## SECTION 261300

## 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 $15 \mathrm{kV}, 600 \mathrm{amp}$, three pole, gang-operated switches. Selfgrounding.
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.
4. Loop Switch Assemblies: Design and install as single units. Enclosures to have same physical dimensions. All switches must be rear connected.
5. HVL Type Loop Switches: Acceptable minimum working space for installation.
a. Rear and Side Access: 36 inches.
6. 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.
7. Pad Size: 8 inch larger in length and width than the switch footprint.
8. Pad Height: 2 to 4 inches high.
9. 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:
10. Schneider Electric: Metal-Clad Air Switch. Type: HVL.
11. 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 4160 V 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. $\quad 13.2 \mathrm{kV}$ Systems: Install at cable termination point of each non-fused switch only.
2) 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.
2. 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.
O. Renovation Projects in Older Buildings: When space requirements of medium voltage metal clad air switches, or the HVLcc switches cannot be accommodated:
3. 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 261000 - Medium-Voltage Electrical Distribution and Feeder Entrance
B. Section 260513 - Medium Voltage Cables and Terminations
C. Section 262000 - 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.
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 261000 - Medium-Voltage Electrical Distribution and Feeder Entrance, for Energizing Requirements.

END OF SECTION

