FEMP Designated Product: Urinals

Leading by example, saving energy and taxpayer dollars in federal facilities

Purchasing Specifications for Energy-Efficient Products

Legal Authorities

Executive Order 13123 requires federal agencies to reduce water consumption and its associated energy use in their facilities. Federal Acquisition Regulations (FAR) Subpart 23.2 requires that agencies acquire water saving products designated by FEMP as being among the highest 25 percent for equivalent products.

Performance Requirement for Federal Purchases	
Product Type	**Flow Rate[a]**
Urinals	**1.0 gallons per flush or less**

a) Based on ASME test procedure A112.19.6-1990

Buying Water-Saving Urinals

This *Specification* is issued to promote early replacement of urinals with high flow rates (up to 3 gallons per flush or gpf). The Flow Rate shown in the *Performance Requirements* table above is exactly that required by the Energy Policy Act of 1992. Early replacement of high flow rate urinals with fixtures meeting these reguirements can produce cost savings of several hundred dollars, as shown in the cost-effectiveness examples on page 2. When waterless urinals are used, the savings are even greater.

Agencies must use FEMP-designated performance requirements for all water-consuming product and system procurements including guide and project specifications, and construction, renovation and service contracts. They should also be used in evaluating responses to solicitations.

The federal supply sources for urinals are the Defense Logistics Agency (DLA) and, for waterless models, the General Services Administration (GSA). Purchase models that meet the flow rate shown in the *Performance Requirement* table above.

Buyer Tips

Infrared or ultrasound sensors can help avoid water waste from double flushing. Siphonic jet and blowout urinals, which flush automatically at given intervals, can be configured with timers or sensors that avoid automatic flushing during unoccupied hours. Retrofitting an existing urinal with a water-conserving valve can save substantially on water use at little cost.

Technology Options

Waterless urinals may offer enormous water cost savings. A waterless urinal uses a chemical trap with a low specific gravity chemical. This allows waste to flow down the discharge pipe without permitting sewer gases to escape. Daily maintenance of these urinals is important for odor control. Costs of chemicals and traps need to be compared with water cost savings.

Certain facilities like prisons or hospitals may need nonceramic or metal urinals which have straight drain lines and a 0.5 gpf rate. Replacing an existing 3.0 gpf with a 0.5 gpf urinal can produce very large lifetime water savings, especially where water costs are high.

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Cost-Effectiveness Example - Average Water Costs			
Performance	**Base Model**	**Required[a]**	**Waterless[b]**
Flow Rate	**3.0 gpf**	**1.0 gpf**	**0.0 gpf**
Annual Water Use	**23,400 gallons**	**7,800 gallons**	**0 gallons**
Annual Water Cost	**$95**	**$35**	**$0**
10-year Water Cost[c]	**$800**	**$300**	**$0**
Lifetime Water Cost Savings[d]	**-**	**$500**	**$800**

a) The flow rate of the *Required* model just meets the current federal standards for urinals.

b) Performance data for the *Best Available* model was obtained from the January 2006 California Energy Commission Appliance Database (see *For More Information*).

c) The 10-year Water Cost is the sum of the discounted value of water costs, based on average usage and an assumption that early replacement of the urinal occurs at the midpoint of a 20-year useful life. A discount rate of 3.0% is based on federal guidelines (effective from April, 2005 to March, 2006). Future water and waste water costs are conservatively assumed to increase only at the rate of inflation.

d) Does not include added costs for waterless urinals (i.e., chemicals and maintenance).

Cost-Effectiveness Assumptions

Savings estimates are based on the flow rate of 3.0 gpf for the existing unit and 1.0 gpf for the replacement. Urinal use is assumed to be 30 flushes per day, 260 days per year. The combined water and wastewater price is assumed to be $4.00 per 1,000 gallons.

Using the Cost-Effectiveness Example

In the example shown above, early replacement of an existing urinal with a new unit at the *Required* flow rate of 1.0 gpf will save $500 in water costs over a 10-year period (the time before the old fixture will be replaced). Likewise, the *Best Available* model, a waterless urinal, will save $800 in water costs over a 10-year period. The example does not include any additional costs for maintenance or chemicals for the waterless urinal.

What if my Flow Rate or Water Price is different?

FEMP provides a Web-based cost calculator for urinals. Go to http://www.eere.energy.gov/femp/procurement/eep_toilets_urinals_calc.cfm and input the conditions (i.e., gpf, water rate) at your facility. The output section will automatically display results that better reflect your situation.

Water rates in some parts of the US are substantially higher than $4.00/1000 gallons. The table below shows the savings when water costs are $10/1000 gallons.

Cost-Effectiveness Example - High Water Costs			
Performance	**Base Model**	**Required**	**Waterless**
Flow Rate	**3.0 gpf**	**1.0 gpf**	**0.0 gpf**
Annual Water Use	**23,400 gallons**	**7,800 gallons**	**0 gallons**
Annual Water Cost	**$234**	**$78**	**$0**
10-year Water Cost	**$2,000**	**$665**	**$0**
Lifetime Water Cost Savings	**-**	**$1,335**	**$2,000**

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For More Information:

EERE Information Center
1-877-EERE-INF or 1-877-337-3463
www.eere.energy.gov/femp/procurement/

General Services Administration
(816) 926-6760
www.fss.gsa.gov/
www.gsaadvantage.gov/

Defense Logistics Agency
www.dla.mil/
www.emall.dla.mil/

Defense Supply Center Philadelphia
(800) DLA-BULB or (215) 737-7950
www.dscp.dla.mil/

American Water Works Association
(800) 926-7337
www.waterwiser.org/

California Energy Commission (CEC) has a database of certified plumbing fixtures online at http://www.energy.ca.gov/appliances/appliance/excel_based_files/

Contact your local water utility for details about conservation programs and incentives in your area.

Lawrence Berkeley National Laboratory provided market research and life cycle cost analysis in support of this energy efficiency purchasing specification.
(202) 646-7950

A Strong Energy Portfolio for a Strong America

Energy efficiency and clean, renewable energy will mean a stronger economy, cleaner environment, and greater energy independence for America. Working with a wide array of state, community, industry, and university partners, the U.S. Department of Energy's Office of Energy Efficiency and Renewable Energy invests in a diverse portfolio of energy technologies.

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