



## LEED and Water

By Klaus Reichardt

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Facilities around the globe are under greater pressure than ever before to implement water conservation strategies. Some of this has evolved as a result of the downturn in the economy. Looking for ways to reduce operational costs, managers have realized that saving water also saves money, and those costs will likely escalate in the years to come, particularly in the Western and Southeastern sections of the United States.

Additionally, the chorus of warnings about future water shortages is growing louder. Even areas of the country traditionally blessed with ample water supplies are feeling the pinch, sometimes severely. One such example is Georgia. The state's new governor, Nathan Deal, says without adequate water supplies Georgia's "economic engine" will falter.

But shortages aren't the only issue. We must also address treatment and disposal, especially from larger facilities. Wastewater typically contains nitrogen, phosphorous, and other contaminants that can cause significant ecological damage if released into waterways. In some situations it has even caused "dead water" areas. These are water areas where oxygen has been depleted due to contaminants, often causing aquatic life to die.

Most of these challenges are now falling on the laps of facility managers throughout the country. How can they save water, reduce water-related costs, and minimize wastewater or treat water released from their facilities?

One way is to implement a strategy based on the guidelines set up by the Leadership in Energy and Environmental Design (LEED) certification program. Even if a facility is not seeking certification, these guidelines, which provide LEED credits in three key areas – wastewater treatment, landscaping, and water-use efficiency – can help managers become much more water-responsible. We will examine these three key areas in greater detail below.

### Wastewater Treatment

As referenced earlier, some large facilities release significant amounts of nitrogen, phosphorous, and other potentially dangerous ingredients into wastewater, which can have serious impacts on aquatic ecosystems. As an example, it is believed high levels of nitrogen were the key cause of the decline in shellfish in Chesapeake Bay over the past couple of decades.

Fortunately, new technologies have been introduced that can effectively remove or significantly reduce these contaminants from wastewater. Tests funded by the U.S. Environmental Protection Agency have concluded that a number of these systems are indeed effective and, equally important, cost effective as well. By effectively minimizing or eliminating these contaminants in wastewater, a facility seeking LEED certification can earn one point toward certification.

### Landscaping

In many facilities, water used for landscaping far exceeds water needs in any other

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area of the facility. To help address this water challenge, a type of landscaping called xeriscaping has been developed. An excellent example of this is the Las Vegas MGM Grand Hotel. When it opened in 1993, it used 60 gallons of water per square foot per year to irrigate its landscaping. After a xeriscaping system was installed, this dropped to 20 gallons per square foot per year.

In Greek, the word xeros means "dry." Xeriscaping refers to landscaping that uses less water than conventional landscaping, and this has proven to be one of the most significant developments in water conservation in decades.

Xeriscaping has several components. Among them are:

- Using plants that are native to the local climate or area; flowering plants common in New England will likely struggle and demand large amounts of water if planted in dry Nevada.
- Considering the topography and exposure of the property when landscaping; southern and western exposures tend to have greater water loss. As a result, these areas need less water-hungry vegetation.
- Selecting the best soil; the right soil helps support healthy plant life and has a balance of clusters, sand, and pore spaces to optimize irrigation.
- Installing proper irrigation; in some cases, continuously flowing drip-irrigation is far more effective at feeding hungry plants and uses considerably less water than sprinklers, which release huge amounts of water at predetermined intervals.

The water savings from this type of landscaping can be so significant, LEED awards one point for those facilities employing xeriscaping or similar water-saving landscaping systems.

### Indoor Water Usage

Next to landscaping, more water is used in facility restrooms than any other area. Because of this and because of growing concerns about water use, nearly twenty years ago, the U.S. Congress passed a number of regulations requiring restroom faucets, urinals, and toilets to use far less water than earlier systems. Many of the first models introduced under the new regulations proved to have performance problems. For instance, it was not uncommon for the first "low-flow" toilets, as they were called, to require two or more flushes after use to completely remove waste. This defeated the entire purpose of the new water-conserving systems.

However, many of the systems available today use far less water than mandated by law, and some urinals, for instance, use no water at all. Many of the most recently LEED-certified buildings decided not to install water-using urinals—which still can consume thousands of gallons of water per year—and installed no-water systems instead. In many cases, simply installing no-water systems saves enough water that those locations seeking LEED certification can once again earn one point.

### What the Future Holds

The United States and the world face significant water challenges during the next 15 to 30 years. Unlike energy, where we are now developing alternative sources, we cannot "manufacture" water. Our only options are conservation and more responsible use. Fortunately, innovations from wastewater treatment systems and xeriscaping to low-flow/no-flow restroom fixtures are coming online and are proving very cost effective. Not only that, but they are helping us protect perhaps our most valuable natural resource: water.

*A frequent speaker and author on water conservation issues, Klaus Reichardt is founder and CEO of [Waterless Co. Inc](#), Vista, Calif. Reichardt founded the company in 1991 with the goal of establishing a new market segment in the plumbing fixture industry with water conservation in mind. The company's key product, the Waterless No-Flush urinal, works completely without water and was invented by Reichardt. He has been a member of The U.S. Green Building Council since 1999 and joined the University of California Santa Barbara EcoEntrepreneur Advisory Board in 2008. He may be reached at [Klaus@waterless.com](mailto:Klaus@waterless.com).*

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