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Smart Building Strategies Become Standard Practice at Public Schools

Energy-Saving Projects Are Star Performers at Reducing Budget Costs

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While green building practices are gradually gaining acceptance in residential and commercial construction, incorporating smart and sustainable building practices in educational facilities is in full swing.



Monterey Ridge Elementary School is Poway Unified School District's first solar-powered school.

Nearly a dozen school projects have received the Collaborative of High Performance Schools designation in San Diego since the program began in 2000.

The CHPS designation, given by the nonprofit organization of the same name whose goal is to raise the standards for school facilities, is the benchmark for energy efficient and environmentally friendly design for educational buildings in the state.

More than a third of all CHPS-designated schools are located in the county and more are expected to file for the high-performance designation this year.

This growing level of commitment is not a surprise to Bob Nicholson, senior director of facilities planning services for the San Diego County Office of Education.

Nicholson, who also serves as a board member of CHPS, said the county office joined forces with the high-performance program several years ago in an effort to improve performance and long-term cost savings for school districts.

“We committed to being a part of CHPS so we could have a voice at the table on behalf of the 43 school districts in the county,” he said. “We need to make our voice heard so the energy companies are aware of our concerns and our efforts on behalf of the students in this county.”

CHPS membership is comprised of utility and energy providers; nonprofit organizations, educational institutions; design, construction and maintenance service providers; and governmental agencies.

The CHPS designation has been given to recently completed Cajon Valley Middle School in El Cajon, Cherokee Point Elementary School in City Heights, Escondido Charter High School, Herbert Ibarra Elementary School in the Euclid area, and Monterey Ridge Elementary School in Poway. Also receiving this honor are several schools under

construction or in the planning stage, including Del Norte High School in 4S Ranch, Del Sur Elementary near Poway, Lincoln High School in the Chollas View neighborhood of San Diego, San Elijo Elementary School in San Marcos and San Marcos Elementary School.

“I would not single out any one of them because each one is exemplary of the CHPS program,” said Nicholson.

While it is hard to project realized savings generated from green features for several reasons, including fluctuating oil prices, smart features definitely reduce energy consumption, according to Nicholson.

“The fact that green building is reducing our dependence on foreign oil ... is going to have a significant impact in terms of the amount of money it costs to maintain those buildings over the course of their lives,” he said.

Financial Incentives

It is estimated that California schools spend close to \$700,000 million annually on energy, according to the state Energy Commission.

High-performance building design saves money on both sides of the ledger, according to CHPS. School districts can save 30 percent to 40 percent on annual utility costs for new schools and 20 percent to 30 percent on renovated schools by applying high-performance design and sustainability concepts.

Earning the designation also can increase school funding from state and local sources.

“There has been some incentivizing of the program to make it more palatable for districts,” said Nicholson.

With the passing of Proposition 1D in November 2006, voters allocated \$100 million to fund the design and construction of energy efficient, environmentally healthy school facilities for the public school system.

These allocated funds are distributed to schools based on the number of green design features included in the final project.

The success of CHPS’s design standards has inspired the adoption of similar standards in Eastern states, including Connecticut, Maine, Massachusetts, New Hampshire, New York, Rhode Island and Vermont.

Several school districts in San Diego County have adopted resolutions to build only CHPS schools, including Cajon Valley Union, Poway Unified, San Diego Unified, San Marcos Unified and San Pasqual Union school districts.

San Diego Unified resolved to adopt the CHPS criteria to be used in designing, building, renovating and operating schools in the district in 2003.

North Park-based Zagrodnik + Thomas Architects LLP designed Normal Heights Elementary School. The firm is currently in the process of submitting an application for CHPS certification.

Exemplary School

Scott Thomas, principal and design partner of ZTA, said the San Diego Unified's commitment to CHPS standards is impressive and that Normal Heights Elementary uses exemplary sustainable practices.

"We have more landscape area than a typical school and reduced the amount of concrete and asphalt than was there previously," said Thomas.

The school also scored high in the categories of natural lighting and ventilation on its CHPS application.

Monterey Ridge Elementary School is Poway Unified's first solar-powered school. The school, which opened in 2006, generates 50 percent to 60 percent of its energy from solar panels.

Richard Nowicki, a partner with San Diego-based NTDSchichler Architecture, the architecture firm that designed Monterey Ridge, said the school is unique because of where the solar panels are located.

"The photovoltaic array is not on the roof like you typically see, it is on one of the slopes or banks (adjacent to the school) and that allowed us to put a lot more panels than we would on a roof," he said.

The \$1.5 million system is estimated to reduce annual electrical costs substantially each year. While it will take the school 14 years to pay back the cost of installing the 20,000-square-foot system, it would reduce annual electrical costs by \$30,000 to \$40,000, according to Nowicki.

Other high-performing features include lights that turn on and off automatically, an energy management system, high-efficiency irrigation system and a cool roof with reflective coatings.

Nowicki said the movement toward green schools has really taken off during the past four to five years.

“Sustainable design or responsible design resource management practices are going to be compulsory exercises,” he said. “Right now, we all get credit for implementing these strategies, but soon it will simply be required of all of us.