

## Septic Systems

### Honey, What's That Smell?

For many homes located in the burbs and rural areas, properly operating septic systems are vital for small-scale sewage treatment. But because septic systems are “out of sight” (i.e., underground), they’re also often “out of mind.” In fact, a septic system generally is at the tail’s end of a homeowner’s mind...until that “stench of which we dare not speak” begins to pervade the atmosphere.

A properly maintained septic system can last for decades or possibly even a lifetime but homeowners who disregard their systems will typically encounter extremely costly repairs when solids escape the tank and destroy the clarified liquid effluent disposal means (septic drain field).

For a home that is purchased as part of a relocation process or third-party offer, an important question is whether or not there will be issues with the system *after* the home is sold. Like most things in life, there is no absolute way to predict how long a septic system will last or if it will be able to handle a change in load (and we use that term lightly) from one homeowner to another. There are ways, however, to review the condition of a septic system and to evaluate its long-term viability.

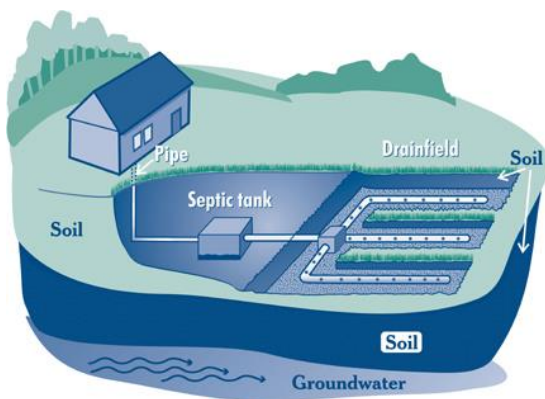
This article discusses the various types of septic systems, why systems fail, and the methods we use to evaluate the systems. Read on and be not faint of heart!

### Lots and Lots of Septic Pots

According to the Environmental Protection Agency (EPA), nearly *one in four households* in the US depends on an individual septic system or small community cluster system to treat their wastewater. For purposes of this article, we classify septic systems into three different categories – conventional, alternative, and proprietary.

#### Conventional Systems

Conventional systems are the most common systems used in homes (hence the word “conventional”). Conventional systems employ a septic tank in combination with a drainfield, gravel, and soil.



With traditional gravity systems, waste flows from the septic tank into several perforated pipes in the drainfield, in which pipes distribute the waste into the underlying soil; the waste is filtered by the soil and is fully treated by the time it contacts groundwater or hard rock. With pressure distribution systems, a pump distributes waste, which more efficiently utilizes the drainfield.

Regulations regarding conventional systems change frequently and vary by geographic location. As a result, some older conventional septic systems have to be repaired or replaced because municipalities no longer permit older systems. Therefore, we always

recommend contacting local health or building departments to determine if a home has an older septic system and if so, whether the system has been “grandfathered” or must be replaced.

#### Alternative Systems

Alternative systems are becoming more popular generally, but especially where local regulatory authorities are environmentally inclined. Alternative septic systems are necessary in areas in which there are limited amounts of soil available and in areas near rivers, stream, lakes and reservoirs which are especially sensitive to environmental contaminants. Alternative systems also are useful in areas that are prone to droughts, because some of these systems can also recycle waste water for irrigation.

There are different types of alternative systems; designs of such systems often are determined by property location. An *aerobic on-site treatment system* uses oxygen-based processes to more efficiently treat waste matter, resulting in a cleaner end product. A *mound system* uses a drainfield placed in a raised mound of soil, which is especially helpful in areas in which ground water tables are high (e.g., in Florida or near low lying or swamp areas). A *sand filter system* pumps waste through a barrier of sand before entering the drainfield or irrigation lines, reducing the amount of soil necessary to treat waste.

Because it is common for state or local government to regulate alternative systems by enforcing regular testing and maintenance schedules, it is important to understand local regulations to determine any special requirements or restrictions related to alternative systems.

#### Proprietary Systems

There are also septic systems that utilize proprietary technologies. As examples, the *Glendon Biofilter* uses a pump to push waste through a sand and soil filter from the bottom up; the *Advantex Filter* pumps waste through a container filled with special material to increase the volume of waste that can be filtered; *drip irrigation* uses a pressurized system to slowly release waste over a large area of soil, ensuring that the soil does not become oversaturated.

