Code Making Panel – 16 (CMP-16) met October 21-24, 2018 for the Second Draft Meeting associated with the 2020 revision cycle of the National Electrical Code® (NEC®) to review the public comments (PCs) submitted on the First Draft of the NEC®. The following is a breakdown of the disposition of the PCs.

Total Number of PCs submitted:	223
Panel Second Revision:	1
Accepted:	6
Rejected:	30
Rejected but see:	188
Rejected but hold:	0

An "accept" means that the public comment was accepted as written. A "reject" means that the public comment was rejected in its entirety. A "reject but see" means that only a portion of the public comment was accepted. A "reject but hold" means that a public comment was determined to have new material which had not been reviewed by the public. Finally, a "panel second revision" means that CMP-16 determined that obvious mistakes had occurred during the first draft revision which caused the NEC®® to not be compliant with the NFPA Style manual. A total of 46 Second Revision numbers were established by CMP-16.

The reasons for a number of the PCs for which the second revision (SR) was issued are

- Moving redundant text from the existing Articles in Chapter 8 to new General Article,
- Editorial changes,
- Adding requirements.

Section 770.49 (SR-7720), and 800.49 (SR-7667) were updated to read as follows.

770.49 Metal Entrance Conduit Grounding.

Metal conduit containing optical fiber entrance 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 770.100(B).

800.49 Metal Entrance Conduit Grounding.

Metal conduit containing optical fiber entrance 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). Section 805.49, 820.49, 830.49 and 840.49 were deleted

As the result of a Correlating Committee Note (#144) Section 770.133(A) had to be rewritten in more positive text which resulted in the following change to Section 770.133 which was created by SR-7725.

(A) **In Cable Trays and Raceways.**
Conductive optical fiber cables contained in an armored or metal-clad–type sheath and nonconductive optical fiber cables shall be permitted to occupy the same cable tray or raceway with conductors for electric light, power, Class 1, non–power-limited fire alarm, Type ITC, or medium-power network-powered broadband communications circuits operating at 1000 volts or less.

Conductive optical fiber cables without an armored or metal-clad–type sheath shall not be permitted to occupy the same cable tray or raceway with conductors for electric light, power, Class 1, non–power-limited fire alarm, Type ITC, or medium-power network-powered broadband communications circuits unless all of the conductors of electric light, power, Class 1, non–power-limited fire alarm, and medium-power network-powered broadband communications circuits are separated from all of the optical fiber cables by a permanent barrier or listed divider.

(B) In Cabinets, Outlet Boxes and Similar Enclosures.
Nonconductive optical fiber cables shall not be permitted to occupy the same cabinet, outlet box, panel, or similar enclosure housing the electrical terminations of an electric light, power, Class 1, non–power-limited fire alarm, or medium-power network-powered broadband communications circuit unless one or more of the following conditions exist:

1) The nonconductive optical fiber cables are functionally associated with the electric light, power, Class 1, non–power-limited fire alarm, or medium-power network-powered broadband communications circuit.

2) The conductors for electric light, power, Class 1, non–power-limited fire alarm, Type ITC, or medium-power network-powered broadband communications circuits operate at 1000 volts or less

3) The nonconductive optical fiber cables and the electrical terminations of electric light, power, Class 1, non–power-limited fire alarm, or medium-power network-powered broadband communications circuit are installed in factory- or field-assembled control centers.

4) The nonconductive optical fiber cables are installed in an industrial establishment where conditions of maintenance and supervision ensure that only qualified persons service the installation.

When optical fibers are within the same composite cable for electric light, power, Class 1, non–power-limited fire alarm, or medium-power network-powered broadband communications circuits operating at 1000 volts or less, they shall be permitted to be installed only where the functions of the optical fibers and the electrical conductors are associated.

Optical fibers in composite optical fiber cables containing only current-carrying conductors for electric light, power, or Class 1 circuits rated 1000 volts or less shall be permitted to occupy the same cabinet, cable tray, outlet box, panel, raceway, or other termination enclosure with conductors for electric light, power, or Class 1 circuits operating at 1000 volts or less.

