

School District Builds High-performance High School

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In 1935, the Works Progress Administration built a new Oregon high school on 11th Street in Corvallis, northwest of the city limits at that time. The school district used the facility for seven decades before it was deemed susceptible to earthquake damage. In 2002, Corvallis voters approved a bond that included \$46 million for a replacement building on the same site.

Following the voters' approval, the Oregon Department of Energy awarded the district a \$50,000 grant through its "High Performance School Program." The grant was used to investigate the possibility of building a school to U.S. Green Building Council Leadership in Energy and Design, or LEED, standards.

The district held an eco-charette. This collaborative process with design professionals, school district officials, Department of Energy analysts, community members and other

stakeholders resulted in a mutual goal to build an energy-efficient, sustainable school.

The new Corvallis High School opened in September of this year to 1,380 students and is expected to last considerably longer than its predecessor. It is a cost-effective building that provides a healthy environment, uses 30 percent less energy than a school built to code and meets seismic standards.

Dull Olson Weekes Architects of Portland, nationally recognized for its innovative work on schools, designed the 230,000-square-foot replacement school. DOWA has completed more than 540 school projects in 51 districts throughout the Pacific Northwest, including Eagle Rock Elementary in Eagle Point, Oregon, which was also built to LEED specifications.

The new Corvallis school fulfills the standards for a LEED silver rating for a high-performance building. The Oregon Department of Energy recently recognized Corvallis School District with its "High Performance School" award for Outstanding Achievement in School Design.

"The Corvallis School District is to be commended for its decision in designing and build-

ing a high-performance school," said Oregon Department of Energy Manager Betty Merrill, who directs the agency's school team. "The school will be comfortable, use less energy and water resources, cost less to operate, and will serve the community for many years to come."

The silver LEED building qualifies for a Business Energy Tax Credit for Sustainable Buildings. Corvallis School District is partnering with a private business in Corvallis and transferring the school district's tax credit eligibility for the project to the business.

The business will pay the school district \$168,300 in one lump sum. In exchange, the business can file the \$231,000 tax credit over the next five years. Private and public entities have been able to form partnerships since 2001 to use the Business Energy Tax Credit Pass-through Option.

Corvallis High School is expected to use 30 percent less energy than one built to Oregon code. This means lower operating costs and continued savings in the future.

"The new Corvallis High will reap benefits for the students, staff and community for decades to come," said Merrill.

Taking Inventory

Some of the energy and resource efficiency measures installed at the new Corvallis High School include:

- Increased roof insulation (R-28 compared to code-required R-19);
- High-performance windows (overall U-factor of 0.41 and shading coefficient of 0.44 compared to code-required overall of 0.54 and shading coefficient of 0.57);
- Light shelves on classroom windows for exterior shading;
- Daylighting control in classroom, media center and student center areas;
- Occupancy sensors;
- A DDC control system;
- A high-efficiency condensing boiler;
- Variable frequency drives added to constant-volume air-handling units;
- Demand control ventilation utilized for VAV, or variable air volume, air-handling units;
- High-efficiency chillers;
- High-efficiency condensing-type water heaters;
- Premium-efficiency motors on fans and pumps;
- VFDs for pumps on heating water, chilled water and domestic water systems;
- Low-flow fixtures and infrared controls;
- Drinking fountains in lieu of water coolers;
- High-efficiency electrical transformers;
- Forest Stewardship Council wood;
- Recycled construction waste;
- More than 50 percent of building materials recycled;
- Re-used, crushed concrete from the former Corvallis High School building; and
- Building commissioning.



Rendering courtesy Dull Olson Weekes Architects

Achieving Superior Results with Minimal Cost

A high-performance building has three primary features:

- It is healthy, comfortable and improves student performance.
- It is cost effective and reduces operating costs.
- It has a positive effect on the environment and is designed to last for a long time.

A high-performance school can be constructed with little or no increase in cost if the school board, school officials, architects, engineers and other contractors agree upon the high-performance school features before the design is initiated.

The Oregon Department of Energy's High Performance School Program offers \$50,000 in funding and provides technical assistance for districts building new schools. The Program encourages school districts to apply for certification through the U.S. Green Building Council's Leadership in Energy and Environmental Design, or LEED, program. To qualify for funds, a school may achieve LEED silver rating or higher, and must allow the Oregon Department of Energy staff to assist with energy-related criteria.

Architects, designers, other building professionals or school officials involved in building a new school should contact the Oregon Department of Energy prior to the design phase to participate in the High Performance Schools Program. Call Greg Churchill at the Oregon Department of Energy at 800-221-8035.