SECTION 26 05 13
MEDIUM VOLTAGE CABLES
Design Standard

PART 1 GENERAL

1.1 PURPOSE

A. This design standard has the purpose of creating a consistent application of medium voltage cables throughout the San Mateo County Community College District therefore achieving a standard of maintenance, reliability and quality throughout all renovation and new building projects.

PART 2 PRODUCTS

2.1 Medium voltage cables include the following but not limited to:

A. Cables.
B. Terminations.

2.2 All medium voltage cables to meet the following requirements based on code requirements and industry standard of care:

A. Regulatory Requirements:

1. UL 1072.
2. NEMA-WC7.
3. ICEA Standards S-68-516 and CS6-79.

2.3 All cables to meet the following requirements based on code requirements and industry standard of care:

A. Type MV-90, 133 percent insulation, single uncoated annealed copper conductor with Class B stranding, with strippable extruded conductor shielding around the conductors.
B. Conductor screen consists of an extruded layer of semiconducting compound with a volume resistivity not exceeding 50,000 ohms-cm at 90C and a minimum average thickness of 22 mils.
C. Provide flexible thermosetting dielectric based insulation on an ethylene-propylene elastomer (APPEAR).
D. Provide insulation screen with an extruded semi-conduction compound with a volume resistivity not exceeding 50,000 ohms-cm at 90C.
E. Provide extruded insulation screen shielded with a nonmagnetic 5 mil thick copper tape.
F. The overall jacket is polyvinyl chloride, 80 mils thick.
G. Cable has continuous factory printed identification on the outer jacket for the full length of the cable indicating manufacture's name, trade name of cable, voltage, wire size, and type of insulation. Deliver cables to the site on factory reels properly identified with the certified test report and marked or tagged to indicate the month and year of manufacturer of the cable. Provide cable from the same manufacturer.

2.4 All terminations and splices to meet the following requirements based on code requirements and industry standard of care:

A. Provide terminations in weatherproof enclosures with preformed stress cones rated for the system voltage, phase-to-phase with a corona extinction level for the system voltage. Use

a stress cone designed specifically to terminate the cable on which it is used, and which provides a watertight seal to the cable insulation. Incorporate a grounding eye, eliminating the need for a metal ground clamp to the cable shield.

B. Provide terminations exposed to the weather with a preformed stress cone, as described in preceding paragraph, with the appropriate number of rain shields required for the system voltage.

C. Protect terminations of insulated cables from accidental contact, deterioration of covering, and moisture by the use of terminating devices and material. Install terminations in accordance with the kit and cable manufacturer's instructions.

D. Provide splicing and terminating materials compatible with the cable supplied. Submit proof of acceptability by cable manufacturer of splicing and terminating materials.

E. When installing medium voltage cables:

1. Protect conductors from mechanical and physical abuse, and from exposure to the atmospheric elements. Do not bend cable to less than 12 times the outer diameter of the cable.
2. Provide terminations and splices performed by skilled high voltage personnel. Submit record of experience for personnel performing splices and terminations. Provide the services of a field engineer of the cable manufacturer to supervise and certify terminations and splices.
3. Install cables in conduit.

F. For quality control of medium voltage cables:

1. Provide field insulation tests on conductors as recommended by ANSI/IEEE 141. Test under DC voltage conditions recommended by cable manufacturer warranty constraints.
2. Provide tests performed by a testing agency with 5 years documentable experience testing medium and high voltage cables.
3. Complete tests with terminal equipment disconnected.
4. Provide written final report and test results to the District.

2.5 APPROVED MANUFACTURERS

A. Cable:

1. General Electric
2. General Cable
3. Rome
4. Okonite
5. Pirelli

B. Terminations and Splices:

1. 3M
2. Elastimold
3. Cable Manufacturer
4. Raychem

PART 3 EXECUTION

3.1 SUBSTITUTES ALLOWED?

Yes, if performance and quality equivalency can be evidenced.

3.2 ASSOCIATED DESIGN STANDARDS AND CONSTRUCTION SPECIFICATIONS:

A. 26 00 00 Basic Electrical Requirements Design Standard

END OF SECTION