

Living With a Septic System

A homeowner's guide to basic septic system operation and maintenance



*The Marion County Health Department and the
Soil & Water Conservation District -
dedicated to public health and improving water quality*

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In many areas of Marion County, municipal sanitary sewer systems are not yet available. Nationwide, approximately 25 percent of the population relies on decentralized or onsite wastewater treatment systems and almost 95 percent of these systems are septic systems. Many people moving into homes with septic



systems have never experienced living without municipal sewage treatment before. They would be well advised to educate themselves on this type of wastewater treatment, how it functions, where a septic system can be used, how to properly maintain it and what to do in case of a septic

failure. This publication will cover all of these issues in layman's terms with the hope of providing the public with helpful advice and assisting in improving public health and protection of water quality.

What is a Septic System?

A septic system is a self-contained, simply designed underground wastewater treatment system. They are often found in rural areas, though there are many septic systems in older neighborhoods that have not yet been reached by the municipal sanitary sewer system. Septics use natural processes in the soil to treat wastewater from the home onsite.

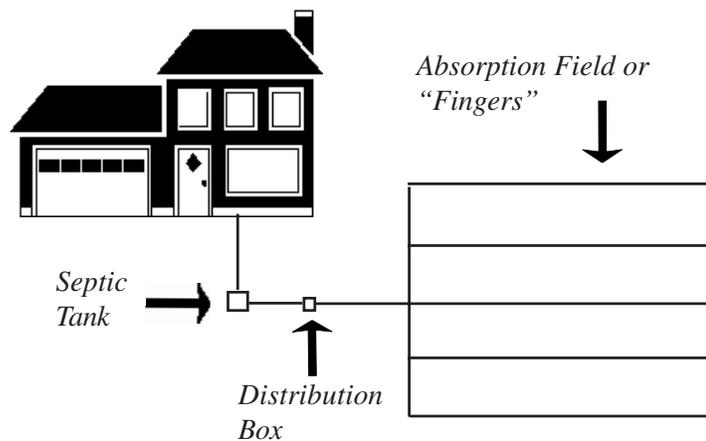
Parts and Function of a Septic System

A septic system usually has two major components: a septic tank and the absorption field. Each of these components must be maintained just as an automobile needs periodic maintenance.

The primary purpose of the septic tank is to separate the sewage solids from the liquids and to promote the partial breakdown of contaminants by the microorganisms naturally present in the wastewater. The solids or "sludge" collect on the bottom of the tank, while the lighter solids or "scum" float on the top of the liquid. The

sludge and the scum will need to be pumped out of the tank periodically. Pumping reduces the chance of the solids entering and clogging the absorption field.

The absorption field, also known as the “fingers,” accept the wastewater or “effluent” that comes out of the septic tank through a connecting pipe. The absorption field is a series of underground, perforated pipes laid on a bed of gravel that allows the effluent to trickle into the soil. The soil treats the effluent through physical, chemical and biological aerobic digestive processes that removes the remaining impurities before it returns it to the ground water (see diagram).



Septic systems are economical and can work efficiently for many years if properly located, installed and maintained. However, there are a number of limitations on the use of septic systems and a potential for public health and environmental problems with these systems if they do not function properly. When a septic system fails, the effluent may contain a variety of disease causing microorganisms and pollutants such as nitrates, phosphates and chlorides. These can cause serious health problems and are a real threat to water quality. It is therefore imperative that homeowners with septic systems be well educated and prudent in their maintenance routines. Natural soil characteristics, improper installation and lack of proper maintenance can lead to septic failures. We will look at each of these issues separately.

Natural Limitations for Septic Systems

There are some natural limitations that can keep septic systems from working properly. These restrictions exist because of limiting layers of the soil profile. In Marion County, one of the primary limiting layers is the presence of a high or perched groundwater table. Many soils in the county have a seasonally high groundwater table which reaches within inches of the surface during many months of the year. The groundwater creates a major limitation to how much effluent the soil can accept. When groundwater levels are high, the “fingers” of the septic system are filled with water; the effluent therefore bleeds out on the surface of the ground and/or backs up into the house.

