

**SECTION 27 05 33.13**  
**CONDUIT FOR COMMUNICATIONS SYSTEMS**

**PART 2 PRODUCTS**

**1.01 CONDUIT - GENERAL REQUIREMENTS**

- A. Comply with NFPA 70 and TIA-569.
- B. Provide conduit, fittings, supports, and accessories required for complete communications pathway.
- C. Provide products listed, classified, and labeled as suitable for purpose intended.
- D. Where conduit size is not indicated, size to comply with NFPA 70, TIA-569, and BICSI TDMM, but not less than applicable minimum size requirements specified. Where specified standards differ, comply with most stringent.

**1.02 GALVANIZED STEEL RIGID METAL CONDUIT (RMC)**

- A. Description: NFPA 70, Type RMC galvanized steel rigid metal conduit complying with ANSI C80.1 and listed and labeled as complying with UL 6.
- B. Fittings:
  - 1. Nonhazardous Locations: Use fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B or UL 6.
  - 2. Material: Use steel or malleable iron.
    - a. Where not subject to severe corrosive influence, stainless steel fittings may be used.
  - 3. Connectors and Couplings: Use threaded fittings only. Threadless fittings, including set screw and compression/gland types, are not permitted.
  - 4. Conduit Bodies: Use only conduit bodies specifically designed for communications cabling. Standard conduit bodies designed for electrical raceways are not permitted.
    - a. Comply with TIA-568.0 minimum bend radius requirements for fiber optic cables.

**1.03 STAINLESS STEEL RIGID METAL CONDUIT (RMC)**

- A. Manufacturers:
  - 1. Calbrite, a division of Atkore International: [www.calbrite.com/#sle](http://www.calbrite.com/#sle).
  - 2. Gibson Stainless & Specialty, Inc: [www.gibsonstainless.com/#sle](http://www.gibsonstainless.com/#sle).
  - 3. Patriot Industries, a division of Patriot Aluminum Products, LLC: [www.patriotsas.com/#sle](http://www.patriotsas.com/#sle).
- B. Description: NFPA 70, Type RMC stainless steel rigid metal conduit complying with ANSI C80.1 and listed and labeled as complying with UL 6A.
- C. Fittings:
  - 1. Manufacturers:
    - a. Calbrite, a division of Atkore International: [www.calbrite.com/#sle](http://www.calbrite.com/#sle).
    - b. Eaton: [www.eaton.com/#sle](http://www.eaton.com/#sle).
    - c. Gibson Stainless & Specialty, Inc: [www.gibsonstainless.com/#sle](http://www.gibsonstainless.com/#sle).
    - d. Patriot Industries, a division of Patriot Aluminum Products, LLC: [www.patriotsas.com/#sle](http://www.patriotsas.com/#sle).
  - 2. Nonhazardous Locations: Use fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B or UL 6A.
  - 3. Material: Use stainless steel with corrosion resistance equivalent to conduit.
  - 4. Connectors and Couplings: Use threaded fittings only. Threadless fittings, including set screw and compression/gland types, are not permitted.
  - 5. Conduit Bodies: Standard conduit bodies designed for electrical raceways are not permitted.

**1.04 ALUMINUM RIGID METAL CONDUIT (RMC) - NOT USED**

- A. Description: NFPA 70, Type RMC aluminum rigid metal conduit complying with ANSI C80.5 and listed and labeled as complying with UL 6A.

- B. Fittings:
  - 1. Nonhazardous Locations: Use fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B or UL 6A
  - 2. Material: Use aluminum.
  - 3. Connectors and Couplings: Use threaded fittings only. Threadless fittings, including set screw and compression/gland types, are not permitted.
  - 4. Conduit Bodies: Use only conduit bodies specifically designed for communications cabling. Standard conduit bodies designed for electrical raceways are not permitted.
    - a. Comply with TIA-568.0 minimum bend radius requirements for fiber optic cables.

