

## **Economical Urinals Involved with an Ecological Movement**

By Robert Kravitz and Klaus Reichardt

Cindy Pollock Shea, referred to as an “environmental guru” at the University of North Carolina–Chapel Hill, has spent much of her three-year campus career as a soft-spoken but well-informed advocate for “Green” buildings.

In fact, as the university undergoes its most significant construction boom since World War II—adding nearly six million square feet of building space to the existing fourteen million—Shea has been promoting and coordinating the campus’ ecological, environmental, and economic goals. During the careful selection of safer alternatives to feature at the “new” college, Shea chose to install waterless urinals, which she thinks are environmentally responsible.

Interest in and advocacy of waterless, also known as no-water, urinals seems to be spreading at educational facilities looking to Green their facilities. For instance:

- Colorado State University, Fort Collins, CO, is now testing these urinals for use in locker rooms and dormitories.
- Stanford University’s Jasper Ridge Biological Preserve Field Station, Stanford, CA, is considered one of the school’s most

environmentally responsible renovation projects, has installed waterless urinals.

- Palm Beach County Schools, Palm Beach, FL, has purchased more than 200 waterless urinals for its schools.
- Carlsbad Unified School District, Carlsbad, CA, has been using waterless urinals in their schools since the mid-1990s and plans to purchase more.

Harvard and Yale Universities have also installed waterless urinals in some buildings. In addition, it is apparent that waterless urinals are garnering greater interest and acceptance in several settings beyond the educational sector. Many local, state, and federal parks are now using waterless urinals, as are government and private facilities.

### **Why Go Waterless?**

Like the University of North Carolina, many facilities are considering waterless urinals because they are regarded as an effective way to conserve water—making them a



Green, environmentally preferable choice. Additionally, because water must be pumped by electricity, it is believed that as much as \$300 per year per urinal can be saved in utility costs, depending on actual use of the fixture and local utility costs. And because of these

benefits, the installation of waterless urinals can help building managers and owners achieve credits toward Leadership in Energy and Environmental Design (LEED) certification.

Before 1990, the average urinal in the United States used as much as four gallons of water per flush. Today, because of legislation and increased conservation measures, conventional urinals use about one to one and a half gallons of water when flushed. However, this is still a significant amount of water—as much as 40,000 gallons of water per year per urinal. This amount of water is enough to fill a large swimming pool and more than the average person uses in a year for all his or her personal water needs.

Moreover, this water usage can prove to be quite detrimental in the country's most drought-prone areas, such as California and other western states. The average office building in the United States uses 14,695 gallons of water per day.\* Waterless urinals have the potential to significantly reduce this water usage and relieve the water supplies in these locations.

Not only can no-water urinals be environmentally responsible and help reduce water usage, the cost to install and maintain them is also catching the eyes of many facility managers. “The initial installation is easy and relatively inexpensive because you need only a drain line instead of both a water and a drain line,” says David Rose, an architect in Troy, MI. “You also don't have to contend with additional plumbing, flush valves, sensors, and the like, which can be costly maintenance headaches.”

Some school districts have also found less vandalism and restroom property damage because there are no valves, handles, or visible plumbing for students to tamper with. (See sidebar.)

### **How They Work**

Waterless urinals are not new—actually they are more than 100 years old. They were first installed during the early 1890s in public marketplaces in Switzerland. These early models used sesame oil to keep urine below the urinal drain to minimize odors. However, they were essentially forgotten until the 1970s, when they were rediscovered during the “ecological movement” taking root during that period.

Essentially, a no-water urinal works the same way as a conventional urinal, except without the water. A conventional flush urinal has a “trap” in the drain filled with a small amount of water that—as long as it does not evaporate—prevents odors and sewer gases from escaping.

Waterless urinals also have a trap or cylinder that sits atop the drain area of the urinal. The cylinder is filled with a thin layer of liquid or sealant. Urine passes through the trap and sealant, forming a barrier, which prevents odors from escaping. It also helps to eliminate evaporation of the urine, which can harm indoor air quality.

### **Cleaning and Maintenance**



Waterless urinals are essentially cleaned the same way as conventional urinals. However, some models are designed to facilitate cleaning because they have a smoother interior “skin” or surface than what is found on a conventional urinal. They also have no water disbursement rims, which prevents the buildup of mineral deposits on the urinal.

The urinal’s trap insert requires attention, and on some models the liquid sealant can be replenished, prolonging the trap’s life span and effectiveness. But depending on use, it must eventually be changed. In most instances, this change happens only about two to four times a year.

There are three or four different manufacturers of waterless urinals in the market today and each uses a slightly different system, requiring different maintenance. Facility and building managers should do their homework, analyze each system, and decide which works best for their facilities.

### **Potential Drawbacks**

It is clear that waterless urinals do have benefits. As mentioned previously, they use no water, cost less to install, and reduce

vandalism. Furthermore, many facility managers also believe no-water urinals are more sanitary because germs tend to multiply in damp or wet conditions but die in dry conditions. Additionally, these urinals do not have to be “touched” by the user, decreasing the possibility of transferring germs and bacteria.

However, there are some drawbacks when switching to a no-water system. For instance, the cylinders used in waterless urinals can be quite expensive on certain models and may need to be changed more frequently than originally thought. This may prove to be not only costly but also eliminate any economic savings a facility hoped to attain.

Additionally, some facilities with few urinals, low water usage, or low sewer or water costs may not benefit by installing waterless urinals—especially if existing conventional urinals are still useful. And, some environmentalists believe that there are sanitary, public health, and environmental concerns with no-water urinals, citing that the flushing action on a conventional urinal actually helps keep the urinal germ-free.

However, other studies indicate a urinal’s dry surface helps prevent germ buildup and compares it to how medical and other facilities try to minimize germs—by keeping areas as dry as possible.

Additionally, it is important to select waterless urinals that use recyclable inserts and safer, biodegradable chemicals and sealants in

the trap. And just like any urinal, they must be cleaned and maintained properly and regularly.

Facilities where waterless urinals have been installed are also finding that they must educate their custodial staff on exactly how to maintain them. Some of the more abrasive cleaners used in a conventional urinal can be harmful to the surface and the trap in a waterless urinal.

Additionally, men must get accustomed to using waterless urinals. Using them for the first time, men usually look for a flush handle or search for an electric sensor. To end the confusion, one large Chicago office building even installed a small sign above each urinal that says in essence, "This is a waterless urinal. No flushing is required. After use, simply walk away."

Still, the economics are favorable from the beginning because no-water urinals are cheaper to install and maintain compared to conventional ones. "Overall, waterless urinals are an efficient and economical alternative to traditional urinals," contends Rose.

Although cost savings are a real value when installing these urinals, another significant benefit comes with being environmentally responsible. Facilities looking to pitch in and do their part for the environment may be providing an ideal service when installing waterless urinals.

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\*Southwest Florida Water Management District