

Product Focus: Plumbing

New-generation maintenance issues

By Winston Huff

THERE IS A GROWING realization in the plumbing industry that commercial and institutional buildings are not isolated from their surroundings.

Today's buildings use large amounts of potable water and generate large amounts of sewer waste. Also, green spaces are being replaced with hard roofs on buildings, which are surrounded by large, hard-surface parking lots. The result of these parallel trends is fewer places for water to re-enter the earth.

Manufacturers also are faced with a number of myths among managers and product specifiers, namely:

- Water closets have to use 1.6 gallons per flush (gpf)
- Urinals use 1 gpf.
- Hand washing requires 1.5 gallons of water per minute (gpm).
- Showers use at least 2.5 gpm.

The plumbing industry is responding to these myths and changing priorities in facilities by producing fixtures that use less

water and, as a result, produce less waste. But because these fixtures use technology advances not available with standard fixtures, managers also should be aware they often demand new installation and maintenance routines.

Waterless urinals

Large and small plumbing manufacturers alike are producing waterless urinals. The fixtures do not have to be flushed after every use and do not require flush valves.

The drain is connected to the waste line, similar to a standard urinal. The fixture has no water connection.

These fixtures dispel two additional plumbing myths — namely, that water has to flush urine and that water is always cleaner than no water. This new technology requires people to rethink their beliefs.

Waterless fixtures can reduce the amount of waste used by a typical building. One of the important features of a sustainable building is to how efficiently it uses water. Waterless urinals can be an important element in earning a LEED certification.

Such fixtures use a special liquid seal in the trap that keeps gasses from escaping while letting urine pass through. Small amounts of trap-seal liquid pass through with the urine, so as a result, the liquid trap seal material eventually must be replaced.

If it is not replaced, the trap will be open to allow sewer gasses to escape. Manufacturers recommend replacing the trap seal after several thousand flushes or every one-three months, depending on use. Some units use a cartridge-type system that requires replacing the trap, while others use bottles

WATERLESS urinals can be important for LEED certification

with the trap liquid poured into the traps.

Similar to standard, flush-type fixtures, waterless urinals should be wiped down and cleaned daily. The housekeeping staff must be familiar with this requirement and develop a regular schedule of these tasks.

Because the fixtures do not use flush valves, they eliminate problems that arise when a flush valve sticks in the open position, resulting in overflows. It is important for the housekeeping staff to understand different manufacturers' requirements because each manufacturer has a different trap seal maintenance method.

Finally, local code requirements differ throughout the country. While these products generally comply with the 2006 International Plumbing Code, local requirements might vary.

Dual-flush water closets

These water closets available from major plumbing manufacturers are easy to install and require no extra maintenance. They reduce the amount of water and waste by using a flush-valve lever or buttons for two different types of flushes.

The first type uses the standard 1.6 gpf. The second type dispenses less than 1.6 gpf, usually 1.1 or 0.8 gallons. The lower-flush option will flush paper and liquids, while the full flush is designed for solids.

Signs installed at the fixture educate users about the system. The cleaning routine is the same as that for any other fixture. Dual-flush handles are available from most manufacturers, so a standard flush-valve fixture can be retrofitted to work as a dual flush fixture.

Sensor-operated fixtures

A range of these fixtures is available.

AC UNITS. The type that uses AC electrical power with either a hard-wired connection or GFI plug tend to be the most reliable, due to the quality of the solenoid valves. Installation requires planning to make sure electrical power is available.

It is important to remember that these units will not operate if a building's power

is interrupted. As a result, some owners install these products to use emergency power when it is available.

BATTERY-POWERED UNITS. These fixtures are not far behind AC units in quality. They operate during a power outage, and a high-quality unit can provide years of trouble-free operation. The housekeeping staff will need to develop a schedule to change these batteries regularly.

SOLAR-POWERED UNITS. The first generation of solar-powered units is now on the market. These units require no AC power and no battery maintenance. Managers should avoid specifying these units for toilet rooms with no natural light or where overhead lights are not frequently used.

WATER-TURBINE UNITS. These units use the water flow through the fixture to operate a small turbine that generates power to recharge the battery. As with solar units, these units are new to the market.

Also, the maintenance staff needs to decide on the location of the mixing valve. In some locations, the mixing valve is only accessible to the maintenance staff, and a user has no water-temperature choices. Other units have a control lever so users can regulate the water temperature.

It is important to remember that many new codes require limiting the hot water temperature to ADA-compliant fixtures. As a result, a small mixing valve might be required at the fixture.

Low-flow water closets

Federal mandates limit water closets to use no more than 1.6 gpf. New, low-flow water closets have taken advantage of technology advances and can flush solids with less than 1.6 gpf. Many such units comparably priced to non-low-flow models.

Facilities such as hotels, apartments and

dormitories often use flush-tank water closets. There are two types of flush-tank fixtures:

Pressure-assisted units use a pressure tank inside the fixture's tank and use incoming water pressure to help clear solids from the bowl. It is important for the maintenance staff to know that these fixtures require different maintenance procedures than gravity-type units.

Also, most major manufactures now make a high-quality, gravity-type, low-flow water closet. The flush valve inside the tank is better than the flappers that have been around for decades. But because old flappers are easy to repair, maintenance workers have grown accustomed to the lower-quality materials. New flush-valve systems cost more to replace than older models, but they will not require replacement as often.

