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**Conserving Water Gets the Spotlight**  
**Recycling and Renewal**





**The demand for water in the United States nearly tripled from 1950 to 1995, and though the rate of growth has slowed somewhat since then, it continues to grow. Recent water shortages across the country serve as a reminder to cities and states that developing ways to conserve water and use it more efficiently is no longer just an item for discussion but a challenge that requires action now.**

**Fortunately, many localities are heeding the call and have instituted incentives, rebates, and tax breaks, especially for their large water users such as schools and universities, to install systems and develop procedures that reduce water usage.**

**Manufacturers have also introduced water-saving low-flow toilets, sinks, and urinals and, taking conservation a step further, no-water urinals beginning in the 1990s, which is probably one reason water demand has slowed since then.**

**Although installing some of these new fixtures may require a moderately large initial investment, studies indicate many of these systems pay for themselves in a relatively short time through cost savings. For instance, north of Atlanta, Ga., some communities pay \$3.47 per 1,000 gallons of potable (drinking) water. A school in this area may use hundreds of thousands of gallons of water each year. It is easy to see how even a small reduction in water use can quickly become a big savings.**

**Additionally, the savings can help not only schools and universities but also entire communities. Incorporating these water-reducing technologies can help postpone expensive public works projects that**

cost everyone, including our schools, money.

As the need for water conservation has grown, so have new technologies to address the problem. Some of these new technologies are still in development, while others are available now. For schools and universities these new water-reducing technologies often involve restroom fixtures, specifically high-tech toilets and the growing interest in no-water urinals.

#### Dual-Flush Toilets

"Since 1994, newly manufactured toilets in the United States are required to use no more than 1.6 gal. of water per flush (gpf)," says Klaus Reichardt, managing partner of Waterless Co., LLC, a manufacturer of no-flush urinals and other restroom products. "This is a dramatic reduction since many toilets still in operation still may use 3.5 or more gpf."

Since the legislation was introduced, more advanced and water-conserving toilets have been developed, usually referred to as high-efficiency toilets (HETs), that now use only about 1 gpf. "This is about 35 percent less water than conventional toilets and as much as 80 percent less water than toilets manufactured 30 years ago or more," says Reichardt.

In addition, a new technology is getting increased interest and scrutiny. Called dual-flush toilets, these units further reduce water usage by varying the quantity of water used per flush: 1.6 gal. for solid waste, and about half that amount for liquid waste. The cost of a dual-flush toilet is generally comparable to that of a conventional toilet, according to Reichardt. And the plumbing is essentially the same as well. Additionally, some current toilets can be retrofitted to become dual-flow toilets because in many cases, only the flush valve needs to be changed in a retrofit.

#### No-Flow Urinals

Waterless urinals are becoming increasingly accepted on school campuses as well as other facilities. "Waterless urinals eliminate the water normally used for flushing," says Reichardt. "Because of this, there is less plumbing that needs to be installed and there are no flush handles or sensors, so they tend to be less expensive than regular urinals to install as well as maintain."

Waterless units, which are now produced by five or six manufacturers in the United States, look exactly like conventional urinals. Most designs work essentially the same. In the drain area a cartridge or trap is placed that is filled with a liquid sealant. This sealant prevents odors from escaping from the plumbing below. Urine is temporarily stored in the trap but as it accumulates, eventually flows into a drainpipe, similar to a conventional urinal.

"The big difference between the different urinal systems available is the cost of the cylinder, which must be changed every two to four months depending on use," says Reichardt. "Some cartridges cost more than \$40 while others cost about \$6. Since they are not interchangeable, to reap the cost and water savings, facility managers should investigate this issue with their suppliers before selecting a waterless system."

Recently, some re-engineered no-water urinals have been introduced that do not use a cartridge/trap. Instead, they depend on sealing liquids that need to be replenished regularly. In some cases, this can become quite costly, again requiring facility managers to investigate all options.

#### Cleaning and Maintenance

For the most part, cleaning and maintenance of HET toilets, dual-flow systems, and waterless urinals are similar to conventional fixtures. With waterless urinals, the cartridge, as mentioned earlier, does have to be changed and sealant must be added on a regular basis as well.

However, many schools and universities have found that maintenance costs may actually be reduced with these water-saving technologies. For instance, waterless urinals do not have plumbing that can spring a leak, they never overflow, and there are no flush handles or sensors ever needing repair.

"Just as with oil and gas, we have to make reducing water use a priority here in the United States," says Reichardt. "It makes us all better citizens, helps protect future generations, and is one of the best ways to be environmentally responsible."

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