



GOING FOR THE GREEN

Retail restrooms designed with LEED in mind.

Kris Alderson

Retailers are quickly realizing that "green" building design is about more than just being kind to the environment. Research has shown that green building has a number of other benefits, not the least of which is improving the bottom line.

Recent studies on the use of natural lighting, for example, illustrate how important this aspect of sustainable design can be on a building's performance and the overall well-being of its occupants. A study conducted by the Heschong Mahone Group found that stores with skylighting had a 40% increase in sales over those without. Many retailers, such as Wal-Mart, have taken notice and have incorporated daylighting into store designs.

Reducing waste and conserving resources are other important ways to improve building performance. In fact, water conservation may be one of the most economical ways to turn any building "green." Commercial buildings account for about 9.5 billion gallons of water used each day in the U.S. Facilities using large volumes of water for their business operations, landscaping and public areas are tapping municipal water storage and treatment capabilities, which in turn are driving up usage costs.

Depending on the type of retail facility, restrooms may not be the Number 1 culprit for water use. Yet, restrooms easily can be designed or retrofitted to save water and increase efficiency. And we know that improving restrooms not



This environmentally friendly retail restroom features flooring made of recycled rubber and toilet partitions that have recycled content. The ceramic tiles on the walls are made from recycled glass. In the hand-washing area, low-flow faucets reduce water consumption and long-lasting solid surface lavatory decks help keep waste out of landfills.

only reduces operating costs, but also plays a critical role in how a retail facility is perceived by patrons.

GREEN BUILDING & LEED

Until 1993 when the U.S. Green Building Council (USGBC) created its voluntary Leadership in Energy & Environmental Design (LEED) Green Building Rating System™, there was lit-

tle consensus about how to measure green building practices. The USGBC's effort is quickly gaining momentum and today there are more than 1,600 LEED-registered projects representing all 50 states and a dozen countries.

Meeting LEED requirements may increase construction costs, but LEED-certified buildings also save money and resources. In addition to savings on

ABERCORN COMMON SHOPPING CENTER TAKES THE "LEED"

According to the USGBC, Abercorn Common in Savannah, Georgia, is the first major retail project to use the LEED system. As a pilot program, Abercorn Common will allow the council to better define criteria appropriate for different types of projects. The first phase of construction is set to be finished early this year.

After completion, the 20-acre Abercorn Common development will be two-thirds larger than its current site. The retail complex will feature big box retailers, boutique stores and restaurants, as well as water fountains dotted along lush landscaping. The USGBC and Abercorn's developers hope to establish a program from the project that will serve as a guideline for future retail construction, and continue to fine-tune the LEED retail standards.

Most chain retailers have a set building standard, so getting everyone

involved in the project onboard to meet LEED standards has been somewhat of a challenge. Experts are betting that the extra effort and initial up-front costs will pay off in the long run. Here are a few of the innovative strategies being implemented at Abercorn Common:

- Recycling and salvaging will save 95% of the waste from nine buildings to be diverted from landfills.
- Cisterns will collect water on roofs of buildings to irrigate landscaping.
- A porous concrete that allows water to pass through the ground will prevent water runoff.
- A reflective roof coating on buildings and shade trees will reduce the heating effect.
- Energy-efficient lighting and HVAC systems and better insulation will use 30% less energy than other retail centers.

energy costs and waste reduction, an average 100,000-square-foot LEED building annually saves \$44,000 for avoided wastewater treatment and water conservation.

To achieve LEED certification, a facility must meet minimum standards in six areas of building design: sustainable sites, water efficiency, energy and atmosphere, material and resources, indoor environmental quality and innovation and design process. A minimum of 26 out of a possible 69 points across these categories must be met for LEED certification. Additional points add up to a higher level of certification.

