



Septic Systems: What to Ask When Buying a House

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Introduction

Amongst the excitement of looking for and buying a new home, questions about septic systems can often go overlooked. A septic system is one of the key parts that keep a household operating, and it can be one of the costliest repairs if it should fail. In this publication we intend to let house buyers (and realtors) understand what questions they should be asking regarding septic systems when looking for and buying a house.

What is a septic system?

Septic systems use the natural characteristics of soils to dispose, filter, and treat household waste for homeowners who are not part of a municipal sewer system. When wastewater leaves the house, it is transported first to a septic tank (Figure 1).

Wastewater is separated into three distinct layers in the septic tank: a scum layer made up of fats, oil, and grease less dense than water; an effluent water layer; and a bottom sludge layer made up of heavier solids. Decomposition of the solids occurs while they are contained within the septic tank. Naturally present bacteria in the septic system digest solids that have settled to the bottom of the tank. These bacteria can transform up to 50% of the solids in the tank into liquids and gases.

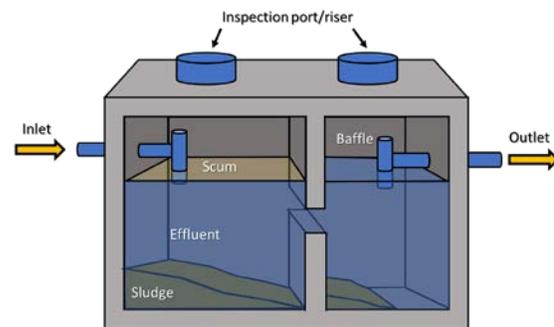


Figure 1. Illustration of a septic tank. Fats, oils, and grease that make up the scum layer float on the top, while heavier solids that make up the sludge settle to the bottom. This allows effluent water to leave the tank and enter the drainfield where it is treated by the soil.

The main function of the septic tank is to remove solids from household wastewater so that the effluent can more readily filter through the soil in the soil absorption field. Removing solids from the wastewater protects the soil absorption field from getting clogged and failing. When the liquid within the tank rises to the level of the outflow pipe, it enters the drainage system. This outflow, or effluent, is then distributed throughout the drainfield through a series of subsurface pipes typically bedded in gravel (Figure 2). Final treatment of the effluent occurs as it enters the soil profile and is filtered, where soil microbes convert the rest of the waste into harmless products.

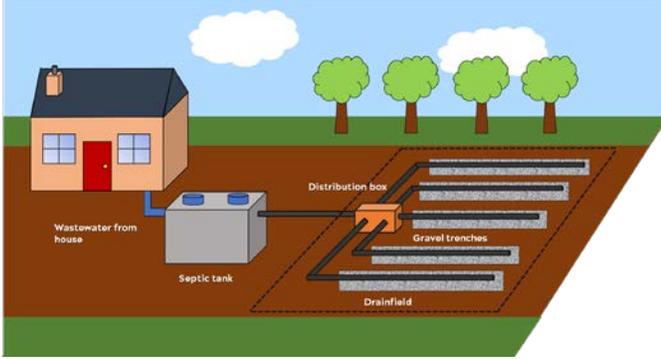


Figure 2. Effluent leaves the septic tank and is distributed through the drainfield via a distribution box. Effluent is treated as it passes through the soil profile.

Is the house on a septic system and where is it?

Not all houses require septic systems and many - especially in municipal areas - are served by public sewer facilities, so the first and most important question to ask is whether the house has a septic system. Once you have confirmed that the house has a septic system, it is important to find out where it is located. The homeowner will often have this information, but if they do not know, the information should be available by contacting your local Virginia health department. You can identify your local health department using the VDH online health department locator <https://www.vdh.virginia.gov/health-department-locator/>

What type of system is it?

The most common septic system is a conventional gravity fed system, in which septic fluid moves through the force of gravity; this system requires relatively little upkeep. However, there are many other alternative systems that require more homeowner input and yearly operation and maintenance contracts with service professionals. If the system is pump fed or dosed there will be high and low water alarms that alert the homeowner should there be a problem detected in the system, it is important that these be located and inspected. Constructed wetland systems have beds where treated septic fluid is at the surface, it is important to make sure humans and animals cannot access this fluid. Some alternative systems require further care

to keep the system operational. For more information about alternative systems see On-site Sewage Treatment Alternatives 448-407.

Are there any regulations you must follow?

For on-site systems located in Chesapeake Bay Preservation Areas, it is required by law that the septic tank be pumped every 5 years, knowing this kind of information is important for the potential homeowner before buying a house. For more details on having septic tanks pumped see the 'What to Expect When Getting Your Septic Tank Pumped' extension publication.

When was it last pumped/inspected?

The current homeowner should be able to provide this information as part of their records. If they do not know this, it is recommended that the septic tank be inspected to make sure it does not require pumping.

Is the tank big enough?

If the house has been renovated or added to, it is important to check to see if the septic tank has been increased in size to reflect these changes. If the system hasn't been updated to accept the extra volume of water from additional bedrooms/people living there, it could overwhelm the system causing it to fail.

If house additions postdate the septic installation, the additional cost of replacement or extension should be considered in the offer price or the sale contingency list.

Are there any signs of a failing system?

If you can locate the septic system drainlines you should check to see if there is any evidence the system is failing. If there is obvious standing water above the drainlines, or if there is a distinct smell of effluent then these are signs there is a problem with the system. The presence of lush green grass over the drainlines or eutrophic water in nearby ditches may also be a sign that the system is failing. Septic

system failures could require a minor fix or could have major financial implications. Knowledge of these signs may help reduce unforeseen expenditures for a system repair.

Has the property had a system failure before and for what reason?

Find out from the homeowner whether the septic system has failed in the past, and for what reason. If the property owner is not available, documentation of septic system failures can often be found at your local health department. Some system failures are not a cause for concern as long as they have been corrected, such as broken baffles in the tank or clogged pipes due to disposal of improper items. However, failures that have resulted in the relocation or replacement of the drainfield should be of greater concern.

Is there a reserve field and where is it located?

In some instances, properties have a site set aside (reserve area) to be used should the current drainfield completely fail. It is important to know whether this site exists and where it is. At some properties a reserve area is not provided or required. If failure occurs at these properties, the soil between the trenches, a new area available on the property, or an adjacent property are considered for a repair/replacement drainfield. Current VDH Sewage Handling and Disposal Regulations (12VAC) only require a 50% reserve on soils with a higher risk of failure. Drainfields in low failure risk soils are not required to have a reserve area. However, some counties and cities require a 100% reserve area on all new construction, and in certain districts within counties, it can be 200% reserve capacity. If a reserve site is present it is important to protect this area from construction of permanent structures, compaction from vehicular traffic, or other property uses that could be detrimental to a future septic system. If this site does not exist it may indicate a failed system in the past, or drainfields with trenches in soils with a 45 MPI percolation rate or faster. If no allowance has been made for a backup area, there is the potential for expensive repairs should the current one fail.

References

- Galbraith, G., C. Zipper, R. Reneau, and P. Brown. 2023. On-Site Sewage Treatment Alternatives. Virginia Cooperative Extension publication 448-407. https://www.pubs.ext.vt.edu/content/dam/pubs_ext_vt_edu/448/448-407/SPES-520.pdf
- VDH (Virginia Department of Health). 2014. Sewage Handling and Disposal Regulations. 12VAC 5-610. Richmond: VDH. https://www.vdh.virginia.gov/EnvironmentalHealth/ONSITE/regulations/documents/2012/pdf/12VAC_5_610.pdf.

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