

# Moving Beyond the NSF: Composting Toilet Systems

“Oregon is 1 of only 7 jurisdictions in North America that requires treatment systems be certified by NSF. NSF’s certification protocol does not physically monitor effluent characteristics in order to verify system performance in the field.”

-Final Report of Recommended Rules Governing Onsite Systems

Oregon has relied on NSF standard 41 for composting toilets since 1983, and it no longer serves the purpose of encouraging innovation and protecting health. Relying on NSF guidance prevents economical, high performance systems from being installed, and it is time to move on to performance-based guidelines that allow Oregonians to chose the best technologies.

For example, the Vira Miljø Carousel, developed in Norway and with over 20,000 installations worldwide, is also manufactured in California by Ecotech. Ecotech is owned by David Del Porto, lead author of the composting toilet section of NSF 41. The Carousel is no longer NSF certified, owing to the expense. CTS has also dropped their NSF certification for the same reason.

Since 1978 four Oregon manufacturers have made composting toilet systems in-state: The Green Earth Compost Toilet Company, Toa-Throne Compost Toilets, Mullbank of Oregon, and most recently Romtec, who ceased production due to lack of demand. The owner of Green Earth Compost Toilet Company says that difficulties with permitting, especially following NSF 41 adoption, were the most important factors in putting his company out of business.

Additionally, not all systems tested in NSF-certified laboratories and bearing the NSF-approved mark are NSF-listed, confusing consumers. ACS, Montana manufacturer of toilets popular at parks including Smith Rock- is not NSF listed, although it bears the NSF-approved seal because of testing through the Canadian Standards Association (CSA).

## The NSF, Composting Toilet Availability and Manufacturing in Oregon

Certifying a composting toilet to NSF standard 41 costs \$15,000- 20,000 / year.

Despite four attempts, there is currently no Oregon manufacturer.

Manufacturer	Country	State	
Clivus Multrum	Sweden, USA	MA	} NSF-listed
Sun-Mar	Canada		
ACS	USA	MT	} CSA-listed
Sancor	Canada		
CTS	USA	WA	} NSF lapsed, installed in OR (NSF dropped owing to excessive cost)
Vera Miljø/Ecotech	Norway, USA	CA	
Romtec	USA	OR	- discontinued, cites lack of demand
AlasCan	USA	AK	} US distribution, not permitted in OR
Biosun	USA	PA	
Cotuit	USA	MA	
Aquatron	Sweden		
Ekologen	Sweden		
Separett	Sweden		
Berger Bioteknik	Germany		
Biolan	Finland		} no US distribution
Biolytix	New Zealand		
Ekolet	Finland		
Enviroloo	South Africa		
Rotaloo	Australia		

Quotations from the Final Report of Recommended Rules Governing Onsite Systems, DEQ Onsite Advisory Committee, 2010.

Toilet manufacturers found with the assistance of:

The Composting Toilet Systems book v.2, Delporto & Steinfeld, 2000

The Lane County Office of Appropriate Technology’s guide to Composting Toilets, 1979.

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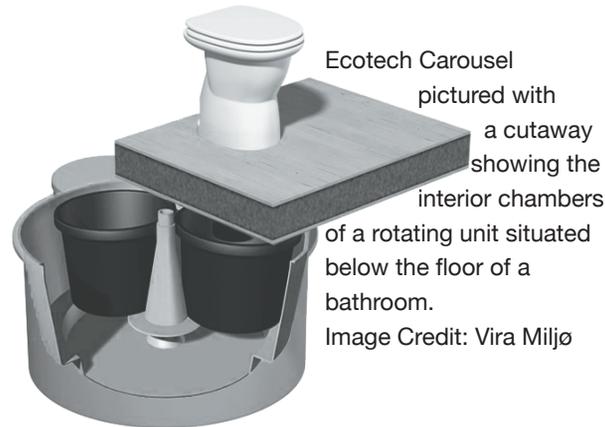
## Manufactured Composting Toilets

The first composting toilet to be manufactured was the Clivus Multrum, a conjunction of Clivus, Latin for “sloped” and Multrum, Swedish for “mulching chamber.” It is a sloped composting chamber where compost is added up top and removed at the bottom, known as a continuous composter. Since its patents expired in the late 1970’s, the design has been imitated and improved upon in by several site-built and manufactured composting toilet systems. Currently only Clivus Multrum-branded clivus multrums, as well as Sunmar, Sancor, and ACS systems are licensed by the NSF, and therefore permitted in Oregon. Composting Toilet Systems Inc. of Newport, WA went into business in 1978, after patents expired on the Clivus Multrum, and their design is very similar. CTS systems are installed at Sand Island park in St. Helens and five other sites in Oregon. CTS used to be listed by the NSF, but found it uneconomical and dropped the listing.