A total of five possible "water points" can be earned toward a reduction in water use, and innovative water technologies. Although other areas of the building may earn more points, as mentioned, water-saving strategies are often easy to incorporate. Here are the five possible water points — each of these items represents one point:

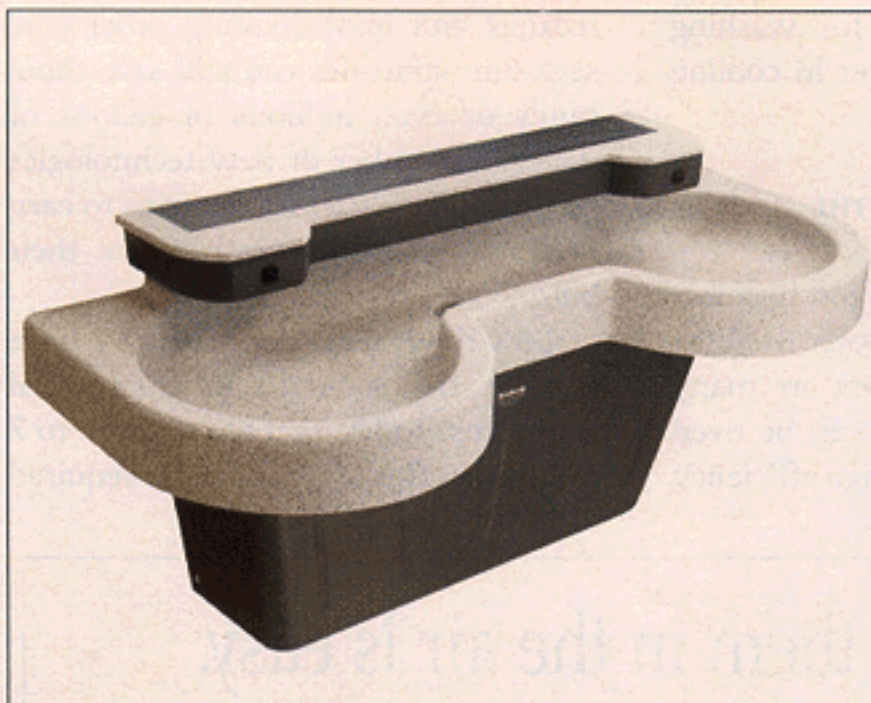
- Water efficient landscaping (reduce by 50%).

- Water efficient landscaping (no potable use or no irrigation).
- Innovative wastewater technologies.
- Water use reduction (20% reduction).
- Water use reduction (30% reduction).

APPLYING LEED TO RETAIL

Retail facilities have unique challenges that differ from office buildings such as parking, ventilation and lighting control. In 2002, the USGBC set out to create a reference guide for retail buildings as a supplement to its LEED Green Building Rating System. A draft version of the *LEED Application Guide for Retail* was provided to give direction and apply LEED to retail projects, while addressing the different types of retail buildings, including stand-alone buildings, strip malls, shopping centers, etc.

The current draft of the retail guide has two tracks for LEED in retail. Retail Track 1 covers buildings with a defined site and exterior, and Track 2 includes interior-only projects or tenant improvements. The LEED retail committee anticipates having a final version



This lavatory system has photovoltaic cells integrated into the top of the lavatory, which converts light into electricity. Whether natural light or normal room-level lighting, the cells capture light when it is available and store the energy to power infrared sensors and valves.

of the guide, at least the first phase, completed by mid-April 2005. The retail guidelines will soon be split into two different applications, rather than one guideline with two different tracks. The *LEED NC Application Guide for Retail* will cover new construction and major renovation, and the *LEED CI Application Guide for Retail* will provide standards for interior spaces.

Although it appears that LEED credits for water conservation will remain the same for retail buildings as other facilities, some of the strategies for achieving the credits differ. To calculate a 20% to 30% reduction in water usage, retail facilities must include the water that will be needed to provide their product or service as part of the baseline for measuring savings. Restaurants,

for example, use water for washing dishes and malls use water in cooling systems.

WATER CONSERVATION IN THE RESTROOM

Since the water used for business purposes outweighs the water used for toilets, sinks and showers in many retail facilities, restrooms can be overlooked. But installing high-efficiency

fixtures and implementing other conservation strategies can still save thousands or even millions of gallons of water. A number of new technologies are making it easier for facilities to earn LEED water points and reduce their bills.

