

Purchasing Water Efficient Products in Health Care: Sample Products








Water use in hospitals and other health care facilities comprises seven percent of the total water use in commercial and institutional facilities in the U.S. [1] According to EPA, the largest uses of water in hospitals are cooling equipment, plumbing fixtures, landscaping and medical process rinses.








Below is a sample of purchasing opportunities for water efficient products to reduce water use in health care. By utilizing water efficient equipment and materials, health care organizations can reduce the operational costs and environmental impacts associated with water usage.

For additional information, see [Saving Water in Hospitals Fact Sheet, US EPA WaterSense](#)

Products	Water Conserving Options	Other Environmental Considerations (when applicable)	Rationale	Additional Resources
Faucets and Flow Restrictors	Sensor-activated faucets; EPA WaterSense 	Ensure enough pressure balance to prevent clogs.	<p>Note that aerators are not allowed in most clinical areas, because they can host <i>Legionella</i> colonies. Use flow restrictors instead.</p> <p>WaterSense labeled bathroom sink faucets and accessories that use a maximum of 1.5 gallons per minute can reduce a sink's water flow by 30% or more from the standard flow of 2.2 gallons per minute without sacrificing performance. (U.S. EPA)</p> <p>Utility sinks should avoid low-flow fixtures, focusing on alternative water efficiency strategies such as: special-use pot fillers, high-efficiency faucets, and foot pedal-operated faucets.</p>	EPA Water Sense Products
Showerheads	EPA WaterSense 		Current baseline for showerhead water use is 2.5 gallons of water per minute (gpm) at 80 psi per shower stall. Water-saving showerheads (WaterSense) must use no more than 2.0 gpm. (U.S. EPA)	EPA Water Sense Products
Toilets, Flushometer-Valve Toilets	Low-Flow Flushometers Dual-Flush Valves EPA WaterSense 	Ensure enough pressure balance to prevent clogs. Using non-potable water to flush toilets is often not allowed in licensed facilities.	WaterSense labeled toilets use 20% less water than the current federal standard of 1.6 gallons per flush (gpf). WaterSense labeled products (toilets and flushometer-valve toilets used in commercial settings) use 1.28 gallons per flush. Replacing old inefficient flushometer-valve toilets with WaterSense labeled models, a 10 story office building with 1,000 occupants could save nearly 1.2 million gallons of water and nearly \$10,000 per year.	EPA Water Sense Products

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Urinals	Waterless; EPA WaterSense 		WaterSense labeled urinals use 20% less than the current federal standard for urinals of 1.0 gallons per flush (gpf). WaterSense urinals use no more than 0.5 gpf and comply with existing standards for flushing urinals. Replacing just one older inefficient urinal that uses 1.5 gdf with a WaterSense labeled model could save a facility more than 4,600 gallons of water per year.	EPA Water Sense Products
Bedpan Washers	Dual-flush feature		Dual flush feature allows user to lift the handle to initiate a reduced amount of gallons per flush (gpf) to eliminate liquid and paper waste, saving one-half the water. Push down on the handle for a regular gpf to remove solid and paper waste.	
Commercial Laundry: Washer-Extractors (on premise)	Use equipment that is easily programmable to use only as much water as required for degree of soiling of items being washed; Use continuous-batch or tunnel washer where applicable; Use ENERGY STAR-qualified models	Ozonation and membrane technologies are technologies allowing greater reuse of water and less use of detergent; Use a built-in or an auxiliary water recycling capability to reuse the rinse or wash water from previous load; Water reclamation system	Water and wastewater costs represent more than 50% of the total operating costs in the typical commercial laundry. In general 2 gallons of water used per pound of dry clothes is considered a "good" water efficiency standard for commercial laundries; though this is not always achievable for heavily soiled fabrics. (Alliance for Water Efficiency) Tunner washers can reduce water demand about 60% compared to washer-extractors. ENERGY STAR commercial clothes washers are 37% more efficient than standard models.	Commercial Laundry Facilities Introduction EnergyStar Commercial Clothes Washers Product Guide
Commercial Laundry (off-site)	Require water efficient operations; Require water reclamation systems		Laundry wastewater reclamation systems recycle wash water; systems may either collect and recycle the rinse water cycle or treat and reclaim from all cycles.	Case Study: Greening the Dirty Laundry in Northern California
Commercial Dishwashers	Use ENERGY STAR-qualified models 		ENERGY STAR commercial dishwashers are, on average, 40% more energy and water efficient than standard models; They save businesses on average \$3,000/year in reduced energy and water costs. [U.S. EPA]	ENERGY STAR Commercial Dishwashers Product Guide

