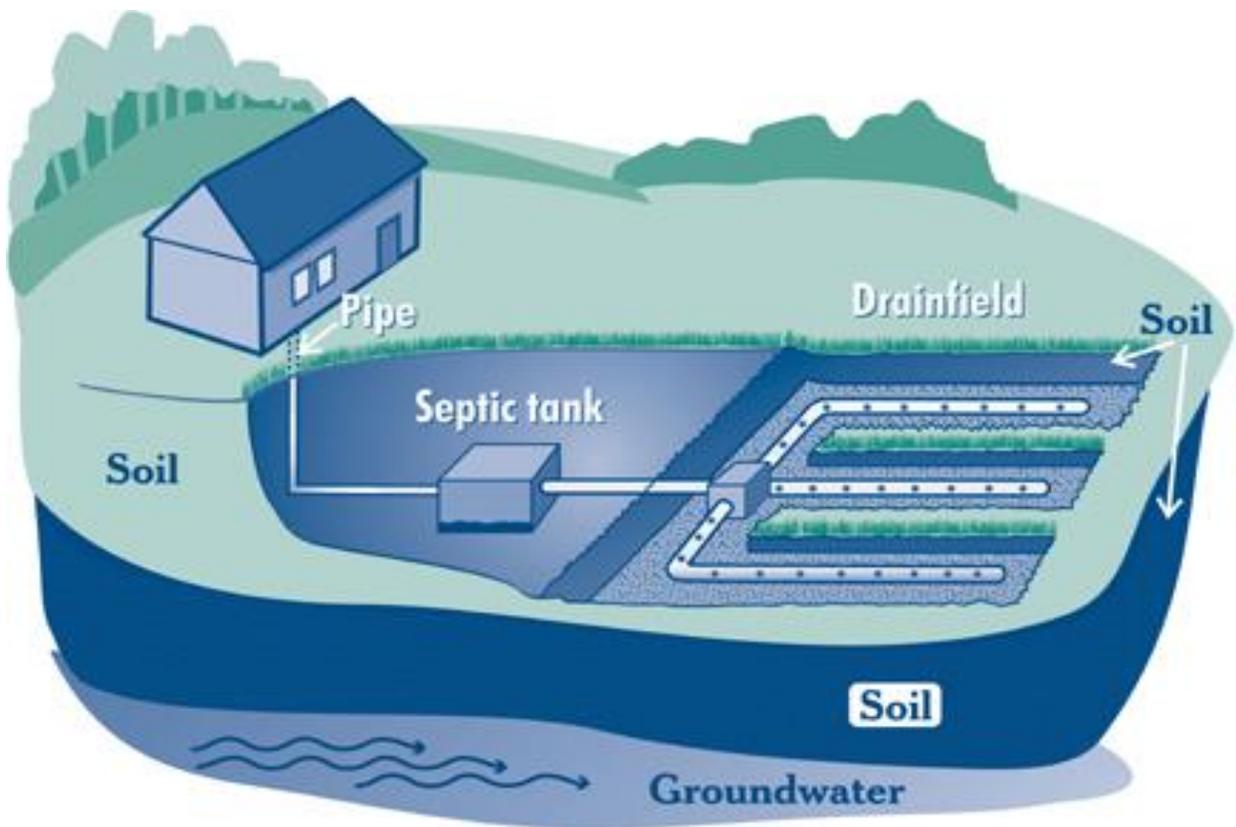




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A Homeowner's Guide to Septic Systems



The Main Components of a Septic System

Septic Tank

The septic tank is a buried, watertight container typically made of concrete. The function of the septic tank is to separate solids from the wastewater, break down and reduce the accumulated solids, and then pass the effluent or clarified wastewater out to the drainfield for further treatment. The sludge and scum layers are retained in the tank until the tank is pumped. There is an influent and effluent tee. The influent tee slows down the incoming rush of water to prevent the disturbance to the scum layer and reduce turbulence. The effluent tee keeps solids, scum, and grease from leaving the septic tank and entering the drainfield. The most common serious problem with septic systems occurs when the sludge and/or scum are carried out into the drainfield. There are two lids on top of the septic tank which are access points for septic inspections, pumping and maintenance.



Distribution Box

A distribution box is made of concrete or plastic that evenly splits the flow of effluent between drainfield trenches. All distribution boxes have one inlet and multiple outlets. The distribution box also has a lid that is removed for inspection. Ideally, the distribution box is installed in undisturbed ground and is perfectly level. Being level keeps the pipes inside the distribution box at the same elevation promoting equal distribution of wastewater to the drainfield lines.



