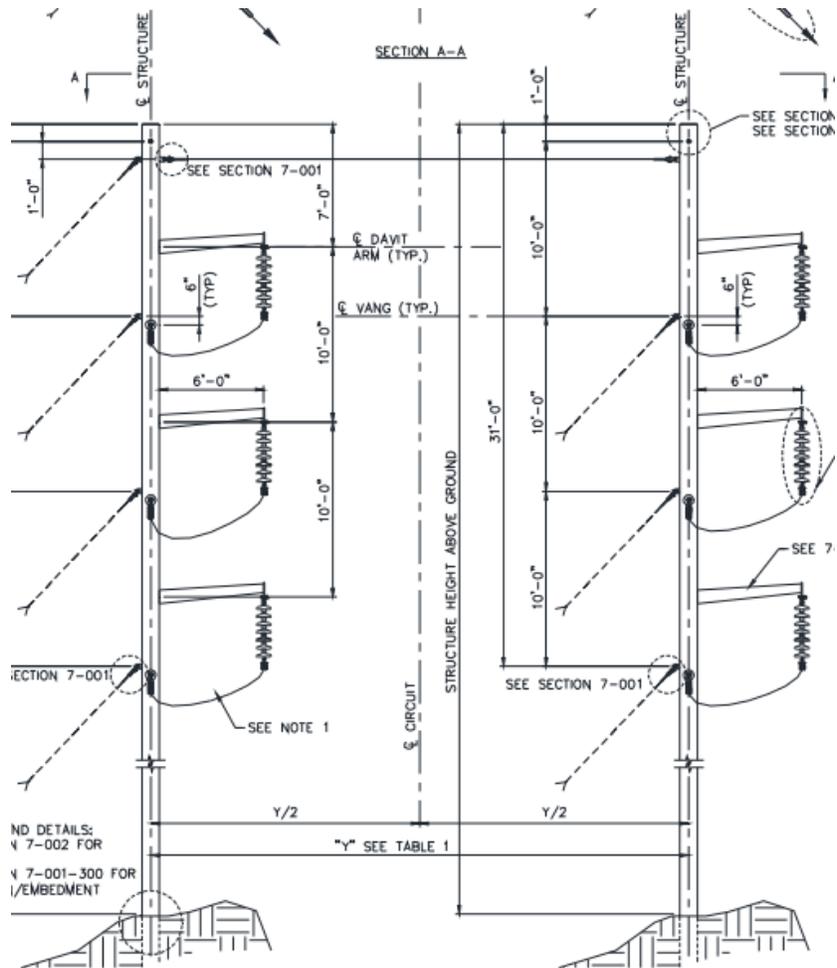
When designing a two-pole vertical deadend (see sketch in the example below), each pole is supporting its own circuit. In this case, please clarify if both poles (and their guys, if present) constitute one supporting structure or if they are independent supporting structures. If it is the former, the conductors on the left circuit need to meet “Same Supporting Structure” clearances to the pole and guys supporting the right circuit. If it is the latter, they need to meet “Other Supporting Structure” clearances to the pole and guys supporting the circuit on the right. This would greatly impact the spacing of the poles when designing such a structure.

If they are considered one supporting structure (versus two independent supporting structures), are there any specific requirements for doing so? This distinction is not provided in the code definition. In the example shown below, they are joined with a pole-to-pole guy. To be considered one supporting structure, is that required, or does it need to be a rigid member, or is that not required at all? Conversely if there were no mechanical connections, at what point would these two poles be considered independent supporting structures? Is it based on their proximity to one another, that the poles and guys are bonded (using a counterpoise for instance), or any other requirement?

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The NESCC IR Subcommittee has reached a consensus response, which is based on the 2017 NESCC.

The two questions are as follows:

1. Do the poles of a multi-pole structure need to be joined either electrically and/or mechanically to be considered one supporting structure?
2. If so, are there any limitations as to what constitutes the mechanical or electrical connection?



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The NESC provides a definition for “supporting structure” including a note with more information about what may be considered a supporting structure. However, the NESC does not provide any specifics on what criteria is needed for multiple poles or towers to be considered a single supporting structure. Since it does not provide specific information, Rule 012C applies.

Rule 012C: For all particulars not specified, but within the scope of these rules, as stated in Rule 011A, construction and maintenance should be done in accordance with accepted good practice for the given local conditions known at the time by those responsible for the construction or maintenance of the communication or supply lines and equipment.

It is left to the user of the NESC to determine if multiple poles or towers are a single supporting structure by using accepted good practice for the local conditions.

In general, in determining if multiple poles or towers are a single supporting structure, accepted good practice would consider the reasons and purposes behind specific NESC rules to select portions of the rules more applicable in specific circumstances. Rule 235 for “Clearance for wires, conductors, or cables carried on the same supporting structure” expects conductor attachment points to move together when the single supporting structure deflects. Rule 233 for “Clearances between wires, conductors, and cables carried on different supporting structures” allows for conductor attachment points that may move in relation to each other as these separate structures deflect independently. In determining if multiple poles or towers are a single supporting structure, accepted good practice would consider which set of assumptions is more reasonably applicable in the particular circumstance.

supporting structure. *The main supporting unit (usually a pole or tower) used to support supply and/or communication conductors, cables, and equipment.*

NOTE: *A supporting structure may consist of a single or multiple pole arrangement that supports supply and/or communication conductors, cables, and equipment at a line location.*