



National Electrical Safety Code®

Interpretation

Section 23. Clearances

Rule 232.A. Table 1 Vertical clearance of wires above ground or rails—Basic clearances—Minimum vertical clearance of wires above ground or rails

(1961, 6th Edition;

Volume 12, NESC

Archives, pages

56-57)

(9 December 2014) IR577a

Question: What is the appropriate column in Table 1 contained within Rule 232.A. Basic Clearances to evaluate a service drop for minimum clearance?

NOTE—Perspective 1 the "open" is implicit to service drops and they would fall into column 1 and 2, while perspective 2 is the use of column 2.



National Electrical Safety Code®

232. A. Basic Clearances—Continued

TABLE 1.—Minimum vertical clearance of wires above ground or rails
[Supply wires include trolley feeders]

Nature of ground or rails underneath wires	Guys; messengers; communi- cation, span, and lightning protection wires; communica- tion cable; supply cable having effectively grounded continuous metal sheath, or insulated conductors supported on and cabled together with an effectively grounded messenger, all voltages	Open supply line wires, arc wires and service drops ¹⁴			Trolley con- tact conduc- tors and associ- ated span or messenger wires ¹		
		0 to 750 volts	750 to 15,000 volts	15,000 to 50,000 volts	0 to 750 volts to ground	Ex- ceed- ing 750 volts to ground	
WHERE WIRES CROSS OVER							
Track rails of railroads (ex- cept electrified railroads using overhead trolley conductors) handling freight cars on top of which men are per- mitted ^{2 16} -----		^{3 15} 27	^{3 27}	^{3 28}	^{3 30}	^{4 22}	^{4 22}
Track rails of railroads (except electrified rail- roads using overhead trolley conductors) not included above ² -----		18	18	20	22	^{5 18}	^{5 20}
Public streets, alleys or roads in urban or rural districts-----		^{6 13} 18	18	20	22	^{5 18}	^{5 20}
Driveways to residence garages-----		10	10	20	22	^{5 18}	^{5 20}
Spaces or ways accessible to pedestrians only-----		^{7 15}	^{8 15}	15	17	^{9 16}	^{9 18}
WHERE WIRES RUN ALONG, AND WITHIN THE LIMITS OF PUBLIC HIGH- WAYS OR OTHER PUBLIC RIGHTS-OF-WAY FOR TRAFFIC							
Streets or alleys in urban districts-----		^{10 11 13} 18	^{10 18}	20	22	^{5 18}	^{5 20}
Roads in rural districts----		^{10 11 12} 14	^{10 15}	18	20	^{5 18}	^{5 20}

The issue arises when attempting to evaluate service drop clearances for an insulated 120 V to ground service drop at the point of attachment to the building that are above spaces or ways accessible to pedestrians only to the terms of the 1961 Edition.

One opinion is that in the text of the heading, “Open supply line wires, arc wires and service drops,” the “open” carries through the entire heading “Open supply line wires,” “Open arc wires” and “Open service drops.” This would indicate that only open wire service drops fall within column 2, and that the applicable footnotes would be footnote 14 and footnote 8. In this first opinion, an insulated service drop would fall into column 1 under “insulated conductors supported on and cabled together with an effectively



grounded messenger,” and the applicable footnote would be footnote 7. This opinion allows for a 120 V to ground service drop at the point of attachment to the building that was constructed with open wire under certain conditions to have a minimum 8’ clearance, and for an insulated service drop under certain conditions to have a minimum clearance of 10 ft.

A second opinion is that column 2, “Open supply line wires, arc wires and service drops” applies to all service drops as defined. This opinion allows for a 120 V to ground service drop at the point of attachment to the building under certain conditions to have a minimum 8 ft clearance.

A complicating factor to applying either opinion to evaluating a service drop as the point of attachment is defined as customer equipment and subject to the National Electric Code, while the service drop is utility equipment and subject to the National Electric Safety Code. If the use of “open” is implicit in establishing clearances for insulated 120 V to ground service drops, it is unclear how the transition between utility clearance requirements and customer attachment height requirements can be accommodated.

Discussion:

Additional Definitions and Rules

63. Service means the conductors and equipment for delivering electric energy from the secondary distribution or street main, or other distribution feeder, or from the transformer, to the wiring system of the premises served. For overhead circuits, it includes the conductors from the last line pole to the service switch or fuse. The portion of the overhead service between the pole and building is designated as “service drop.”

230. C Supply Cables

As far as clearances are concerned, supply cable having effectively grounded continuous metal sheath, or insulated conductors supported on and cabled together with an effectively grounded messenger, of all voltages, are classified the same as guys and messenger.

The definition contained within 63. Service would indicate that open wire or insulated service between the pole and building is defined as the service drop and should be evaluated under the middle column which contains “...service drop” This definition is also consistent with 1940 National Electric Code, and the application of footnote 8 (2) is consistent with the 1940 National Electric Code Section 2325. Point of Attachment to Building.



Rule 230.C would indicate that the first column would apply to a service or parallel aerial cable commonly referred to as “parlay” for structure to structure (pole to pole) vertical clearances. The rule references guys which run either pole to pole or to the ground which would be an anchor guy.

The 1961 NESC Edition is being applied to service drop installations that were constructed pre-1961 to determine grandfathering status. If opinion 1 is accurate and an insulated service drop has a greater minimum clearance than an open wire service drop, would it be acceptable for the customer to seek relief from the expense under Rule 201A similar to interpretation request 195 dated June 24, 1977, since the greater clearance for an insulated service drop versus on open wire service drop is not securing any additional protection? Further, if opinion 1 is correct, how does that comport with the allowance for communication equipment less than 160 V to ground having a different and more lenient clearance requirement than the insulated 120 V to ground service drop?

Interpretation

This Interpretation is limited to NESC 1961 Edition clearance requirements for service drops over spaces or ways accessible to pedestrians only, as detailed in Rule 232.A., Table 1. Two statements in the first opinion are correct:

- 1) The word “open” carries through the entire heading of the second column, and
- 2) An insulated service drop falls in the first column. Note that this statement is based on the description of an insulated service drop as: “insulated conductors supported on and cabled together with an effectively grounded messenger.” Such cables are commonly referred to as “triplex” cables (120/240 single-phase for this interpretation) and classified as 230C3 cables in later NESC editions.

Therefore, footnote 7 applies to triplex service drops and footnote 8 applies to open-wire service drops.

In the heading of the Table 1 middle column (second column), “Open” applies to all of the three designated types of conductors: supply line wires, arc wires and service drops. A semicolon would have been used after “arc wires” if the middle column was intended to apply to all service drops. Rather, triplex service drops are covered in the first column under “insulated conductors supported on and cabled together with an effectively grounded messenger.”

The following two comments also apply to this Interpretation Request:



- 1) Open wire services can be either bare or covered with an insulating material. If cabled to a messenger as described above (triplex cable), the service is not “open wire.”
- 2) Regarding the question about seeking relief, the NESC does not preclude an appeal to the commission under the provisions of Rule 201.A. (NESC 1961 Edition).

See also NESC IR 577.

National Electrical Safety Code and NESC are both registered trademarks and service marks of the Institute of Electrical and Electronics Engineers, Inc. The NESC is available from the Institute of Electrical and Electronics Engineers, Inc., 445 Hoes Lane, Piscataway, NJ 08854, USA (<http://standards.ieee.org/>)