



Division 261513

Medium Voltage Cable

DESIGN GUIDE

1 General

1.1 Introduction

- A. This section applies to the following:
 - 1. Medium Voltage Cable
 - 2. Cable Terminations
 - 3. Sectionalizing Cabinets (Junction Enclosures)
 - 4. Cable Markers

2 Materials

2.1 Medium Voltage Cable

- A. Manufacturer:
 - 1. General Cable Uniblend CPE High Speed
 - 2. Approved equal
- B. Cable Size: To be coordinated with the ELSM. Typically, #4/0 or #350.
- C. Description: 15KV type copper conductor with Copper Tape Shield.
- D. Voltage: 15kV, grounded
- E. Conductor: Compact stranded bare copper.



- F. Construction: Single conductor with extruded thermoset semiconducting stress control layer applied over conductor. Ethylene Propylene Rubber insulation colored to contrast with black conducting shield layers. Black composite insulation shield and jacket.
- G. Insulation Level: 133%
- H. Rating: MV-105

2.2 Solid Terminations

- A. Solid terminations shall be a bolted type.
- B. Solid splice terminations within manholes or vaults shall be rated for submersible conditions.
- C. Terminations to pad switches shall be made with stress cone bolted type, rated for outdoor environment.

2.3 Separable Connectors – Load Break

- A. Modular system complying with IEEE 386 and consisting of terminators installed on cables and matching dead front, stationary terminals rated for system voltage and sealed against moisture
- B. Load break elbows shall be provided at junction (sectionalizing) enclosures.
- C. Load break elbows shall be provided at terminations to all transformer primary compartments.
- D. Load breaks shall not be used within manholes or vaults.
- E. 200A, 15 KV rated load break type elbows on each cable sized specifically for the cable type used, with tape shield adapter and cold shrink kits.
- F. Provide protective caps on all unused sand offs.

2.4 Sectionalizing Cabinets (Junction Enclosures)

- A. Manufacturers: Cooper Power Series SecTER Cabinet or approved equal.



- B. 15kv, 200A, 3PH. Confirm minimum quantity of junctions required for the project.
- C. Options:
 - 1. Grounding lug
 - 2. Fiberglass ground sleeve
- D. Provide a hot insulated standoff bushing for each conductor entering or leaving the enclosure
- E. Provide insulated standoff bushing parking stands with protective caps to fill all unused spaces in each enclosure.
- F. Provide a fault indicator for each medium voltage cable entering or leaving the enclosure.
- G. Provide hold down bars.
- H. Provide 4" thick concrete mow pad around each cabinet. Pad shall extend a minimum of 8" beyond edge of enclosure.

2.5 Cable Markers

- A. Markers shall be white reinforced vinyl marker with locking attachment band.

3 Execution

3.1 General

- A. Medium voltage cabling shall be stored such that the cabling reel is always in an upright position during delivery and storage to prevent cabling damage. If cabling reels are stored on their sides, the cabling will not be accepted for installation.

3.2 Installation

- A. Ground cable shield at each termination and splice.



- B. Install cables in manholes along wall providing longest route. Secure cables to cable supports using Black, UV rated, Heavy Duty, Weather Resistant, Nylon cable ties with 120lb tensile strength. Secure each cable individually.
- C. Arrange cable in manholes to avoid interference with duct entrances.
- D. Fireproof cables in manholes using fireproofing tape in half-lapped wrapping. Extend fireproofing 1 inch into duct. Individually wrap each cable from termination points to 8 feet from termination points. Wrap conductors together beyond 8 feet from termination points.
- E. For each manhole passed through, cabling shall be installed with a 360-degree loop around the full interior of the manhole for future cuts, splices, termination makeup and retraining of cables.
- F. Splicing of cables outside of vaults or manholes is not permitted, except where an above ground sectionalizing cabinet is provided. All splices shall occur within vault or manholes and shall be racked as required.
- G. Install sectionalizing cabinets per manufacturers instructions. Provide grounding provisions. Each sectionalizer shall be provided with minimum (1) 4" spare conduit from cabinet to nearest vault.
- H. Label all cables at every manhole/vault and termination with feeder number and to/from. Cable markers shall be polyester-reinforced vinyl with attachment straps. Install tags to be visible from outside of manholes/vaults.

3.3 Testing

- A. Test tightness of bolted connections for all cables
- B. Perform continuity test to assure proper polarity prior to energizing
- C. Perform insulation resistance test on all cables. Include results in test report. Assure minimum insulation resistance conforms to manufacturer specs.
- D. Perform Very Low Frequency (VLF) Testing on all new cables and existing cables that have been reterminated per IEEE standards. Coordinate testing of existing cable with the ELSM prior to execution. Include test results in the test report.



4 Appendix

4.1 Reserved for future.

