Cal Poly San Luis Obispo
Poly Canyon Village

Poly Canyon Village was the largest construction project in the history of the CSU system at the time of its construction. After earning LEED Gold certification for an outstanding commitment to sustainable design, it also became CSU’s biggest LEED certified project.

Cal Poly is making significant progress towards housing 3000 additional students on campus, a core goal of its 2001 master plan. Poly Canyon Village, completed in 2009, is a student housing community comprised of nine residential buildings, 618 apartment units, and two multilevel parking structures. With 2670 beds, the project increases the total on-campus resident population to over a third of total student enrollment. By creating new residential communities such as Poly Canyon Village, the college aims to lessen its impact on housing resources in the City of San Luis Obispo, as well as reduce traffic and greenhouse gas emissions resulting from student commuting.

The added housing will reduce greenhouse gas emissions from commuting by 2.4 million pounds per year.

Great care was taken to preserve and enhance the integrity of the site and reduce operational costs and impacts. At the suggestion of the design-build team, the number of buildings in the project was reduced and the height was increased to five stories. This change reduced the overall development footprint, allowing for additional open space while still providing the required bed count. The modification also lowered utility infrastructure costs and will provide operational energy savings by reducing the area of exposed envelope.

Energy models estimate that the project’s...
efficient design will reduce costs by nearly 43 percent, compared to ASHRAE Standard 90.1-1999. Two central plants with high-efficiency gas boilers provide hot water for space heating and domestic hot water. A 500-kW natural gas fired cogeneration system generates electricity and provides waste heat to supplement one of the boiler plants.

Pedestrian path and landscaping. Image: Cal Poly.

Residential units are heated by hot water radiant ceiling panels. The project team selected ceiling panels to avoid a common problem in which radiators located beneath windows are blocked by furniture, impeding airflow and obstructing maintenance activities.

Due to the project’s mild climate, low summer occupancy, and energy conservation goals, the project team made a strategic decision to eliminate mechanical cooling in the residential units. Ventilation and cooling is provided exclusively via natural ventilation through operable windows. Only administrative and retail spaces are mechanically conditioned, and are served by high-efficiency packaged air conditioning units with either variable air volume or variable refrigerant volume control.

The project uses a high proportion of environmentally preferable materials. Regional materials including concrete, steel, and metal stud trusses were selected to reduce greenhouse gas emissions from transportation and to support local economies. Nearly a quarter of total building materials are both sourced and manufactured within 500 miles of the campus. The project team also worked to reduce the impact of resource extraction and processing by using materials with recycled content, including doors, gypsum wall board, steel decking, and composite wood cabinetry. Recycled content materials comprise about 16 percent of the total building materials.

A bioswale constructed through the center of the project collects 80 to 90 percent of the sediment and pollutants from stormwater.

Several strategies were implemented to create a sustainable site and protect the local ecology. Landscaping with drought tolerant and native species supports local insect and bird populations, and only 40 percent of planted areas require a permanent irrigation system. Nearly all surface water runoff is diverted to Drumm Reservoir, where it becomes irrigation water, virtually eliminating the environmental impact of storm events to the site and nearby creek.

LESSONS LEARNED

Cal Poly successfully used a project delivery method termed the “bridging method,” which is based on a design-build arrangement. In this process, Cal Poly worked with an architectural firm to significantly complete design development. The campus then put the project out to bid and awarded a design-build contract for the construction documents and construction phase. Using the bridging method allowed Cal Poly to have greater control over the project design, shorten the construction schedule, and reduce the final overall cost. The campus recommends that other colleges also explore the benefits of bridging for delivering high-performance facilities.