Optical fibers in composite optical fiber cables containing current-carrying conductors for electric light, power, or Class 1 circuits rated over 1000 volts shall be permitted to occupy the same cabinet, cable tray, outlet box, panel, raceway, or other termination enclosure with conductors for electric light, power, or Class 1 circuits In industrial establishments, where conditions of maintenance and supervision ensure that only qualified persons service the installation.

(C) With Other Circuits.
Optical fibers shall be permitted in the same cable, and conductive and nonconductive optical fiber cables shall be permitted in the same raceway, cable tray, box, enclosure, or cable routing assembly, with conductors of any of the following:

(1) Class 2 and Class 3 remote-control, signaling, and power-limited circuits in compliance with Article 645 or Parts I and III of Article 725

(2) Power-limited fire alarm systems in compliance with Parts I and III of Article 760

(3) Communications circuits in compliance with Parts I and V of Article 805

(4) Community antenna television and radio distribution systems in compliance with Parts I and V of Article 820

(5) Low-power network-powered broadband communications circuits in compliance with Parts I and V of Article 830

(D) Support of Optical Fiber Cables.
Raceways shall be used for their intended purpose. Optical fiber cables shall not be strapped, taped, or attached by any means to the exterior of any conduit or raceway as a means of support.
Exception: Overhead (aerial) spans of optical fiber cables shall be permitted to be attached to the exterior of a raceway-type mast intended for the attachment and support of such cables.

Section 770.179 (SR-7726) was updated to add a new Section G and Section 805.179 was updated to add a new Section G (SR-7741); 820.179 (SR-7741) a new Section B, and 830.179 (SR-7741) a new Section D which reads as follows:

Optional Markings. Cables shall be permitted to be surface marked to indicate special characteristics of the cable materials.

Informational Note: These markings may include, but not limited to markings for limited smoke, halogen free, low smoke halogen free, and sunlight resistant.

A significant number of the Second Revisions generated by CMP-16 was to address the NFPA Correlating Committee's Note 210 to remove redundant requirements and improve both clarity and usability in Chapter 8 which resulted in Article 800 becoming a General Article for Chapter 8 and a new Article 805 being created to cover Communications Circuits. The following sections were created for the new General Article:

- 800.1-Scope, 800.2-Definitions,
- 800.3-Other Articles,
- 800.21-Access to Electrical Equipment Behind Panels Designed to Allow Access,
- 800.24-Mechanical Execution of Work, 800.25-Abandoned Cables,
- 800.26-Spread of Fire or Products of Combustion,
- 800.44-Overhead (Aerial) Communications Wires and Cables,
- 800.49-Metallic Entrance Conduit Grounding,
- 800.100-Cable and Primary Protector Bonding and Grounding, 800.179-Cable Markings, and
- 800.180-Grounding Devices.

Redundant text that appeared in Articles 805, 820, 830, and 840 were relocated to Article 800 (SR-7539, 7562, 7569, 7581, 7592, 7595, 7599, 7611, 7621, 7642, 7646, 7647, 7648, 7661, 7667, 7679, 7690, 7692, 7696, 7709, 7717, 7741, 7746, and 7753).

A new definition of abandoned cable was established by SR-7569 which reads as follows:

Abandoned Cable:
Installed cable that is not terminated as described in 805.2 for communications cable, 820.2 for CATV coaxial cable, or 803.2 for network-powered broadband communications cable and that is not identified for future use with a tag.

The definition of communications circuits was updated by SR-7581 to read as follows:

Communications Circuit:
The circuit that extends service from the communications utility or service provider up to and including the customer's communications equipment.

New Section 800.3(F) (SR-7509) Reconditioned equipment.

(F) Reconditioned Equipment.

The requirements of 110.21(A)(2) shall apply.

By a majority vote during the meeting CMP-16 approved (SR-7637) to delete the reference to 304(D) in Section 800.24 making the requirements of mechanical execution of work follow all the guidelines of Section 304. No technical substantiation was presented and the recommendation will be for IEEE to vote to reject this Second Revision since a 2/3 majority is required to pass ballot.

SR-7642 deleted Sections 805.24 and 820.24, then revised Sections 800.24, 830.24, and 840.24 established the following wording in General Article 800.24.

