



Award Category

Overall Sustainable Design

Green Features

Sited on an existing parking lot

Views provided for 90% of interior spaces

53% of materials regionally sourced

40% reduction in water consumption

Building systems commissioning

Green housekeeping program

Sustainability outreach program

Annual Energy Savings

30% greater energy efficiency than Title 24 standards

244,000 kWh

3,883 therms

\$48,000

Size

90,000 ft²

Cost

\$40.6 million

Completion Date

March 2008

CSU Fullerton Student Recreation Center

The Student Recreation Center is the latest in a string of projects at CSU Fullerton that turn sustainability initiatives on paper into real-world results. The campus is targeting LEED®-NC Gold certification from the U.S. Green Building Council, making it the university's most sustainably-designed project to date.

Students exercising in the new Student Recreation Center at CSU Fullerton will work up a sweat getting healthy inside a healthy building. The facility's design and materials create invigorating spaces with high indoor air quality and plenty of daylight, two important features that promote the health and wellness of patrons. The building is doing its part to help the environment shape up, too, by using energy, water, and other natural resources in moderation.



Artist's rendering of the Recreation Center. Image: Langdon Wilson.

A number of the center's materials are regionally sourced to reduce transportation miles and avoid the environmental impacts of burning fossil fuel. Materials extracted, harvested and manufactured within a 500 mile radius of the project comprise 53 percent of the building. Concrete for the center's tilt-up panels, elevated decks, and roof was mixed locally in Southern California. Architectural woodwork for cabinets, sheet metal, and rubber flooring for the climbing wall also contribute to the building's impressive regional materials achievements.

Low-emitting materials in center's interior contribute to a healthy indoor environment. Conventional paints, finishes, sealants, and carpet off-gas chemicals called volatile organic compounds (VOC), sometimes for years after their initial application or installation. Materi-

als selected for the Student Recreation Center meet low-VOC standards to limit the introduction of potentially harmful indoor pollutants.

Recognizing that potable water availability is a concern in Southern California, the design team incorporated several technologies that curtail the center's water use. Dual-flush toilets and low-flow showerheads, sinks and urinals are installed in all bathrooms and changing rooms. These devices reduce the building's water use to 40 percent below the Federal Energy Policy Act of 1992 (EPA) baseline.

A Jardinier SurfaceFlow™ irrigation system minimizes landscape water use by supplying water to plantings through a grid of tubes installed below the root depth. Water pumped up through emitter tubes wicks across the soil surface before slowly soaking through the ground. This is a more effective method than

a traditional spray irrigation system, where large quantities of water are wasted through evaporation and runoff. Water-efficient landscaping practices coupled with the irrigation system result in the center's grounds using just half the water allowed by the EPA.

The center's energy efficiency achievements are largely based on the high-performance satellite plant that supplies the building's hot and chilled water. This satellite plant was constructed to support the Titan Student Union building because the main plant runs only during the regular business hours held by classroom and office buildings. Like the Titan Student Union, the Student Recreation Center has longer hours of operation to accommodate student activities and schedules. Instead of taxing the existing campus system by con-

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BEST PRACTICES

Additional Awards

Anticipating LEED-NC Gold

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Team

Architect: Langdon Wilson, Irvine

Structural and Civil Engineer: KPFF Consulting Engineers

Electrical Engineer: GLP Engineering

Mechanical and Plumbing Engineer: Tsuchiyama Kaino Sun & Carter

Landscape: Moore Iacofano Goltsman, Inc.

Contractor: C.W. Driver

LEED Consultant: GreenWorks Studio

Consulting Engineers for satellite plant project: Henrickson Owen & Associates

More Information

www.asi.fullerton.edu/reccenter/index.asp

necting the center to the main plant, the university upgraded the satellite plant to support both buildings.

In the upgrade two efficient 350-ton chillers with variable speed drives and variable flow pumps replaced the plant's single 300-ton chiller. The campus also installed a series of boilers that provide the buildings with space heating. The center's variable air volume HVAC system, low lighting power density and high-performance envelope help lower its design energy use to 30 percent below Title 24.

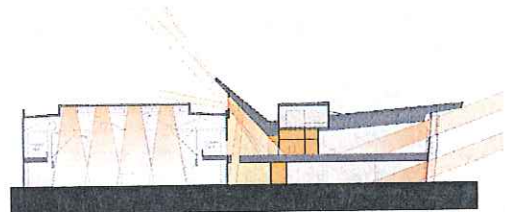
CSU Fullerton is designing an educational outreach program that will provide Student Recreation Center users with information about its green features. Building signage, take-home brochures, and guided tours will enable the campus to convey the story of the Recreation Center and describe the university's sustainability goals. The outreach program will also emphasize ways for visitors to incorporate sustainable living into day-to-day life.



Highly-reflective roofing and hardscape materials limit the heat island effect. Image: Langdon Wilson.

The campus also plans to implement an occupant satisfaction survey to gauge the livability of the center after it is constructed. The survey will enlist building users to assess important indicators of human health performance such as thermal comfort, air quality and lighting quality. It will also help the campus determine which design features are well-received and which are not, information that will be useful for developing future projects.

No one at CSU Fullerton is more excited about the project than the students. Mike Smith, Director of the Design and Construction department, says students are "thrilled" about the center's green achievements, and are also "very proud" that the facility is on target to earn a LEED-NC Gold rating.



Building section showing daylight infiltration. Image: Langdon Wilson.

The Student Recreation Center contains a variety of workout equipment and offers dozens of different activities to engage students at all levels of fitness. The two-story facility includes a cardio fitness training studio, weight training area, indoor jogging track, multi-court gymnasium, 34-foot climbing wall, racquetball courts, multipurpose rooms for group exercise, dance or yoga classes, and an outdoor swimming pool suitable for laps and leisure. The center also has gathering spaces that are purely for socializing, including a cluster of pool-side lounge chairs and an area for barbecuing.

LESSONS LEARNED

The Student Recreation Center was originally designed with several sustainability principles in mind, including use of natural daylight and green materials. However, the goal of LEED certification was adopted after the design was completed, requiring that the project team make some adjustments during the construction phase. Despite missing early opportunities to address LEED requirements, the center is on track to earn LEED-NC Gold certification. The major lesson learned, says Mr. Smith, is that "it's never too late to implement sustainability, even in the eleventh hour."

Best Practices is written and produced by the Green Building Research Center, at the University of California, Berkeley.

The *Best Practices* Competition showcases successful projects on UC and CSU campuses to assist campuses in achieving energy efficiency and sustainability goals. Funding for *Best Practices* is provided by the UC/CSU/IOU Energy Efficiency Partnership.



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