

SECTION 26 05 19: MEDIUM VOLTAGE CABLE & ACCESSORIES

1. GENERAL

- A. This section details general requirements for medium voltage cable and accessories.
- B. Identify all circuits with cable tags; coordinate with Brown FM Engineering for cable designations for new circuits.
- C. For modifications to existing cable circuits, provide new cable tags for entire route of existing circuit.
- D. 5KV & 15KV class:
 1. Single conductor, insulated, shielded and jacketed cables; cable to be listed for and suitable for use in wet or dry locations, sunlight resistant, including cable tray and conduit use.
 2. 11 KV systems: cable to be 15 KV, class MV-105, 133% insulation rating
 3. 4.16 KV systems: cable to be 5 KV, class MV-105, 133% insulation rating
 4. Cables: copper conductor, compact strand, or compressed round or standard round, as required
 5. Insulation: EPR (ethylene propylene rubber)
 6. Shielding: cable construction to include conductor shield and a semi-conducting, thermosetting-type insulation shield; insulation shield to include a helically wrapped, outer copper-tape shield
 7. Outer Jacket: PVC jacket
 8. Manufacturers:
 - Okonite
 - Pirelli
 - General Cable
- E. Install cables within manholes, handholes and vaults with a full loop to allow for future splices and extensions; support cables and splices on suitable saddles and supports, with maximum 36" spacing.
- F. Cables within manholes to be wrapped in fireproofing tape.
- G. Maintain effective ground connections for all cable sheaths and shielding grounds at each splice or termination; grounding conductors to be grounded to the grounding bus in switchgear, power switching centers, and similar locations.
- H. All feeders including all splices and terminations to be acceptance tested after cable installation, and before final equipment connections are made.
- I. Labeling & Cable Identification:
 1. Identify all medium voltage circuits with cable tags; coordinate with Brown FM Engineering for cable designations for new circuits.
 2. For modifications to existing cable circuits, provide new cable tags for entire route of existing circuit.
 3. For High voltage cable tags, use plastic 10-mil plastic heat-laminated typewritten paper tags, double-sided, with brass grommet, and tie-wrapped to each cable.
 4. Tags shall include the following information:
 - Cable section identification

- Location of cable tag
 - Cable size, type and voltage rating
 - Cable destination (switchgear and switch number, or building and disconnect switch location)
 - Date of installation
 - 11 KV cable tags are to be colored orange, 4.16 KV cable tags are to be colored blue
5. Provide tags at each cable entry into and leaving manholes and pullboxes, at each switchgear or other equipment cable termination and, where installed, for each set of paralleled feeders. Print two copies of this document for tags.
- J. At terminals, splices, and boxes identify cable phases with colored tape:
1. Phase conductors: black, blue, and red
 2. Ground: green
- K. Wiring:
1. Minimize routing of medium-voltage distribution circuits within occupied portions of buildings
 2. Within dedicated building electrical service rooms and vaults use galvanized rigid steel conduit or wireways; exposed cable is not acceptable
 3. Underground: concrete-encased duct bank
 4. Above ground: galvanized, rigid steel conduit, painted orange and labeled for the circuit voltage contained within them
 5. Within dedicated high voltage electric rooms and substations, where not subject to mechanical damage: EMT conduit, galvanized rigid steel conduit or in cable tray

2. ACCESSORIES

- A. Terminators:
1. Switchgear and transformers with live-front bushings:
 - Elastimold 35MSC series
 - 3M QT-3 tubular series
 - RAYCHEM TFT-R cold-shrink kits
 2. Dead-front switchgear and transformers or junctions:
 - 600 amp 5 and 15 KV: Elastimold 656LR series elbow kit with ground adapter and IEEE386 capacitive test points
 - 200 amp 5 and 15 KV: Elastimold 166LR series elbow kit with ground adapter and IEEE386 capacitive test points
 - Fused 5 KV class elbows: Elastimold 166FLR series elbow kit with fuse and (2) IEEE386 capacitive test points
 3. End sealing caps:
 - Raychem ESC
 - 3M EC series
 4. Surge arrestors:
 - MOV, Elastimold BSA elbow/bushing type

- B. Splices:
1. 600 amp: Elastimold premolded "T" assembly, with shield grounding device, sized for the cable
 2. 200 amp: Elastimold premolded straight assembly, series 151SP or pre-molded "T" assembly, series 150T, sized for the cable
- C. Junctions:
1. 600-Amp dead-break, minimum 4 points or as required:
 - Cooper "Multipoint"
 - Elastimold 650J
 2. Cap unused points with insulated caps and bails
 3. Install in manholes with proper bails to adequately support the junction and cable terminations
- D. Fault Detectors/Indicators:
1. Provide with remote-located optical indicator when detector is located within manholes or other enclosures
 2. Cooper Power systems "SCVTAR" or Schweitzer "SEL BTRIP"