

DIVISION 26 - ELECTRICAL  
Section 260519 – Low-Voltage Electrical Power Conductors and Cables

1. GENERAL

1.1 WORK INCLUDES

- A. Base Bid:
  - 1. Electrical Contractor:
    - a. Building wires and cables rated 600 V and less.
    - b. Connectors, splices, and terminations rated 600 V and less.
- B. Alternate Bids: None

1.2 RELATED WORK

- A. Specified Elsewhere: Drawings and general provisions of the Contract apply to this Section.

1.3 Furnished, but installed by others: N/A

1.4 SYSTEM DESCRIPTION

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- B. Definitions
  - 1. VFC: Variable frequency controller.

1.5 QUALITY ASSURANCE

- A. Testing Agency Qualifications: Member company of NETA or an NRTL.
  - 1. Testing Agency's Field Supervisor: Certified by NETA to supervise on-site testing.

1.6 REGULATORY REQUIREMENTS

- A. National Electric Code 2014 (NFPA 70)

1.7 ABBREVIATIONS: N/A

1.8 SUBMITTALS

- A. Shop Drawings

- B. Product Data: For each type of product.
  - 1. Manufacturer's catalogs
  - 2. Certifications
- C. Qualification Data: For testing agency.
- D. Field quality-control reports.

## 2. PRODUCTS

### 2.1 CONDUCTORS AND CABLES

- A. **Copper** Conductors: Comply with NEMA WC 70/ICEA S-95-658.
- B. Conductor Insulation: Comply with NEMA WC 70/ICEA S-95-658 for **Type THHN-2-THWN-2**.
- C. Multiconductor Cable: Comply with NEMA WC 70/ICEA S-95-658 for **armored cable, Type AC or metal-clad cable, Type MC** with ground wire.

### 2.2 CONNECTORS AND SPLICES

- A. Description: Factory-fabricated connectors and splices of size, ampacity rating, material, type, and class for application and service indicated.

## 3. EXECUTION

### 3.1 CONDUCTOR MATERIAL APPLICATIONS

- A. Feeders: **Copper**. Solid for No. 10 AWG and smaller; stranded for No. 8 AWG and larger.
- B. Branch Circuits: Copper. Solid for **No. 10** AWG and smaller; stranded for **No. 8** AWG and larger, except VFC cable, which shall be extra flexible stranded.

### 3.2 CONDUCTOR INSULATION AND MULTICONDUCTOR CABLE APPLICATIONS AND WIRING METHODS

- A. Exposed Feeders: Type THHN-2-THWN-2, single conductors in raceway.
- B. Feeders Concealed in Ceilings, Walls, Partitions, and Crawlspace: **Type THHN-2-THWN-2, single conductors in raceway**.
- C. Feeders Concealed in Concrete, below Slabs-on-Grade, and Underground: **Type THHN-2-THWN-2, single conductors in raceway**.

- D. Exposed Branch Circuits, Including in Crawlspace: **Type THHN-2-THWN-2, single conductors in raceway.**
- E. Branch Circuits Concealed in Ceilings, Walls, and Partitions: **Type THHN-2-THWN-2, single conductors in raceway.**
- F. Branch Circuits Concealed in Concrete, below Slabs-on-Grade, and Underground: **Type THHN-2-THWN-2, single conductors in raceway.**

### 3.3 INSTALLATION OF CONDUCTORS AND CABLES

- A. Conceal cables in finished walls, ceilings, and floors unless otherwise indicated.
- B. Complete raceway installation between conductor and cable termination points according to Section 260533 "Raceways and Boxes for Electrical Systems" prior to pulling conductors and cables.
- C. Use manufacturer-approved pulling compound or lubricant where necessary; compound used must not deteriorate conductor or insulation. Do not exceed manufacturer's recommended maximum pulling tensions and sidewall pressure values.
- D. Use pulling means, including fish tape, cable, rope, and basket-weave wire/cable grips, that will not damage cables or raceway.
- E. Install exposed cables parallel and perpendicular to surfaces of exposed structural members, and follow surface contours where possible.
- F. Support cables according to Section 260529 "Hangers and Supports for Electrical Systems."
- G. Complete cable tray systems installation according to Section 260536 "Cable Trays for Electrical Systems" prior to installing conductors and cables.

### 3.4 CONNECTIONS

- A. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A-486B.
- B. Make splices, terminations, and taps that are compatible with conductor material and that possess equivalent or better mechanical strength and insulation ratings than unspliced conductors.
  - 1. Use oxide inhibitor in each splice, termination, and tap for aluminum conductors.
- C. Wiring at Outlets: Install conductor at each outlet, with at least 6 inches of slack.

### 3.5 IDENTIFICATION

- A. Identify and color-code conductors and cables according to Section 260553 "Identification for Electrical Systems."
- B. Identify each spare conductor at each end with identity number and location of other end of conductor, and identify as spare conductor.

### 3.6 SLEEVE AND SLEEVE-SEAL INSTALLATION FOR ELECTRICAL PENETRATIONS

- A. Install sleeves and sleeve seals at penetrations of exterior floor and wall assemblies. Comply with requirements in Section 260544 "Sleeves and Sleeve Seals for Electrical Raceways and Cabling."

### 3.7 FIRESTOPPING

- A. Apply firestopping to electrical penetrations of fire-rated floor and wall assemblies to restore original fire-resistance rating of assembly according to Section 078413 "Penetration Firestopping."

### 3.8 FIELD QUALITY CONTROL

- A. Testing Agency: **Engage** a qualified testing agency to perform tests and inspections.
- B. Manufacturer's Field Service: Engage a factory-authorized service representative to test and inspect components, assemblies, and equipment installations, including connections.
- C. Test and Inspection Reports: Prepare a written report to record the following:
  - 1. Procedures used.
  - 2. Results that comply with requirements.
  - 3. Results that do not comply with requirements and corrective action taken to achieve compliance with requirements.
- D. Cables will be considered defective if they do not pass tests and inspections.

END OF SECTION 260519