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<p>Commercial Ice Makers</p>	<p>Use ENERGY STAR-qualified models;</p> <p>Water-cooled equipment must be on closed cooling loop</p> 		<p>Batch-type ENERGY STAR commercial ice makers are, on average, 15% more energy efficient and 23% more water efficient than standard models. Continuous-type ENERGY STAR commercial ice makers are, on average, 15% more energy efficient than standard models. [U.S. EPA]</p>	<p>ENERGY STAR Commercial Ice Maker Product Guide</p>
<p>Food Steamers</p>	<p>Use ENERGY STAR-qualified models;</p> <p>Use boilerless steamers</p> 		<p>ENERGY STAR steamers are, on average, 90% more water efficient than standard models, using 3 gallons of water per hour versus 40 gph in standard models.</p>	<p>ENERGY STAR Food Steamer Product Guide</p>
<p>Combination Oven</p>	<p>Use boilerless combination ovens;</p> <p>Use ENERGY STAR-qualified models</p> 		<p>The typical boiler-based combi oven uses up to 40 gallons of water per hour. Boilerless combination ovens use much less water and can cut water usage to as low as 20 gallons of water per hour or less.</p> <p>ENERGY STAR combination ovens are, on average, 20% more energy efficient than standard models.</p>	<p>ENERGY STAR Combination Oven Product Guide</p>
<p>Food Waste Disposer System</p>	<p>Do not install garbage disposals;</p> <p>Use disposer systems that use cold water; use 1 gallon per minute (gpm) in no-load situations and 3-8 gpm in full-load situations, include a 10-minute time-out system;</p> <p>If the system includes mechanical pulpers, extractors, or scrappers, restrict the flow rate to 2 gpm</p>	<p>Compost food waste</p>	<p>Garbage disposals introduce food waste into the municipal wastewater system, placing an unnecessary burden and contributing to conditions that could grow bacteria.</p>	
<p>Pre-rinse Spray Valves (in food service)</p>	<p>Use Water Sense models;</p> <p>Use models that reduce the duration of use.</p> 		<p>Pre-rinse spray valves can account for 30% of the water used in a commercial kitchen; Water Sense pre-rinse spray valves use 20% less than the federal standard of 1.6 gpm [U.S. EPA]</p>	<p>Water Sense Pre-rinse Spray Valves Product Guide</p>

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Cooling Towers	<p>Use non-potable water (such as air handler condensate) as an alternative to potable water;</p> <p>Install or maintain a conductivity meter and automatic controls to adjust the bleed rate and maintain proper concentration at all times.</p>	<p>Use a chemical-free treatment platform meeting NACE International Standard 7K189;</p> <p>When treating water, blowdown the warmest point of condenser water to the cooling tower; This results in less cooling of water and has financial gains;</p> <p>Coordinate with facility infection control committee to reduce infection control risks.</p>	<p>Treated water uses more resources and energy.</p> <p>Graywater produced through building processes such as reverse osmosis and air conditioning condensate can often meet cooling tower makeup needs, reducing costs and the facility's burden on the municipal water supply.</p>	<p>Cooling Towers: Understand Key Components to Improve Water Efficiency, US Department of Energy</p>
Boilers	<p>Install automatic blowdown controls;</p> <p>Maintain chemical program of boiler water</p> 	<p>Use products that are EPA Energy Star or rated EPA Energy Star Most Efficient;</p> <p>Chemical-free;</p> <p>Closed loop;</p> <p>Contains tempering devices.</p>	<p>Optimizes the consumption, disposal and treatment of heating water with financial gains (via higher conductivity through dissolved solids in the water).</p>	<p>Efficient Hospital Boilers Fact Sheet</p> <p>Install an Automatic Blowdown-Control System</p> <p>ENERGY STAR Boilers Product Guide</p>
Landscape	<p>Use native and drought tolerant plants;</p> <p>Use water conserving irrigation systems, i.e. micro or drip irrigation, systems, moisture sensors, clock timers and water-data based controllers;</p> <p>Use non-potable water as an alternative to potable water.</p>	<p>Graywater produced through building processes such as reverse osmosis and air conditioning condensate can often meet hospital irrigation needs;</p> <p>Health regulations may not allow use of non-potable water in areas accessible to patients;</p> <p>Coordinate with facility infection control committee to reduce infection control risks;</p> <p>Coordinate with design of outdoor places of respite for patients and staff.</p>	<p>Native and drought tolerant landscape design can reduce water demand by 50% or more before considering irrigation;</p> <p>Water conservation will lower water bills and reduce runoff of stormwater and irrigation water.</p>	<p>Community Hospital South features xeriscaping, an environmentally friendly landscaping practice: Perennials and native plants more cost-efficient, conserve water</p>
Water Features	<p>Use non-potable water as an alternative to potable water; If using potable water, install a closed loop system.</p>	<p>Chemical free;</p> <p>Provide additional testing and filtration if using non-potable water sources;</p> <p>Coordinate with facility infection control committee to reduce infection control risks. Health regulations may not allow use of non-potable water in areas accessible to patients.</p>	<p>Using closed-loop systems and/or non-potable water can reduce costs and preserve potable water for its intended use. This consideration is particularly important in drought-prone regions.</p>	<p>-</p>

