



## Plumbing Products and Retrofits

### Plumbing Retrofits: Myths, Misconceptions, and Answers

November 2012 - [Plumbing & Restrooms](#)

Plumbing fixture and fitting manufacturers have always engaged in the development of plumbing codes and engineering standards to anticipate the needs of maintenance and engineering managers in institutional and commercial facilities. The challenges managers face today have made that task more complex, requiring better ways to provide up-to-date information for correct applications and aftermarket care.

But the success of a plumbing retrofit or upgrade depends on more than compliance standards. The importance of proper installation and maintenance of plumbing products is critical for meeting customer expectations related to water conservation, energy efficiency, safety, sanitation and durability.

Unfortunately, many managers make specification, installation and maintenance decisions based on a series of myths and misconceptions. With more complete and accurate information in these areas, managers can make smarter decision on efficient, cost-effective plumbing products and systems.

#### Setting The Record Straight

The myths surrounding plumbing products have evolved and multiplied over the years. Among them are these:

**Myth: Automatic urinal flushometers use more water than conventional manual flushometers.**

This myth is obvious, since users in a given application who do not flush manually after use and, thus, do not use water will see an automatic flush in applications where automatic flushometers are operating. This application eliminates the otherwise unflushed instances, and fixture sanitation improves at the expense of more water use.

**Myth: Automatic flushometers often have false triggers.** Plumbing manufacturers have proprietary technologies designed to minimize false triggering caused by environmental conditions, which can include frequent interruptions of electricity or water. They use different sensing technologies, such as radio frequency, active infrared, and passive infrared, to overcome these environmental conditions. Newer designs among these technology platforms include enhancements, such as automatic adjustment — depending upon the restroom conditions of light and electromagnetic interferences — and in the case of optical sensors, focused lensing.

In some institutional plumbing controls, the actual electronics are intended to not activate in order to avoid purposeful vandalism. The electronic signal otherwise used to activate flushometers and faucets normally in a set period of time is interrupted because the electronic logic figures that multiple activations within a short period of time might be related to malicious, wasteful behavior.

**Myth: Environmental effects can trigger automatic faucets.** Automatic faucets can turn on by themselves, wasting water, because of environmental interference and a particular product's inability to cancel out those interferences. Newer, more advanced automatic faucets use technology that anticipates and cancels out environmental effects that might cause false triggers.

Some automatic faucets might waste water simply because they have a technology that meters them through a complete timed cycle, rather than on-demand, sensor hand-washing faucets. If the wrong technology is branded automatic, the electronic faucet might, in fact, waste water.

Managers should be aware that the more common type of automatic faucet specified for public use are on-demand models, which are designed for actual use when are user's hands are underneath the aerator. In this application, the faucet turns on upon activation and detection of hands, and it stops once the user removes his or her hands from the coverage area. There is no additional dispensing of water after the user has walked away, eliminating water waste and worries about a manual faucet for being left fully open, intentionally or not.

**Myth: The application's location is not critical.** Apart from their many attributes, electronic faucets come in a variety of designs specific to certain applications. While some locations call for hands-free models with standard flow rates for health care facilities, others might require lower flows as a result of green codes and specifications. Delivery of a metered amount of water measured in gallons per cycle, rather than gallons per minute, is yet another distinction. Electronically activated faucets also might be designed to address water dispensing to actual use or intended use.

While these factors might appear to make it more difficult for managers to specify the most appropriate faucet for the application, it is not difficult task to accomplish. Ultimately, the biggest driver in the decision-making process is location, location, location. Electronic faucets are mostly used in public washrooms. They are an important part of water conservation, as are other water-conserving fixtures and plumbing design layouts. With the rise of environmental awareness, an electronic faucet can be a successful option for saving water and energy.

Once managers have worked their way through these problematic myths and misconceptions, they can focus on more component-specific issues in their attempts to match products to facility needs.

**Electronic vs. conventional faucets.** While a few reports document higher water use by electronic faucets compared to their manual counterparts, that comparison is not exactly apples to apples. In other words, a commercial-use manual faucet limited to a flow rate of 0.5 gallons per minute (gpm) might not be an exact cross-over of an electronic faucet at the same flow rate but pre-programmed to discharge water for a fixed amount of time, say 15-20 seconds.

