

2005 NATIONAL ELECTRICAL CODE

Sections related to effective ground-fault current path and protection from short-circuit current [underlining added]

1. 250.2 Definitions

Effective Ground-Fault Current Path. An intentionally constructed, permanent, low-impedance electrically-conductive path designed and intended to carry current under ground-fault conditions from the point of a ground-fault on a wiring system to the electrical supply source and that facilitates the operation of the overcurrent protective device or ground-fault detectors on high-impedance grounded systems.

2. 250.4(A) Grounded Systems.

(5) Effective Ground-Fault Current Path. Electrical equipment and wiring and other electrically conductive material likely to become energized shall be installed in a manner that creates a permanent, low-impedance circuit facilitating the operation of the overcurrent device or ground-detector for high-impedance grounded systems. It shall be capable of safely carrying the maximum ground-fault current likely to be imposed on it from any point on the wiring system where a ground-fault may occur to the electrical supply source. The earth shall not be considered as an effective ground-fault current path.

3. 250.4 (B) Ungrounded Systems.

(4) Path for Fault-Current. Electrical equipment, wiring and other electrically conductive material likely to become energized shall be installed in a manner that creates a permanent, low-impedance circuit from any point on the wiring system to the electrical supply source to facilitate the operation of overcurrent devices should a second fault occur on the wiring system. The earth shall not be considered as an effective fault-current path.

4. Table 250.122 Minimum Size Equipment Grounding Conductors for Grounding Raceway and Equipment

Note: Where necessary to comply with 250.4(A)(5) or (B)(4), the equipment grounding conductor shall be sized larger than given in this table.

5. 250.122(B) Increased in Size.

Where ungrounded conductors are increased in size, equipment grounding conductors, where installed, shall be increased in size proportionally according to circular mil area of the ungrounded conductors.

6. 240.9 Thermal Devices. Thermal relays and other devices not designed to open short-circuits or ground-faults shall not be used for the protection of conductors against overcurrent due to short circuits or ground faults, but the use of such devices shall be permitted to protect motor branch circuit conductors from overload if protected in accordance with 430.40.

7. 110.10 Circuit Impedance and Other Characteristics. The overcurrent protective devices, the total impedance, the component short-circuit ratings, and other characteristics of the circuit to be protected shall be selected and coordinated to permit the circuit protective devices used to clear a fault to do so without extensive damage to the electrical components of the circuit...