



Responsibly Managing Building Plumbing Systems





Through its efforts to “Rethink Water,” Plumbing Manufacturers International is addressing the importance of safely and responsibly managing building plumbing systems, which consist of many parts, including pipes, valves, water heaters, fixtures and fittings, pumps and drains.

In well-engineered systems, these components work together to achieve the safe and efficient flow of water. A change to one part of the system affects the other parts. Water users’ behavior and preferences also must be considered when contemplating changes to flow and flush rates.

Some policymakers favor mandating the use of plumbing fixtures and fittings that use even less water than thoroughly performance-tested WaterSense models certified by the Environmental Protection Agency. While that may sound at first like a good water-saving idea, further reducing flow and flush rates without considering how the reduction affects fixture performance may have unintended, negative consequences to other plumbing system components, making them not work as well as planned.

For example, using less water per toilet flush may lead to double flushes using even more water, inadequate drain carry of solid waste, blockages in sewer pipes, and backflow into potable drinking water. Lower-flow showerheads may lead to longer showers due to the difficulty of rinsing soap from hair. Lower water flow causes water to move through pipes at a slower rate and stay inside pipes longer, potentially leading to water pathogen growth. And most importantly, lower-flow fixtures and fittings may not be satisfactory to buyers, who may choose to leave them on store shelves.

Partnering with government agencies for success

PMI looks to work with government agencies to ensure the most water-efficient system performance possible without undesirable side effects. We can be a valuable partner and resource when changes to flow or flush rates are being considered, can help to create an understanding of the impact lower rates may have on plumbing systems, and advise on the feasibility of proposed changes.

The number one job of plumbing is to protect public health and safety. Because of its contribution to making clean, drinkable water available, plumbing has likely protected more lives and extended life expectancy more than any medical advancement.

Manufacturers commit to delivering optimal efficiency and performance

PMI members consider the effects of water flow on the entire plumbing system when designing toilets, showerheads, faucets, urinals, sprinkler systems, and more for certification by the WaterSense program. Plumbing manufacturers spend thousands of hours researching, engineering and testing their products to achieve optimal water efficiency and performance.



Certified WaterSense products are at least 20% more water efficient than plumbing products meeting the federal water-efficiency standard. In addition, the products are certified by independent, third-party testing authorities to meet high performance and customer satisfaction standards.



WaterSense plumbing products have saved Americans more than 8.7 trillion gallons of water and \$207 billion in water and energy bills, according to the EPA, since these products first became available in 2006. The EPA reports that these products also have positively impacted the environment, having eliminated 379 million metric tons of greenhouse gas emissions, the equivalent of planting 6.3 billion trees.

EPA resources to help save water

To learn more about how to save water, visit the EPA's water savings calculator at epa.gov/watersense/watersense-calculator.

The EPA also offers WaterSense at Work (epa.gov/watersense/best-management-practices)—best practices to help commercial and institutional facilities understand and manage their water use, create an effective water management program, and identify practices to reduce facility water use.



Replace old, inefficient toilets with new models to save water and money

The biggest immediate water savings won't come from designing and manufacturing plumbing products for the future, but from retiring older legacy products still in use.

The average family can save 13,000 gallons of water and \$130 in water costs per year by replacing all old, inefficient toilets in their home with WaterSense labeled models, according to the EPA. But WaterSense products can't save water if they aren't being used, and most homes and businesses do not have these products yet, according to a study commissioned by PMI: [tinyurl.com/bz6mhaj3](https://www.tinyurl.com/bz6mhaj3).



- **Replacing a 7.0 gallons per flush (gpf) toilet saves 42,000 gallons of water per year**
- **Replacing a 5.0 gpf toilet saves 30,000 gallons of water per year**
- **Replacing a 3.5 gpf toilet saves 16,000 gallons of water per year**
- **Replacing a 1.6 gpf toilet saves 2,000 gallons of water per year**

Starting a legacy product replacement conversation with policymakers

PMI's Rethink Water initiative has started a conversation about legacy product replacement between PMI and policymakers in California and elsewhere. The idea of replacing older, far-less efficient fixtures and fittings with new, water-efficient models—either via rebates or giveaways—is not new. The San Antonio Water System is the best example of a water utility that replaced inefficient toilets until there were no more left to replace.

PMI has found many successful programs across the nation that provided free toilets to water utility customers meeting certain qualifications, usually relating to the older toilet's gallons-per-flush and customer's household income level. View our "legacy product replacement" video (tinyurl.com/2x72k5bx) to learn about how to get more WaterSense products installed in homes, businesses and public places. The Rethink Water and legacy product replacement tools developed so far can be found on the PMI website: safeplumbing.org/advocacy/rethink-water.





A variety of products fit all budgets and styles

Purchasing stylish and reasonably priced, water-efficient products is easy. Thousands of WaterSense products in many models, styles, colors and finishes are available at retail stores, from wholesale outlets and online.

Thanks to the many manufacturers making these high-efficiency products and the high consumer demand, there are products to fit every price point—from low-cost to luxury. Many kitchen and bath showrooms have installed working demonstration models that enable customers to see WaterSense products in action.

PMI members are proud to have their brand names on about 90% of the approximately 46,000 WaterSense products that have been developed.

As we continue to “rethink water” to achieve more water savings, we must consider all aspects of plumbing systems, not only flow and flush rates, to assure optimal water use and prevent unintended consequences.



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