



National Electrical Safety Code®

Interpretation

Section 9.

Grounding methods for electric supply and communications facilities

Rule 092B1 750 V and below (2007 Edition, page 17) (14 January 2008) IR547

Is it the intent of the rule to require the neutral of a wye-connected three-phase four-wire system to be solidly grounded or is impedance grounding also acceptable?

Discussion: For discussion is the use of a high-impedance grounded neutral system that meets all requirements in National Electrical Code® (NEC®) (NFPA 70, 2005 Edition) Article 250.36 for a 480 V, 3-phase, 60 Hz, wye service to an industrial site that has no 277 V loads. The electric utility owns the padmount transformer but will not remove the bond strap between the secondary XO bushing and the transformer ground. There is, and there only will be, one customer supplied by the transformer. The electric utility references Rule 092B1 in the National Electrical Safety Code (NESC) (Accredited Standards Committee C2-2007) (and earlier) and states that it is mandatory for them to ground the XO bushing, which essentially bypasses the high-impedance ground system. It does not state that the neutral shall be solidly grounded; it only states that the point of the grounding connection shall be at the neutral conductor. It can, therefore, be interpreted that grounding the neutral through a resistor is acceptable. Rule 215B2 EXCEPTION and Rule 314C1 EXCEPTION can also be used as proof that high-impedance grounded systems are acceptable means for neutral grounding by the NESC.

Interpretation

The Interpretations Subcommittee has considered the subject Interpretation Request for Rule 110B2 and has developed a consensus report as follows:

“NESC rules do not require the neutral of a wye-connected three-phase four-wire system of 750 V or below to be solidly grounded. Impedance grounding of such systems is acceptable under Rule 215B2 EXCEPTION and Rule 314C1 EXCEPTION, provided that all other applicable rules are followed.

While there may be valid reasons for requiring the neutral of such systems to be either solidly grounded or impedance grounded, compliance with Rule 092B1 should not be used as the rationale.”

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