Water Efficiency

The United States uses about 4.8 billion gallons of water every day to flush waste. In the hospitality industry, guest showers, pools and laundry operations account for a large part of a hotel's energy bill. Toilets and urinals alone account for nearly one-third of building water consumption, making potential for water savings very high. In addition to reducing water consumption through efficient technologies, savings can also be obtained by reducing the amount of energy (pumping and heating) required to provide hot water for sinks and showers. The following sections outline potential water and energy saving opportunities for your facility.

1. Install Low-Flow Toilets

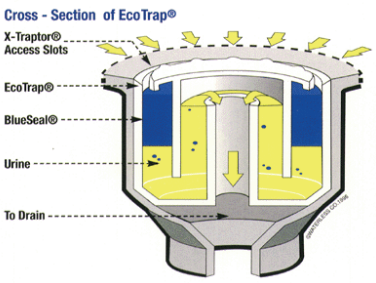
Prior to 1980, toilets were produced that used either seven gallons per flush (gpf) or 5 gpf. After 1980, 3.5 gpf toilets became the standard. In 2002 the federal standard for new commercial and residential construction is 1.6 gpf toilets. The low-flow toilets function by increasing flush velocity by either using the force of gravity or pressurizing the flush water. Replacing older fixtures with the new standard can ease the load on the utility while reducing facility costs.

Water Saved by Installing 1.6 gpf Toilet

Current Model	Savings	Percent
7 gpf	5.4 gpf	77%
5 gpf	3.4 gpf	68%
3.5 gpf	1.9 gpf	54%

2. Install Waterless Urinals

Waterless urinals use a special drain insert that traps urine below a blue liquid and forms a barrier against sewer vapor escape. Urine sinks below the blue liquid because it is heavier. The diagram to the right shows the functions of the waterless urinal trap.



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

There are no moving parts in the entire urinal system, therefore maintenance costs are reduced. Maintenance of flush valve repair, encrustations, plugged drains and overflow will all be minimized. The blue liquid cartridge will need to be replaced about 4 times a year due to the sediment that collects in the cartridge.

Water savings for waterless urinals can measure between 20,000 and 60,000 gallons annually. The savings depends on the size of your facility and the number of uses per day.

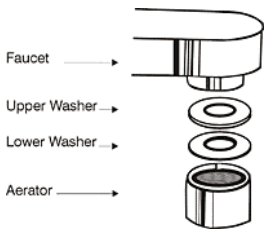
Hands-free operation of the waterless urinal provides a more sanitary environment. There is less opportunity for bacteria to become airborne during a flush or to be transferred from surface to hand. The waterless urinal is designed to be a dry surface system helping to prevent bacteria growth.

Other important benefits of waterless urinals include reduced energy expenses, reduced sewer costs, lower installation charges, reduced urinal odors and an environmentally friendly product.

3. UTILIZE AUTOMATIC FAUCET CONTROLS OR FLOW RESTRICTORS/AERATORS

Faucet flow can be metered either mechanically or electronically. A metered faucet either delivers a pre-set amount of water and then shuts off automatically or is electronic and shuts off when the user moves away. Electronic controls can be retrofitted or installed as new fixtures to produce water savings of up to 70 percent. They also produce proportional savings in water heating energy, water treatment and sewage. A 10-second hand wash, typical of an electronic faucet, will consume only one pint of water. Some manufacturers estimate a payback period of less than six months when replacing a conventional faucet with an electronic fixture.

Manual-valve faucets can be upgraded in two ways: flow restrictors or aerators. Flow restrictors are washer-like disks that are installed in the faucet head and reduce the flow of water by 0.5 to 2.5 gallons per minute (gpm).



Faucet aerators replace the faucet head screen, lowering the flow by adding air to the water stream, increasing the effectiveness of the flow and reducing water use. Even though they allow less water to flow through the faucet, many users do not notice a difference. High-efficiency aerators can reduce the flow of water by 3.2 to 17.2 gallons per day at a fraction of the cost of replacing faucets.

4. INSTALL LOW-FLOW SHOWERHEADS

Reducing your showerhead flow rate is a very practical way to reduce water consumption. Typical showerheads use about 4.5 to 8 gallons per minute (gpm). Low-flow showerheads use less than 2.5 gpm, with no marked reduction in quality or service. An upgraded showerhead can save water and reduce water heating bills.

Low-flow showerheads cost between $15 and $30 each and are easily installed. Given the relatively low cost, this method of water conservation has a very short payback period, often as little as a few months.

5. Fix leaks in all faucets

By repairing a seal that leaks a drop of electrically heated water every five seconds, you can save about 400 gallons of water, 85 kilowatt-hours of electricity, 125 pounds of carbon dioxide and $10 per year.

6. Upgrade Laundry facilities

New washing machines with a horizontal axis design use much less water than the older types of washing machines. The design can help save water as well as reduce water heating costs for laundries. To make sure your facility uses clothes washers meeting strict energy guidelines, it is recommended to purchase ENERGY STAR® qualified clothes washers.

ENERGY STAR qualified clothes washers use superior designs that require less water and energy to get clothes thoroughly clean. They use 50 percent less energy than standard washers and 18 to 25 gallons of water per load, compared to the 40 gallons used by standard machines. Most ENERGY STAR qualified washers extract more water from clothes during the spin cycle, reducing drying time. Compared to a model manufactured before 1994, an ENERGY STAR qualified clothes washer can save up to $110 per year on your utility bills.

Energy Star washing machines are available in two types, top loading and front loading. Commercial and residential models are available. For more information on these and other appliances visit: www.energystar.gov/products.

7. Control outdoor water use with gray water or Xeriscaping

Gray water is water from sinks or washing machines that may contain soap, but is otherwise still clean. Many areas of the country have encouraged the use of gray water for landscaping purposes. Some cities do not permit reuse of gray water at all because of water quality concerns. For information on promotional programs or restrictions on gray water use, call your local building permits office.

Xeriscaping (*xer* is Greek for "dry") is the technique of utilizing native, hardy, low-maintenance plants for landscaping. Xeriscaping can save you money on your water and maintenance costs. Because native plants cope better with your particular soil, climate and insects, they require fewer pesticides and less fertilizer.

8. RESOURCES FOR WATER EFFICIENCY

- **U.S. Environmental Protection Agency:** Provides information regarding water efficiency and waste water http://www.epa.gov/owm/water-efficiency/

- **Alliance to Save Energy:** Provides hotel-specific information on water conservation http://www.ase.org/section/topic/ee_hotels/hotel_water