

The *City of Boulder's North Boulder Recreation Center* became the first building in the state of Colorado to earn the prestigious LEED™ Silver certification. The newly renovated building reopened in March 2003 and boasts solar heating, energy efficient lighting and improved features throughout. The LEED Silver certification is awarded by the US Green Building Council to buildings that meet stringent energy and environmental design criteria.

"We decided to go for LEED certification from the beginning, because LEED is a recognized standard of quality for public and private commercial construction projects," said Bill Boyes, Facility Asset Manager for the City of Boulder. "LEED provided a framework to encourage the inclusion of features that improved the environmental impact and energy efficiency of the facility."

North Boulder Recreation Center earns a "Silver"

Project description

The project included replacing the existing pool, and expanding the gymnastics and aquatics activities areas. The project increased the building area from 34,000 to 62,000 square feet.

The center's high -efficiency boilers and one of the largest flat-plate solar water heating systems in the United States provide pre-heat water for the center's two pools and domestic hot water.

The team designed in ample daylighting to reduce electrical load and provide a connection with the outdoors. Together the efficiency features result in 37% avoided energy use compared to standard construction.

"The efficient design will save the City about \$56,000 in avoided utility bills this year. And the solar water heating system will minimize the impact of natural gas price hikes."

- Al Quiller, Recreation Administrator



North Boulder Recreation Center is the first Silver LEED-certified building in Colorado.

The team selected low-emissions carpet, adhesive, and hardwood floor finishes to improve the indoor air quality for the average 1,000 daily visitors.

Water conservation was a priority for the project. Low-flow showerheads and toilets were used to conserve water indoors. Drought-tolerant and native plantings provide pleasant and efficient landscaping.

LEED-ing the way

Would the City use LEED on future projects? "Yes," said Boyes. "Our goal is to provide the best achievable facility for the community. LEED helps us in that goal by encouraging excellence in all aspects of design and construction, and demonstrates our commitment to environmental sustainability."

How much does it cost?

One goal of the North Boulder Recreation Center project was to determine what the incremental costs are to achieve LEED.



A High Performance Design Success Story

The team identified the additional costs of achieving LEED to be about 4.6 percent of the total project cost, including the "soft" costs of energy modeling, commissioning and integrated design consulting.

The incremental upgrade costs included \$256,000 for the solar hot water system, \$32,000 for 90% efficient boilers, \$7,400 for additional commissioning, and \$157,300 for miscellaneous upgrades to meet LEED.

Other cities have seen the costs of achieving LEED drop on subsequent projects as designers gain expertise with construction waste recycling, materials specifications and other areas.

North Boulder Recreation Center LEED Credits

LEED Credits Achieved	LEED Points Achieved
Sustainable Sites (14 Points Possible)	8
<i>Erosion & Sedimentation Control</i>	<i>Required</i>
Site Selection	1
Alternative Transportation, Public Transportation Access	1
Alternative Transportation, Bicycle Storage & Changing Rooms	1
Alternative Transportation, Alternative Fuel Refueling Stations	1
Alternative Transportation, Parking Capacity	1
Reduced Site Disturbance, Development Footprint	1
Landscape & Ext Design to Reduce Heat Islands, Roof	1
Light Pollution Reduction	1
Water Efficiency (5 Points Possible)	1
Water Efficient Landscaping, reduce by 50%	1
Energy & Atmosphere (17 Points Possible)	7
<i>Fundamental Building Systems Commissioning</i>	<i>Required</i>
<i>Minimum Energy Performance</i>	<i>Required</i>
<i>CFC Reduction in HVAC&R Equipment</i>	<i>Required</i>
Optimize Energy Performance, 20% New / 10% Existing	2
Optimize Energy Performance, 30% New / 20% Existing	2
Optimize Energy Performance, 40% New / 30% Existing	1
Additional Commissioning	1
Green Power	1
Materials & Resources (13 Points Possible)	6
<i>Storage & Collection of Recyclables</i>	<i>Required</i>
Building Reuse, Maintain 75% of Existing Shell	1
Construction Waste Management, Divert 50%	1
Construction Waste Management, Divert 75%	1
Resource Reuse, Specify 5%	1
Local/Regional Materials, 20% Manufactured Locally	1
Local/Regional Materials, of 20% Above, 50% Harvested Locally	1
Indoor Environmental Quality (15 Points Possible)	9
<i>Minimum IAQ Performance</i>	<i>Required</i>
<i>Environmental Tobacco Smoke (ETS) Control</i>	<i>Required</i>
Carbon Dioxide (CO2) Monitoring	1
Construction IAQ Management Plan, Before Occupancy	1
Low-Emitting Materials, Adhesives & Sealants	1
Low-Emitting Materials, Carpet	1
Low-Emitting Materials, Composite Wood	1
Indoor Chemical & Pollutant Source Control	1
Thermal Comfort, Comply with ASHRAE 55-1992	1
Thermal Comfort, Permanent Monitoring System	1
Daylight & Views, Views for 90% of Spaces	1
	2
Innovation in Design: Education/Teaching Opportunities	1
LEED Accredited Professional	1
Total Points Achieved	33
LEED Certification Level Achieved	Silver

North Boulder Recreation Center LEED Costs

Items required to achieve LEED	Item Cost
LEED registration	\$750
LEED certification	\$1,500
Integrated design consultant	\$15,450
Energy modeling	\$33,000
Commissioning	\$24,300
Total cost of upgrades	\$461,700
Total	\$536,700
Total as percent of project budget	4.6%

PROJECT DETAILS

Facility: North Boulder Recreation Center, Boulder, Colorado

Facility Size: Increased building area from 34,000 to 62,000 square feet (sf)

Project Cost: \$11.6 million

Energy Cost: Estimated cost of \$1.57 per sf, \$97,000 per year (compared to \$2.31 for East and \$2.16 for South Boulder Rec. Center in 2002)

Energy Savings: Estimated savings of 37% compared to ASHRAE Standard 90.1-1999, or \$56,000 per year

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