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Safe, Accessible, Durable & Green

The Latest Trends in Restroom Structures

By Chris Gelbach

When facility managers build or update a restroom structure, the decisions they make can profoundly affect the maintenance costs and durability of the restroom over time. Thoughtful planning can also ensure that the structure's as safe, usable and pleasing as possible for all patrons. When people don't like a restroom, don't feel safe in it or can't access it, it can have a huge impact on how long patrons stay at that park or facility—and even on whether they visit at all.

"Restrooms are so far in the subconscious that if you don't make it a forced-choice option on a survey of what park users want, they won't talk about it. Restrooms won't come up," said Carol McCreary, program director for PHLUSH, a Portland-based public restroom advocacy organization. "But when we force them to include restrooms as an option, people rank them first or second. They're just part of the basic infrastructure, and people need them."

Thankfully, new thinking on restroom layout and design can help facility managers address the concerns many people have with public restrooms. And new technologies are empowering them to tackle issues such as vandalism, odors and bacteria with greater success, while also offering greater design flexibility, improved environmental sustainability and enhanced durability.

"Our industry is able to find the problems, analyze the problems and solve the problems with new technology," said Chuck Kaufman, CEO of a restroom structure manufacturer based in Reno, Nev. "We have such a plethora of new materials, finishes, coatings and components that can solve these issues."

Safety First

Many people feel unsafe in public restrooms. They are often viewed as dank, dark, dirty spaces where strangers and trouble lurk—sometimes justifiably so. To alleviate these concerns and keep patrons safer, some experts are pushing for a clearer delineation between the public and private elements of the restroom experience.

"There's no reason why our restrooms should not be more private at the level of the stall," McCreary said. "There's no reason why we should have those 20-inch gaps under the doors. And we can create more safety by eliminating that semi-private space where strangers meet out of the view of the public."

A growing number of park facilities are addressing this issue with individual stall designs. Kellogg Park in La Jolla Shores, Calif., was among the early facilities to adopt this approach, providing 12 individual unisex stalls (including two ADA/family stalls) that can be accessed directly from outside. There are no sinks inside the stalls; instead, four outdoor sinks are provided. There are also outdoor showers on the ocean-facing side of the building for easy and public availability.

According to Mary Coakley, president of the American Restroom Association and an advocate for the Kellogg Park restroom structure's final design, the decision to put the sinks on the outside is an important one in terms of increasing safety and discouraging illicit activity.

"Speaking with state troopers and police at the different restrooms, some restrooms do have the individual stalls but they put sinks in them," said Coakley. "Police like the individual stalls. But putting sinks in them can cause a problem, creating a hotel for the homeless and a perfect location for drug use and other activities."

An individual-stall design with external sinks maximizes public spaces while keeping the private spaces fully private, thereby eliminating the enclosed gang spaces of group restrooms and minimizing opportunities for everything from sexual assaults to bullying. It also presents an opportunity for increased safety through electronic surveillance. "Those kinds of monitors don't work very well in the semi-private spaces, but they work really well in the public space in front of the restroom to deter the danger of an individual being followed into a private stall," McCreary said.

In fact, one of the biggest trends Kaufman is seeing is the adoption of 24/7 camera surveillance of public restroom structures, something that is becoming more affordable thanks to new technology. And, while early camera systems were sometimes placed close to the ground where they were accessible by vandals, they are now typically pole-mounted where they are out of reach. Along with signage stating that surveillance cameras are in use, these cameras have proven effective in discouraging vandalism as well as violence.

"These camera systems really work—they can see in the dark. They're infrared and keep rolling on a 24-hour cycle," said Kaufman. "So if something occurs at night, they go back and reverse the camera, view the data and make a decision on how to proceed to fix it. It's a great trend, and it's really curtailing and reducing the magnitude of the problem." In the case of vandalism, that means police tracking down the parents of the vandal and getting them to pay for repairing the damage.