The Vira Miljø Snuredass, Norway’s most popular composting toilet, is now manufactured by Ecotech in California as the Carousel. Vira Miljø pioneered a variety of batch composting systems that rotate to a new chamber every 90-180 days, depending on the number of residential users. Many homeowners find that separate batches are easier to maintain and empty than continuous composting systems like the Clivus Multrum. No batch composters are currently



CTS Inc. composting toilet for trailhead use, similar to the system installed in St. Helens, Oregon. Image Credit: CTS Inc.

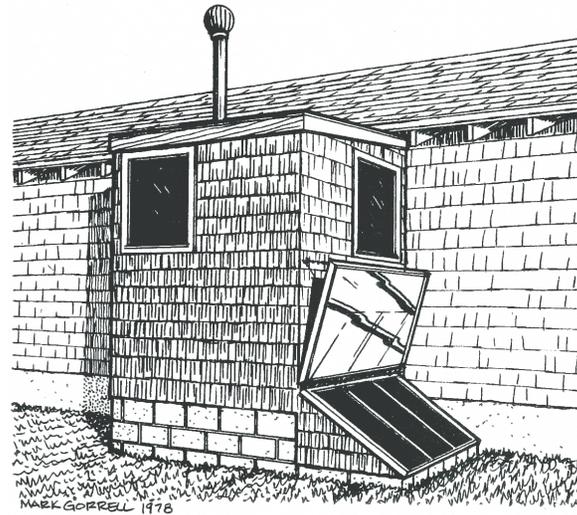


Ecotech Carousel pictured with a cutaway showing the interior chambers of a rotating unit situated below the floor of a bathroom. Image Credit: Vira Miljø

permitted in Oregon, but at least one Carousel is installed.

## Site-Built Composting Toilets

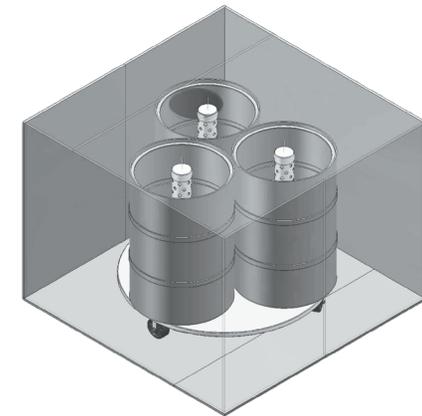
In cases of new construction and home renovation, it is often economical to build the composting toilet system into the structure. Many homes are not built to accommodate a composting toilet within



A bathroom with composting toilet added on to a house, with a solar collector to heat the compost chamber and speed decomposition. Image Credit: Mark Gorrell, the Lane County Office of Appropriate Technology’s Guide to Composting Toilet Systems, 1978.

their current plan, but can add one as a small addition. In New South Wales Australia, where water shortages are acute, these systems are often of the “Clivus Minimus” continuous composter design, similar to the Clivus Multrum, but cast in place out of multiple layers of insulated concrete. The Clivus Minimus system was originally published by Ron Davis of Cottage Grove. Despite many attempts, Davis’s home is, to ReCode’s knowledge, the only site-built system to receive a permit in Oregon.

In Alaska, where soils are often inappropriate for septic systems, and there is an alternative waste treatment industry. Biorealis Systems is one such company, lead by Ecological Engineer Robert L. Crosby, Jr., recipient of the US Department of Energy Award for Energy Innovation. Biorealis focuses on containerized waste treatment systems, and his barrel batch composting toilet system is an affordable alternative to commercial batch composters. His designs are installed extensively in public and private buildings throughout Alaska, and he has licensed his plans so that anyone may re-use them without fees. As site-built systems, they are not permitted in Oregon.



A Biorealis site-built composting toilet system built out of plastic 55-gallon barrels modified with aeration piping, and a rotating chamber like the Ecotech Carousel. Image Credit: Biorealis Systems Inc.