

Adding Composting Toilets to the Sanitation Mix | Earth911.com

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Using the toilet is not something we usually give a lot of thought to. The porcelain flush toilet that immediately removes waste from our homes, never to be seen again, seems like a pretty good system. But much of the existing wastewater infrastructure in the U.S. is deteriorating and requires repair or replacement.

Americans need to give their toilets some serious thought or we could find ourselves — literally — in deep doo doo. Composting toilets might be part of the solution to a safer, greener sanitation infrastructure.

Toilet Trouble

We tend to think of the lack of sanitation as a problem belonging to developing countries, and to an extent that is true. [Worldwide](#), only one-third of the population uses sanitation facilities connected to sewers from which wastewater is treated. Nearly as many still do not have basic sanitation facilities such as toilets or even latrines. For people in places with no sanitation infrastructure at all, [composting toilets](#), which treat human waste in situ without wasting fresh water, may be the best choice.

But even in the U.S., a lot of our [wastewater infrastructure](#) is overdue for replacement. Many treatment facilities date back to the 1970s, when the Clean Water Act led to a boom in infrastructure construction. Many cities still use a [combined sewer](#) system in which sewage and stormwater pass through the same pipes. It has been illegal to construct this type of system since the first half of the 20th century because combined sewers result in discharge of untreated waste to bodies of water used for drinking water and swimming, and sometimes even onto the streets, posing serious [health risks](#).

Even when working perfectly, sewer systems are inherently [wasteful](#) of a precious resource — fresh water. The average American family of four uses 400 gallons of fresh water per day; 95 percent of that water ends up in the sewer system.



Manufactured composting toilets, like this Nature's Head self-contained model, look a lot like a regular toilet, but without a water tank or flush mechanism. Image: [Nature's Head](#)

Composting Toilets

For the most part, public discussion has focused on upgrading and replacing sewer pipelines and wastewater treatment facilities. When [green technology](#) is discussed, it is usually in the context of strategies to minimize stormwater, like rain gardens and green roofs. But composting toilets could also play a part in minimizing the need for massive infrastructure investments.

For users, composting toilets look a lot like regular toilets, except without a water tank or flush mechanism. Underneath, there are a variety of [composter designs](#), just as there are a variety of designs for composting yard waste. But all of them work more or less [the same way](#), separating urine from feces and utilizing naturally occurring aerobic bacteria to break waste down into a pathogen-free soil amendment.

A properly functioning composting toilet should not smell any more than a flush toilet but will require more [maintenance](#) on the part of the homeowner.

Although "humanure" compost should be free of pathogens, some advocates choose to add it to [garden composters](#) for a second round of treatment, and everyone recommends using the resulting compost on fruit trees or ornamental plants to eliminate direct contact between the compost and food.

Where Could They Help?

Cities with combined sewers might be able to build smaller replacement systems if many people switched to composting toilets. But it's unlikely that many urban residents will remove their connection to the sewer system. Composting toilets may prove most useful in areas where septic systems are inappropriate or inadequate. Examples would be environmentally sensitive areas and properties with insufficient land.

About 1.6 million Americans, primarily people of color and rural residents, are affected by [water insecurity](#) in the U.S., meaning they don't have running water or indoor plumbing. Possibly an even larger number are affected by inadequate and [failing septic systems](#), often in areas with challenging geology, where the cost of replacement can run higher than the value of the homes they serve.

Commercially available composting toilets [cost](#) from \$1,500 to \$8,000 depending on the complexity of the system. When financial resources are insufficient to develop a sewer system, composting toilets could prove a practical alternative.

Final Considerations

Composting toilet [regulations](#) vary greatly, from outright bans to requiring [NSF-certified](#) manufactured systems, to failing to mention them at all.

Codes often allow composting toilets as a supplementary system to a septic or sewer-connected toilet. For new construction projects that rely entirely on a composting toilet, expect to work closely with the permitting agency. The state of Oregon has specific codes allowing site-built (rather than purchased from a manufacturer) composting toilets; these codes can be a model for residents of other states working towards an exception with their local permitting agency.

Feature image: public composting toilet

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