

### Part III. Grounding Methods

#### 800.100 Cable and Primary Protector Bonding and Grounding.

##### (A) Bonding Conductor or Grounding Electrode Conductor.

(1) **Insulation.** The bonding conductor or grounding electrode conductor shall be listed and shall be permitted to be insulated, covered, or bare.

(2) **Material.** The bonding conductor or grounding electrode conductor shall be copper or other corrosion-resistant conductive material, stranded or solid.

(3) **Size.** The bonding conductor or grounding electrode conductor shall not be smaller than 14 AWG. The bonding conductor or grounding electrode conductor shall have a current-carrying capacity not less than the aggregate of the grounded metal cable sheath member, the metal strength member(s), and the protected conductor(s) of the communications cable, or the outer sheath of the coaxial cable, as applicable. The bonding conductor or grounding electrode conductor shall not be required to exceed 6 AWG.

(4) **Length.** The bonding conductor or grounding electrode conductor shall be as short as practicable. In one- and two-family dwellings, the bonding conductor or grounding electrode conductor shall be as short as practicable, not to exceed 6.0 m (20 ft) in length.

Informational Note: Similar bonding conductor or grounding electrode conductor length limitations applied at apartment buildings and commercial buildings help to reduce voltages that may be developed between the building's power and communications systems during lightning events. See ANSI/TIA-607-D-2019, *Generic Telecommunications Bonding and Grounding (Earthing) for Customer Premises*, which includes useful information to reduce such voltages.

*Exception: In one- and two-family dwellings if it is not practicable to achieve an overall maximum bonding conductor or grounding electrode conductor length of 6.0 m (20 ft), a separate ground rod meeting the minimum dimensional criteria of 800.100(B)(3)(2) or (B)(3)(3) shall be driven, the bonding conductor or grounding electrode conductor shall be connected to the ground rod in accordance with 800.100(C), and the ground rod shall be connected to the power grounding electrode system in accordance with 800.100(D).*

Limiting the bonding conductor length reduces the impedance of the conductor, resulting in a low, if any, potential difference between conductors and equipment of the communications system and the electrical conductors and equipment in the building. The low-impedance bonding connection reduces the fire and shock hazard in the event that electric utility power lines come in contact with communications conductors.

The informational note to 800.100(A)(4) provides guidance for the treatment of the cable and primary protector grounding conductor length at apartment and commercial buildings that is

consistent with the 20-foot rule for one- and two-family dwellings. However, a specific length is not specified in the NEC because such a limitation might not be practical in some installations.

(5) **Run in Straight Line.** The bonding conductor or grounding electrode conductor shall be run in as straight a line as practicable.

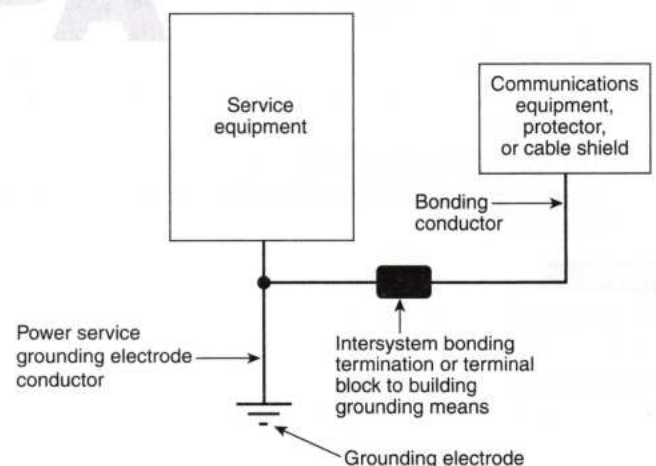
(6) **Physical Protection.** Bonding conductors and grounding electrode conductors shall be protected where exposed to physical damage. If the bonding conductor or grounding electrode conductor is installed in a metal raceway, both ends of the raceway shall be bonded to the contained conductor or to the same terminal or electrode to which the bonding conductor or grounding electrode conductor is connected.

(B) **Electrode.** The bonding conductor or grounding electrode conductor shall be connected in accordance with 800.100(B)(1), (B)(2), or (B)(3).

(1) **In Buildings or Structures with an Intersystem Bonding Termination.** If the building or structure served has an intersystem bonding termination as required by 250.94, the bonding conductor shall be connected to the intersystem bonding termination.

Informational Note: Informational Note Figure 800.100(B)(1) illustrates the connection of the bonding conductor in buildings or structures equipped with an intersystem bonding termination or a terminal block providing access to the building grounding means.

Δ (2) **In Buildings or Structures with Grounding Means.** If an intersystem bonding termination is established, 250.94(A) shall apply. If the building or structure served has no intersystem bonding termination, the bonding conductor or grounding electrode



Δ **INFORMATIONAL NOTE FIGURE 800.100(B)(1)**  
Illustration of a Bonding Conductor in a Communications Installation Equipped With an Intersystem Bonding Termination or Terminal Block Providing Access To the Building Grounding Means.