

Better Restrooms by Design

By Carolyn Johnson

Proper restroom design requires engineers and facility designers to look beyond basic plumbing plans. Innovative design takes capacity and maintenance issues into consideration, and can mean the difference between a clean, well-stocked restroom and one that is always in need of repair. Choosing the appropriate accessories upfront can reduce installation costs, create efficiencies and hold up to vandalism.

Design and product selection

Product cost is always a top consideration for new restroom construction or retrofits, but planning ahead can reduce installation costs. For example, lavatory mounted soap dispensers can be mounted into pre-drilled holes in countertops, reducing installation time. Specifying through-partition accessories can save installation costs by serving two stalls with a single unit. Recessed-mounted accessory units keep potential damage to a minimum but may require framing in walls. However, if framing is completed during rough carpentry, the cost is generally not more than blocking. Blocking may be required for surface-mounted units anyway.

When selecting accessories, it is important to consider where the restroom is located, how often it will be used, the number of people it needs to accommodate and the peak times of day. Local building codes and ADA guidelines often dictate the placement and quantity of certain components, but it is important to seek advice from experts who can offer additional guidelines to help avoid high maintenance costs. Planning ahead can add up to big savings.

The number of accessories required in a restroom, such as soap dispensers, hand dryers and waste receptacles, should be looked at closely. In a busy restroom, there should always be enough of each to accommodate a constant flow of users. For instance, a general guideline for hand drying is one towel dispenser or dryer for every two or three sinks.

Determining placement of accessories based on traffic patterns should also be a high priority. Besides being inconvenient, improper accessory placement can pose a safety hazard. A paper towel dispenser placed across the

room from a sink requires people to walk across the room, dripping water onto the floor. Also, when an additional mirror is placed away from the sink area, traffic flow at the sinks moves more efficiently. Keeping soap available and dry towels within reach also promotes good hygiene, which is especially important in health care and restaurant facilities.

Trimming maintenance costs

If maintenance crews need to refill soap, paper towels, toilet tissue and empty waste receptacles more than on their scheduled rounds, costs can double. Selecting high-capacity products that are easy to refill, such as jumbo roll toilet tissue dispensers, is an easy solution. Large capacity soap dispensers and roll paper towel dispensers are designed to be serviced less often.

Selecting electric hand dryers over hand towel dispensers eliminates paper waste and can lower costs in higher volume restrooms by as much as 90 percent. Although the initial cost of the dryers is higher than paper towel dispensers, they often pay for themselves within a few months. Reduced waste also keeps washrooms cleaner and more sanitary.

Following is an example of the cost to purchase and install two hand dryer units, compared to the cost of paper towels over one year for a busy restaurant with two small restrooms. Note that in less than a year the cost of the hand dryers has been recouped, and this does not take additional savings from reduced maintenance costs, such as filling the dispensers and emptying the trash, into account.

Hand Dryers	Paper Towels
Cost of 2 Units — \$700	Cost of Paper — \$1,500
Installation — \$500	
Total Cost = \$1,200	Annual Cost = \$1,500

Table 1 — Hand Dryers vs. Paper Towels

Beware of “free” soap and paper dispensers — they may cost more in the long run. Many janitorial service companies offer free dispensers with a contract to purchase the soap or paper towel to fill them. Proprietary paper contracts often have higher prices along with minimum usage quantities that must be met. The dispenser units generally last only six months in public use, and the replacements are usually not free. The free soap units are typically “bag in a box” type dispensers. Bag-in-a-box soaps cost about 60 percent more than moderately priced bulk soap and can really give owners a soaking.

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Solutions to vandalism

Most facility managers, especially those for schools and correctional facilities, routinely face vandalism challenges in their washrooms. In fact, many schools are moving toward corridor concept washrooms with wash stations located in the corridor outside the toilet facilities to allow maximum student supervision. Plumbing engineers and designers can play a critical role in designing these types of solutions with products that help deter vandalism.

There are many grades of washroom accessories, and although choosing a higher quality, vandal-resistant

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product may cost more initially, replacement and repair costs can end up costing more in no time. Added features, such as full-length piano hinges and tumbler locks hidden on the inside of sanitary dispensers and combination units, help prevent damage. Select heavy-duty stainless steel soap and toilet tissue dispensers to reduce the possibility of breakage. Theft-resistant spindles also ensure rolls will remain in place. Consider polished stainless steel or plastic reflective surfaces instead of glass mirrors in high-risk areas to reduce the potential of damage or injury from broken glass.

Think about the accessories in your home bathroom. These decorative products would never stand up to the treatment of high-traffic washrooms. However, this does not mean heavy-duty accessories need to be industrial looking. Today, materials such as solid phenolic laminate and other solid surface materials can give restrooms, such as those in the health care or hospitality industries, a more comforting look than metal. Solid phenolic accessories are available in a wide range of colors and are extremely resistant to dents and scratches.

A good design and the right accessories can help high-traffic restrooms stand up to constant use and vandals. Remember to consider capacity, traffic patterns and product features to avoid choosing accessories that will result in excessive maintenance costs or expensive replacement or repairs. □

Good: A free turning, double roll toilet tissue holder without any theft protection mechanisms is best suited for light commercial applications.



Better: A better solution for commercial restrooms is a double roll toilet tissue holder with a “hidden” role, which is inaccessible until the first roll is depleted, to eliminate potential paper waste and theft. The spindles are made of polyethylene for extra vandal-resistance. Its hinged bottom allows easy refilling and the front panel is secured with a tumbler lock.



Best: Heavy traffic applications require a jumbo roll toilet tissue unit, such as this unit, which holds two large 9-inch individually dispensed rolls. Using very large rolls means less servicing. A bottom hinged front panel is secured with a tumbler lock to prevent vandalism and theft.