800.24 Mechanical Execution of Work.
Circuits and equipment shall be installed in a neat and workmanlike manner. Cables installed exposed on the surface of ceilings and sidewalls shall be supported by the building structure in such a manner that the cable will not be damaged by normal building use. Such cables shall be secured by hardware, including straps, staples, cable ties, hangers, or similar fittings, designed and installed so as not to damage the cable. The installation shall also conform to 300.4(D) and 300.11. Nonmetallic cable ties and other nonmetallic cable accessories used to secure and support cables in other spaces used for environmental air (plenums) shall be listed as having low smoke and heat release properties in accordance with 805.170(C).

Informational Note No. 1: Accepted industry practices are described in ANSI/NECA/BICSI 568-2006, *Standard for Installing Commercial Building Telecommunications Cabling;* ANSI/TIA-568.1- D-2015, *Commercial Building Telecommunications Infrastructure Standard;* ANSI/TIA-569-D-2015, *Telecommunications Pathways and Spaces;* ANSI/TIA-570-C-2012, *Residential Telecommunications Infrastructure Standard;* ANSI/TIA-1005-A-2012, *Telecommunications Infrastructure Standard for Industrial Premises;* ANSI/ TIA-1179-2010, *Healthcare Facility Telecommunications Infrastructure Standard;* ANSI/TIA-4966-2014, *Telecommunications Infrastructure Standard for Educational Facilities;* and other ANSI-approved installation standards.

Informational Note No. 2: See NFPA 90A-2018, *Standard for the Installation of Air-Conditioning and Ventilating Systems*, for discrete combustible components installed in accordance with 300.22(C).

Informational Note No. 3: Paint, plaster, cleaners, abrasives, corrosive residues, or other contaminants may result in an undetermined alteration of wire and cable properties.

Section 830.24 (SR-7642) was updated to read as follows:

830.24 Mechanical Execution of Work.
The installation shall also conform to 300.4(A), (D), (E), (F), and 300.11

Section 840.24 (SR-7642) was updated to read as follows:

840.24 Mechanical Execution of Work.
The requirements of 770.24 and 800.24 shall apply.

Section 840.102 was updated by SR-7750 to read as follows:

840.102 Premises Circuits Leaving the Building.
Where circuits leave the building to power equipment remote to the building or outside the exterior zone of protection defined by a 46 m (150 ft) radius rolling sphere, 800.100 and 800.106 shall apply for communications wire and 820.100 and 800.106 shall apply for coaxial cable.

Informational Note: See NFPA 780-2017, *Standard for the Installation of Lightning Protection Systems*, for the application of the term *rolling sphere*.

Section 840.160 was updated to read as follows by SR-7751.

840.160 Powering Circuits.
Communications cables listed in accordance with 805.179, in addition to carrying the communications circuit, shall also be permitted to carry circuits for powering communications equipment listed in accordance with 805.170. The power source shall be listed in accordance with 840.170(G). Installation of the listed 4-pair communications cables for a communications circuit or installations where 4-pair communications cables are substituted for Class 2 and Class 3 cables in accordance with 725.154(A) shall comply with 725.144.

Exception: Installing communications cables in compliance with 725.144 shall not be required for listed 4-pair communications cables where the rated current of the power source does not exceed 0.3 amperes in any conductor 24 AWG or larger.

Informational Note: A typical communications cable for this application is a 4-pair cable sometimes referred to as Category 5e (or higher) LAN cable or balanced twisted pair cable. These types of cables are often used to provide Ethernet- and Power over Ethernet (PoE)–type services. A large number of such powering cables bundled together can cause overheating of the wiring if not controlled as described in Table 725.144.

However, Public Comment 128 and Public Comment 2127 were rejected. These two Public Comments was an attempt at ensuring that unlisted communications cable could be used when providing power back to the network from the premises as outlined in Section 805.48, but there was no wording added to Section 840.160 preventing this use from occurring. However, some of the wording was used from Public Comment 128. A decision will need to be made if IEEE is going to vote to accept these two Public Comments.

Respectfully submitted,

William J. McCoy, P.E.
IEEE External Representative to NFPA
CMP-16 Principal