



Millennium High School in Goodyear, Ariz., recently installed waterless urinals in the boys' restrooms. Photo courtesy of Shaun Knops, Adolfsen & Peterson Construction.

BACK TO SCHOOL

An Arizona district goes for better grades in water conservation

By Wendy Levine

With high efficiency, water conserving green building all the rage, LEED certification is the merit badge and the platinum level—the Holy Grail.

LEED, an acronym for Leadership in Energy and Environmental Design, is a tool for building professionals who want their projects to be measurably 'green'. First published in 1999 by the U.S. Green Building Council, the LEED Green Building Rating System for Schools works on a point system. Regular certification starts at 29 points. The Silver level (you can tell this was designed by men) ranges from 37- to 43 points. To go for the gold, it takes 44- to 57 points. The Platinum category, at 58- to 79 points, requires a considerable outlay of cash.

The criteria include storm water management, parking limitations, open space requirements and light pollution reduction. And then there's the little issue of water efficiency.

Schools must come up with innovative wastewater technologies, appropriate landscaping (meaning plants that require no water) and reduce overall water use anywhere from 20 percent (1 point) to 40 percent (2 additional points).

Why do it? Long term there will be savings. More immediately, recognition, exposure, good karma. Certified buildings can also qualify for a growing list of state and local government perks.

The Waterless Way to Efficiency

Waterless-type urinals are an easy way to score points, literally. Agua Fria ("cold water" in Spanish) Union High School District in Avondale, Ariz. is in the process of installing them in all four of its schools, although only the newer ones will be LEED certified. The district is very green-oriented, said Cary Molash, field operations coordinator



with Adolfsen & Peterson Construction in Tempe. “Desert Edge High School (the new portion), which I built, is LEED Silver—the first one in the state, the fourth one in the country. Verrado High School, which I also built, they’re shooting for a gold rating on that building.” Molash said it will cost a lot up front, “But your payback over the next 50, 60, 70 years on that building is going to be phenomenal.”

The installation is pretty simple. Paul McGovern, field supervisor and co-owner of A Professional Commercial Plumbing in Phoenix said it takes a couple hours per urinal.

“What we do is we remove the old urinal, mark the footprint of the new urinal on the wall, and then cut a hole inside that footprint so when you put that urinal back on the wall, there’s no tile repair.” Then the plumbing is adjusted: “The drains usually need to be moved because they’re not the same height as the normal urinal. And you do this work from inside the hole that you cut,” McGovern said. “Then we’ll also either remove the water from that same hole or we’ll cut another small hole in the wall where the water stub out is.”

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Their inner workings are pretty basic, too. Urine passes through the cylinder and sealant, and as the cylinder fills, it flows under the barrier layer and into the waste line, where it is drained — similar to a conventional urinal. The district is using products from Falcon Waterfree Technologies. Falcon, headquartered in Grand Rapids, Mich., is equipment manufacturer for Sloan Valve Company. The urinals are offered in vitreous china or stainless steel and come with a four-inch plaque that spells out how much water is being saved: about 40,000 gallons a year. But it’s not just for edification. The plaque is designed to cover the hole where the stub out used to be.

Maintenance Issues

Though some claim that waterless-type urinals are difficult to maintain and emit an odor, the district has received no such complaints.

“There’s no issues at all,” said Gary Gable, facilities and construction manager for the district. “Great product.”

A & P Construction’s Molash agreed. “There is no odor. The very first project we did for the district four years ago, they stuck them in a couple buildings on a trial run to see how they were going to work and get their maintenance people up to speed. Once they found out how easy it was they started switching them out everywhere.”

But McGovern said it’s some maintenance people who dislike them. “You can’t put water in them. It just washes the chemical away and then it just smells like an open sewer pipe. So if you pour water in it, now it’s going to stink. Cleaning people aren’t used to that. They’re used to just pouring as much water in there as they want.”



This plaque, sized to cover the water stub out, comes with every Falcon Waterfree Urinal.

Waterless urinals are relatively low maintenance. They require a daily wiping down with a chemical solution and some have cartridges that need replacement after so many uses.

Two out of four Agua Fria District schools have been LEED certified. “Our governor has an executive order out where all (new) public buildings will meet LEED Silver, so we design that way. We’ve been designing that way for a long time,” said Gable, noting the first waterless urinal went in four or five years ago. “As you modernize your buildings, you apply these factors to it, and then you end up with a real efficient and sustainable building.”

The district’s non-certified schools are much older, but the facilities are being upgraded to be more efficient. Millennium High School in Goodyear recently replaced its traditional urinals with waterless units and its toilets with low-flow models.

“We did it through the summer,” said Gable. “We incorporated with other projects that were being worked at the same time. So we started at the end of May and completed the project by the end of July.” He estimates the installation took two weeks and cost about \$50,000. The new urinals are positioned lower, to comply with Americans with Disabilities Act requirements.

“The good thing is we’re saving tons of gallons of water. That was our goal—to cut down on utilities,” said Mike Contreras, director of maintenance and operations at Millennium. The school, built in 1978, has about 1,600 students, about half of whom, presumably, have used the new equipment. Agua Fria High School, which is even older, will get an update this summer.

So far, Contreras said, there have been no complaints and no vandalism. “Being a high school, you always have these little mishaps with the urinals with your flushers where somebody’ll go over there and bang them and break the valve...and you can have running water for several hours.” Best of all is the reduction in man hours, said Contreras.

“So the cost to maintain them right now has been great.” ■