

**1.1 RELATED WORK**

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|----|---------------------------------------|---------------|
| 1. | Basic Electrical Material and Methods | Section 16050 |
| 2. | Conduit                               | Section 16111 |
| 3. | Fastenings and Support                | Section 16126 |

**2.1 MATERIALS**

1. Conductors in Conduit (R-90):
  - Type -RW-90.
  - Conductors -Solid copper #10 AWG and smaller.  
-Stranded copper #8 AWG and larger.  
-Sized as indicated (minimum #12 AWG).
  - Insulation -Cross link polyethylene (XLPE), 90°C. (194°F)
  - Configuration -Single conductor.
  - Voltage Rating -1000V.
  - Certification CSA C22.22 No.38 or latest revision.
  
2. Armored Cable:
  - Type -AC-90
  - Conductors -Solid copper #10 AWG and smaller.  
-Stranded copper #8 AWG and larger.  
-Sized as indicated (minimum #12 AWG).  
-Cross link polyethylene (XLPE), 90°C. (194°F)
  - Configuration -Multi-conductor, as required, complete with a separate bare CU ground wire.
  - Voltage -1000V.
  - Armor -Bare interlocked aluminium.
  - Certification -CSA C22.22 No.51 or latest revision.
  
3. Armored Cable (Teck):
  - Type -Teck 90.
  - Conductors - Solid copper #10 AWG and smaller.  
-Stranded copper #8 AWG and larger.  
-Sized as indicated (minimum #12 AWG).
  - Insulation -Cross link polyethylene (XLPE), 90°C. (194°F).
  - Configuration -Multi-conductor, as required, complete with a separate bare CU ground wire.
  - Color Code -Black, red, blue and white in 4/c cable. Cables of more than 4/c to be number coded.
  - Voltage Rating -1 kV or 5 kV as indicated.\*
  - Inner Jacket -Black polyvinyl chloride (PVC)  
-Low flame spread (LFS).  
-Low gas emission (LGE).
  - Armor -Interlocked aluminium.
  - Outer Jacket -Black polyvinyl chloride (PVC), -40°C. (-40°F)  
-Low flame spread (LFS).  
-Low gas emission (LGE).
  - Fire Rated -FT4.
  - Certification -CSA C22.22 No. 131 or latest revision.

**3.1 INSTALLATION IN RACEWAYS**

1. Install wiring as follows:
  - .1 In conduit systems in accordance with Section 16111.
  - .2 Ensure conduits are dry and free of debris before pulling cables.
  - .3 Color coding and identification as per this Section.
  - .4 Wires in outlet, junction and switch boxes, not having a connection within the box shall not be spliced, but shall continue unbroken through the box.

**3.3 INSTALLATION OF FLEXIBLE ARMoured CABLE**

1. Type AC-90 armoured cable (BX) shall be used for connections from conduit systems to recessed luminaires in accessible ceilings. Cable shall be of sufficient length to allow the lighting fixture to be relocated to any location within a 6' (1.83 m) radius. Cable shall be clamped before entering the lighting fixture and shall be clipped before entering the conduit system junction box. (Minimum requirements)
2. Type AC-90 armoured cable may be used for connections from conduit systems to wiring devices in steel stud partitions and for interconnection of wiring devices within steel stud partitions, cable shall be clipped before entering junction or outlet boxes. Cable shall be clamped within partitioning with plastic tie-wraps. (See Section 16111 1.7.4 for limitations.)
3. Type AC-90 ISO-BX as supplied by Alcatel shall be used for isolated ground receptacles.

**3.6 INSTALLATION IN EQUIPMENT**

1. Group and lace-in neatly, wire and cable installed in switchboards, panelboards, cabinets, wireways and other such enclosures.

**3.7 TERMINATIONS**

1. Terminate wires and cables with appropriate connectors in an approved manner.

**3.8 MOTOR CONNECTIONS**

1. Flexible connections to motors shall not exceed 78" (2 m) unless authorized in writing by Consultant.

**3.9 IDENTIFICATION**

1. Wire in conduit #2 AWG and smaller shall have solid coloured insulation, color coded as listed below.
2. Wire in conduit #1 AWG and larger and single conductor cables for normal power feeders shall be identified at each outlet box and termination with a 6" (150 mm) band of coloured vinyl tape of the appropriate color. Emergency power feeders shall be provided with an additional 3" (75 mm) band of red vinyl tape installed adjacent to the 6" (150 mm) band of the coloured phase identification tape, as listed below. Neutral and ground conductors shall be identified. Paint or other means of coloring the insulation shall not be used.
3. Color code wire in conduit and single conductor cables as follows:

Phase A	-	red
Phase B	-	black
Phase C	-	blue

Neutral - white  
Ground - green  
Unless shown otherwise on the drawings.

4. Maintain phase sequence and color coding throughout project.
5. Use color coded wires in communication cables, matched throughout system.
6. Identify control conductors in motor equipment, contactors, fire alarm panels, etc. with Mylar / cloth wire markers.

**END OF SECTION**