Drainfield

The design of the drainfield depends on the soil characteristics, amount of wastewater flow, ground slope, and depth of the groundwater and bedrock. The drainfield should be located as far as possible from drinking water wells, streams, lakes, steep hillsides, road-cuts, and property lines. The drainfield consists of several narrow, shallow, gravel-filled trenches with a perforated pipe near the top of the gravel to distribute wastewater throughout the length of the trench. The clarified effluent from the septic tank flows to the drainfield. During this process, the effluent is discharged below the ground into the soil for final treatment and disposal.



Effluent Forced Maintenance Filter

A septic tank can only settle out and retain a percentage of the solids from your home. The other portion breaks down into suspended solids (particles) and gets carried out through the effluent tee to the drainfield.

Having an effluent filter installed adds extra protection and extends the probable life of the drainfield. This device filters solid materials from the effluent while sustaining adequate flow to the drainfield.



Septic Tank Pumping

Septic system pumping and inspection are vital to the life of a septic system. Virginia Department of Health recommends that a septic tank be pumped every 3 to 5 years. Four major factors influence the frequency of pumping: the number of people in the household, the amount of wastewater generated (based on the number of people in the household and the amount of water used), the volume of solids in the wastewater and the septic tank size.

Failure to regularly pump out the septic tank is one of the primary causes of system failure. Typical pollutants of household wastewater are nitrogen, phosphorus, and disease-causing bacteria and viruses. If a septic system is working properly, it will effectively remove most of these pollutants.

Another very important reason to have your septic tank pumped out regularly is to prevent the spread of infection and disease and protecting water resources. Inadequately treated sewage from a septic system can be a cause of groundwater contamination. It poses a significant threat to drinking water.



What Can Make A System Fail

If the amount of wastewater entering the system is more than the system can handle, the wastewater backs up into the house or yard and creates a health hazard.

You can suspect a system failure not only when a foul odor is emitted but also when you hear gurgling sounds in the drains, when water drains slowly or when partially treated wastewater flows up to the ground surface. By the time you can smell or see a problem, the damage might already be done.

A system installed in unsuitable soils can also fail. Other failure risks include tanks that are inaccessible for maintenance, drainfields that are paved or parked on, tree roots or defective components that interfere with the treatment process, and leaky plumbing fixtures such as faucets and toilets. A leaky toilet where the flapper is no longer holding its seal will cause the septic tank to get above proper operating level and flood the drainfield.

By limiting your water use, you can reduce the amount of wastewater your system must treat. When you have your system inspected and pumped as needed, you reduce the chance of system failure.



Septic System Do's and Don'ts

Do's

- Practice water conservation.
- Use water saving devices such as low flow showerheads.
- Repair leaky faucets and plumbing fixtures immediately.
- Reduce toilet reservoir volume or flow.
- Take short showers.
- Take baths with a partially filled tub.
- Wash only full loads of dishes and laundry.
- Shut off the water while shaving or brushing your teeth.
- Balance your water use (e.g. avoid washing several loads of laundry in one day.)
- Keep accurate records of where your septic components are and keep record of system maintenance.
- Pump your tank routinely. Pumping your septic tank is probably the single most important thing you can do to protect your system.
- Keep all runoff away from your system.
- Protect your system from damage. Keep vehicles off your drainfield. The pressure can compact the soil or damage the pipes. Before you dig for any reason, check the location of your system and drainfield area.
- Landscape your system properly. Plant grass over the drainfield area. Don't plant trees or shrubs or place

impermeable materials, such as concrete or plastic over the drainfield.

- Use cleaning chemicals in moderation and only according to manufacturer's directions.

Don'ts

- Don't flood irrigate over your system or drainfield area. The best way to irrigate these areas is with sprinklers.
- Do not enter the septic tank. Poisonous gases or a lack of oxygen can be fatal.
- Do not discharge the following materials into the system: plastic materials, cloth, cigarette stubs, paper towels, large quantities of acids or caustics, soaps or cleaning materials which have a high or low pH factor (Homeowners are to use low suds detergents), throw-away diapers, rubber products, Kleenex, some toilet tissues which do not decompose readily in water, rainwater from gutters, excess grease or fatty materials (Use garbage disposal sparingly), oily materials, motor oils, grease, kerosene, gasoline, paints, etc., backwash water from any type of water softener, other materials which do not disintegrate in water, A/C Discharge, sump pump discharge, and automatic toilet disinfection products.