**Living Machine**

**Sharon, Vermont Rest Area**

This is Vermont’s first green rest stop. It uses less energy than its counterparts. Whenever possible resources used are recycled.

Vermont, the Green Mountain State, has built a green building that it can now hold as a model around the country, across America.

Because people are always coming and going, rest areas are notoriously expensive to heat and cool. The stop at Sharon has turned to Mother Earth for help. The technical term is a ground coupled closed loop water source heat pump system.

Vermont’s Chief of Engineering for Buildings and General Services Dave Burley says: Through 24 430-foot deep wells into the ground and it uses the energy stored in the earth, not the groundwater portion of the earth, but the solid rock portion of the earth, to exchange heat, depending on whether we’re cooling or heating.

The buildings and site are designed to take advantage of sunlight to warm buildings, keep their interiors bright and to melt snow.

One of the more interesting components at the rest area is what's called the Living Machine.

The greenhouse that visitors see when they drive in is actually a jungle-like biological system. It will use plants and bugs to recycle over two-thirds of the 6,000 gallons these rest stops use ever day.

Great pains have been taken to use Vermont materials at the rest area. Burley says there's one exception in the Living Machine: the species of plant used can be found in Southeast Asia.

The living machine technology is used by businesses, schools and some local governments to purify toilet water, industrial runoff and contaminated bodies of water. People familiar with the technology say this is the first time a state has built a permanent rest area whose toilets run exclusively on a living machine.

In a living machine, the contents of a flushed toiled are pumped into a filtration system to rid them of odor and then into six concrete cylinders holding vegetation. The various plants are South Asian natives, a good choice both because of the Vietnam memorial and because their roots are well suited to host the organisms that eat the waste, converting it into plant food.

After the water is clean for reuse, it is pumped back into the toilets, to resume the cycle. Just to be safe, signs hanging over toilets warn users that the water, dyed blue for good measure, is nonpotable wastewater.

In the glass greenhouse, the room smells like a combination of mulch and chlorine. The building is heated and cooled by 24 geothermal wells. A similar system lies under the sidewalks to melt snow in the winter.

Sharon Rest Area represents money well spent: It achieves goals of embracing visitors with an environmentally friendly, uniquely Vermont facility.

The living machine was the solution to remedy drainage problems.

**Adapted From**

“I-89’s Green Rest Stop in Sharon, VT” by Kevin Forrest

<http://info.nhpr.org/node/9217>

“Vermont Rest Area Uses Green Wastewater Treatment System,” by Molly Farrell, Liz Van Der Hoven, and Tedann Olson

<http://www.fhwa.dot.gov/publications/publicroads/00mayjun/vermont.cfm>