Whatever type of septic system, most local and state laws assign responsibility to the property owner for installation and maintenance of septic systems. Failure to properly maintain a septic system could result in damage to the property, as well as significant fines. Therefore, it is important to check for signs of septic system failure frequently, and to check with the seller to confirm that the system has been properly maintained.

## Epic Septic Fail

When a septic system starts to fail, it's hard not to notice the visible (and nasal) signs:

- Sewage/plumbing backup in to the house
- Slow draining sinks and toilets
- Gurgling sounds in the plumbing
- Puddles forming on the soil treatment area (drainage field)
- Stinky odors around the drainfield
- Frozen pipes or frozen soil in the drainfield
- High levels of nitrates or bacteria in well water tests



## Prevention is the Best Cure

The most common reasons that septic systems fail are related to maintenance, soil conditions and installation:

- Lack of maintenance by the property owner – conventional systems maintenance should occur every two to three years, including pumping out the main settlement tank
- Incorrect soil percolation or inaccurate perc test results – perc tests typically are conducted prior to installation to determine the ability of the local soil to absorb effluent (fluid waste)
- Improper system location and/or installation
- Broken and/or missing systems components (e.g. baffles, distribution boxes, holding tanks, field lines, etc.)
- Changes in run off patterns or changes in weather patterns such as droughts or more common heavy rains which cause frequent flooding.

Perhaps surprisingly, system age is *not* always a reliable determining factor as to failure, which can occur at any time during the life of the system. However, if the system has been in use for 20+ years without major renovations, a property owner should anticipate budgeting for improvements. Questions to consider include: Have public sewer services become available? Is there sufficient, suitable land on which to install a replacement system if needed? Should a more environmentally responsible approach be considered?

## Advantages of Comprehensive Septic Evaluations

There are numerous advantages to procuring a comprehensive septic system evaluation, the most important of which is an objective review of the current condition of an on-site waste system.

A comprehensive evaluation also facilitates proper disclosure and gives buyers and sellers an opportunity to address problem issues prior to settlement; the process often protects the parties from litigation after the close of sale.



A septic dye test is an alternative to a comprehensive septic evaluation. However, we strongly recommend comprehensive septic evaluations, which offer clients more thorough evaluations of the condition and functionality of on-site waste systems than septic dye tests, which often lead to “false positive” results without revealing evidence of potential problems.

## Dirty Details: Comprehensive Septic Evaluation

Because of potential repair/replacement costs, and because septic systems are buried and cannot be continuously monitored and tested, it's important to conduct an evaluation of a septic system *before* purchasing a property. US Inspect recommends a *comprehensive septic evaluation*, which includes the following steps:

1. Locate access to the underground septic tank
2. Open the tank to visually inspect the liquid level, interior components and condition of the tank
3. Check the leaching field for evidence of breakout/excess moisture
4. Pump the tank, and perform a visual evaluation of the tank's interior

The tank will not be pumped if evidence of failure is present; this allows the repair contractor to assess the condition identified. In such cases, the property owner should hire a licensed, on-site waste contractor for repair/replacement. After the contractor has completed the repair/replacement work, the owner should supply permits required by the governing board of health, along with all receipts and warranties for the work completed.

In cases in which a property is vacant, inspection options are limited because water usage is nil; a visual inspection can be performed but until there is a constant load on the system, the inspection will be limited.

There are many counties and states that have enacted *specific septic evaluation requirements*. State-required programs presently include Alaska, Massachusetts, Michigan, Minnesota, Missouri, New Jersey and North Carolina; in these locations, US Inspect performs only state-required inspections. Laws change frequently as many other states and municipalities have such programs under consideration.

## US Inspect's SeptiCheck

The US Inspect SeptiCheck comprehensive septic system inspection is the most comprehensive review of a septic system, in which waste management specialists evaluate the inner mechanics of the septic system – a tank's interior structure, drainage lines, and absorption areas—to protect against repair or replacement costs that are often in excess of \$20,000. SeptiCheck reveals small or developing septic system defects, which means that property owners can address issues *before* they become significant and even more expensive.

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## About Us Inspect

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US Inspect is the nation's leading inspection services firm, delivering residential and corporate relocation inspections since 1987. Our reputation is built on decades of honesty, integrity and excellent service to our customers at one of the most important decisions in their lives – buying or selling a home. We are committed to ensuring that each of our customers enjoys an exceptional inspection experience.

Please contact [marketing@usinspect.com](mailto:marketing@usinspect.com) if you have any questions or require assistance.