

HOME BUYERS GUIDE

What a Purchaser Should Know Before Buying

A Home Served by a Septic System

I. PURPOSE

Frequently prospective buyers of a single family home have many questions regarding the septic system serving the dwelling: What does the existing septic system consist of? Is it working properly? How long will it last? If it fails, how much will a replacement system cost?

In order to help buyers obtain information which address these concerns, we have put together this Fact Sheet to guide them in making informed decisions regarding the potential problems and costs associated with a property's septic system.

II. OVERVIEW

The purpose of a home's subsurface sewage disposal system (septic system) is to dispose of the waste water generated by the occupants in such a manner that the soils on the property can disperse it without causing an adverse effect on groundwater and in turn on public health and the environment. To accomplish this a system consists of the following elements: (1) *A sewer line*, which connects the home's plumbing to the septic tank; (2) *A septic tank*, which allows for the settling of solids and provides the initial treatment of the sewage. This is where waste material is broken down by bacterial action. A properly functioning septic tank will reduce pollutant levels and produce an effluent of fairly uniform quality. This is accomplished by providing inlet and outlet baffles to reduce the velocity of liquid moving through the tank. New tanks (installed since January, 1991) consist of two compartments in order to do an even more effective job of obtaining the above objective; (3) *A distribution system* which directs the flow of effluent from the septic tank to the drainage system in such a manner to insure full utilization of the system. Most systems are "gravity" systems, meaning the flow runs through piping and distribution boxes without the assistance of any mechanical device, such as a pump or siphon; 4) *A drainage (leaching) system*, which disperses the sewage effluent into the surrounding natural soils. There are many types of drainage systems. The specific type utilized on a particular property is usually dependent on the soil conditions which exist on the site. Most residential installations utilize stone-filled leaching trenches, but galleries, pits and beds have historically been used.

For a drainage system to function properly it must:

1. Provide enough application area. The application area is the amount of surface area of soil provided by the particular drainage system (sides and bottom area of leaching units) where sewage effluent is applied (referred to as "wetted" area). The amount of application area needed for a given house depends on the characteristics of the soils on the property and the daily flows (in gallons) generated from the house. The anticipated flow from a house is usual predicated on the number of bedrooms in the dwelling.
2. Be surrounded by natural soil conditions which will be able to dissipate and disperse the septic tank effluent discharge without becoming over saturated.
3. Provide enough capacity to store effluent during periods of unusually heavy use or when rainfall or subsurface flooding reduces the ability of the system to disperse the liquid.

Note: drains/groundwater interceptor drains are sometimes installed upgrade of the drainage system to minimize high groundwater conditions.

It is important to realize that, once a system has been installed, only one of the above factors can be controlled by the homeowner. The homeowner can control how much water is actually being discharged to the system. Since each system has a set *maximum* capacity, it behooves the homeowner not to exceed that amount.

If a system starts to experience difficulties, what are some of the common symptoms?

1. Plumbing fixtures may exhibit difficulty in releasing its contents (slow draining, bubbling, backups, etc.). This condition may be system related but it could also indicate just a clog in the interior piping or sewer line. You should have the interior piping checked before proceeding with an investigation of the sewage disposal system.
2. Large volume discharges (such as, washing machines, dishwashers and bathtubs) cause either a backup, as noted above, or, an overflow of sewage above the septic tank or leaching field. This condition is usually at its worst during and/or directly following a heavy rain event.
3. Foul septic odors in storm drainage piping, catch basins, footing drain piping or curtain drain discharges may indicate that sewage from your or an adjacent property is entering these groundwater systems.

III - SOURCES OF INFORMATION

What can a prospective purchaser of a home do to gather as much information as possible relative to the present condition and possible future expenses associated with the existing septic system? Here are a few suggestions:

1. Obtain Information from the Present Property Owner

a. Ask for any drawings regarding the actual location (an "as-built" drawing) of the existing septic system. Another source would be the town's health department (see Paragraph 3, below).

b. Ask for the records regarding maintenance of the system; Has the septic tank been pumped at a frequency of at least 3 to 5 years?; What pumping contractor was used?; If the system contains a pump, how often has it been maintained?; If major repairs have been made, when and to what extent?

c. Ask about the past performance of the system. Have any of the symptoms described in Section II manifested during the life of the system?

2. Do a Site Inspection of the Property

a. Once the location of the septic tank and drainage fields are known, walk over the entire area and observe whether there is evidence of a sewage overflow condition. Greener grass in the drainage area may not necessarily indicate a system problem. If, however, the area is completely saturated and odorous you should be very concerned. It most likely indicates an active failure.

b. Try to get a sense of how natural conditions are effecting the capacity of the property to disperse water. Is the sewage disposal area located in a depression which would have a

tendency to collect run-off of rain water? Is the lot flat? Is there a watercourse or wetland (swamp) near the drainage system and is the system virtually at the same elevation? Are there steep slopes and/or ledge outcrops which reduce the available area for leaching purposes? All of the above factors could indicate that the existing system will experience difficulty or, that there may not be much additional area suitable for sewage disposal on the lot if needed in the future.

3. *Go to Town Health Department to Review Property's File*

- a. Ask the town sanitarian to review the file with you. Is there enough information in it for him/her to give you an opinion on how the existing system and/or lot meets present health code requirements?
- b. Your goal is to confirm and supplement information received from the property owner.
- c. Obtain guidelines concerning the proper maintenance of a subsurface sewage disposal system.
- d. If you are contemplating an addition to the home or plan on renovating an unfinished basement, discuss the possibilities with the sanitarian and determine the procedures you would have to follow to accomplish your plans. In some cases, it will not be possible to "enlarge" an existing home.
- e. Ask about the general neighborhood, the frequency of repairs, ability to install proper size repair systems, average life of systems in the areas, etc.

