

SECTION 16120

WIRES AND CABLES

PART 1 - GENERAL

1.1 DESCRIPTION OF WORK

- A. The work of this section consists of providing labor, materials, tools, appliances and miscellaneous accessories associated with the electrical wire and cable work indicated by Drawings and schedules.
- B. Types of wire, cable and connectors in this section include the following:
 - 1. Copper conductors.
 - 2. Ground wire.

1.2 RELATED DOCUMENTS

- A. Drawings
- B. General provisions of Contract, including General and Supplementary Conditions.
- C. Division 01 - Specification Section.
- D. Section 16010 - General Electrical Provisions.

PART 2 - PRODUCTS

2.1 WIRE AND CABLE

- A. General: Except as otherwise indicated, provide UL listed wire, cable and connectors of manufacturer's standard materials, as indicated by published product information, designed and constructed as recommended by manufacturer, and as required for the installation.
- B. 600 Volt Building Cable and Wire:
 - 1. Copper conductors shall be comprised of soft or annealed copper wires meeting, before stranding, the requirements of ASTM B3, "Standard Specification for Soft or Annealed Copper Wire for Electrical Purposes", latest edition.
 - 2. Branch feeders and circuit conductors shall be copper, single conductor heat and moisture resistant and thermal plastic insulated for all sizes, rated 600 volts, solid up to and including size #10, stranded thereafter unless specified or noted otherwise.

- a. Feeders and sub-feeders shall be rated 600 volts and shall be suitable for 75 deg. C. operating temperature, of types appropriate for dry and wet locations.
- b. Unless otherwise specified, wiring shall be type "THW", "THHN/THWN", or "XHHW".
- c. Insulation: Insulation shall meet or exceed the requirements of UL 83, "Standard for Thermoplastic Insulated Wires".

PART 3 - EXECUTION

3.1 INSTALLATION

- A. General: Install electrical cables and wires as indicated, in compliance with manufacturer's written instructions, applicable requirements of NEC and NECA's "Standard of Installation", and in accordance with recognized industry practices.
- B. Pull conductors together where more than one is being installed in a raceway.
- C. Use pulling compound or lubricant, where necessary; compound must not deteriorate conductor or insulation. Use only U.L. listed lubricant.
- D. Use pulling means, including fish tape, cable or rope which cannot damage raceway.
- E. No conductor shall bear more than eighty percent (80%) of its rated ampacity. All conductors, including neutrals, shall be tested under full load conditions to ensure proper loading.
- F. Keep conductor splices to minimum. Feeder conductor splices are not allowed unless approved by Architect.
- G. Use splice and tap connectors which are compatible with conductor material.
- H. The system shall be properly grounded and continuously polarized throughout following the color coding specified.
- I. In general, conductors shall be of the same size from the last protective device to the load.
- J. Do not pull conductors into raceways until raceway system (including all outlets, cabinets, bushings and fittings) is completed. Verify that all work of other trades which may cause conductor damage is completed. Use only approved cable lubricants when necessary.
- K. Cover uninsulated splices, joints and free ends of conductor with rubber and friction tape of PVC electrical tape. Plastic insulating caps may serve as insulation.
- L. Do not use mechanical means to pull wire No. 8 or smaller.
- M. Ground conductors #6 AWG and smaller shall be have green insulation. Ground conductors larger than #6 AWG shall have a minimum of 6" taped with green tape at all terminations and/or splices.
- N. Use anti-short insulating bushings to protect wires at the ends of the armor on Type AC cable.

3.2 FIELD QUALITY CONTROL

- A. Prior to energization, test cable and wire for continuity of circuitry, and also for short circuits. Correct malfunctions when detected.
- B. Subsequent to wire and cable hook-ups, energize circuitry and demonstrate functioning in accordance with requirements.

END OF SECTION