#### **1.05 GALVANIZED STEEL INTERMEDIATE METAL CONDUIT (IMC) - NOT USED**

- A. Description: NFPA 70, Type IMC galvanized steel intermediate metal conduit complying with ANSI C80.6 and listed and labeled as complying with UL 1242.
- B. Fittings:
  - 1. Nonhazardous Locations: Use fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B or UL 1242.
  - 2. Material: Use steel or malleable iron.
  - 3. Connectors and Couplings: Use threaded fittings only. Threadless fittings, including set screw and compression/gland types, are not permitted.
  - 4. Conduit Bodies: Use only conduit bodies specifically designed for communications cabling. Standard conduit bodies designed for electrical raceways are not permitted.
    - a. Comply with TIA-568.0 minimum bend radius requirements for fiber optic cables.

#### **1.06 STAINLESS STEEL INTERMEDIATE METAL CONDUIT (IMC) - NOT USED**

- A. Description: NFPA 70, Type IMC galvanized steel intermediate metal conduit complying with ANSI C80.6 and listed and labeled as complying with UL 1242.
- B. Fittings:
  - 1. Nonhazardous Locations: Use fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B or UL 1242.
  - 2. Material: Use stainless steel with corrosion resistance equivalent to conduit.
  - 3. Connectors and Couplings: Use threaded fittings only. Threadless fittings, including set screw and compression/gland types, are not permitted.
  - 4. Conduit Bodies: Standard conduit bodies designed for electrical raceways are not permitted.

#### **1.07 PVC-COATED GALVANIZED STEEL RIGID METAL CONDUIT (RMC)**

- A. Description: NFPA 70, Type RMC galvanized steel rigid metal conduit with external polyvinyl chloride (PVC) coating complying with NEMA RN 1 and listed and labeled as complying with UL 6.
- B. Exterior Coating: Polyvinyl chloride (PVC), nominal thickness of 40 mil, 0.040 inch.
- C. PVC-Coated Boxes and Fittings:
  - 1. Manufacturer: Same as manufacturer of PVC-coated conduit to be installed.
  - 2. Nonhazardous Locations: Use boxes and fittings listed and labeled as complying with UL 514A, UL 514B, or UL 6.
  - 3. Material: Use steel or malleable iron.
  - 4. Exterior Coating: Polyvinyl chloride (PVC), minimum thickness of 40 mil, 0.040 inch.
  - 5. Conduit Bodies: Standard conduit bodies designed for electrical raceways are not permitted.
- D. PVC-Coated Supports: Furnish with exterior coating of polyvinyl chloride (PVC), minimum thickness of 15 mil, 0.015 inch.

#### **1.08 FLEXIBLE METAL CONDUIT (FMC)**

- A. Manufacturers:
  - 1. AFC Cable Systems, a division of Atkore International: [www.afcweb.com/#sle](http://www.afcweb.com/#sle).

2. Electri-Flex Company: [www.electriflex.com/#sle](http://www.electriflex.com/#sle).
  3. International Metal Hose: [www.metalhose.com/#sle](http://www.metalhose.com/#sle).
- B. Description: NFPA 70, Type FMC standard-wall steel flexible metal conduit listed and labeled as complying with UL 1, and listed for use in classified firestop systems.
- C. Fittings:
1. Description: Fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B.
  2. Material: Use steel or malleable iron.
  3. Conduit Bodies: Standard conduit bodies designed for electrical raceways are not permitted.

#### **1.09 LIQUIDTIGHT FLEXIBLE METAL CONDUIT (LFMC)**

- A. Description: NFPA 70, Type LFMC polyvinyl chloride (PVC) jacketed steel flexible metal conduit listed and labeled as complying with UL 360.
- B. Fittings:
1. Description: Fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B.
  2. Material: Use steel or malleable iron.
  3. Conduit Bodies: Use only conduit bodies specifically designed for communications cabling. Standard conduit bodies designed for electrical raceways are not permitted.
    - a. Manufacturers:
      - 1) Madison Electric Products, a division of Southwire Company: [www.meproducts.net/#sle](http://www.meproducts.net/#sle).
    - b. Comply with TIA-568.0 minimum bend radius requirements for fiber optic cables.