Through the use of perimeter or curtain drainage tile systems the groundwater table can oftentimes be artificially lowered to allow the septic system to function properly even during wet months. On new septic systems, the drainage tiles must be installed at a depth of 2 feet below finger trench bottom or 2 inches into the glacial till layer and must be drained by gravity to a proper drainage outlet. On repairs to existing systems, the depth of the tile should be at least 2 feet below the trench bottom. Occasionally a sump pump will be allowed to drain to this depth. The drainage tile must be located at least 10 feet away from the fingers to prevent leaching of effluent into the tile.

More information can be obtained regarding drainage and soil types by contacting the Marion County Soil & Water Conservation District (786-1776) or by looking under the Soil link of their website (www.marionswcd.org).

Another limiting layer of the soil in this county is the presence of glacial till. Glacial till is a soil layer, put down by glaciers, which is highly compacted. The compacted layer would prevent effluent from proceeding down through the soil profile and could therefore cause a “bleed out” on the surface or backups into the home. Septic systems cannot be installed in areas where a tight glacial till layer is shallow to the surface. Your soil scientist can check for the limiting layers of your soil. *A listing of soil scientists can be obtained by contacting the Marion County Health Department (221-2147).*

Sizing a Septic System

Septic systems are sized according to the number of bedrooms or bedroom equivalents (i.e. jetted whirlpool tub, den with built-in bookcase, exercise room with closet). New home construction must meet all septic requirements before any building permits can be issued. Soil scientists, land surveyors and engineers' (among others) services may be required to get an accurate picture of the site. The rough estimate of how large a system is needed for a 3 bedroom home is 500' lineal, a 4 bedroom is 667' lineal, a 5 bedroom is 834' lineal and so on.

Repairs of existing septic systems are handled a little bit differently. The Marion County Health Department is not in the business of putting people out of their homes and strives to work with individual sites that may have challenging limitations. However, there are some norms. The required amount of finger system for a repair is roughly 100 lineal feet per bedroom or the maximum that can fit on the property. With older homes, this requirement is usually more system than what was installed to begin with, so the repair is still better than the original system thereby making the system closer to Indiana State Department of Health standards. However, with all repairs, there is no guarantee that the system will work for any length of time. Usually an installer will guarantee that the system was installed properly and approved by the local health department. While every attempt is made to get the best septic system possible, no one can predict the weather, water usage or just how much effluent the soil can and will accept.



Permit Requirements

New systems

Lot size – There is no minimum lot size requirement in Marion County. However something to consider before buying a lot is the area required for a septic field. A rough estimate for a 3 bedroom home is an area 120 feet x 70 feet, a 4 bedroom is 120 feet x 100 feet, and a 5 bedroom is 120 feet x 120 feet. Distance requirements such as property line, well and easement setbacks also need to be considered.

Soils Test – An approved professional soil scientist must check the soil on your lot. In years past, percolation or “perc” tests were done to determine how quickly the soil could accept liquid. Due to the seasonal high ground water tables of many Marion County soils, a lot may have passed a perc test in July only to have a septic failure in January when the groundwater table came up. Various soil types each have their own typical characteristics. By having your soil checked by a professional soil scientist, you will have a much better idea of what the soil on your particular lot is like and how it will function with a septic system.

General soil descriptions can be obtained through the use of the Marion County Soil Survey. This information is available through the Marion County Soil & Water Conservation District. They can also assist you in providing proper drainage around your home and give council on land use, erosion control, vegetative plantings, backyard forestry and creating wildlife habitat.

Drainage Permit – For many areas of the county you will need a perimeter drainage tile installed to artificially lower the groundwater table. As previously stated, on a new system, the tile must be installed at a depth of 2 feet below septic trench bottom or 2 inches into the till layer (if present) and drain by gravity to a proper drainage outlet such as an open ditch. You will need to obtain a drainage permit from the Department of Code Enforcement before the septic permit is approved and the tile is installed.

Septic Permit – You will need to meet all requirements of the Indiana State Board of Health and the Marion County Health Department. It would be in your best interest to contact your county health department septic inspector before you purchase a piece of property. They can assist you in determining if the property will be suitable for a septic system. Your application needs to include key items such as the proposed location, soils report, house and septic system designs. Once all requirements are met, your septic system permit will be issued by the Marion County Health Department.