Here, the intended use of the electronic faucet is for a full lathering and hand washing, such as in food-preparation areas, where employees of a retail establishment's food court must comply with

health codes. The above example describes a faucet that dispenses water for an intended use or the full run time of the faucet.

Another reason for increased consumption might also be as simple as the specification of the wrong electronic faucet, such as using a 2.2 gpm version in an application requiring 0.5 gpm. This misapplication might be attributable to misinformation given to the specifier or manager. Another reason for increased water use by electronic faucets might be a malfunctioning sensor, either as a result of vandalism or a ghosting or shadowing phenomenon.

Electronic faucets also often feature an optional mixing valve, which allows technicians to preset the water for a specific temperature. In contrast, restroom users, not technicians, typically adjust a manual faucet to achieve a desired temperature. Users do this while waiting for the water to reach the desired temperature and then begin washing their hands.

Electronic faucets save precious water in such cases, leading to savings on the monthly water bill — provided the manager has chosen the right faucet for the application.

**Showerheads.** Managers who are considering retrofitting their facilities showers with lower-flow showerheads should consult with the manufacturer or a plumbing engineer who is knowledgeable about anti-scald or pressure-balancing mixing valves. Validating the capacity demand at the reduced shower end points can go a long way to avoiding user problems related to improperly sized valves.

**Water-free urinals.** Some water-free urinals do, in fact, use very small amounts of water. Each time a housekeeper performs a cleaning cycle and cartridge replacement, the maintenance routine calls for pouring a few gallons of water into the drain before installing the new cartridge. Hence, the water use. To determine the rate of water use related to these urinals, managers can divide the gallons of water used during the maintenance cycle in rinsing out the drain by the number of uses of the cartridge cycle.

Maintenance of waterless urinals is not complicated, but housekeepers must follow it explicitly if the facility is to achieve maximum water savings without any adverse customer experiences. They must follow the manufacturer's schedule of replenishment or risk creating adverse customer experiences.

The variety of products manufacturers provide requires accurate support information, unique to each company. Whether it is up-to-date maintenance bulletins, energy calculators for water savings, or product alert tips, electronic media gives managers a new wave of technology and products to evaluate.

Managers have a wealth of information at their fingertips to help understand the manufacturers' products as they relate to the codes and standards landscape. Two notable resources are the [Safe Plumbing](#) program from Plumbing Manufacturers Institute and the [WaterSense](#) program from the U.S. Environmental Protection Agency, which is an industry voluntary standard for plumbing fixture and fittings.

Plumbing manufacturers conform to product designs mandated by codes, and their products carry proofs of their compliance with industry standards. Examples include Underwriters Laboratories (UL),

the Canadian Standards Association (CSA), and the American Society of Mechanical Engineers (ASME).

The real challenge for managers is holding their ground on viable, maintainable products that are originally specified but that become victims to late-construction project value analysis.

The result can be the substitution of inferior products and technology, and all the reasoning for advanced technology to save water and curtail long-term maintenance costs go by the wayside during these last-minute changes.

Many managers are working today with reduced budgets and resources. Manufacturers' web sites are reliable sources of information for investigating the most appropriate technology to meet facility needs.

These sites can also advise managers of the latest maintenance updates and servicing tips. Manufacturers also can offer more on-site solutions from educated sales engineers and promotions, such as lunch-and-learn sessions and training.

*This article was prepared by the staff and manufacturer members of the [Plumbing Manufacturers International](#).*

## Spotlight: PMI

The Plumbing Manufacturers International (PMI) is the voluntary, not-for-profit international industry association of manufacturers of plumbing products, serving as the voice of the plumbing industry. Member companies produce a substantial quantity of the nation's plumbing products. The group's mission statement:

- To promote the water efficiency, health, safety, quality and environmental sustainability of plumbing products, while maximizing consumer choice and value
- To provide a forum for the exchange of information and industry education
- To represent openly the member's interests and advocate for sound environmental and public health policies in the regulatory/legislative processes
- To enhance the plumbing industry's growth and expansion.

*For more information on PMI or its meetings, call (847) 481-5500 or visit [www.pmihome.org](http://www.pmihome.org) and [www.safeplumbing.org](http://www.safeplumbing.org).*