THE ENERGY OBSERVER

Energy Efficiency Information for the Facility Manager

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Waterless Urinals

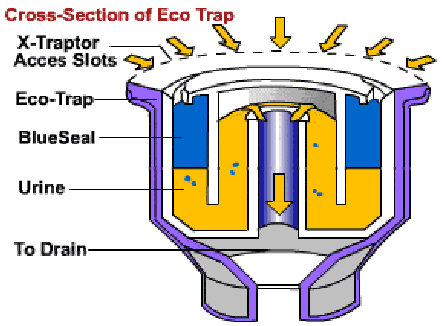
The Energy Observer summarizes published material on proven energy technologies and practices, and encourages users to exchange experiences with generic energy products and services. This quarterly bulletin also identifies informational sources and energy training for facility managers and staff. ***The Energy Observer*** is a service of the **Energy Office, Michigan Department of Labor & Economic Growth.**

The United States uses approximately 4.8 billion gallons of water every day just to flush waste. Not only is water conservation an environmental issue, it is also an energy saving opportunity. Toilets and urinals account for one-third to one-half of building water consumption making the potential for water savings very high.

Reduction of water usage can also affect local water utilities. Producing less waste can relieve load on the local wastewater treatment and water treatment facilities delaying and possibly preventing costly utility expansion projects.

How it works

This is how the warterless urinal system works: The cartridge, a special drain insert, contains a layer of blue liquid that floats on top of the urine in the trap and forms a barrier against sewer vapor escape. When the urine enters the trap, it automatically sinks below the blue liquid. This occurs because the blue liquid has a low specific gravity, or weighs less than the urine. Below is an example of how one type of cartridge works; there are a few different variations of the cartridge depending on the manufacture.



The toilet is plumbed to a standard drain line (not copper). A water supply line is not needed because this is a non-flushing urinal. In fact, there are no moving parts in the entire system. Installation costs are reduced because water lines can be costly and difficult to run to a new or remodeled part of a building.

Maintenance of the System

Flush valve repair, encrustations, plugged drains, overflow and vandalism will be reduced. There are no moving parts in waterless urinals.

Custodial maintenance is similar or less than conventionally flushed fixtures. As with any urinal, regular surface cleaning must take place. Harsh and abrasive chemicals should be avoided if possible. It is recommended that large amounts of water not be pushed through the system because small amounts of the blue liquid go down the drain each time fluid is added to the system. More blue liquid can be added if needed. The cartridge will need to be replaced approximately every 7,000 uses (on average four times per year) due to the sediment that will collect in the cartridge. The cartridge is fully biodegradable and can be sent to the local landfill with the regular garbage.

Removal of the cartridge is made easy with the pull handle designed especially for the cartridge. If a situation arises where the urinal needs to be thoroughly cleaned and rinsed with large amounts of water, simply remove the cartridge, clean as necessary and then replace the cartridge.

Benefits of Using Waterless Urinals

There are three major benefits to using waterless urinals; water savings, reduced maintenance and improved hygiene.

As seen on the next page, the water savings varies based on the type of building and the amount of building traffic. Water savings can be between 20,000-60,000 gallons annually.

Projected Water Savings by Installing Waterless Urinals							
						Annual Savings/Urinal	
Building Type:	# of Males	# of Urinals	Uses/ Day	Gal/Flush	Days/ Year	Gallons	Liters
Small Business	25	1	3	3.0	260	58,500	220,000
	25	1	3	1.0	260	19,500	73,800
Restaurant	150	3	1	3.0	360	54,000	204,000
	150	3	1	1.0	360	18,000	68,100
School	300	10	2	3.0	185	33,300	126,000
	300	10	2	1.0	185	11,100	42,000
Information supplied by Klaus Reichardt, Waterless Co., January 1998							

For example, three waterless urinals were installed at the Glen Canyon Dam Visitors Center in Page, AZ. Due to very high usage, these urinals each save an estimated 225,000 gallons of water per year. These three urinals also avoided a planned $600,000 expansion of its on-site sewage treatment system. Three sites in Michigan that are currently testing waterless urinals are Western Michigan Univ., Univ. of Michigan and Michigan State Univ. Many businesses, public school districts and government buildings are also looking into installing this technology as well.

Maintenance savings come from two common problems in conventional urinals; failed mechanical components and clogged drains. There are no mechanical components in waterless urinals so there are no valves to clog or break. With waterless urinals drains do not build up "urine salts"; the result of calcium carbonate settling out of the water. In addition, vandalism is reduced greatly because plugging the drains on purpose no longer causes a restroom flood.

Finally, hands-free operation provides a more sanitary environment. There is less opportunity for bacteria to become airborne during a flush, or to be transferred from surface to hand. The waterless urinal is designed to be a dry surface system helping to prevent bacteria growth.

Other important benefits include: reduced energy expense, reduced sewer costs, lower installation charges, reduced urinal odors, and environmentally friendly. Waterless urinals are now available in fiberglass and acrylic, with many specialty colors available.

FOR MORE INFORMATION…

ENERGY STAR offers *free tools and seminars* for evaluating building performance and equipment efficiency.
www.energystar.gov

The Federal Energy Management Program (FEMP) offers many resources, and technology recommendations for achieving energy efficiency.
www.eere.energy.gov/femp/

Visit the Energy Office website for information on current programs, services, past issues of ***The Energy Observer*** and grant information.
www.michigan.gov/energyoffice

For more information on this issue or past issues of ***The Energy Observer***, please contact:
Brandy Minikey
Staff Engineer DLEG/EO
PO Box 30221
Lansing, MI 48909
e-mail: bjminik@michigan.gov
fax: (517) 241-6229
or call (517) 241-8235.

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