Low-flow restroom fixtures have become the standard in commercial restrooms. Toilets that once used 5 to 7 gallons per flush (gpf) are now required

to use no more than 1.6 gpf. Facilities wanting to take efficiency to the next level are opting for ultra-low flow toilets and waterless urinals. Sensor-activated flush meters can also be used to control water use at peak times. In larger scale projects, facilities are finding ways to reuse storm water or "gray water" for toilet flushing.

While water used by lavatories varies from 2.5 gallons per minute (gpm) to 2.2 gpm, depending on the local codes, many public lavatories use just 0.5 gpm. New light-activated lavatory systems are the latest development to maximize savings. Photovoltaic cells integrated into the top of a lavatory system can convert normal restroom lighting or daylighting into energy, which is stored and used to power valves and sensors in the handwashing fixture.

These environmentally-friendly fixtures eliminate the need for batteries and electrical hookups. No additional energy is required in the restroom, other than the existing room lighting. Installing fixtures with this technology means facility managers will no longer need to replace expensive batteries. This also helps reduce the 2.5 billion pounds of batteries that are sent to landfills every year.

Specifying infrared sensors on faucets and lavatory systems saves additional water. This ensures that water is only running while someone is washing his or her hands. Metered faucets have a flow rate limit of 0.25 gallons per cycle (gpc), which is the amount of water used during each activation. Moreover, most users do not want to touch anything in public restrooms and really appreciate touchless fixtures and accessories. Even soap dispensers, electric hand dryers and paper towel dispensers can be selected that are hands-free.

Tankless water heaters concealed within the pedestal of lavatory systems are another way to increase efficiency. These units heat only the amount of hot water needed for each use, which eliminates the need for an entire hot water tank for restrooms.

OTHER GREEN OPPORTUNITIES IN RESTROOMS

Beyond water-conserving toilets and sinks, there are several other strategies for designing greener restrooms. Choosing electric hand dryers over paper towels helps save trees and reduces waste clutter. Selecting durable fixtures with longer lifecycles that are easily repaired keeps waste out of landfills. Scratches, graffiti or burn marks on solid surface lavatory systems can be gently sanded away. On the other hand, china lavs cannot be easily or inexpensively repaired. Another solid choice is stainless steel accessories, including toilet partitions and toilet tissue dispensers, which are extremely durable and vandal resistant.

There are a number of other products that are green friendly and can help facilities meet LEED requirements. Today's low- or no-VOC paints release few pollutants, yet are durable enough for restroom walls. Paints that meet these criteria contain a low amount of volatile organic compounds in the solvent that helps the paint dry faster. Many typical indoor paints contain pollutants and gases like benzene and formaldehyde. Look for Green Seal-certified paints which have a low amount of VOCs per liter, and can be used toward earning the LEED indoor environmental quality credit.

Using materials with recycled content helps reduce waste and supports sustainable products and employment. In most cases, these materials cost the same as similar materials without recycled content. In restrooms, ceramic tiles made from recycled glass are a popular choice. Colored concrete made from fly ash, a by-product of coal burning, can give restroom floors a unique look. Other flooring choices include cork, bamboo and linoleum. Mineral fiber and wood fiber ceiling tiles made of recycled material can be used for drop ceilings.

WHAT'S NEXT?

Green development is unlikely to slow its pace in the years to come, particularly in the bottom-line driven world of retail. If you're not already

comfortable with green building practices and LEED programs, now is the time. Every project, including smaller interior renovations, should incorporate sustainable materials and new technologies to improve efficiency. Visit the USGBC's Web site at www.usgbc.org and/or talk with restroom product manufacturers and LEED accredited professionals to learn more. **PRSM**

KRIS ALDERSON IS THE BRAND MARKETING AND LEED MANAGER FOR MENOMONEE FALLS, WISCONSIN-BASED BRADLEY CORPORATION, A USGBC MEMBER AND MANUFACTURER OF LOCKER ROOM PRODUCTS, PLUMBING FIXTURES, WASHROOM ACCESSORIES, PARTITIONS AND EMERGENCY FIXTURES.