maintenance SOLUTIONS

"Sustainability has become a discussed topic, but we have not yet had the occasion where environmental green has trumped cash green."
— Roundtable
PAGE 8

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SPECIAL ISSUE

PRODUCTS* AND TECHNOLOGY TRENDS IN KEY FACILITY AREAS

MAKING SMART BUYING DECISIONS

BRUCE WESNER FOCUSES ON TOTAL COST OF OWNERSHIP PAGE 6

MANAGERS REVEAL STRATEGIES FOR SAVVY PURCHASING PAGE 8

INVENTORY MANAGEMENT TO STREAMLINE SPECIFICATION PAGE 23

*HVAC, CMMS, Plumbing, Roofing, Door Hardware, and Grounds Care

contents

volume 18, no. 5

SPECIAL ISSUE

MAKING SMART BUYING DECISIONS

features



products

forum


special report

Inventory Management

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Plumbing & Restrooms

Fine-Tuning Fixture Specification

Managers take a closer look at toilets, urinals, and faucets to achieve aggressive water-conservation goals

By Winston Huff

Manufacturers of plumbing fixtures are updating existing products and developing new technologies, all in an effort to help institutional and commercial facilities conserve water.

Some organizations are interested primarily in code-minimum buildings, while others have a goal of certification under the U.S. Green Building Council's rating system, Leadership in Energy and Environmental Design (LEED). Still others are taking a more aggressive approach and want to go beyond LEED guidelines.

Toilets and urinals

Toilets that use 1.6 gallons per flush (gpf) have reduced water and sewer flows for 20 years. Now, some fixtures use less than 1.6 gpf. Managers should consider renovation projects that replace older, less-efficient water closets using more than 1.6 gpf with newer fixtures that conserve more water.

In some cases, local utilities offer incentives to replace older, more water-intensive toilets. Municipal water and sewer districts have begun to realize it is less expensive to offer rebates for fixture replacement than to upgrade their water and sewer infrastructures to meet new demands. Also, most rebates go beyond 1.6-gpf fixtures and require the use of high-efficiency toilets (HET) that use 1.28 gpf.

A dual-flush fixture is classified as a high-efficiency toilet. It offers two different flushing options: One option uses the full flush — 1.6 or 1.28 gpf — to clear the trap, similar to a standard fixture. The second option uses less water — a maximum of 1.1 gpf — to clear the trap of liquid waste.

Managers must remember that many sensor-operated toilets, urinals, and faucets use more water than manual fixtures because of so-called phantom flushes or activations. To reduce these flushes, manufacturers have introduced products that use wave-operated fixtures or an infrared sensor with a three-second delay.

Managers also should consider battery-operated fixtures, which continue to operate even if the facility loses power. Some battery-operated fixtures recharge through solar cells and water flow, while others have longer battery lives. Later this year, one manufacturer is introducing batteries it claims will last 30 years.

To ensure these products meet performance demands, managers should look for fixtures that feature a label from the WaterSense program, sponsored by the U.S. Environmental Protection Agency. WaterSense-labeled fixtures are third-party tested, ensuring compliance with the required effective flush volume and solid-waste removal.

When possible, manufacturers with aggressive water-conservation goals should specify and install only fixtures that have the WaterSense label. But WaterSense has not developed a specification for flushometer valves.

Managers also are going beyond high-efficiency toilets and looking at water-saving urinal technology.

Waterless urinals have been in successful operation for several years, and many managers with an aggressive sustainable approach and an ambitious maintenance program have been satisfied with the fixtures' performance. But manufacturers now are making a flush-type fixture that uses 1 pint of water per flush. It does not

PLUMBING & RESTROOMS

SLOAN VALVE CO.

Flushometer retrofit kit

The solar-powered Solis® and battery-powered ECOS® and G2 Optima Plus® upgrade existing flush valves to the newest water-efficient, electronic flushing technology. The Solis kits offer single- and dual-flush functionality. The solar panel harnesses energy from any available natural or artificial light source, including occupancy-controlled lighting, to power the sensor. The dual-flush product automatically selects a regular or reduced flush volume based on the length of time a visitor remains in sensor range. **Free Info: Circle 173**

ELECTRIC EEL MANUFACTURING CO.

