

Restrooms and Plumbing

Smart Fixtures are the Future

Internet of Things technology can help managers monitor usage and detect water leaks

By Laurie Luebbert, Contributing Writer

People who visit public restrooms in institutional or commercial facilities probably give little thought to how much consideration it takes to offer an attractive look and hygienic appeal, but it's certainly something maintenance and engineering managers must think about.

Even before the COVID-19 pandemic shined the spotlight on hand hygiene, facilities were taking advantage of touchless technology in areas

such as faucets, hand dryers, and soap and towel dispensers.

Today, automatic faucets "have become increasingly prevalent, if not standard" in almost all facilities, says Marnie Ivanich, director of client services for Delta Commercial. The updated options in today's market go way beyond touch-free capabilities. Technology has evolved to include the Internet of Things (IoT) and occupancy sensors.

"On toilet partitions, some newer models feature occupancy indicators

featuring an elegant LED light band built into the cubicle system," says Will Haas, senior product manager at Bradley Corp. "When the cubicle door locks, the light band turns from green to red. Every user can easily see which cubicles are available and which are occupied, enhancing privacy and foot traffic."

Embracing IoT

Smart technology is a phrase that suppliers encounter almost daily as businesses look to upgrade facilities.

Commercial and institutional restrooms are now more connected than ever. IoT technology allows fixtures to communicate with the internet and collect a broad range of information. That knowledge can be used to schedule janitorial staff more efficiently and detect when a fixture is out of service or if consumables such as soap, paper towels, or toilet tissue need replenishment.

"Restroom products with maintenance indicators, IoT connectivity, (and) A/C power (vs. batteries) help improve and simplify maintenance," says Haas.

In addition to restroom maintenance, IoT technology can be used to control and monitor water use. Conserving water not only makes sense from an environmental standpoint, but from a cost savings, as well.

"This includes monitoring usage, performing preventative and predictive maintenance before an issue arises, troubleshooting issues, shortening repair times, increasing water efficiency through adjusted sensor ranges, and more," says Alexander Oltmanns, public relations strategist for Sloan.



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Ultimately, the technology can help detect leaks.

“By being able to monitor water usage per fixture, facility managers are able to gain more actionable information to perform their job more effectively,” Oltmanns says.

Some products allow staff to shut off water flow to the fixture remotely. Other systems identify water leakage by periodically isolating the water system during inactivity and looking for decay in water pressure that might indicate a small leak or broken fixture.

“One method uses a flow meter to detect the amount of water flowing through a pipe,” says Ivanich. “Combined with machine learning or other smart algorithms, the flow sensor can determine if water usage patterns are abnormal due to a leaking fitting, stuck flapper, or malfunctioning refill valve and send an automatic alert to the appropriate staff.”

Pricing restroom retrofits

When a business or public entity wants to retrofit its restrooms with new technology, one of the questions, of course, is cost.

“Touch-free restroom options are becoming more widely available and can fit within most budgets,” Oltmanns says.

Options abound, as large facilities such as sports stadiums can go with faucets that can be engraved with team logos, while smaller entities might choose simpler faucet designs that offer touch-free handwashing. For managers with tight budgets, flushometer retrofit kits are available, allowing the transformation to water-saving devices with no need for wholesale renovations.

“Going touch-free doesn’t have to break the bank and has become the default in institutional and commercial restroom settings,” Oltmanns says.

A small restroom renovation project could cost approximately \$5,000, which would cover both parts and labor, Ivanich says.

“A new construction build would cost considerably more, as the project would touch everything in the space, including sinks, toilets, mirrors, lighting, flooring, and more,” she says.

Of course, bigger spaces also would cost more. It’s difficult to pinpoint an estimate, as the range of updates varies, but businesses should view renovation as an investment.

“There can be a cost increase to move from metered or manual products to touchless; however, over the life of the product, the costs are negligible, and the benefits will outweigh the costs,” Haas says.

That realization is one reason why a surge in the prevalence of touch-free restrooms dates to before the turn of the 21st century. The pandemic, though, hastened the changeover.

“In our estimation, we believe a majority of public restrooms have transitioned to sensor products,” Haas says. “Smart technology represents a much smaller share in the commercial space, but we see a significant uptick in several market verticals like aviation and convention centers.”

Based on 2022 data, more than 80 percent of urinal flush valves, more than 72 percent of flush valves, and more than 45 percent of commercial faucets were upgraded, Ivanich says, citing the BRG US commercial report.

Oltmanns expects that trend will keep inching upward, with estimates indicating that sensor technology is expected to grow by 20 percent.

“Patrons often make the decision to revisit a business based on the restroom,” he says. “As the standard for commercial restrooms has defaulted in favor of touch-free technology, manual fixtures tend to look outdated and messy. Even with good restroom maintenance, expecting patrons to touch a manual faucet, soap dispenser, hand dryer, or flushometer handle is now considered unsatisfactory.” ■

Laurie Luebbert is a freelance writer with Advantage Informatics.

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