

The Eco-Friendly Toilet Tech at One World Trade Center

BY SARAH FECHT

At the top of One World Trade Center (the Freedom Tower) in New York City, workers are quickly building one floor after another—they're now up to about 60 stories. When nature calls at 60 stories up, workers typically use the familiar portable toilet, with its blue deodorizing chemicals. But at the Freedom Tower, workers are going green: They're using composting toilets so that all that waste doesn't go to waste. PM dons a hard hat and steel-toe boots to show you how it works.



With their stained shirts and dirty boots, you might not think of the construction workers who are building the new One World Trade Center (the Freedom Tower) as a bunch of environmentally-minded tree-huggers. Yet every day these workers are putting into practice some of the environmental movement's highest ideals, just by using the bathroom.



As workers build the Freedom Tower's skeleton, they work on a steel platform that moves up as the structure gets taller. And as the tower gets taller, it becomes increasingly difficult and expensive to shuffle toilets around. So instead of going with the standard Blue Bowl, the Freedom Tower has become the first major construction site to use composting toilets.

"What we're doing now [with portable toilets] is extremely unnatural," says Don Mills from Clivus Multrum, a company that wants to make toilets more eco-friendly. In nature, the nutrients and energy within human waste mix with soil and become plant food. But normal toilets don't capture those nutrients; instead, they dump sewage into oceans and waterways. Composting toilets get rid of waste in a more natural way, producing a rich soil in the process.

The biggest difference between a composting toilet and a normal one, as maintenance guy Dominick Venditti points out, is that before you sit down to use one, you have to hit a button that makes a foam ooze over the toilet bowl. "And when you're done, you flush it again," he says.

The foam comes from a computer at the back of the toilet, which mixes a soapy substance with about 1 tablespoon of water for each flush. It's a huge water-saver: By comparison, the average toilet uses 3 to 5 gallons per flush.

In a separate room below the restroom, the toilets empty into a green plastic tank that's about the size of a hot tub standing on end. The tank is halfway full of sawdust and worms. "And they're red wigglers, just like you would go fishing with," Venditti says. The worms wriggle through the sawdust, processing the waste. The urine collects at the bottom.

The urine gets pumped to a boiler, along with runoff from the hand-washing sinks. The boiler evaporates the water away, leaving nothing behind but a residue of salts, sugars and other gunk. Between the worms and the evaporator, the volume of the waste gets reduced by 90 percent. "We've only got about an inch of sludge in here, and it's been collecting for over a year," Venditti says. "So unless we start servicing Ringling Brothers, we should be fine."

And that's the way it'll remain until the Freedom Tower is finished in a few years. But for the men and women straddling the steel beams in rain, snow or sunshine, the composting toilets have another benefit. Says one worker: "It's wonderful that it's heated in the winter and cold in the summer. Just picture the worst situation imaginable and multiply it by five, and that's the normal situation. It's nice up there, and it helps the environment. I feel like I'm really doing my part by going to the bathroom."