

(2) Size of Equipment Grounding Conductor. The equipment grounding conductor size shall be in accordance with 250.122.

(3) Connections of Equipment Grounding Conductor. Equipment grounding conductor connections shall be made in accordance with 250.130 and in a method specified in 250.8.

(4) Auxiliary Grounding Electrode. Auxiliary grounding electrode(s) shall be permitted for electric signs and outline lighting systems covered by this article and shall meet the requirements of 250.54.

(5) Metal Building Parts. Metal parts of a building shall not be permitted as a secondary return conductor or an equipment grounding conductor.

(B) Bonding.

(1) Bonding of Metal Parts. Metal parts and equipment of signs and outline lighting systems shall be bonded together and to the associated transformer or power-supply equipment grounding conductor of the branch circuit or feeder supplying the sign or outline lighting system and shall meet the requirements of 250.90.

Exception: Remote metal parts of a section sign or outline lighting system only supplied by a remote Class 2 power supply shall not be required to be bonded to an equipment grounding conductor.

(2) Bonding Connections. Bonding connections shall be made in accordance with 250.8.

Δ (3) Metal Building Parts. Metal parts of a building shall not be used as a means for bonding metal parts and equipment of signs or outline lighting systems together or to the transformer or power-supply equipment grounding conductor of the supply circuit.

(4) Flexible Metal Conduit Length. Listed flexible metal conduit or listed liquidtight flexible metal conduit that encloses the secondary circuit conductor from a transformer or power supply for use with neon tubing shall be permitted as a bonding means if the total accumulative length of the conduit in the secondary circuit does not exceed 30 m (100 ft).

Listed flexible metal conduit (FMC) and listed liquidtight flexible metal conduit (LFMC) are suitable as a bonding means in lengths up to 100 feet because the purpose of the bonding specified by 600.7(B)(1) is not to operate an OCPD on the primary side of the transformer or power supply but to minimize differences of potential between the metal parts of signs or outline lighting systems.

(5) Small Metal Parts. Small metal parts not exceeding 50 mm (2 in.) in any dimension, not likely to be energized, and spaced at least 19 mm (¾ in.) from neon tubing shall not require bonding.

(6) Nonmetallic Conduit. Where listed nonmetallic conduit is used to enclose the secondary circuit conductor from

a transformer or power supply and a bonding conductor is required, the bonding conductor shall be installed separate and remote from the nonmetallic conduit and be spaced at least 38 mm (1½ in.) from the conduit when the circuit is operated at 100 Hz or less or 45 mm (1¾ in.) when the circuit is operated at over 100 Hz.

Secondary circuit raceways normally contain only one conductor, which is connected to one side of the neon tube. Where nonmetallic conduit is used and any sign parts are required to be bonded, the bonding conductor(s) must be run outside of and be separated from the nonmetallic conduit. Installing bonding conductors inside the nonmetallic conduit with secondary power-supply conductors is prohibited because doing so could increase the chance of failure of the conductor or nonmetallic tubing.

Δ (7) Bonding Conductors. Bonding conductors installed outside of a sign or raceway shall be protected from physical damage. Bonding conductors shall comply with 250.120 and 250.122. Bonding conductor size shall also comply with one of the following:

- (1) Bonding conductors shall be copper and not smaller than 14 AWG.
- (2) Bonding conductors shall be copper-clad aluminum and not smaller than 12 AWG.

Δ (8) Signs in Fountains. Signs or outline lighting installed inside a fountain shall have all metal parts bonded to the equipment grounding conductor of the branch circuit for the fountain recirculating system. The bonding connection shall be as near as practicable to the fountain and shall be permitted to be made to metal piping systems that are bonded in accordance with 680.54(B).

Informational Note: See 600.32(J) for restrictions on length of high-voltage secondary conductors.

600.8 Enclosures. Live parts, other than lamps, and neon tubing shall be enclosed. Transformers and power supplies provided with an integral enclosure, including a primary and secondary circuit splice enclosure, shall not require an additional enclosure.

(A) Strength. Enclosures shall have ample structural strength and rigidity.

(B) Material. Sign and outline lighting system enclosures shall be constructed of metal or shall be listed.

(C) Minimum Thickness of Enclosure Metal. Sheet copper or aluminum shall be at least 0.51 mm (0.020 in.) thick. Sheet steel shall be at least 0.41 mm (0.016 in.) thick.

(D) Protection of Metal. Metal parts of equipment shall be protected from corrosion.

600.9 Location.

(A) Vehicles. Sign or outline lighting system equipment shall be at least 4.3 m (14 ft) above areas accessible to vehicles unless protected from physical damage.