Another technology-driven safety trend is the management of the securing of the building. In the past, park staff would have to go out and lock the restrooms at night, or in some cities leave them open 24/7. Today, according to Kaufman, the trend is to use magnetic door locks that close on a time clock, thereby automatically locking and opening the doors at preset times in the morning and evening.

"They're the most secure means of maintaining security in the building," he said. Should someone get trapped inside, they can easily get out by pushing an exit button that opens the door for 30 seconds before re-energizing the magnet.

Facilities that wish to retain a half-men's, half-women's design but want to increase the safety of the space can do so by forgoing or modifying the traditional L-shaped screens in front of the doors in which attackers can hide. Their elimination also makes life easier for maintenance staff. "They become outdoor bathrooms when the building is locked," said Kaufman, "and the maintenance people hate it. We're redesigning our interiors with more interior sight screens than exterior sight screens so we don't have that issue."

Jeremy Smith, deputy director of a precast restroom licensing company based in Midland, Va., noted that his company doesn't use screen walls often. When they do, they add a safety feature. "Instead of that wall being solid, we have an open area cut into it at the bottom so somebody can't stand behind there and hide behind it waiting for you to pop around the corner," he said.

Other features that can enhance the safety of semi-private bathroom areas can include strong lighting, opaque windows that allow more light to shine in while maintaining privacy, and the liberal use of vents so that someone in distress can be heard from outside the building.

Access for All

ADA requirements have resulted in restroom structures that typically have features such as levers for entry and sinks, mirrors, toilets, toilet paper holders, towel dispensers and more at designated heights to maximize accessibility. But adherence to these standards alone does not ensure that a restroom is truly accessible to all patrons.

Coakley notes that even those with the best of intentions are sometimes rubber-stamping projects that are not fully accessible. "They're approving projects that are half men and half women where they're able to get two disabled stalls in each side, but what they don't realize is that if a husband has a wife with a

disability who needs help, they can't use that restroom," she said. "Opposite-sex caregivers can't use that facility. If you're going to build a restroom, it should start with an ADA family stall, so at least you provide accessibility to everybody."

This can be achieved through an individual-stall design that includes ADA family stalls as a proportion of the stalls, or by adding a separate ADA family restroom in a half-men's, half-women's facility. "It does increase the cost of the restroom, but we're seeing more people do it, and we do it whenever the customer allows," Kaufman said.

The issue of "potty parity" is also something that is being increasingly addressed in the design of new restrooms to alleviate the common sight of huge lines at women's restrooms on busy days, even as traffic in the men's facilities remains light. Some states are addressing this issue through laws requiring either a 1:1, 3:2, or 2:1 ratio of women's to men's restroom fixtures. At the facility level, some parks are also achieving equal waiting times by using individual-stall layouts featuring unisex stalls.

While some detractors worry that women won't want to use stalls that men also use, gender-neutral public toilets have become increasingly familiar to the public through their growing use on aircraft, buses and even college campuses. A unisex-stall approach also makes it easier for transgender individuals to use restroom facilities comfortably, and for group leaders to take children to use the facilities.

"One thing we have here [at Kellogg Park] is a surf camp and kayak concession," Coakley said. "The surf camp includes both girls and boys. So a male instructor can take boys and girls to the restroom and know that they're safe, which is greatly appreciated by the vendors."

Portland Loo Showcases New Principles in Restroom Design

With its Portland Loo found in several locations around the city, Portland is providing its citizens a solution to the need for 24/7 restroom access. The Loo also highlights a number of the latest restroom design principles. It features:

- A sleek, affordable and sanitary stainless steel design
- Anti-graffiti coating
- Solar-powered LED fixtures
- Louvers at the top and bottom that balance privacy and public access for security
- Ample space inside for ADA/family access, or for a commuter with a stroller or bike
- A button-activated hand-washing station located outside the stall to promote shorter use times and serve pedestrians
- A non-heated interior to deter loitering

Built to Last

Despite recessionary budget pressures, most park districts and other facilities are still taking the long view and opting for more durable restroom structures that offer the best life-cycle value. "A lot of times they'll take the cheapest thing if they only have a certain amount of money, but if they have a little bit more, I see them opting for a product that will last longer with less maintenance," said Glenn Rachak, president of a Fort Collins, Colo., maker of prefabricated restroom structures.

