

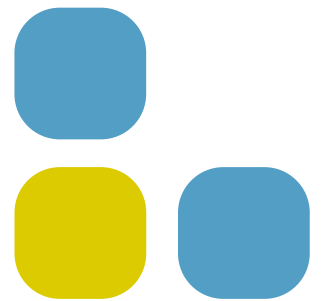


## LEEDing Buildings

by Dana Dubbs

The U.S. Green Building Council's LEED™ (Leadership in Energy and Environmental Design) Green Building Rating System makes it easier than ever to be green. This is good news for organizations looking to lower building life-cycle costs, improve productivity and demonstrate their commitment to the natural environment.

The council awards four levels of LEED certification, based on a building's ability to meet or exceed criteria in these categories: sustainable sites, water efficiency, energy and atmosphere, materials and resources, indoor environmental quality, and innovation and design process.



**Dana Dubbs** has spent more than a dozen years writing about the changing face of the workplace and its impact on people. Dana also writes for *Commercial Property News*, *Corporate Real Estate Strategies*, *Health Facilities Management*, *Operations & Fulfillment*, and the *National Urban League's Opportunity Journal*.

She is currently earning recognition as an art photographer. Her landscapes, abstracts of nature, and portraits of dolls have been exhibited in galleries and shows throughout California.

LEED is the gold standard for green building projects and is pursued by businesses around the globe. Having LEED certification can help a company attract business partners that consider environmental performance one factor of a well-run company.

The buildings featured here were developed during LEED's pilot phase. Here are a few pioneering projects and some of the green features that make them unique.

#### **Steelcase Wood Plant**

*Caledonia, Mich.*

Owner: Steelcase Inc.

Architect: URS Corporation

LEED 1.0 Certification: Silver

The Steelcase Wood Plant is the first manufacturing facility in the world to be LEED-certified. One of its most unique features is an energy-saving, waste heat recovery system. Seven dust collectors pull hot air from inside the building, filter it and then recirculate the purified air, helping heat the building in winter. In summer, the system diverts hot air outside, helping cool the facility.



**Steelcase Wood Plant Cont.**

All paints, sealants, primers and pipe joints used in the building's construction contain low VOC-emission materials, which helps improve indoor air quality. "We used 24,000 gallons of paint in the building's interior," notes Dave Rinard, director of Corporate Environment, Health and Safety at Steelcase. "A typical industrial facility would have used solvent-based paint. We used only water-based paint."

An air-monitoring system keeps constant watch on all air handlers in the facility, helping maintain optimum indoor environmental quality. The system sounds an alarm if it detects incorrect temperature, humidity or air quality levels.

"Typically, 100 percent of construction waste ends up in a landfill," adds Rinard. "For this project, approximately 45 percent of all construction materials went to recycling plants, including 40 yards of scrap metal, 930 yards of wood, 300 yards of concrete and 180 yards of cardboard."

An estimated 715,000 gallons of water will be saved annually through a unique water recovery system and water-wise landscaping. All water run-off from the building's roof and parking lots drain into specially built ponds. That water is then used to irrigate the Sheep's Fescue lawn, which requires very little watering compared to other types of lawns.

As part of a reforestation effort, Steelcase planted nearly 1,000 trees to shade parking areas and landscaped the entire site with low-maintenance, drought-resistant, native vegetation.

Overall, the new facility enhances employee well-being, is more cost-effective to operate and, according to Christine Ervin, CEO of the U.S. Green Building Council, sends a powerful message to Steelcase customers that "building green is building smart."



Other buildings featured here were developed during LEED's pilot phase. Here are a few pioneering projects and some of the green features that make them unique.