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Mops	<p>Microfiber mops that automatically dispense the correct amount of cleaning agent;</p> <p>Green cleaning chemicals and protocols.</p>	<p>Coordinate with facility cleaning policy and infection control committee to minimize use of disinfectants where not necessary for infection control reasons;</p> <p>Where disinfection is necessary, use only EPA-registered hospital-use disinfectants under FIFRA requirements;</p> <p>Ask the manufacturer to recalibrate dispensing equipment annually.</p>	<p>Microfiber mops use 95% less water and chemicals;</p> <p>Reduces worker injuries compared to conventional wet-mopping.</p>	<p>Using Microfiber Mops in Hospitals: Environmental Best Practices for Health Care Facilities, U.S. EPA, 2002</p> <p>Exemption of certain pesticide substances from Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) requirements</p>
Sterile Processing: Steam sterilizers and Washer/Contaminators	<p>Upgrade/retrofit equipment to closed-loop systems</p>	<p>Coordinate with facility infection control committee to reduce infection control risks.</p>	<p>Manufacturers have developed re-circulation systems where reservoirs allow reuse and mixture from supply water. Retrofit kits are available to improve performance of existing sterilizers. Many of these upgrades to sterilizers drastically cut the water use from hundreds of gallons per cycles to a handful of gallons.</p>	<p>"Tap into Conservation: Providence St. Peter shares lessons on its efforts to cut water consumption," Greenhealth magazine</p> <p>Hospital Installs Water Efficient Laboratory and Medical Equipment</p>
Hydrogen Peroxide Gas Plasma Sterilization	<p>Sterilization method that is entirely water-free</p>	<p>Coordinate with facility infection control committee to reduce infection control risks.</p>	<p>Eliminates use of water in sterilization;</p> <p>Inactivates microorganisms primarily by the combined use of hydrogen peroxide gas and the generation of free radicals (hydroxyl and hydroperoxyl free radicals) during the plasma phase of the cycle. [U.S. CDC]</p>	<p>U.S. CDC Guideline for Disinfection and Sterilization in Healthcare Facilities, 2008</p>

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<p>Water-Intensive Medical and Building Equipment</p> <p>(sterilizers, autoclaves, MRI machines, CT scanners, dialysis units, waste anesthetic gas pumps, degreasers, hydraulic equipment, condensers, air compressors, welding machines, vacuum pumps, ice machines, x-ray equipment and air conditioners)</p>	<p>Replace equipment using potable water for once-through cooling with either non-potable water, a closed loop system, or an air-cooled system</p>	<p>If the water discharge temperature is regulated, use a tempering device that only runs when the equipment discharges hot water or use a thermal recovery heat exchanger to transfer heat from discharge water to preheat makeup water;</p> <p>Consider tying medical equipment cooling systems into the building's mechanical cooling systems;</p> <p>Use film water recycling units on large frame X-ray processors/ developers (> 150 mm/6 in in length or width);</p> <p>Use dialysis unit reject water in a secondary application such as storage or sterilization;</p> <p>add scavenging interface waste anesthetic gas pumps to save water for liquid-ring type lubrication systems;</p> <p>Coordinate with facility infection control committee to reduce infection control risks.</p>	<p>Single-pass or once-through cooling systems provide an opportunity for significant water savings as the water is passed through the equipment and then goes down the drain. To maximize water savings, single-pass through equipment either should be modified to recirculate water, or, if possible, should be eliminated altogether (Energy.gov)</p>	<p>Best Management Practice: Single-Pass Cooling Equipment. Energy.gov.</p>
<p>Vacuum Pumps</p>	<p>Use dry or waterless vacuum pump equipment;</p> <p>Use air cooling or closed-loop cooling for air compressors.</p>	<p>Use water recycling systems for liquid ring vacuum pumps;</p> <p>Avoid venturi vacuum systems for sterilizers.</p>	<p>Liquid ring pumps are common to medical and dental facilities</p>	<p>Water Use in Vacuum Pump Systems & Viability for a Water Conservation Best Management Practice in California: An Investigation for the California Urban Water Conservation Council</p>