According to Chris Giannini, a landscape architect in the greater Los Angeles area for David Evans and Associates who specializes in public park design, the choice to go with a hardier design is often obvious because of the way many parks are funded. "A lot of agencies will get a chunk of money to put a park in, but the reality is that there isn't money to maintain the park once it's in," he said. "So it's really important that I use materials that are extremely durable."

Given the severe vandalism these structures can face, manufacturers and architects are turning to other industries for inspiration in finding the toughest materials imaginable. For fixtures, Giannini often uses stainless steel prison ware because he knows they'll take a beating. And Kellogg Park painted its restroom structure with paint purchased from a company that provides paint for oil rigs in the ocean.

While using quality paint is key, experts debate the efficacy of anti-graffiti coatings. Some say it helps, while others simply recommend repainting within 24 hours anytime graffiti is present, and using non-absorbent materials that won't accept paint wherever possible. For instance, Kaufman's company uses toilet stall doors made of a composite material that is nonabsorbent and can't be cut without diamond tools.

For many facilities, a greater initial outlay on higher-quality materials can mean big savings over the long run. "A 30 percent delta in first cost can be eaten up with operating and maintenance costs in the first 6 1/2 years," said Kaufman, who also recommends smart landscaping as a way to reduce the economic costs of vandalism. "People tag buildings to be noticed. So one solution is to surround the buildings with vegetation and shrubs. If you put shrubbery at the back and sides of a typical restroom, you segregate the damage to the front area of the building and reduce your costs."

Because facilities are seeking buildings that will last over the long term in harsh conditions, rugged concrete structures are becoming increasingly popular. According to Smith, concrete structures offer the advantages of longer fire ratings, the ability to be earthquake rated for different seismic zones with steel reinforcement, and the ability to handle winds of up to 130 to 150 miles per hour.

It is also typical for manufacturers to offer impermeable coatings for the concrete block, grout, mortar and floors that resist urine and other matter to keep the structures odor-free over the long term. And some companies are even now offering toilet seats, door handles and grab bars with antimicrobial finishes containing colloidal silver ions to prevent the spread of germs.

A New Flexibility

In recent years, precast concrete buildings have become more popular, in part because the number of companies manufacturing these buildings has grown, along with the number of options they can provide to customers.

"There was a time when I would stay away from those products if I was after a certain architectural style or wanted to do something unique," said Giannini. "I would use them only in instances where the budget was really low and there wasn't a great deal of architectural theming with the project."

But today, Giannini notes that the notion of prefab concrete buildings being just basic A-frame structures is obsolete. "These companies have established a great deal of flexibility now. The last couple of projects, I've been able to design the building in terms of what I want it to look like, and they've been pretty flexible about meeting that expectation."

Today, these kinds of buildings can be more easily customized to match existing structures, even historical buildings. And with a wider variety of stains and finishes available, they are even being used in remote locations where customers want a rustic look more traditionally associated with a wooden structure along with the durability of a concrete building.

One example is a restroom structure recently built in North Carolina's Hanging Rock State Park. "It's out in a remote location where people go rock climbing," Smith said. "It's a beautiful area, and they didn't want to put a Porta-John out there or a high-maintenance, easily vandalized wood building. So they went with a precast concrete building that still has a rustic look and fits into this very remote, pristine forest."

Prefabricated options have also expanded to include larger buildings that can be transported to the site in

two or three separate segments, or shipped flat, for installation by the manufacturer. For this reason, more and more facilities are now opting for combination buildings that include restrooms, storage space and concession areas within a single structure. "It offers a combination of cost savings and ease of use," Smith said. "They can make one purchase instead of setting up multiple contracts."

