Swimming in Sustainability

Herriman Rec Center First of its Kind to Meet LEED Platinum Standards

By Kelly Lux

Building a 4,700 square-foot natatorium in a 107,000 square-foot recreation center to Leadership in Energy and Environmental Design (LEED) New Construction Platinum standards requires a unique design and an unparalleled approach to sustainability.

As one of the first facilities of its kind to strive for Platinum Certification, the J.L. Sorenson Recreation Center in Herriman opened its doors March 18 boasting 40 percent less energy consumption and 30 percent less water use than a typical recreation center.

"Buildings of this type, natatoriums and recreation centers of this size, are difficult to get LEED Platinum," said Burke Cartwright, executive officer of EDA Architects. "This is no small feat."

Planning in Green

An eco-charrette, also known as a kick-off meeting, was held by Salt Lake County and EDA Architects to generate and target sustainability goals for the recreation center, which will serve residents of Herriman, Bluffdale and Riverton. By carefully applying LEED New Construction standards, the team designed a 107,000 square-foot, $21 million center that has the capability of attaining Platinum Certification, according to Cartwright.

"We pay for the building once. But we have to pay for the staff, energy, power and water for the next 50 years," Cartwright said. "If we do the planning part right, then the staffing and operational costs in this building pale in comparison to what we will be saving in the next 50 years."

From the Ground Up

Construction on the recreation center began in June 2009. Nearly two months were spent surcharging the site before the footings and the foundation were laid. During the construction, more than 95 percent of the total waste was diverted from the landfill, said Brian S. McBeth, project manager with Layton Construction. Construction materials were chosen for their recycled content, avoidance of toxic materials and lack of emissions of harmful gases over time. Nearly 75 percent of the wood used in the facility is Forest Stewardship Council certified-sustainable. All materials used in the facility are from no more than 500 miles of the site — a LEED requirement.

Built along Main Street in Herriman, next to the Herriman City Library and across from the future site of the Herriman Town Center, the J.L. Sorenson Recreation Center was situated parallel to the boulevard for visual appeal. However, the building pivots due south at the natatorium to maximize solar heat gain — a key factor in achieving Platinum Certification, said Cartwright.

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Design/Construction Team:

Salt Lake County, *owner/manager*
EDA Architects, *architect*
Stantec Engineering, *civil engineer*
Dunn Structural Engineers, *structural engineer*
G. Brown Design, *landscape architect*
VBFA, *mechanical engineer*
EELD, *electrical engineer*
ETC Group, *energy modeling*
Water Design, *natatorium*
Layton Construction, *contractor*

Photo taken by Paul Richer of Richer Images and courtesy of EDA Architects.

Interior Visibility

From a management standpoint, the recreation center was built to optimize visibility of patrons from the control area located at the entrance of the facility. Staff have a direct line of sight down the hallway that leads to the racquetball courts, into the gymnasium and the track and through the glass into the swimming pool.

"There are not a lot of blind spots from a security standpoint. Not only can the staff monitor most of the building from one central point, but the patrons can see where everything is too," Cartwright said. "That minimizes the staff needed to operate the facility."

Green Waters

Maximizing the sustainable features of the natatorium, which boasts a lap and leisure pool, a water slide, a play structure, a lazy river and a water walk, were imperative to the certification of the recreation center, Cartwright said. Solar hot-water panels were installed on the roof to provide pool base load heat demand equal to at least 1.6 percent of the total building energy. The solar thermal system will supplement the pool heating system by producing approximately 525,000,000 Btu/year, reducing the demand on pool water heating equipment. Ozone and UV aid in pool water sanitation and reduce the amount of chlorine required. These regenerative filters reduce water usage and water waste by nearly 30 percent.

The ceiling of the natatorium is also lined with DuctSox, cylindrical fabric tubes used to distribute and diffuse heated, cooled and refrigerated air. Used in place of metal ducts, these fabric ducts will not rust like their metal counterparts, and since they do not absorb moisture, they will not become a source for development of bacteria and mold. Additionally, McBeth added, the DuctSox can be removed and cleaned by section as needed.

Other Green Features

The sustainable efforts don't stop in the natatorium. Similar concepts have been applied throughout the entire center.

Daylighting is used in the entire facility, with large expanses of glazing found in the lobby, the daycare, the exercise and dance rooms, the racquetball courts, along the track and in the gymnasium. The 16,000 square-foot gym can, at times, be fully lit by the skylights that line the ceiling, eliminating the use of artificial light on sunny days. The daylight sensors automatically turn the lights off on sunny days. Every area of the recreation center is also equipped with motion light sensors, so when the rooms are not in use, the lights are off.

"We bring the outside light to the inside of the building," said McBeth. "Windows let light into interior spaces that

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wouldn't normally get natural light, such as the hallways."

Instead of using carpet, which wears quickly, in the entryway and walkways of the building, integral colored concrete, a longer-lasting alternative to carpet that won't lose its color over time, was used throughout the facility. The concrete is made with recycled ash, a bonus from a LEED perspective.

Energy-efficient HVAC systems will save the building an estimated 13 percent of electrical and 60 percent of natural gas utilities used to heat and cool the facility. Large fans hang from the ceiling of the lobby, helping to circulate the air. A white thermoplastic membrane was used on the roof to reduce the heat island affect. And large roof overhangs were used on the west and south sides of the natatorium for the same reason.

Not only is water conserved with the regeneration filters in the pool but the sensor faucets and low-flush/high-flush toilets in the bathrooms (complete with directions on how to flush and save water) are helping to minimize the amount of water used in the facility as well. Additionally, the landscaping is designed to conserve potable water with the use of secondary irrigation.

"These green practices have not been used to this extent in

other facilities," Cartwright said. "With these features, we could have easily obtained Gold Certification, but by working a little harder we were able to get Platinum."

They Will Come

A recreation center is a representation of a community's quality of life, said Alan Rindlisbacher, marketing director for The Layton Companies. By implementing sustainable practices in the J.L. Sorenson Recreation Center, Salt Lake County was able to build a facility that the community could get behind and feel good about. The facility will also act as a catalyst for development in the area as developers and Utah residents see the value in the recreation center and the surrounding area.

"I think other people who operate these kinds of facilities are very, very impressed with this building," Cartwright said. "It is a very enviable building. At this stage, it is a flagship building of Salt Lake City recreation centers. It is a flagship facility from an interstate area.

"It is going to be a relevant building for many, many years to come. And it may be a long time before we have the opportunity to feel this good about a project again." UF

Photo courtesy of Layton Construction.