SECTION 26 13 00

MEDIUM VOLTAGE SWITCHGEAR

PART 1 - DESIGN DIRECTIVES

1.1 DESIGN CRITERIA

- A. Buildings Served from Medium Voltage Distribution System: Supply is loop or disconnect switch.
 - 1. Switches: Metal enclosed 15 kV, 600 amp, three pole, gang-operated switches. Self-grounding.
 - 2. Switch Door: Must have a window to view switch position.
 - 3. Buildings served from Medium Voltage Loop: Specify a loop switch.
- B. Medium Voltage Loop Switch Assemblies: Configure with two, non-fused disconnect switches and one or more fused disconnects depending on number of loads served.
 - 1. Loop Switch Assemblies: Design and install as single units. Enclosures to have same physical dimensions. All switches must be rear connected.
 - 2. HVL Type Loop Switches: Acceptable minimum working space for installation.
 - a. Rear and Side Access: 36 inches.
 - 3. HVLcc Type Loop Switches: Acceptable minimum working space for installation.
 - a. Rear and Side Access: 36 inches.
 - b. Loop feed sections may be positioned on the ends of the line-up with 36 inch working space made available.
- C. Loop Switch Mounting Pads: Mount switch in center of pad.
 - 1. Pad Size: 8 inch larger in length and width than the switch footprint.
 - 2. Pad Height: 2 to 4 inches high.
 - 3. Pad's Exposed Edges: Chamfered.
- D. Phase and Ground Buswork in and Between Switches: Hard drawn copper. 98% conductivity.
- E. Loop Switch Assembly: Provide with equipment grounding bus. When assembled, bus is to be continuous throughout interior of switches and located in rear of assemblies.
- F. 15 kV Switches:
 - 1. Schneider Electric: Metal-Clad Air Switch. Type: HVL.
 - 2. Schneider Electric: Compact SF6 Switch. Type: HVLcc. Width: 20 inch minimum.
 - a. Switch Operated Grounding Provision:
 - 1) On-line side of incoming loop feeder positions.

- 2) On load side of fused feeder positions.
- 3. S&C: Vista SF6 Switch: Type: Vault. Electronic relay protection
 - a. Switch Operated Grounding Provision:
 - 1) On line side of incoming loop feeder positions.
 - 2) On load side of fused feeder positions.
- 4. G&W: SF6 Loadbreak Switch: Integral ground and fault interrupting.
 - a. Switch Operated Grounding Provision:
 - 1) On line side of incoming loop feeder positions.
 - 2) On load side of fused feeder positions.
- G. Grounding Bails for HVL Metal-Clad Air Switches:
 - 1. Provisions for the connection of workman's grounds, grounding bails, at each phase of all cable termination points must be provided by ball and socket grounding studs with insulated covers.
 - 2. Grounding Bails: Installed at factory on all 4160V and 13.2 kV main switchgears.
 - a. Acceptable Manufacturers:
 - 1) A. B. Chance. #C600-2102 stud with C406-0416 cover
 - 2) Salisbury #21191 stud with 21236-cover.
 - b. Installation must be safely accessible on the de-energized side of the loop while the main bus remains energized.
 - c. Install a grounding bus, easily accessible and within a maximum of 10 ft. from grounding bails.
- H. Fault Indicators: Installed on loop feeder cables at building loop switches. Remote indicators to be mounted on nearest surface.
- I. Surge Arrestors: Station class.
 - 1. Provide at system locations specified by FOM-Engineering based on Dartmouth's MV electrical engineer's determination.
 - 2. Apply as Follows:
 - a. 5 kV Systems: Install at cable termination point of fused switch only.
 - 1) Arrestor Rating: 3 kV (2.55 kV MCOV).
 - b. 13.2 kV Systems: Install at cable termination point of each non-fused switch only.
 - 1) Arrestor Rating: 12 kV (10.2 kV MCOV).
- J. Fused Switches: Equipped with type E current limiting fuses.

- 1. Supply with set of spare fuses and storage provisions inside switch or wall mounted cabinet.
- K. Kirk Key Interlocks: Supply between low voltage main circuit breaker and fused disconnect switch serving that system only.
 - 1. This arrangement is to inhibit closing and opening the transformer primary switch under load, ie., when the secondary main breaker is closed
- L. Fused and Non-Fused Medium Voltage Disconnect Switches: Supply with provisions to lock the access doors, front and rear, and to lock the switch in the open position.
- M. Cable Connections: Specify switches with compression crimp lugs of proper number and size.
- N. Loop Switch Assemblies: Equipped with mimic bus labeling (decals) on front doors.
- 0. Renovation Projects in Older Buildings: When space requirements of medium voltage metal clad air switches, or the HVLcc switches cannot be accommodated:
 - 1. Allowable Switches: 15 kV SF6 insulated vault-style switches. Cable Connections: Elastimold modular connectors.
 - a. Acceptable Manufacturers:
 - 1) S&C Electric Co.
 - 2) G&W Electric.

1.2 RELATED SECTIONS

- A. Section 26 10 00 Medium-Voltage Electrical Distribution and Feeder Entrance
- B. Section 26 05 13 Medium Voltage Cables and Terminations
- C. Section 26 20 00 Transformers

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Square D, by Schneider Electric
- B. S&C Electric Company
- C. G & W Electric

PART 3 - EXECUTION

3.1 INSTALLATION

A. Loop and Disconnect Switches: Securely fastened to housekeeping pad with anchor bolts.

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- B. Metal Enclosed Switch Line-Ups: Wired through the bottom or top.
- C. Conduits Serving Medium Voltage Switches: Rigid. Grounding bushings at each entry into switch.
- D. Metal-Clad Air Switches: Type HVL. Rear connected and rear accessible. 36 inches minimum working space.
- E. Installation Access Space: Provide around MV equipment to allow adequate space for installation of equipment and MV cables under de-energized conditions only.
- F. See 26 10 00 Medium-Voltage Electrical Distribution and Feeder Entrance, for Energizing Requirements.

END OF SECTION