Permits for Repairs or Expansion

Repairs or expansion of an existing septic system should follow Indiana State Department of Health guidelines as closely as possible. Contact the Marion County Health Department (221-2147) for a site survey to determine the minimum requirements for a septic repair. They will work closely with your installer to ensure, in as much as it is possible, that your repairs will alleviate your septic problems.

Maintenance 101

Dos and Don'ts for Homeowners with Septic Systems

DO have your tank inspected and pumped out every 3 to 5 years by a licensed septic hauler. If you use a garbage disposal, you will need to pump more frequently.

DO keep a record of pumping, inspections and maintenance.

DO practice water conservation to reduce the amount of water going into the septic system. Repair dripping faucets and leaking toilets, run washing machines and dishwashers only when full and avoid long showers. Spread loads of laundry out over several days. Consider replacing plumbing fixtures with water-saving features.



DO learn the location of your septic system. Avoid constructing patios, decks and paved surfaces over your system.

DO divert roof drains and surface water from your system. Keep sump pump water and house footing drains away from the septic system.

DO take leftover household hazardous chemicals to a TOX DROP location (327-4TOX). **NEVER** dump products such as paints, varnishes, thinners, waste oils, photographic solutions or pesticides into your system. These can contaminate the surface and groundwater. Use typical household cleaners (bleach, disinfectants, drain cleaners) following label directions and choose those labeled “Safe for Septics.”

DO be sure to have a healthy grass cover on the absorption field area, but avoid planting shrubs and trees as the roots can damage the tiles.

DON'T allow anyone to drive or park on any part of your system at any time. Before the septic is installed, have the septic area fenced off to avoid compaction of the soil by construction equipment and workers' or delivery trucks.



DON'T make repairs to your system without obtaining a permit from the Marion County Health Department.

DON'T use septic tank additives. These products usually do not help and some contain chemicals that can hurt your system or pollute the environment. Human sewage has plenty of microorganisms to do the job of breaking down sludge!

DON'T use your septic system as a trash can. Avoid flushing into your septic system fat, grease, oil, disposable diapers, plastics, coffee grounds, cigarette butts, excessive toilet paper, kitty litter, tampons,

condoms-you get the idea! These items do not degrade and will fill up the tank quickly—costing you more in pumping fees or allowing sludge to clog the absorption field.

Septic System Failures

Signs of a problem -

Septic problems can often start out as slow drains and proceed to backups into the house. Have your lines checked first. If your lines are clear you can suspect a septic problem. Other signs are “bleed outs” where effluent can be seen and smelled over the septic system. If you detect a problem contact the Marion County Health Department immediately (221-2147).

Buying an Older Home with a Septic?

Checklist of things to look for and request

- Request any drawings or receipts pertaining to the septic system and its installation.

- Look closely at the septic location. Does the area have low spots that would hold surface water? Is there any evidence of effluent on the surface? Do all the drains and toilets drain well? If possible look at the home again after a large rain event. Take into consideration what time of year it is and how much rain the area has received in the past few weeks.

- Request a Site Inspection. A home inspection can save you money and time. The Marion County Health Department as well as private inspection companies offer this type of inspection. Be sure the inspector you choose is well acquainted with septic systems and how to check them. Contact the Marion County Soil & Water Conservation District (780-1765) for general soils information and/or hire a soil scientist to assist you in determining the soil type and its limitations.

- Request a copy of the property's file from the health department. The inspector for your area can give you assistance in finding any warning flags that may exist on this property.

Contact Information

These county agencies are available to help with your septic system needs:

Marion County Health Department
Department of Water Quality & Hazardous Materials
Management
Septic and Wells Team

3901 Meadows Dr
2nd Floor
Indianapolis, IN 46205
Permit Desk – 221-2147
Loan Desk – 221-2145
Fax - 221-2288
Web site – www.mchd.com

Marion County Soil & Water Conservation District

Discovery Hall, Suite 200
1202 E. 38th Street
Indianapolis 46205
Phone – 786-1776
Web site – www.marionswcd.org

Department of Code Enforcement

1200 S. Madison Ave. Suite 100
Indianapolis, IN 46225
Phone – 327-8700
Web site - www.indy.gov