non-power-limited fire alarm circuit conductors not in raceway or cable, or shall be permanently separated from conductors of the other system by a continuous and firmly fixed nonconductive barrier in addition to the insulation on the wires.

N **(2) Other Communications Systems.** Communications wires and cables and CATV-type coaxial cables shall be installed so that there will be no unnecessary interference in the maintenance of the separate systems. In no case shall the wires, cables, messenger strand, or equipment of one system cause abrasion to the wires, cables, messenger strand, or equipment of any other system.

N **800.47 Underground Systems Entering Buildings.** Underground communications wires and cables, CATV-type coaxial cables, and network-powered broadband communications cables entering buildings shall comply with 800.47(A) and (B). The requirements of 310.10(C) shall not apply to communications wires and cables and CATV-type coaxial cables.

N **(A) Underground Systems with Electric Light, Power, Class 1, or Non-Power-Limited Fire Alarm Circuit Conductors.** Underground communications wires and cables, CATV-type coaxial cables, and network-powered broadband communications cables in a raceway, pedestal, handhole enclosure, or manhole containing electric light, power, Class 1, or non-power-limited fire alarm circuit conductors shall be in a section separated from such conductors by means of brick, concrete, or tile partitions or by means of a suitable barrier.

N **(B) Direct-Buried Cables and Raceways.** Direct-buried communications wires and cables, CATV-type coaxial cables, and network-powered broadband communications cables shall be separated at least 300 mm (12 in.) from conductors of any light or power, non-power-limited fire alarm circuit conductors, or Class 1 circuit.

Exception No. 1: Separation shall not be required if electric service conductors or all the direct-buried communications wires and cables, CATV-type coaxial cables, and network-powered broadband communications cables are installed in raceways or have metal cable armor.

Exception No. 2: Separation shall not be required under one of the following conditions:

(1) If the electric light or power branch-circuit or feeder conductors or Class 1 circuit conductors are installed in a raceway or in metal-sheathed, metal-clad, or Type UF or Type USE cables

(2) If all the direct-buried communications wires cables, CATV-type coaxial cables, and network-powered broadband communications cables have metal cable armor or are installed in raceway

N **800.48 Unlisted Cables Entering Buildings.** Unlisted outside plant communications cables and unlisted outside plant CATV-type coaxial cables shall be permitted to be installed in building spaces other than risers, ducts used for environmental air, plenums used for environmental air, and other spaces used for environmental air if all of the following applies:

(1) The length of the cable within the building, measured from its point of entrance, does not exceed 15 m (50 ft).
(2) The cable enters the building from the outside.
(3) The unlisted outside plant communications cable is terminated in an enclosure or on a listed primary protector, or the unlisted outside plant CATV type coaxial cable is terminated at a grounding block.

The point of entrance shall be permitted to be extended from the penetration of the external wall, roof, or floor slab by continuously enclosing the entrance cables in rigid metal conduit (RMC) or intermediate metal conduit (IMC) to the point of emergence.

Informational Note No. 1: Splice cases or terminal boxes, both metallic and plastic types, are typically used as enclosures for splicing or terminating communications cables.

Informational Note No. 2: This section limits the length of unlisted outside plant cable to 15 m (50 ft) from the point of entrance, while 805.90(B) requires that the primary protector be located as close as practicable to the point of entrance of the cable. Therefore, in installations requiring a primary protector, the outside plant cable may not extend 15 m (50 ft) into the building if it is practicable to place the primary protector closer to the point of entrance.

In general, because they are a part of the building fuel load, communications cables within buildings are required to be listed to ensure that they have met certain testing parameters. Unlisted cables, such as outside plant cables, have not been tested to the same parameters and, therefore, are limited in length within a building unless installed in rigid metal conduit (RMC) or intermediate metal conduit (IMC) where it emerges from the slab.

800.49 Metal Entrance Conduit Grounding. Metal conduit containing entrance wire or cable shall be connected by a bonding conductor or grounding electrode conductor to a grounding electrode or, where present, the building grounding electrode system in accordance with 800.100(B).

Δ **800.53 Separation from Lightning Conductors.** Where practicable on buildings, a separation of at least 1.8 m (6 ft) shall be maintained between lightning protection conductors and all communications wires and cables and CATV-type coaxial cables.

Informational Note No. 1: See ANSI C2-2017 *National Electrical Safety Code, Part 2, Safety Rules for Overhead Lines*, for additional information regarding overhead (aerial) wires and cables.

Informational Note No. 2: See NFPA 780-2020, *Standard for the Installation of Lightning Protection Systems*, for information on calculation of separation distances using the sideflash equation.