

SECTION 26 05 21
LOW VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES (600V AND BELOW)

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes: Building wires and cables and associated connectors, splices, and terminations for wiring systems rated 600 V and less.

1.2 SUBMITTALS

- A. General: Comply with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA AND SAMPLES.

1.3 QUALITY ASSURANCE

- A. Wires and Cables: Listed and labeled as defined in NFPA 70, Article 100, by testing agency acceptable to authorities having jurisdiction.
- B. Comply with NFPA 70.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. General: Comply with Division 01 specifications. Deliver wires and cables according to NEMA WC 26.

1.5 COORDINATION

- A. Coordinate layout and installation of cables with other installations.
- B. Revise locations and elevations from those indicated, as required to suit field conditions and as approved by Architect.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturers:
 - 1. Wires and Cables:
 - a. American Insulated Wire Corp.
 - b. Carol Cable Co., Inc.
 - c. Senator Wire & Cable Company.
 - d. Southwire Company.
 - e. Accepted Substitute in accordance with Section 01600.
 - 2. Connectors for Wires and Cables:
 - a. AMP Incorporated.
 - b. O-Z/Gedney.
 - c. American Flexible Conduit Co. (AFC).
 - d. Square D Co.
 - e. 3M Company
 - f. Accepted Substitute in accordance Division 01 specifications.

2.2 BUILDING WIRES AND CABLES

- A. UL-listed building wires and cables with conductor material, insulation type, cable construction, and rating as specified in Part 3 Wire and Insulation Applications Article.
- B. Thermoplastic Insulation Material: NEMA WC 5.

C. Conductor Material: Copper.

D. Stranding: Solid conductor for No. 10 AWG and smaller; stranded conductor for larger than No. 10 AWG.

2.3 CONNECTORS AND SPLICES

A. UL-listed, factory-fabricated wiring connectors of size, ampacity rating, material, type, and class for application and service indicated. Comply with Project's installation requirements and as specified in Part 3 Wire and Insulation Applications Article.

PART 3 EXECUTION

3.1 EXAMINATION

A. Examine raceways and building finishes to receive wires and cables for compliance with requirements for installation tolerances and other conditions affecting performance of wires and cables. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 WIRE AND INSULATION APPLICATIONS

A. Service Entrance: Type RHW or THWN, in raceway.

B. Feeders: Type THHN/THWN, in raceway.

C. Branch Circuits: Type THHN/THWN, in raceway.

D. Fire Alarm Circuits: Power-limited, fire-protective, signaling circuit cable.

E. Fire Alarm Circuits: Type THHN/THWN, in raceway.

F. Class 1 Control Circuits: Type THHN/THWN, in raceway.

3.3 INSTALLATION

A. Install wires and cables as indicated, according to manufacturer's written instructions and NECA's Standard of Installation.

B. Remove existing wires from raceway before pulling in new wires and cables.

C. Pull Conductors: 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 26 05 21, LOW VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES and Section 26 05 33, RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS.

G. Seal around cables penetrating fire-rated elements according to Section 07840 - Firestopping.

H. Identify wires and cables according to Section 16075 - Electrical Identification.

3.4 CONNECTIONS

A. Conductor Splices: Keep to minimum.

B. Install splices and tapes that possess equivalent or better mechanical strength and insulation ratings than conductors being spliced.

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- C. Use splice and tap connectors compatible with conductor material.
- D. Wiring at Outlets: Install conductor at each outlet, with at least 12 inches of slack.
- E. Connect outlets and components to wiring and to ground as indicated and instructed by manufacturer.
- F. 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 and UL 486B.

3.5 FIELD QUALITY CONTROL

- A. Testing: On installation of wires and cables and before electrical circuitry has been energized, demonstrate product capability and compliance with requirements.
 - 1. Procedures: Perform each visual and mechanical inspection and electrical test stated in NETA ATS, Section 7.3.1. Certify compliance with test parameters.
- B. Correct malfunctioning conductors and cables at Project site, where possible, and retest to demonstrate compliance; otherwise, remove and replace with new units and retest.

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