

Septic systems 101

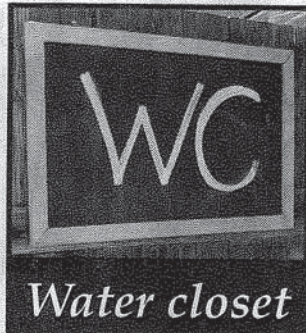
The French are credited with developing underground septic tank systems in the 1870s. Today, about one in four households in the U.S. use individual or small community septic systems to treat wastewater. That's about four billion gallons of wastewater per day being dispersed below the ground's surface.

Septic systems are designed to collect household waste in a tank and then filter wastewater and pollutants through drainfields. Drainfields then break down and neutralize contaminants before they enter ground or surface water systems.

How septic systems work

Typical household septic systems have four main components, a pipe from the home, a septic tank, a distribution box, and an absorption field (drainfield). There are several different types of septic systems, including gravity (using gravel or chambers), pressure, mound and filter.

Decomposition of waste begins in the septic tank where solids settle to the bottom of the tank. Solids are digested by naturally occurring bacte-



ria that transform up to 50 percent of the solids into liquids and gasses. Once the wastewater leaves the tank and enters the drainfield, it is processed chemically, physically and biologically. Chemical treatment occurs when wastewater comes into contact with soil particles that prevent nutrients from moving into groundwater. Physical treatment occurs as wastewater moves through pores in the soil which act as a filter removing solid contaminants. Finally, biological treatment occurs as microorganisms feed on the wastewater.

Septic system maintenance and failures

After septic systems are in place and operating, they require periodic maintenance. Homeowners are responsible for maintaining their septic systems. If maintenance is ignored or

done improperly, system failures can lead to costly repairs or the need for system replacement.

An improperly functioning system can contaminate groundwater and pose a significant health risk. Around Whitefish Lake, it could contaminate our drinking and swimming water, exposing us to diseases and infections.

Typical household septic tanks should be pumped about every three to five years. Modern septic systems can be cost-effective options for wastewater treatment; however poor septic performance or system failure can arise for a number of reasons.

Top-10 causes of system failures

1. Hydraulic and organic overloading
2. Poor drainage or poor siting
3. Extensive use of garbage disposals
4. Salts and chemicals from water softeners and washing machines
5. Not maintaining the system
6. Failure to install according to local codes
7. Kitchen grease
8. Flushing foreign objects down the drain
9. Tree roots

10. Driving over your drainfield

Efficient use of water helps maintain septic systems. Here are activities that will reduce water use and extend the life of your septic system.

1. Installing high-efficiency showerheads
2. Turning off water while shaving or brushing your teeth
3. Running the dishwasher only when it is full
4. Running the clothes washer only when it is full
5. Installing kitchen and bathroom faucet aerators
6. Limiting the use of garbage disposals
7. Never flushing dangerous household chemicals, gasoline, oil, pesticides, or paint down the toilet or drain
8. Replacing old appliances with newer high efficiency models
9. Rerouting water purification systems such as water softeners
10. Draining your (cooled) hot tub water away from septic tanks and drainfields.

— Tom Cowan works with Carver Engineering

Bill Kahle is a Whitefish City Council representative