

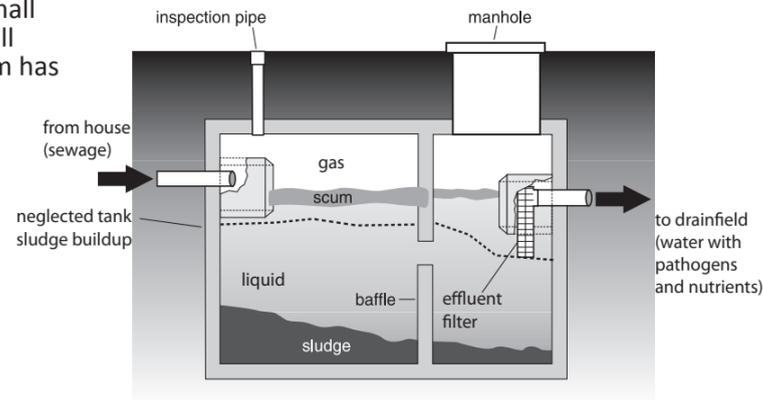
The Workings of a Septic System

A septic system is an individual wastewater treatment system using soil to treat small wastewater flows from a home or small group of homes. A conventional system has two parts:

- septic tank
- drain or “leach” field

Septic Tank

This is the first stage of treatment. All the water used in your home (if no graywater system) is diverted to this underground tank. It is a watertight container, usually made of concrete.



The size of the tank is based on the number of bedrooms in your home. Wastewater is held temporarily in the septic tank while heavy solids settle out. These solids are decomposed partly by bacteria. This is the primary treatment for your wastewater and, for proper functioning, you must pump the tank on a regular basis, or about every four years. See your local health department for specific regulations.

Table 1. Recommended Pumping Tank Intervals

Tank size (gallons)	Number of people in your household					
	1	2	3	4	5	6
1,000	12	6	4	3	2	2
1,250	16	8	5	3	3	2
1,500	19	9	6	4	3	3

Drain Field

The drain field (or leach field) is excavated at the time of installation and filled with rock or other porous material. Effluent (the liquid left after the solids have settled out) flows from the septic tank into pipes going throughout the drain field. These pipes usually have tiny holes in them to allow the effluent to seep into the gravel and then into the soil. This is the second stage in the water treatment process. Nutrients, organic materials and pollutants in the effluent are held by the soil and are digested by soil microbes.

Engineered Systems

A conventional system is not always the best approach. Some sites require special engineering because of inappropriate soils, shallow bedrock or a high groundwater table. Engineered systems require professional design and installation. These systems include:

- evapotranspiration
- sand filters
- trickling filter systems
- drip irrigation
- recirculating sand filters
- mounded systems
- aerobic systems

Your installer will have tips for the operation and maintenance of these special systems.

Maintenance

You must inspect your tank annually for sludge level and structural integrity and pump your tank according to the recommended intervals (Table 1). The costs for inspection and pumping are \$50 to \$250, compared with \$3,000 to \$12,000 for a new system.

Control the amount of water discharged into your system

To extend your drain field’s life by controlling the amount of water it must absorb and treat:

- divert runoff
- conserve indoor water
- repair leaks
- do not water the grass over your leach field
- space indoor washing throughout the week

Do NOT allow the entry of these materials into your septic system:

- strong and toxic chemicals
- latex paint
- water with high suspended solids, such as water used in a ceramics studio or sheetrock mud. The solids in this water will not settle out and ultimately will clog the leach field pores.
- household items, such as facial tissues, tampons, disposable wipes, cigarette butts, egg shells, bones, cooking grease, etc. They will not decompose in your septic tank and the septic system will require pumping more often.

Moderate use of these materials is fine:

- bleach
- drain cleaner
- soaps and detergents

Additives

Additives have not been shown to be effective consistently in either restoring a septic system or decreasing the need for pumping. It is more effective to save the money you might spend on these chemicals and put it towards pumping out the tank.

Drain Field

The drain field works by water infiltrating through the soil pores. The field will not function correctly if tree roots compact or disturb it. Do not park on top of your drain field or drive over the top because this results in compaction. Do not plant a vegetable garden or plants with woody roots, such as shrubs or trees, over the field because these will interfere with the pipes. Native grasses are a good choice because these do not require watering. Do not build on top of your septic system because this will inhibit proper functioning, inspection and pumping. Some professionals recommend two drain fields for a longer system life. You may alternate the use of these fields, switching every year.

DOs and DON'Ts

DO

- know where your system is located
- have your system inspected every year
- pump out septic tank as per recommendations in Table 1
- keep records of pumping, inspection and other maintenance
- repair leaking faucets and toilets
- install washing machine lint and effluent filters
- conserve water to reduce wastewater
- divert roof drains and surface water away from drain field
- call a professional when you have questions
- obtain required permits before making changes or repairs to your system

DON'T

- drive or park over any part of your septic system
- dig or build on top of your septic system
- plant deep-rooted plants over the drain field
- flush nonbiodegradable items into your system
- dump harmful chemicals down the drain
- breathe emitted tank gasses – these are toxic!
- install a garbage disposal
- ignore odors, wet or sunken spots, or lush growth above the drain field