SECTION 16366
MEDIUM VOLTAGE CABLE

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:
   1. Medium voltage cable and accessories.

B. Related Sections
   1. Section 16110 - Raceways

1.02 REFERENCES

A. Where appropriate, refer to Current ANSI and NEMA Standards for material ratings.

B. Institute of Electrical and Electronic Engineers (IEEE)

C. Association of Edison Illuminating Company (AEIC)

D. Insulated Cable Engineers Association Inc. (ICEA)

1.03 SUBMITTALS

A. Require submittals under the provisions of Section 16010 - Basic Electrical Requirements and Section 01300 - Submittals.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Medium Voltage Cable:
   1. Okonite
   2. Prysmian Power Cable and Systems
   3. Kerite

B. Dead Break Elbows, Load Break Elbows and Termination Kits:
   1. Cooper Power
   2. Elastimold
C. Cable Splices:

Approved Manufacturers

1. Canusa
2. Raychem
3. Elasimold

2.02 MATERIALS

A. Medium Voltage Cable:

1. Cable Construction:
   a. Insulation rating 15 kV, shielded, UL listed, MV-105
   b. Approved Manufacturers
      i. Okoguard URO-J
      ii. Approved equal

2. Conductor:
   a. Copper or aluminum as specified by Director of Utility Services, compact, Class B stranded.
   b. Extruded semi-conducting strand screen meeting ICEA S-94-649, AEIC CS8-00 and UL 1072 (type MV-105).
   c. Insulation meeting ICEA S-94-649, AEIC CS8-00, and UL 1072 (type MV-105). Insulation shall be ethylene propylene rubber (EPF) 133%, 220 mil. The ethylene content of the elastomer used in the insulation compound shall not exceed 72% by weight, nor shall the insulation compound contain any polyethylene. Insulation compound must be manufactured in house.
   d. Insulating screen: Extruded semi-conducting insulation screen directly over insulation. Meet ICEA-S-94-649 AEIC CS8-00 and UL 1072 (type MV-105).
   e. Shield / concentric neutral shall be bare copper round wire, 1/3 neutral to be connected to primary grounding system utilizing split bolts.
f. Jacket to be FR-PVC Okoseal or equivalent, meeting ICEA S-94-649, UL 1072 and UL listed type MV-105. Jacket shall be cable tray rated when used in trays.

g. Size: Medium Voltage system shall be designed for 600A service unless approved otherwise by Utility Services

B. Cable Terminations:

1. Canusa or Raychem Terminations:
   a. Kit form, heat shrink, or cold shrink, suitable for use with cable specified, including stress tube, ground kit, non-tracking skirts, and appropriate lug. Zipper type outer jacket not allowed.

2. Load Break Elbow:
   a. Molded rubber load-break separable elbow-type connector. Thermoset arc quenching material. Each elbow shall have capacitive tests point. Elbow to be compatible with cable, fault current rating and current rating.

3. Dead Break Elbow:
   a. Molded rubber separable elbow-type connectors conforming to IEEE standard 386. Provide test point on T body for fault current indicator.
   b. Provide 600 to 200 amp adapters for each 600 amp elbow installed on transformers when lightning arrestors are required.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Require installation in accordance with manufacturer’s instructions.

B. Require shield/concentric neutral to be terminated to primary 1/0 ground system using 1 inch flat braid ground. The shield/concentric neutral shall not substitute the 1/0 grounding conductor required in all 15KV raceways.

C. Require that cables be pulled using suitable lubricants and cable pulling equipment. Do not exceed cable pulling tensions and bending radius recommended by manufacturer.

D. Require installation of phase and cable number identification brass tags at each junction or pull point. Require contractor to identify cable phase colors as A phase Red, B phase White and C phase Blue.
E. Cables shall be installed inside conduit per UCB standards 16110. Cable shall not be run through a building unless approved by the Director of Utility Services.

3.02 FIELD QUALITY CONTROL

A. Inspect exposed cable sections for damage after cable is pulled.

B. Perform DC high potential tests of each new conductor, with other conductors grounded. Apply test voltage in 5000V increments to maximum 53 KV test voltage. Record leakage current at each increment, allowing for charging current decay. Hold maximum test voltage for ten minutes. Do not exceed manufacturer’s recommended maximum test voltage. Do not high pot existing cables, perform only on new cables.

C. Require tests to be performed in the presence of a representative of the Division of Utility Services.

D. Perform shield continuity tests and investigate resistance valves in excess of 10 ohms per 1000 feet.

E. Perform phasing checks.

F. Require Contractor doing splices to be certified by UCB high voltage shop per UCB standard 16010.3.01.D.3.

END OF SECTION 16366