

Documenting and certifying LEED projects can be a lengthy process and nearly impossible for retailers rolling out dozens, if not hundreds, of new stores each year.

By Kris Alderson

New technologies help retailers create 'green' store restrooms

The green building movement is rapidly gaining momentum in the United States. Driving this growth, according to the U.S. Green Building Council, are the successful outcomes, which include an eight to nine percent decrease in overall building operating costs, increased building values and higher occupan-

cy ratios. Yet, retail stores represent less than 10 percent of all buildings that apply for **Leadership in Energy and Environmental Design** certification, the USGBC's voluntary rating system for satisfying green building criteria.

Most retailers understand the benefits: reduced facility costs and an opportunity to

enhance their reputation as a good corporate citizen. Volume building seems to be the biggest obstacle to sustainable practices going mainstream in retail. Documenting and certifying LEED projects can be a lengthy process and nearly impossible for retailers rolling out dozens, if not hundreds, of new stores each year.

Until there is a more streamlined process for certifying high-volume building projects, retailers can begin taking advantage of the latest technologies designed to help facilities meet green guidelines. Depending on the type of retail facility, restrooms may not be the number one culprit for water use. Yet, restrooms easily can be designed or retrofitted to save water and increase efficiency. Many of these strategies not only reduce operating costs, but also can play a role in how a facility is perceived by patrons.

High tech

Manufacturers are continually developing new products to provide facility managers and designers with better solutions for performance challenges in the restroom. These are often cost-effective to implement, even on a smaller scale project that is not up for LEED





certification. Light-activated lavatory systems, for example, are one of the latest and most unique technologies.

Wal-Mart recently installed this new lavatory technology in restrooms as one of dozens of experimental technologies for its green supercenters in Aurora, Colo., and McKinney, Texas. The retailer specified the fixtures to unplug their lavatories, ultimately reducing maintenance and conserving natural resources.

Photovoltaic cells integrated into the top of these solid-surface lavatory systems use a proprietary energy management sys-

tem to capture and store normal restroom or solar lighting, which is converted into energy used to power the valves. Selecting light-activated fixtures instead of typical battery power can help save facilities hundreds to thousands of dollars each year in replacement batteries, as well as the time involved to change them. It also helps reduce the 2.5 billion pounds of batteries sent to landfills each year.

Low flow, hands-free

Increasingly facilities are choosing environmentally-friendly auto flush valves and low-flow aeration faucets. Using a 1.6 gpf

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flushing system for water closets and waterless urinals, for example, makes an enormous difference in water consumption for a building. Manufacturers have been working aggressively to refine and push the performance levels of tank-type toilets through the use of pressure-assist technology.

Combined with low-flow faucets and toilets, touchless technology can further reduce water consumption - up to 30 percent of an average commercial facility's water consumption. Less water is wasted because water shuts off automatically once the user steps away

from the fixture. Users appreciate touchless faucets and other restroom fixtures because they do not want to touch restroom surfaces that are too often dirty and contaminated with germs and bacteria.

Initially, touchless hand-washing fixtures were unreliable and frustrating to use and maintain. Shiny reflective surfaces such as mirrors or countertops, soap scum and users with different skin tones interfered with faucet performance and often caused false activations. Technology improved somewhat over the last decade, but until recently, manufacturers

had yet to develop a better solution.

Capacitive sensing is a new touchless technology that eliminates false activations and provides consistent operation in nearly any restroom environment. An electrical field surrounds the entire faucet and detects a user's presence from any angle of approach. The faucet activates because the user creates a significant change in the capacitive field - they add to the overall conductive capacity which triggers activation.

This omni-directional detection zone, rather than a small sensor window or sweet spot under

the spout makes for easier, trouble-free use. Reduced maintenance is the critical benefit because all of the mechanicals are housed within the faucet and there are no sensor windows for vandals to tamper with.

Better accessories

Today, hand dryers, paper towel dispensers and even soap dispensers come in touchless models. Hand dryers in particular have benefited from upgraded mechanicals. The energy to operate the new generation of hand dryers is generally less than 10 percent of the cost of paper towels, including the elimination of associated labor

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Applying LEED to retail

Recent studies have shown that sustainable building costs tend to match or only slightly exceed the costs of comparable non-green building, and LEED-certified buildings average just two percent more in upfront costs. Often sustainable design practices are incorporated after conducting a life cycle assessment which helps determine which products and materials will provide the greatest value over their life span.

Stores are finding that the time and energy to obtain LEED certification does pay off in the long run. In addition to savings on energy costs and waste reduction, an average 100,000-square-foot LEED building saves \$44,000 annually from avoided

wastewater treatment and water conservation.

In the last few years, the **United States Green Building Council's** developed a set of guidelines specific to retail spaces and the organization currently has a committee that is piloting this program. Retail facilities have unique challenges that differ from office buildings such as parking, ventilation and lighting control, and the goal is to offer a reference guide for retail buildings as a supplement to its LEED Green Building Rating System.

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 total of five possible water points can be earned toward a reduction in water use, and innovative water technologies.

Although the LEED credits for water conservation are the same for retail buildings as other facilities, some of the strategies for achieving the credits differ. To calculate a 20 to 30 percent reduction in water use, retail facilities must include the water that will be needed to provide their product or service as part of the baseline for measuring savings. A restaurant, for example, uses water for washing dishes and malls use water in cooling systems.



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costs for ordering, storing, replenishing dispensers, collecting and disposing of paper towels.

Touchless forced-air hand dryers feature infrared sensors that activate the dryer when hands are placed three to six inches below the nozzle for touch-free use. Improved units dry hands in less than 25 seconds and are designed to automatically adjust voltage to all power conditions. Electric hand dryers are an environmentally friendly choice over paper towels because they conserve resources and use relatively little electricity.

Selecting electric hand dryers over hand towel dispensers eliminates paper waste keeping restrooms more sanitary. Although the initial cost of the dryers is higher than paper towel dispensers, they often pay for themselves within just a few months.

While some users say they prefer hand towels because it is faster to dry their hands with a towel than waiting for hands to dry under a dryer, they probably have not given it much thought. Sometimes making patrons aware of the technologies being used in restrooms and providing information about the amount of energy that is being saved can be extremely helpful in getting them to buy into the environmental benefits.

Touchless soap dispensers are a relatively new option to manual pump soap. Touchless soap dispensers have several benefits. They improve hygiene by reduc-

ing the number of germs on surface, and also help with the overall cleanliness of the restroom. If the soap dispenser is integrated into the lavatory, users never have to remove their hands from the bowl which reduces the amount of water pooling on counter-tops and drips on floors.

What's next?

We will continue to see more developments surrounding touchless and other solutions to make handwashing easier for adults, children and individuals with disabilities. For example, sinks have been introduced that wash and dry hands for users much





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like a car wash rinses and dries a car. Consumers may not be ready for that just yet.

For many communities, a retailer's environmental impact is becoming more of a concern. It is estimated that commercial buildings account for about 9.5 billion gallons of water each day. These huge volumes of water are driving up maintenance and building operating costs and are putting a strain on municipal water storage and treatment. These increasing costs combined with public resistance to new developments will make green building practices the norm, rather than the exception, in the years to come.

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