**Utah Olympic Oval** *Salt Lake City, Utah*  
 Owner: Salt Lake Organizing Committee for the Olympic Winter Games of 2002  
 Architect: Gillies Stransky Brems Smith Architects  
 LEED 1.0 Certification: Certified

Built on top of an existing speed skating oval, this arena scored big LEED points and saved \$1.6 million using salvaged refrigeration and ice-making equipment. A daylighting scheme prevents hot spots on what's been dubbed "the fastest ice on earth," and the overall lighting design exceeds California's Title 24 energy standard by about 6 percent. "By using a cable suspension system instead of a traditional truss system, we reduced the arena's interior volume nearly 3 million cubic feet and saved almost 1,000 tons of steel," says Garth Shaw, of the architecture firm Gillies Stransky Brems Smith. Less volume also means less energy is needed for cooling. The project exceeds ASHRAE (American Society of Heating, Refrigerating, and Air Conditioning Engineers) 90.1 by about 20 percent.

**Sundeck Restaurant** *Aspen, Colo.*  
 Owner: Aspen Skiing Company  
 Architect: Cottle Graybeal Yaw Architects  
 LEED 1.0 Certification: Bronze

Transportation to the top of Aspen Mountain, the site of the Sundeck Restaurant, is very limited — just one access road. To get there, all construction workers, their tools and smaller construction materials traveled by ski gondola, helping minimize intrusion on the natural environment. And when the existing, obsolete structure was demolished to make way for the new building, a whopping 86 percent of materials were carted away for recycling. The new building went up in just nine months. "That's an incredibly tight timeframe in which to build a building of this size and level of detail, in a remote location with very limited access, and meet all LEED requirements," says architect Susan Touchette.



#### **Kandalama Hotel** *Dambulla, Sri Lanka*

Owner: Aitken Spence Hotels, Ltd.

Architect: Geoffrey Bawa

LEED Consultant: Green Technologies, Inc.

LEED 1.0 Certification: Bronze

Because the Kandalama Hotel is located in a geographic area of tremendous cultural and historical importance, "we had to preserve the environment above anything else," says Mario Seneviratne, LEED consultant. The 253,000-square-foot hotel was built on stilts to maintain rainwater flow, landscaping was restored up to the column footings and 80 percent of the roofs are planted with indigenous horticulture. All of the building's water and sewer needs are met with resources on the site, and all water is recycled and re-used. Water comes from deep wells, is purified and then circulated to the building. Effluent passes through two treatment plants and is then used for landscaping. Surplus water returns to the aquifer.

#### **KSBA Architects Office Building**

*Pittsburgh, Penn.*

Owner: Lawrenceville Development Corp.

Architect: KSBA Architects

LEED 1.0 Certification: Certified

Owing largely to an underfloor air delivery system and HID (high-intensity discharge) lighting scheme, this former 19th century undertaker's stable uses 60 percent less energy than a typical ASHRAE building envelope. The underfloor system delivers warmer air than an overhead system, allowing use of unconditioned air on the HVAC (heating, ventilating and air conditioning) system's economizer cycle for most of the year. "We're only conditioning the bottom six feet of space, up to about our noses," says KSBA's Gary Moshier. "We're more comfortable, and we're using less energy. We get higher ventilation, so the air is fresher and cleaner. We get good air movement, and everybody can control heat and air exchange in their own space."

#### **Premier Automotive Group N.A.**

**Headquarters** *Irvine, Calif.*

Owner: Ford Motor Company

Architect: LPA, Inc.

LEED 1.0 Certification: Certified

This nearly 300,000-square-foot building scored extra LEED points for exceeding California's Title 24 energy standard. A natural gas fuel cell provides 25 percent of the building's power and hot water. The raised-floor air distribution system is more energy-efficient than an overhead system. Landscaping on the two-acre roof of the structure's product development wing also cuts energy costs. "The earth sitting on the roof creates a thermal mass, which reduces energy consumption in that portion of the building," says architect Damon Dusterhoft. Rooftop landscaping includes more than 30 kinds of vegetation, helping return natural resources that were displaced during construction and providing habitat for birds and other creatures.