#### **1.10 GALVANIZED STEEL ELECTRICAL METALLIC TUBING (EMT)**

- A. Description: NFPA 70, Type EMT galvanized steel electrical metallic tubing complying with ANSI C80.3 and listed and labeled as complying with UL 797.
- B. Fittings:
1. Manufacturers:
    - a. ABB; T&B: [www.electrification.us.abb.com/#sle](http://www.electrification.us.abb.com/#sle).
    - b. Allied Tube & Conduit, a division of Atkore International: [www.alliedeg.us/#sle](http://www.alliedeg.us/#sle).
    - c. Bridgeport Fittings, LLC: [www.bptfittings.com/#sle](http://www.bptfittings.com/#sle).
    - d. Emerson Electric Co; O-Z/Gedney: [www.emerson.com/#sle](http://www.emerson.com/#sle).
  2. Description: Fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B.
  3. Material: Use steel or malleable iron.
  4. Connectors and Couplings: Use compression/gland or set-screw type.
    - a. Do not use indenter type connectors and couplings.
  5. Conduit Bodies: Use only conduit bodies specifically designed for communications cabling. Standard conduit bodies designed for electrical raceways are not permitted.
    - a. Comply with TIA-568.0 minimum bend radius requirements for fiber optic cables.

#### **1.11 ELECTRICAL NONMETALLIC TUBING (ENT) (NOT USED)**

- A. Description: NFPA 70, Type ENT electrical nonmetallic tubing complying with NEMA BI 50058 and listed and labeled as complying with UL 1653.
- B. Fittings:
1. Manufacturer: Same as manufacturer of ENT to be connected.
  2. Use solvent-welded type fittings.
  3. Solvent-Welded Fittings: Rigid PVC fittings complying with NEMA TC 3 and listed and labeled as complying with UL 651; suitable for use with ENT.

### **1.12 LIQUIDTIGHT FLEXIBLE NONMETALLIC CONDUIT (LFNC) NOT USED**

- A. Description: NFPA 70, Type LFNC liquidtight flexible nonmetallic conduit listed and labeled as complying with UL 1660.
- B. Fittings:
  - 1. Manufacturer: Same as manufacturer of conduit to be connected.
  - 2. Description: Fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B; suitable for type of conduit to be connected.

### **1.13 REINFORCED THERMOSETTING RESIN CONDUIT (RTRC) (NOT USED)**

- A. Description: NFPA 70, Type RTRC reinforced thermosetting resin conduit complying with NEMA TC 14 (SERIES).
- B. Supports: As recommended by manufacturer.
- C. Fittings: Same type and manufacturer as conduit to be connected.
  - 1. Conduit Bodies: Standard conduit bodies designed for electrical raceways are not permitted.

### **1.14 HIGH-DENSITY POLYETHYLENE (HDPE) CONDUIT (NOT USED)**

- A. Description: NFPA 70, Type HDPE high-density polyethylene solid-wall conduit complying with ASTM F2160 and NEMA TC 7; list and label as complying with UL 651A; Schedule 40 unless otherwise indicated.
- B. Joining Methods: Approved by HDPE conduit manufacturer.
- C. Mechanical Fittings: Comply with ASTM F2176; list and label as complying with UL 651A.

### **1.15 POLYVINYL CHLORIDE (PVC) PLASTIC UTILITIES DUCT (**

- A. Description: Rigid polyvinyl chloride plastic utilities duct complying with NEMA TC 6&8 and ASTM F512; Type EB-20 listed and labeled as complying with UL 651 suitable for burial with concrete encasement.
- B. Fittings: Comply with NEMA TC 9.
  - 1. Manufacturer: Same as manufacturer of duct to be connected.

### **1.16 INSIDE-PLANT FLEXIBLE NONMETALLIC COMMUNICATIONS RACEWAY/INNERDUCT (NOT USED)**

- A. Description: Flexible, corrugated, nonmetallic communications raceway and associated fittings listed and labeled as complying with UL 2024; also suitable for installation as innerduct.
- B. Use only with approved cables in accordance with listing.

**END OF SECTION 27 05 33.13**