

ONSITE SEPTIC SYSTEMS

What is an onsite septic system?

Half of all homes in North Carolina use a septic system to handle and treat wastewater on the residential lot. Most onsite septic systems consist of a concrete tank that holds the solid wastes and a drain field. Drain fields contain perforated pipes surrounded by gravel, which allows liquid waste to be filtered through the soil and treated by microorganisms. When working properly, septic systems remove most pollutants, viruses and bacteria.

Are septic systems safe?

If septic systems are properly installed, used and maintained, yes, they are safe and provide a good mechanism for treating human waste in areas not served by sanitary sewer systems.

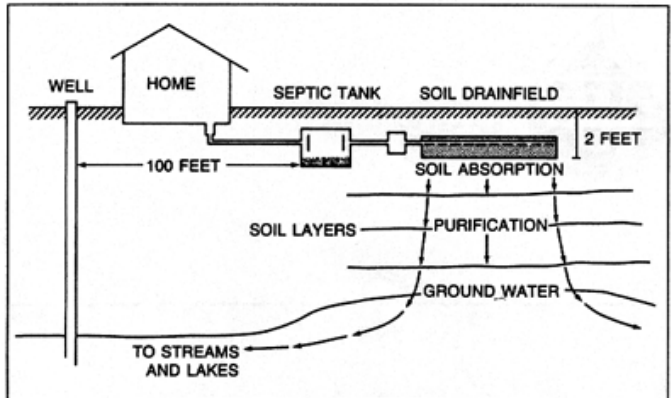


Figure 3 of NC State University's SoilFacts publication entitled "Septic Systems and Their Maintenance" (referenced in the additional resources section below)

Septic tanks should be inspected and pumped every three to five years depending on the size of the tank and the number of people in the home. Unfortunately, this is a maintenance issue that is often overlooked. Septic system failures can be costly for homeowners, hazardous for residents, and a source of fecal coliform and nutrients such as nitrogen and phosphorus in groundwater and nearby streams. If improperly treated sewage leaches into a nearby stream, those who come in contact with the polluted waters risk contracting various infectious diseases. Common illnesses that result from human contact with improperly treated sewage can range from ear and eye infections, to gastrointestinal ailments and even diseases like hepatitis.



Failing system

Besides lack of maintenance, improper use can cause septic tanks to fail. Often times, septic systems fail because the bacteria and other organisms that digest waste products are exposed to harmful chemicals. If certain waste products enter the system or if too much water enters the system at once, it can lead to a clogged system or inadequate holding time before the waste product enters the drainfield. The following constituents or practices can contribute to septic tank failure:

- Putting grease and fats down the drain
- Using harsh household cleaners or rinsing down other toxic chemicals (i.e. oil-based paints, solvents, etc.)
- Using garbage disposals
- Using water purification systems, hot tubs, or other devices that have the potential to unleash large volumes of water at a time

What can one do to minimize the chances of septic system failure?

First, familiarize yourself with where your drain field and tank are and how the system works. One of the most important steps to maintaining a cost-efficient and properly functioning septic system is to practice routine maintenance and check-ups of your system. According to the U.S. Environmental Protection Agency 2005 booklet "A Homeowner's Guide to Septic Systems," there are four main factors that influence how often you may need to have your septic system pumped. These factors are:

- The number of people in your household;
- The amount of wastewater generated (based on household and water usage);
- The volume of solids in the wastewater (i.e. grease, other materials fed down a disposal); and
- The size of your septic tank.

Below are some steps you can take to ensure your septic system is working properly.

1. **Do not overload your system with water.** Conserve water by avoiding excessive use and fixing leaky pipes and dripping faucets.
2. Have solids pumped from the tank every three to five years. [Maintenance schedules will depend on the size of the tank and the number of users.]
3. Keep the soil over the drain field covered with grass or other shallow-rooted plants to prevent erosion. Deep roots can clog systems. Maintain a healthy stand of grass to prevent erosion and excessive infiltration of water or ponding.
4. Do not drive on or otherwise compact the soil above the drain field.
5. Flush only toilet tissue and human wastes down the toilet.
6. Do not use toilet cleaners that hang in the tank.
7. Do not use a garbage disposal or put any of the following down your drains:
 - Grease or oil
 - Coffee grounds
 - Household chemicals (bleach, paint, pesticides, antifreeze etc.)
8. Learn the signs of a malfunctioning or failing system. Backed up water in drains or toilets, abnormally green vegetation or soggy areas over drain field and a foul smell all could indicate system failure.

In addition to contacting your local health department for more information, the following websites offer helpful tips and advice on managing your on-site septic system:

U.S. Environmental Protection Agency
A Homeowner's Guide to Septic Systems EPA-832-B-02-005
http://www.epa.gov/OW-OWM.html/septic/pubs/homeowner_guide_long.pdf

North Carolina Cooperative Extension
Septic System Owner's Guide
<http://www.soil.ncsu.edu/publications/Soilfacts/AG-439-13/>

North Carolina Department of Natural Resources-Division of Environmental Health
Information on rules, maintenance and innovative systems
http://www.deh.enr.state.nc.us/osww_new/new1//index.htm

Maryland Cooperative Extension
Septic Systems and Their Maintenance
<http://extension.umd.edu/environment/Water/files/septic.html>

Virginia Cooperative Extension
<http://www.ext.vt.edu/pubs/housing/448-400/448-400.html#L8>