



Interpretation

Section 9.

Grounding methods for electric supply and communications facilities

Rule 097B2 Separation of grounding conductors
(2012 Edition, page 32)
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Question: Is the multi-grounded conductor of a corner-grounded delta system an acceptable grounding conductor even though it is not specifically listed in Rule 097B2?

Discussion: Corner-grounded delta primary circuits are relatively rare and, as a result, are not directly specified in the NESC as presently written. However, it is believed that the language of the NESC allows—and even promotes—bonding of the secondary neutral with the corner-grounded delta conductor of the primary circuit, because the multi-grounded primary phase is effectively equivalent to a multi-grounded neutral or overhead shield wire.

It is not uncommon for a utility with a corner-grounded delta system to ground one conductor in accordance with NESC 97C, and for all practical purposes treat this system like a V-phase open-wye system. Electrically, the grounded conductor in a corner-grounded delta system operates identically to a multi-grounded neutral conductor on a wye system meeting Rule 230E1.

Some have argued that, because Rule 097B2 does not specifically mention the multi-grounded phase of a corner-grounded delta circuit, the multi-grounded phase cannot be connected to the secondary neutral.

Others argue that the multi-grounded phase of a corner-grounded delta circuit is no different from an overhead shield wire as a practical matter and, because Rule 097B2 allows connection of a secondary neutral to a multi-grounded overhead shield wire, connection of the multi-grounded phase of a corner-grounded delta circuit is allowed by the NESC. It is believed that is the case.

In terms of safety, if the primary corner-grounded delta conductor is forced to be separated from the secondary neutral conductor at the transformer supplying the



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secondary service, then the customer is prevented access to the most effective grounding system available, i.e. the multi-grounded conductor of the delta system. The customer is then relegated to use a separate grounding system that is usually less effective and has potential for additional safety concerns due to the separation of grounding systems. The most effective ground for the secondary neutral is achieved by bonding to a multi-grounded phase of a corner-grounded delta primary in such cases.

Interpretation

While the multi-grounded conductor of a corner-grounded delta system is not listed in Rule 097B2, there is no deliberate intent to exclude it. Note that a three-wire delta system may be corner-grounded if effectively grounded. See Rule 215B3.

Because the NESC does not specifically cover the system described above, Rule 012C applies.

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