



COLD CLIMATE HOUSING RESEARCH CENTER

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ENERGY FOCUS

Septic Systems, Conservation, and Deep Thought

By Adam Wasch, Energy Outreach Consultant for CCHRC and CES

I think a lot about stuff I can't control. I tend to do this sort of thinking in places like bathrooms. The law of conservation says that energy is neither created nor destroyed, which is some comfort. But in life, things do get moved around a lot. All of which led me to decide a subject for this week's column: understanding and caring for your home's septic system. If you live in the city and use a public sewer, read on anyway. It's all the same in the end.

That subterranean tomb beside your house is not the final resting place of yesterday. It is a way station, a place for waste to convalesce, and the epicenter of microbial renaissance, which is fitting because a French man is credited for having invented the modern septic tank. Louis M. Mouras began marketing a water-fed tank system in 1860, calling it *la vidangeuse automatique*, which translated at the time as "the automatic scavenger."

Before septic tanks became common, growing urban areas were befouled with disease, tainted water, and foul smells. Septic tanks provided a low-tech, affordable means to treat sewage and render waste less hazardous. Unlike outhouses, septic tanks prevent unprocessed waste from leaching directly into adjacent soil or ground water. Inside a septic tank, sewage is feasted upon by anaerobic bacteria over time. In a miracle of convenience, these bacteria are excreted by our bodies and require nothing but time and their favorite food to work. Untreatable sludge drops to the bottom, oils and fats rise to the top, and the treated effluent empties from the end, slowed by one or more baffle.

The septic tank is but the first step in a physical and chemical process that renders the wretched into the merely distasteful. Modern systems connect to a series of perforated pipes leading into your yard and forming a drain field, allowing effluent to disperse over a large area and mix with oxygen and soil. Soil has a natural ability to filter organic waste, thereby nearly perfecting the waste treatment process.

Septic systems can provide many years of uninterrupted service if they are maintained properly. Yearly or biyearly pumping is required to rid the tank of sludge and errant inorganic matter, which if left too long will reduce the tank's flow capacity and clog your drain field. Tanks should be buried deep enough and insulated so as to not freeze during the winter. Steel or plastic tanks are available. Plastic will not rust, but must be built strongly enough to withstand the weight of waste and the surrounding soil pressure. Drain fields should not be built upon, driven over, or compressed in any way – looser soil promotes efficient filtering and decomposition.

Only human waste, toilet paper approved for septic system use, and biodegradable soaps should be allowed to enter the system – no cell phones, reptiles, or stuffed animals. Additives advertised for use in septic systems are in most cases unnecessary and possibly damaging. Some additives are out-and-out gimmicks that can wreak havoc. Garbage disposals are not recommended – they can overload the tank and clog the system with particulates. Conserving water through the use of low-flow shower and faucet heads, and staggering your clothes washing will help to ensure effluent has adequate processing time before being forced from the tank. Unusual odors, back-ups, or a bloom of grass above your drain field is a sign of a broken system that requires professional attention.

Consider the chemicals you pour down the drain. Oils, acids, and pesticides, not to mention drugs, paint, and solvents will not be neutralized by a septic system. These substances will either be dispersed into your land, contaminate ground water, or foul distant waterways when the sludge pumped from your system is trucked off and disposed of elsewhere.

Finally, if you use a dishwasher, scrape your plates thoroughly before washing them and use phosphorous-free automatic dishwashing detergent. Phosphorous can trigger algae blooms in lakes and kill fish by using up oxygen. On land, phosphorous concentrations can alter vegetation patterns and endanger certain plant species. You may have to try a few phosphorous-free detergents before you find one that works for you, but it's worth the extra cost. Remember, waste never really goes away. It just changes form or relocates.

Adam Wasch promotes energy awareness for the Cooperative Extension Service (CES) and the Cold Climate Housing Research Center (CCHRC).

For questions or comments please contact CCHRC at (907) 457-3454