4. *Obtain Additional Information from Outside Sources*

a. Presently, many home sales are contingent upon a home inspection. Depending on whether or not the present owner of the property will permit it, opening up and examining key elements of an existing sewage disposal system is the most reliable means to determine the present condition of the system. Examining the inside of the septic tank(s) and distribution boxes may indicate that the system is experiencing difficulties in dispersing the volume of sewage generated by the home. If access to the existing system is not available, home inspectors sometimes use other methods in which to ascertain the status of an existing system. Unfortunately some of the people performing these tests do not have a complete understanding of how a system functions. Therefore, the conclusions reached from these tests can be misleading. For example, testing a system in the summer months may indicate a functioning system, when in fact that same system may be under groundwater in the Spring and unable to function properly.

Three common tests performed during home inspections are as follows:

- 1) The *Dye-Test* is used to trace the movement of septic tank effluent into the leaching system. The theory is that if the dye "surfaces" to the ground or appears in a brook or catch basin the system is in trouble. Although this is indeed true, the opposite result does not necessarily mean the system is functioning or will function properly in the future. In order for the dye to appear it must flow through the septic tank and leaching fields prior to arriving at the breakout point. This usually would take a large amount of water and sufficient time to occur, and most home inspections do not last long enough to fulfill this requirement. This type of test would only detect grossly failed systems (ones which have a direct discharge of sewage to the environment).
- 2) The *Probe-Test* is a procedure whereby the inspector attempts to locate the "key" elements of the system (septic tank and drainage fields) and determine if they are experiencing overflow conditions (meaning the septic tank and fields are flooded). This test is basically inaccurate since it only takes a single "snapshot" of the condition of the system. It may be a "good" day for the

system (very little water was used by the homeowner that day; the house may have been empty for some time; it may be the middle of the summer when soil conditions are at their best) and a judgment is being made with very little long-term information.

3) The *Flooding Test* (sometimes referred to as a "push test") is actually the process of discharging a substantial quantity of water into the existing septic system to simulate a typical "peak" usage of water by a family. The purpose of the test is to expose those systems which no longer have the capability to disperse "peak" flows and, therefore, may not be adequate to satisfy the needs of the prospective buyers. After a certain amount of water is "flushed" down sinks, tubs and toilets, the inspector examines the leaching area to observe any signs of an "overflow" condition. If an "overflow" is noted, the conclusion reached by the inspector is that the system is not functioning properly. *It should be noted, however, that "passing" the test does not necessarily mean that the system is working properly.* This type of test is conducted by many inspectors, who feel it would be a disservice to their clients not to obtain information on the *present* status of an existing system. We, however, have concerns that unless this test is performed in a responsible, site specific manner, it could cause harm to the existing system or lead to erroneous conclusions. If this test is conducted, we suggest the following items be considered before conclusions are reached:

1. The present occupancy of the home.
2. The possible water usage of the occupants within the last 24 hours prior to conducting the tests.
3. Soil conditions in the leaching area, such as, the degree of saturation due to groundwater levels, rain fall events or time of year.
4. That the application of water to the system (by running water through the plumbing fixtures) be performed in a slow, uniform manner to prevent a "slug" of water from entering the septic tank and disturbing the contents.
5. That the procedure *limit* the amount of water utilized for the test based on the information listed above, but should not exceed 50 gallons per bedroom in a fully occupied (two people per bedroom) home.

To repeat, the above testing is meant to discover obvious malfunctioning septic systems. *None of the above tests can lead to a guarantee that the existing sewage disposal system for a home will continue to work properly in the future.*

- b. Use the Soil Conservation Service County Maps (through the town sanitarian) to try to identify the type of soil most likely present on the site in order to predict the feasibility of future repairs to the existing leaching system.
- c. Talk to neighbors about the general performance of septic systems in the area and specifically the system on the property you're interested in. However, this is suggested only for those "comfortable" in approaching this subject with "strangers" and with the realization that the information gathered may not be totally factorial for various reasons (devaluation of their own property; not wanting to "spoil" the sale of a friendly neighbor, etc.).
- d. Hire your own consultant, either a professional engineer, who specializes in septic system designs or, a licensed septic system installer, who performs a great deal of work in the particular town. They can give you advise as to the conditions of the soils and septic systems in the area and what might be expected (especially pertaining to costs) if you did have problems with the existing system.

e. Obtain water meter readings (if the home is serviced by a municipal water supply) to determine what the present occupants of the home are utilizing. Then compare those results with what your family is presently using. If your family is using significantly more water than the former occupants you may be asking for trouble if the sewage system is "undersized" to today's standards.

IV. FINAL OBJECTIVE

It is our opinion that when buying an existing home, especially one which is old and does not have a sewage disposal system which meets today's standards, the fundamental question which should be answered is: If the existing system fails, how will we repair it and how much will those repairs cost? If accurate soil test data is not available through the local health department, the only sure way of answering this question is to actually perform all the deep hole testing and percolation tests required by code. As you can understand, most sellers would take a dim view of prospective buyers wanting to tear up their property to perform these tests. Therefore, the more information a buyer can obtain, the better able he or she will be to judge the adequacy of the existing system and what will most likely be required to repair the system, when needed. In that way, the buyer will not be caught unaware when that day arrives, since it was part of the financial assessment establishing the value of the property at the time of purchase.