Low-flow showers

Showers must use no more than 2.5 gpm per head. Over time, users have become accustomed to this amount of water and might complain if they believe they are not receiving their allotted amount of water.

Most complaints about showers operating improperly occur when the screen or flow restrictor in the showerhead is blocked with debris from the domestic waterline feeding the showerhead. Routine maintenance to clean these units will eliminate most problems.

High-quality showerheads designed for less than 2.5 gpm work very well and tend to generate very few complaints.

Lower-quality, 2.5 gpm showerheads that feature only a lower-flow restrictor in the head tend to cause problems because they were not designed for the low flow of water. Low-flow showerheads reduce the load on the hot-water system, which could result in lower energy use and less maintenance costs related to water heaters.

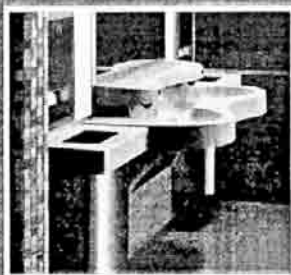
It is important to note that low-flow showers will take longer to warm up when first turned on. This situation arises because the hot-water line feeding the showers that are not on a recirculation loop cool down when not used in a few hours.

With less water flowing to the fixture, it takes longer for the water at the shower to heat up. As a rule of thumb, if the showerhead uses 25 percent less water, it will take 25 percent more time to get hot water to the showerhead. ■

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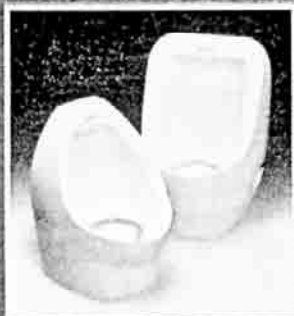
Bradley Corp.
Lavatory system

The light-powered Express systems use integrated photovoltaic cells integrated to capture and store solar or normal room-level lighting. An energy management system converts the light into energy, which activates the water flow. The systems are virtually maintenance free. Express SS and MG series solid-surface systems are offered with nitrite technology, and retrofit kits are available to convert other Express lavatories. **Free Info: Circle 150**



Falcon Waterfree Technologies
Waterless urinals

Two urinals expand style and installation options for zero-water-consumption urinals. The china models feature European design. Because the unit has no flushing mechanism, mechanical maintenance is eliminated. The system is tamper resistant, and its patented cartridge with biodegradable sealant acts as a vapor barrier to provide odor-free operation. **Free Info: Circle 152**



Technical Concepts

Touch-free plumbing systems

Technical Concepts offers hygiene solutions for washrooms. Including touch-free plumbing and surface-care systems, as

well as personal care and air care systems. Designed to make washrooms cleaner, environmentally friendly and cost effective to maintain, the plumbing products are easy to install and offer user-friendly performance. **Free Info: Circle 154**



Moen Inc.
Flush valve

FreeHand™ electronic flush valves offer hands-free activation for urinals and water closets. Available in 1- and 2-inch closet, and 1/4- and 1 1/4-inch urinal, the flush valves feature: solid-brass, chrome-plated construction; self-cleaning filter system; operating pressures from 10-120 psi; and a manual override button. Each Valve is powered by two AA batteries and features a low-battery indicator light. Each flush valve also is equipped with vandal-resistant stop valves and meets ADA-compliance guidelines. **Free Info: Circle 153**



Delta
Faucets

The Delta® 591T Series features exclusive Synergy® styling. The one-piece cast brass body reduces bacteria and dirt build-up. The longer spout expands hand-washing space and prevents countertop water pooling. The faucets feature vandal-resistant, 45-second maximum run time and waterproof electronics. They are available in chrome and two Brilliance® PVD finishes—stainless steel and polished brass. **Free Info: Circle 151**



Sloan Valve Co.
Faucet

Optima Plus ERF Series sensor-operated faucets use RF technology that provides a wireless link between the spout and the battery-powered control module. Wireless connectivity of the ERF-885 faucet streamlines installation in new and retrofit applications and eliminates vandalism to wiring. The unit comes with a spout, sensor, control module, mounting hardware, and a 4- or 8-inch trim plate. Audible signals emitted by the faucet provide installation guidance and diagnostic cues, such as a low-battery alert. **Free Info: Circle 156**



Waterless Co.
Waterless urinal

The Yukon, Model #2101, combines unique design features with a large foot-print for retrofits. The urinal is available in ceramic sanitary white or solid colors, which can be matched to the client's needs. It uses the EcoTrap insert and BlueSeal®. **Free Info: Circle 155**



Chicago Faucet Co.
Metering faucet

The MeterMix™ 3400 features an MVP™ metering cartridge, which includes a five-year warranty. This ADA-compliant faucet includes an adjustable cycle time, allowing the installer to customize the faucet to specific site conditions. To ensure it stands up to abusive environments, the 3400 features an integral cast spout and extra-strong, double-wall, vandal-resistant handle. The 3400 also has a vandal-resistant Econo-Flo spray outlet that conserves water, and it is available with an inlet tee connection. **Free Info: Circle 157**



Zurn Pex Inc.
Tube clamp

With the QuickClamp, installers can make tube-to-fitting connections of multiple sizes with one crimping tool. A locating shoulder and pier-through window help users position the PEX tubing within the fitting more quickly and accurately. Gripping ribs on the ear of the QuickClamp help users know where to position the crimping tool for perfect alignment. Constructed of stainless steel, it is suitable for both PEX plumbing and radiant-heating applications. **Free Info: Circle 158**