Pipe-thawing machine

The machine thaws lengths of copper or steel pipe up to 75 feet, depending on the pipe's outside diameter. The machine thaws faster than a torch and is safer than a welder. It thaws pipes with safe, low-voltage, high-amperage power. The UES 190D & 200D models come standard with: a 115-volt power pack; two 25-foot, heavy-duty cables with pipe clamps; and a circuit breaker to protect against overloads. **Free Info: Circle 174**

CHICAGO FAUCETS

Sensor-operated faucets

HyTronic™ electronic faucets allow reliable, touch-free hand washing. Battery-operated models function on lithium batteries, which last about three years or roughly 200,000 activations. The faucet is designed to compensate in high-interference environments by switching from dual-beam to single-beam activation. The 0.5-gallon-per-minute fixtures are available with a single supply for tempered water, concealed, internal temperature-control mixers, and user-adjustable, temperature-control mixers. **Free Info: Circle 175**

GENERAL PIPE CLEANERS

Tubing cutter

AutoCut™ features a spring-loaded cutting wheel that provides constant pressure so users do not crimp the tubing. The hardened-steel cutting wheel automatically tightens as users twist, and there are no knobs to turn. It is available in ½-, ¾-, and 1-inch sizes. When there is not enough room around the tube for a user's hand, the optional Ratchet Turning Handle for the ½- and ¾-inch models provides extra leverage. **Free Info: Circle 176**

NEOPERL INC.

Faucet aerator

SLC spray includes silicone tips for a gentler stream and for protection against lime build-up. Users can rub the silicone tips to clean the outlet. The aerator is available in 0.5-, 1.0-, and 0.35-gallon-per-minute models. An integrated anti-clogging dome screen filters sediment, and the single-piece insert ensures a longer usable life. The aerator is recommended for series lavatory faucets, such as in public restrooms that are exposed to heavy walk-in traffic. **Free Info: Circle 177**

RIDGID

Drain-cleaning machine

Auto-Clean™ features dual-direction Autofeed® technology, which advances and retrieves the drain-cleaning cable. The aluminum paddles on the Autofeed allow the user to feed cable down the drain at 18 feet per minute and reach most blockages in less than one minute. Users do not have to touch the cable because it features a guide hose that provides added reach, as the Autofeed automatically powers the cable down drains and through blockages. The guide hose eliminates splatter and, as a result, minimizes clean up of hands, work areas, and fixtures. **Free Info: Circle 178**

have the maintenance concerns of the waterless fixture yet still conserves water.

Keeping it flowing

Managers should be aware of concerns related to institutional and commercial facilities that use high-efficiency fixtures in systems with long runs of pipe and little water flow from plumbing fixtures. Ongoing research is trying to determine the distance solids flow downstream after a flush. This research is particularly important when considering low-flow water closets because concern exists regarding the current ASME1/CSA2 drain-line carry testing protocol. A separate Canadian study used a more realistic test using commercial fixtures with a 4-inch diameter drain pipe at a 1 percent slope.

Toilets in institutional and commercial applications that must handle paper seat covers, paper towels, and large amounts of toilet paper typically have much larger waste loads than residential toilets. In short, managers must consider the impact low-flow fixtures might have on their plumbing systems' performance and the resulting maintenance needs.

SPECIFIER TAKEAWAY

Maintenance and engineering managers must remember that many sensor-operated toilets, urinals, and faucets use more water than manual fixtures because of so-called phantom flushes or activations. To reduce these flushes, manufacturers have introduced products that use wave-operated fixtures or an infrared sensor with a three-second delay.

Focus on faucets

Managers typically specify lavatory faucets for three broad applications.

The first category is hand washing in public restrooms. Most codes require flow rates of 0.5 gallons per minute (gpm), a minimum to earn LEED credits.

The second category is private fixtures used for moderate hand washing and light bathing — face washing, shaving, or teeth brushing. Codes usually refer to these facilities as private lavatories. Managers typically specify fixtures that use 1.8 gpm or less for these applications.

The third category is private fixtures used for heavy hand washing, such as medical, culinary, and maintenance applications. These applications require more water, so managers can specify fixtures that use 1.8-2.2 gpm. Most codes restrict these fixtures to less than 2.2 gpm. ■

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