

SECTION 16300

MEDIUM VOLTAGE DISTRIBUTION EQUIPMENT

Part 1 -Design Directives

Every building served from the medium voltage distribution system will be supplied with a loop or disconnect switch. These switches shall be metal enclosed 5 or 15 kV, 600 amp, three pole, gang-operated air switches. The door of each switch shall have a window to allow viewing of the switch position.

When the building is served from the medium voltage loop a loop switch shall be specified. When the building is served from a medium voltage radial feeder a single non-fused disconnect switch will suffice.

Every medium voltage loop switch assembly shall be configured to have two non-fused disconnect switches and one or more fused disconnects depending on the number of loads served. The loop switch assembly shall be designed and installed as a single unit with all enclosures having the same physical dimensions. The loop switch assembly shall be mounted in the center of a concrete housekeeping pad that is a minimum of four inches high and eight inches larger in length and width than the assembly footprint. The edges of all housekeeping pads shall be chamfered. All loop switches shall be rear connected.

Phase and ground buswork in and between all switches shall be hard drawn copper with 98% conductivity.

The loop switch assembly shall be provided with an equipment grounding bus that when assembled is continuous throughout the interior of all switches located in the rear of the assembly.

Provisions for the connection of workman's grounds at each phase of all cable termination points shall be provided by ball and socket grounding studs with insulated covers. These grounding devices shall be installed at the factory and be manufactured by A. B. Chance #C600-2102 stud with C406-0416 cover or Salisbury #21191 stud with 21236 cover.

Station class surge arrestors shall be provided at the following locations based on system voltage:

5 kV systems: Arrestors shall be installed at the cable termination point of each fused switch only.

13.2 kV systems: Arrestors shall be installed at the cable termination point of each non-fused switch only.

Fused switches shall be equipped with type E current limiting fuses. Fused switches shall be supplied with a set of spare fuses and provisions to store the spares inside the switch.

Kirk key interlocks shall be supplied between the low voltage main circuit breaker and the fused disconnect switch that serves that system only.

Fused and non-fused medium voltage disconnect switches shall be supplied with provisions to lock the access doors (front and rear) and to lock the switch in the open position.

The switches shall be specified with compression crimp lugs of the proper number and size for each cable connection.

Loop switch assemblies shall be equipped with mimic bus labeling (decals) on the front doors

Renovation projects in older buildings normally cannot support the space requirements of medium voltage metal clad air switches. In these cases the college allows the specification of SF₆ insulated switches manufactured by S & C, Canada Power Products or Powell Esco. These compact devices are rated 15kV and are submersible type switches that can be mounted to the floor, wall or ceiling. Cable connections are made via elastimold modular connectors.

Part 2 -Products

Cutler Hammer
GE
Square D
S&C
Canada Power Products
Powell Esco

Part 3 -Execution

Loop and disconnect switches shall be securely fastened to the housekeeping pad with anchor bolts.

Metal enclosed switch line-ups shall be wired either through the bottom or top.

Pits beneath medium voltage switches will be allowed provided the conduits enter the pit through the bottom and not the sides. Conduit in pits beneath equipment shall be stubbed to a level at least four inches above the elevation of the housekeeping pad. All raceways that protrude through a concrete floor or pad shall be rigid metal conduit (ferrous).

All conduits serving medium voltage switches shall be rigid. These conduits shall have grounding bushings at each entry into the switch.