

# Low Flow Water Technology

## In a Nutshell

Low flow water technology consists of technologies that reduce water consumption and use in the facilities in which they are installed. Replacing current appliances and facilities with low-flow versions can drastically reduce water consumption and also the costs associated with water use.

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## The “How To”

Low flow water technology comes in many different forms and can be implemented in many ways. Toilets, sinks, and showerheads can all be replaced with low-flow alternatives.



Typically uses approximately 2.5 gallons of water per minute of flow. Showerheads must demonstrate that they do not use more than 2 gallons per minute of flow. The also demonstrate that the performance of the showerhead is equal to or better than standard showerheads.

Toilets are a major source of water usage within households and can account for nearly 30% of indoor water use. Standard toilets can use up to 6 gallons per flush and can represent the biggest source of water waste in homes. Federal standards have reduced the allowed volume per flush to 1.6 gallons. New toilets must use 1.28 gallons or less per flush without losing any performance. Toilets with the WaterSense label have undergone independent testing for their performance and efficiency.



Standard faucets have a flow rate of approximately 2.2 gallons per minute. Replacing these with WaterSense labeled faucets can reduce the flow from the sink to approximately 1.5 gallons per minute, which counts for a 30% reduction in water consumption.

## Dollars & Cents

An apartment building in New England with 151 units was retrofitted with low-flow showerheads and faucet aerators at a cost of \$1,074. As a result of the retrofit 1,725,000 gallons of water, \$8,590 for energy, and \$980 for water were saved in 1 year. In another retrofit program, the Lower Colorado River Authority installed low-flow showerheads and toilet dams in an apartment complex and public housing program in Marble Falls, Texas. Indoor per capita water use was reduced by 21 percent (from 81 to 64 gal/cap/day) in the apartment complex and was reduced 11 percent (from 102 to 91 gal/cap/day) in the public housing program.

Current use of low-flow toilets throughout Texas could reduce the need to build new water and wastewater treatment plants by 15 percent, resulting in a savings of as much as \$3.4 billion during the next 50 years. Residential water and sewer bills could also be reduced by as much as \$200 million over the long term. The

Texas Water Development Board estimates that the use of water-efficient plumbing fixtures should save a typical four-member household 55,800 gallons of water and \$627 in reduced water and energy costs per year. The Board estimates that the use of low-flow fixtures might reduce water use statewide by 805 Mgal/d by the year 2040.

Replacement of conventional toilets with low-flush alternatives has proven to be an effective and practical solution to reducing water consumption. A study on a 30 year old apartment complex in San Pablo, California showed that replacing 4.5 gallon flush toilets with 1.6 gallon flush low flow toilets resulting in a reduction of 148-225 gallons per day for the average household of 3 individuals. These measures represent a 34% reduction in water consumption. The total cost of replacement was approximately \$250 per unit and the savings resulting from the change averaged approximately \$46/year in each unit.

Showers account for about 20 percent of total indoor water use. By replacing standard 4.5-gallon-per-minute showerheads with 2.5-gallon-per-minute heads, which cost less than \$5 each, a family of four can save approximately 20,000 gallons of water per year. Although individual preferences determine optimal shower flow rates, properly designed low-flow showerheads are available to provide the quality of service found in higher-volume models.

WaterSense labelled toilet models are capable of reducing water consumption by approximately 20%-60%. This can represent up to 13,000 gallons of water in savings for a household over the course of the year. This water savings can result in about \$110 per year or \$2200 over the lifetime of the toilet.

For more information, please see the EPA WaterSense website:

<http://www.epa.gov/watersense/products/toilets.html>

## Measuring Success

The benefits of low-flow water technologies can be seen in the reduction in water consumption of an area or of an individual building. Benefits can also be seen in the cost savings for water consumption. Reducing water consumption can also cause a reduction in the cost of heating water.

When low flow water technology is adopted on a municipality-wide basis, many different things can be assessed in order to measure the effectiveness of a low flow ordinance. Low flow water technology allows for buildings to reduce the amount of water that they send into municipal sewer systems, and this difference can then be measured in the reduction of water that is sent into treatment facilities for a given municipality. When low flow water alternatives are utilized on a large scale, the wear and tear on water distribution systems is also reduced when demand and overall use decreases.

## Discover More

For more information on low-flow technology, the Environmental Protection Agency has a lot of information on their website [here](#).