This approach also enables facilities that are closed part of the year to have someone keep tabs on one building occasionally to prevent vandalism, instead of three or four.

Parks and other agencies also have the option of going with pre-engineered buildings sold as a kit that can then be shipped to the site and put together by a contractor. This approach offers a great deal of flexibility in terms of design, but requires more effort in making sure that the contractor constructs the building correctly.

A variety of factors, including local labor costs, can factor into whether building onsite or going prefab will be the most cost-effective. And factors such as weather, commitment to regular maintenance and exposure to salt water and other stressors can affect the relative life of concrete versus cinder block and wooden structures in various environments.

In terms of speed, there's no doubt that prefabricated buildings can be installed more quickly than buildings built on site. For this reason, Giannini finds that their use can sometimes make larger projects go more smoothly. "These buildings can be pushed toward the end of the project and dropped on site within a couple of days. So there's an advantage in terms of construction scheduling that I think is really helpful," he said.

New Options in Green Design

Sustainability in restroom-structure design is another trend that has been gathering momentum in recent years. Trends such as low-flow and no-flush fixtures can frequently offer cost savings in addition to environmental benefits, depending on the application.

One example would be areas where water supplies are limited, or where running sewer and water would be cost-prohibitive. "If you're in an area with limited water resources, the vault-type waterless system is a great alternative," Rachak said. "Even the low-flush toilets use around 1.5 gallons of water. You do that 1,000 times, that's a lot of water."

Most commonly, a downtown location with pre-existing water and sewer will typically opt for a traditional toilet facility, whereas dry facilities are more often seen in remote locations where running water and sewer out would be difficult to put in place. But sometimes cost can also play into the equation.

"Theoretically, the ones without the plumbing are going to be a little cheaper," Smith said. "At a ball field, say, where they could run the water and sewer in, they may still opt for the pump-out system."

Those particularly focused on an environmentally friendly option may also consider a compost toilet. Don Mills, sales director for a manufacturer of compost toilets based in Greater Boston, sees customers selecting this option in response to the need to protect the environment, particularly water resources, or when they wish to have a non-smelling toilet system in a remote location where a Porta-John or vault toilet would be their only other option.

For parks and rec applications, Mills sees compost toilets most often used in golf courses to replace a Porta-John with a better-smelling alternative that fits in with the character of the course. He also sees them being used in park facilities with a tight budget that want something to go into a remote area. But dry and composting toilets are occasionally seen in urban situations, as well. One notable example is the Bronx Zoo, which opted for composting toilets instead of establishing an expensive sewer connection or building a new septic system near the Bronx River.

Both vault and composting toilets can be long-lasting, with the lifecycle of the material selected for the external structure often being the determining factor in durability. "The life cycle of the composing unit is unlimited because it's made of polyethylene," said Mills. "There are many instances where the structure has been replaced and the underlying compost units have not."

Another green feature being seen more and more often in restroom facilities is solar panels. Used on a small restroom in a remote location, the panels can affordably power the restroom's lights and fan and provide significant savings when compared to the cost of running power out to the structure. The panels can also be customized for optimal use in a variety of climates, from the bright sun of Phoenix to the cloudy skies of Seattle. "Every system is designed for that latitude and is sized completely differently based on power needs, latitude and weather," said Rachak.

According to Rachak, a basic solar system for such an application can be purchased for as little as \$2,500. But larger applications requiring more panels typically cost more and require longer to achieve a return on investment. For instance, Giannini recently used solar panels in a building a small sports park. "They're more than cutting their utility bill in half annually, but it will probably take about 12 to 15 years before they get a return on their investment on the panels."

From restroom layouts to a wealth of new technologies, facility managers have more options at their fingertips when it comes to restroom structures than ever before. With proper research and careful attention to the specific needs of the application, they have the ability to select a restroom structure that will perform admirably for decades. In the process, they can encourage patrons to come and stay just by giving them a safe, pleasant place to go.