



S&C System VI™ Switchgear...

“Top of the Class” for a High School Upgrade

S&C Featured Solution: System VI Switchgear

Location: West Coast, United States

Customer Challenge

A West Coast city had a project to renovate and expand one of its older high schools. New 25-kV switchgear would be needed. Initially, a lineup of conventional metal-enclosed switchgear was proposed, consisting of an entrance bay and seven feeder bays to serve the intended loads. But aesthetics were a high priority for this project, and the city was concerned that metal-enclosed switchgear would be too large for the application.

S&C's Vista® Underground Distribution Switchgear could have been used. Vista switchgear has an extremely low profile and small footprint, made possible, in part, by enclosure of its components in an SF₆-gas-insulated tank. Two four-way Vista units would provide the switching and fault-interrupting capability of the eight-bay metal-enclosed switchgear originally proposed—and in a fraction of the space. But there was a hitch...the Vista switchgear units would need to be joined together by underground cable, and the user wanted one integrated assembly.

S&C's new System VI Switchgear offered the perfect solution. With System VI, two Vista switchgear units are joined by buswork running from the SF₆-insulated tanks through gas-tight air-insulated bushings, spliced together inside an air-insulated transition bay. Additional Vista switchgear units and transition bays can be added as needed. Although not required for this application, the transition bays can be furnished with metering transformers or other equipment.

S&C Solution

S&C furnished a four-section System VI Switchgear assembly. Its single-line diagram is shown below.

Section 1 consists of a Vista switchgear Model 421, which is served from upstream switchgear through bus-tap Way 1. Ways 2 and 4 each include a three-pole load-interrupter switch. Way 3 contains a resettable, single-pole-tripping, vacuum fault interrupter. (Fault interrupters can be readily converted from single-pole operation to three-pole operation using a personal computer.)





The overcurrent control for the fault interrupter can be programmed for a variety of time-current characteristic curves, including "E" and "K" speed curves, coordinating-speed tap curves, and coordinating-speed main curves. Coordinating-speed curves have separate phase-overcurrent and ground-overcurrent settings, which can be customized by entering instantaneous-trip and definite-time delay values.

Section 3 consists of a Vista switchgear Model 440. Each way of Section 3 is equipped with a three-pole load-interrupter switch.

Section 3 is connected to Section 1 through the air-insulated bus of a transition bay, Section 2. A second air-insulated transition bay, Section 4, is included at the end of the lineup for a future expansion.

Large windows in the Vista switchgear tanks provide a clear view of the open gaps and ground positions of the fault-interrupter disconnect and the load-interrupter switches. Operating personnel are able to see that corresponding cables are isolated and grounded without having to handle the cables and risk exposure to energized conductors.

Results

The low-profile System VI Switchgear arrangement provides an integrated switchgear assembly at a lower cost than possible with conventional 25-kV metal-enclosed switch-gear. And the school's requirement for smaller, more-attractive switchgear was satisfied.

SYSTEM VI SWITCHGEAR

