

Section 16120

Conductors and Cables

PART 1: General

1.1 *Summary –*

1.1.1 This Section includes the following:

1.1.1.1 Wires and cables rated 600 V and less.

1.1.1.2 Connectors and terminations rated 600 V and less.

1.1.2 *Restrictions -*

1.1.2.1 All wire/cable runs of any type must be continuous. Splices are expressly prohibited.

1.2 *Definitions -*

1.2.1 *NBR* - Acrylonitrile-butadiene rubber.

1.2.2 *FVR* - Full-Voltage Starter.

1.2.3 *RVSS* - Reduced-Voltage Soft Starter.

1.2.4 *TSP* - Twisted Shielded Pair

1.2.5 *VFD* - Variable Frequency Drive.

1.3 *Submittals* - Product Data for each type of product indicated.

1.4 *Quality Assurance -*

1.4.1 Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

1.4.2 Comply with NFPA 70.

PART 2: Products

2.1 *Conductors and Cables -*

2.1.1 *Manufacturers* - Subject to compliance with requirements, provide products by one of the following:

2.1.1.1 Alcan Products Corporation; Alcan Cable Division.

2.1.1.2 American Insulated Wire Corp.; a Leviton Company.

2.1.1.3 General Cable Corporation.

2.1.1.4 Senator Wire & Cable Company.

2.1.1.5 Southwire Company.

2.1.1.6 The Okonite Company.

2.1.2 All conductors shall be stranded. No solid conductors shall be allowed.

2.1.3 *Copper Conductors* - Comply with NEMA WC 70.

2.1.4 *Conductor Insulation* - Comply with NEMA WC 70 for Types THHN-2/THWN-2.

2.1.5 *Multi-conductor Cable* - Comply with NEMA WC 70 for Types SOOW.

2.1.6 *Instrumentation Cable* - Comply with NEMA WC 70 for TSP.

2.2 *Connectors* -

2.2.1 *Manufacturers* - Subject to compliance with requirements, provide products by one of the following:

2.2.1.1 AFC Cable Systems, Inc.

2.2.1.2 Hubbell Power Systems, Inc.

2.2.1.3 O-Z/Gedney; EGS Electrical Group LLC.

2.2.1.4 3M; Electrical Products Division.

2.2.1.5 Tyco Electronics Corp.

2.2.2 *Description* - Factory-fabricated connectors of size, ampacity rating, material, type, and class for application and service indicated.

PART 3: Execution

3.1 *Conductor Material Applications* -

3.1.1 *Feeders* - Copper.

3.1.2 *Branch Circuits* - Copper.

3.2 *Conductor Insulation and Multiconductor Cable Applications and Wiring Methods* -

3.2.1 *Service Entrance*: Type THHN-2/THWN-2, single conductors in raceway.

3.2.2 *Feeders Concealed in Concrete, Below Slabs-on-Grade, and Underground (not into wet well)*: Type THHN-2/THWN-2, single conductors in raceway.

3.2.3 *Branch Circuits, into Wet Well* - Type SOOW, multi-conductor hard service cord.

3.2.3.1 Shall be supported by means of a stainless steel, wire mesh, strain relief device located in an accessible location from the wet well access door.

3.2.3.2 Be routed with wet well to not cause damage to cord during operation or removal of serving mechanical equipment or control device for maintenance purposes.

3.2.3.3 Be connected to serving mechanical equipment or control device in such manner as to be rated for a Class I, Division I rated assembly.

3.2.4 *Class 1 & 2 Control Circuits* - Type THHN-2/THWN-2, in raceway or Type SOOW as applicable.

3.2.5 *Analog Instrumentation Circuits* - Type TSP, in raceway.

3.3 *Installation of Conductors and Cables* -

3.3.1 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.

3.3.2 Use pulling means, including fish tape, cable, rope, and basket-weave wire/cable grips, that will not damage cables or raceway.

3.3.3 Identify and color-code conductors and cables according to Section 16075 "Electrical Identification."

3.4 *Connections* - 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.