



Septic System Homeowner Information

How the tank works:

The contents of the septic tank separate into three layers:

1. Floating scum layer - soaps, greases, toilet paper, etc., in the top area of the tank.
2. Liquid layer - water, liquid, and small suspended solids in the center of the tank.
3. Sludge - heavy organic and inorganic materials at the bottom area of the tank.

Solids separate in the tank by gravity – lightweight materials float to the top and heavy materials sink to the bottom. Naturally occurring bacteria in the sewage begin to break down the organic materials. This is often referred to as primary treatment. Pathogens in the waste are NOT destroyed in the septic tank. Anaerobic bacteria that live with very limited oxygen in the septic tank prepare the sewage for the secondary treatment through soil dispersal. Liquid leaving the septic tank is referred to as effluent.

Drainage Field (Trenches - Sand Lined Beds):

A solid pipe leads from the septic tank to a distribution box where the waste water is channeled into a set of trenches/fingers that may be of perforated pipe in gravel or trenches with poly tunneled 'Chambers'. Here the water slowly infiltrates (seeps) into the underlying soil. Dissolved wastes and bacteria in the water are trapped or absorbed by soil particles or decomposed by microorganisms. This process removes disease-causing organisms, organic matter, and most nutrients (except nitrogen and some salts). The purified wastewater then either moves to the ground water or evaporates from the soil. Trench or "finger" systems are the most common type of system used in new home construction.

An alternative is the Sand-Lined Bed System: These systems are used in areas where the site may not be suitable for traditional trench septic systems. For instance, the area may not be large enough for a conventional trench system and the footprint of a sand-lined system is generally much smaller, or there may be a shallow limiting layer in the soil that requires a system that can be installed at a higher level than conventional finger trenches. This system can often provide a layer of suitable soil depth to ensure adequate time and distance for proper filtration and treatment of the waste water. Vegetation growing on the mound helps to evaporate some of the liquid. This is particularly important in areas with Dense Till and/or shallow Seasonal Water Tables.

Maintenance

Periodic preventive maintenance is required to remove the irreducible solids which settle and gradually fill the tank, reducing its efficiency. In some jurisdictions this maintenance is required by law, yet often not enforced. Those who ignore the required maintenance will eventually be faced with extremely costly repairs when solids escape the tank and destroy the clarified liquid effluent disposal means. However a properly cared-for system may last decades and possibly a lifetime.

Waste that is not decomposed by the anaerobic digestion eventually has to be removed from the septic tank, or else the septic tank fills up and undecomposed wastewater discharges directly to the drainage field. Not only is this bad for the environment, but if the sludge overflows the septic tank into the leach field, it may clog the leach field piping or the soil porosity itself, requiring expensive repairs and most often total replacement of the drainage field.

How often the septic tank has to be emptied depends on the volume of the tank relative to the input of solids, the amount of indigestible solids and the ambient temperature (as anaerobic digestion occurs more efficiently at higher temperatures). In general some septic tanks may need to be emptied every six months while others every few years depending on use. Anaerobic decomposition is rapidly re-started when the tank re-fills. A properly designed and normally operating septic system is odor free and, besides periodic inspection and pumping of the septic tank, should last for decades with no maintenance.

A well designed and maintained concrete, fiberglass or plastic tank should last about 50 years.

What can go into my septic tank?

Avoid use of a garbage disposal as much as possible. Do not dump coffee grounds in the sink. Increasing the load of solids into the tank decreases the solids holding capacity and shortens the interval between pumpings. Do not pour fats and oils down the drain. They can build up and clog the septic tank pipes. Do not put paper towels, tissue, cigarette butts, disposable diapers, sanitary napkins, tampons and other material in the toilet, use the trash can. Use normal amounts of detergents, bleaches, drain cleaners, household cleaners and other products. Never dump solvents like dry cleaning fluid, pesticides, photographic chemicals, and paint thinner, or auto products down the drain.

Do I really need to pump my tank, if so how often?

YES, PUMP YOUR TANK: Tanks need to be pumped every two to five years, depending on use. If the tank gets too full, particles of scum or sludge will flush out of the tank. This material will clog the drain tiles and cause the septic system to fail. **HIRE A LICENSED PROFESSIONAL** (listed in the phone book under "septic tank cleaners") to pump the waste out of your tank. The tank should be pumped out through the

manhole, not the smaller inspection ports. The tank should be cleaned completely, leaving nothing in the tank. Make sure the baffles are inspected and that the tank is checked for leaks.

Do commercially obtained additives or yeast help my system?

You do NOT need to add any commercial products or yeast to your system. Additives do not improve how well your system works. There are always plenty of natural bacteria available to do the job. (They come from your digestive system.) In fact, most additives may damage your system by breaking up the sludge and scum layers, causing them to flush out of the tank and clog the infiltration surfaces within the trenches. Additives that say "Never worry about pumping your septic tank again" are the worst!

Is excess water bad for my system?

YES, CONSERVE WATER. Fix leaks and drips. If you replace old fixtures, install new "low flow" types. Direct roof downspouts and excess ground water AWAY from the septic field to avoid saturating the area with excess water. Do not overload the system - this is the primary cause of system failures. Early morning and bedtime are peak water use times in the bathroom. Run dishwashers and washing machines at other times of the day. Don't do all the family laundry in one day.

Can I plant anything over my septic field?

THE GRASS IS ALWAYS GREENER: Dense grass cover and other shallow rooted plants are beneficial over a septic field. However, do not plant trees because large plant roots can clog or break the pipes. Avoid compaction of the soil over the infiltration area. DO NOT DRIVE OR PARK vehicles over the area and don't build a shed or driveway in this area. These activities can also crack pipes or cause the distribution box to settle unevenly, meaning that effluent will only flow into part of the drain field.

What can I do to increase the longevity of my system?

In-tank, external canister, and dosing tank Filters are one of the best forms of insurance against premature system failure available for a system. These do so by trapping scum, sludge and other particles, preventing the possibility of said items reaching your leaching field and clogging the lines. Available in many different types, particulate filtration sizes, and flow rates, these can be installed during initial system installation or into an existing system. Pump your system on a regular basis, watch what you put down the drain, and conserve water.

Is my system in failure?

The septic tank has not been pumped out in the past five years:

Even if the system appears to be working well, sludge may have built up to the point where waste water is released without sufficient time in the tank for treatment and settling of particles. This situation may result in pollution of groundwater or cause eventual clogging of the drain field.

A wet area or standing water occurs above the drain field:

This situation can develop when sludge particles clog the drain field, when tree roots or broken pipes keep the waste water from dispersing through the entire drain field, or when water use in the house regularly exceeds the design capacity of the system. When these conditions occur, waste water does not move through the soil as it should, and instead rises to the surface creating a serious health risk and odor problems.

Toilets run slowly or backup:

In the worst cases, the basement is flooded with sewage. This can be the result of plugged sewer lines to the tank, a plugged inlet or outlet pipe, a full septic tank, or a failed drainage field.

Septic odors occur in the house, above the tank and drain field, or escape from the vent pipe. If the system is operating properly, there should be no odors. If there are odors, it can be an early warning sign that the system is failing.

If any of the above conditions arise, you should seek professional help as soon as possible. If you are unsure who to call for qualified help, you may call the Health Department for guidance.

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