

## Introducing the New Eco-Restroom

Composting toilets do more with less for less money

By Andrea Lynn

**O**n the island of Kauai in Hawaii, there came a point when park officials and community members agreed that the existing sewage treatment in the Haena State Park was desecrating the cultural resources beneath it. The solution was to install composting toilets instead. Also referred to as "comfort stations," these compost toilets rely on an individual wastewater system using a constructed wetlands form of sewage treatment. The Hawaii park system has composting toilets in a few other locations, including the Na Pali Coast State Wilderness Park and Manuka State Wayside in south Hawaii.

"Our Division of State Parks uses composting toilets to provide a self-contained sanitation facility in remote locations where it would be impractical to install infrastructure (such as water or electricity) to support a sewer system that could pump out the sewage," says Public Information Officer Deborah Ward. "We may also put in a composting toilet if we lack adequate space to put in a sewer system."

With the composting toilets, the waste is transferred to an elevated tank and biomatter, such as leaves and grass, is added to the sewage. These materials are blended and over time decompose into compost, which is then recycled into the ecosystem in an area not accessed by the public, Ward explains.

In 2007, when the Bronx Zoo in New York City was renovating its restrooms at the Bronx River Gate, it chose to go the eco-friendly route, in keeping with the zoo's overall conservation mission. The eco-restroom with compost toilets and energy-saving techniques is used by 60 percent of the zoo's two million visitors



**Bronx Zoo officials use the facility's composting toilets as opportunities to teach visitors about sustainability, as well as signs explaining how water from handwashing goes to help water the zoo's gardens.**

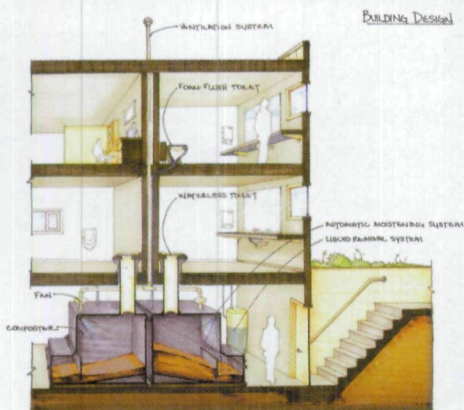
per year. "The 1,200-square-foot 'green' restroom incorporates sustainable design strategies, such as maximizing the use of daylight and minimizing electrical use, as well as utilizing environmentally friendly materials and composting toilets," says Susan A. Chin, AIA, Wildlife Conservation Society's vice president of planning and design and chief architect. "The odorless composting units require very little water and produce clean and viable compost."

The way the compost toilets at the Bronx Zoo work, visitors flush with foam before and after use, and the waste goes down into the composter, which contains organisms that help to break it down. These foam-flush toilets use just six ounces of water per use, says Amy Galvin, marketing coordinator for Clivus Multrum Inc., the company that installed the facility. Compared to conventional low-flow toilets, that's a

97 percent savings. "Composting toilet systems eliminate the need for sewer connections and septic systems and the land that needs to be sacrificed for these things," Galvin says. Because of this, compost toilets can be placed in locations where other waste treatment systems cannot.

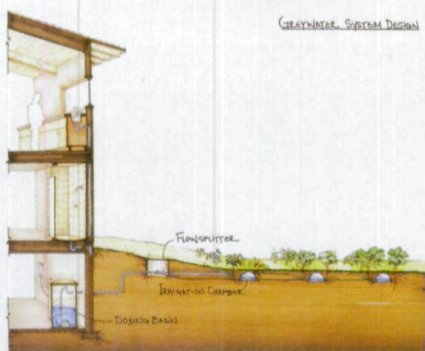
Logistically, for a facility to install composting toilets, there must be sufficient space beneath the toilet to accommodate a composting tank, since gravity is the primary transfer mechanism for the waste. "Either a restroom must have a basement area or the tanks can be set on the ground level with toilets on an upper floor," she says. She maintains that composting toilets have no more a yuck factor in terms of maintenance than a conventional toilet. "There is no flush and therefore no spray or splash from water in the bowl. The ventilation system pulls all odors down through the toilets





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—Amy Galvin, Clivus Multrum Inc



approximately \$1.385 million. "The composting and gray-water system portion of this will total about \$90,000 but this does not include the necessary plumbing and electrical connections," Smith says.

The composting toilets look very similar to normal toilets, as do the urinals, with one substantial maintenance difference. "It is very important that green cleaning supplies are used. Products like ammonia and other cleaning soaps traditionally used in public restrooms will kill the worms in the compost tanks that are an essential ingredient in the system—if the worms die, the matter will not compost properly," Smith says. Other regular maintenance includes putting in wood chips periodically and taking out the compost. For the comfort station at Prospect Park, it will be five to 10 years before the compost needs to be removed.

There's also the factor that compost toilets are a beneficial way to educate the public about greener technology. Installing compost toilets and other eco-friendly technology in park and recreations facilities can offer great opportunities for teaching moments with signage to inform the public about sustainability, Galvin says. This is exactly the approach the Bronx Zoo chose, with a series of signs describing how to use the compost toilet as well as signs explaining how the water from the hand washing is funneled to water the plants in the garden. In return, more than 90 percent of Bronx Zoo visitors surveys agreed that the eco-restroom was entertaining, informative, and comfortable.

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thereby preventing any odors in the restroom," she says.

Clivus Multrum is also installing compost toilets in Prospect Park in Brooklyn, New York. Prospect Park architect Louise Smith says they are planning to have four toilets and two urinals and that the composting toilets fit into the park's goal to implement a sustainable system. Two specific advantages, according to Smith, include not adding stress to the already overburdened city sewage system, as well as using the composted material for agriculture needs. The construction drawings have just been finished, and they hope for construction completion in early 2012 with an entire cost of

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