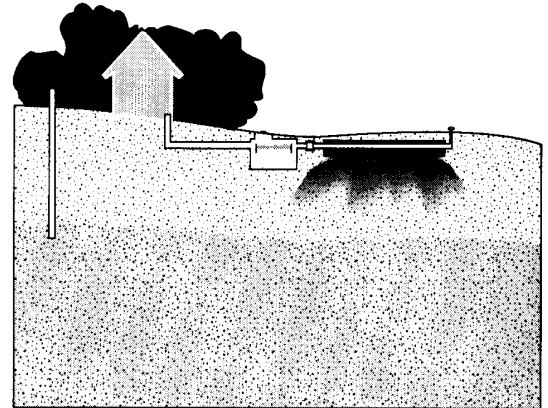


Homeowners and Home Buyers Guide to Wells and Private Sewage Systems

What every homeowner should know about living with a well and a private sewage system.



YOUR ENVIRONMENTAL SYSTEMS

“Out of sight out of mind” - is this how you think about the well and septic system at your home? Does your water come from Lake Superior and your toilet waste go to Lake Michigan?

Your well and private sewage system are the most important environmental protection systems in your home. These systems can affect the health of your family and the community.

YOU DEPEND ON YOUR WELL

Your family depends on the well as its source of water. You use water for drinking, food preparation, bathing, and to carry your wastewater out of the house.

Ground water is normally free from harmful bacteria. This is because layers of soil filter and purify water that starts out on the earth’s surface. Your well draws water from below the ground surface.

- **TYPES OF WELLS**

Wells are named by their method of construction. For centuries wells that were hand dug have been called “dug” wells.

In some areas shallow wells were made by driving a pointed, perforated, pipe into the ground to form the “straw” from which a suction pump draws water into the house. This is called a “point” well.

Today, the most common well is a “drilled” well. This well has a steel casing, commonly 6 inches in diameter. The drilled well is pounded or drilled to a depth where an adequate water supply is reached.

- **WHAT A WELL LOOKS LIKE**

The modern well has a submersible pump and a pressure tank as its main parts. The pump lifts water from underground and pumps it into the house where it is stored in the pressure tank.

The pressure tank is a storage reservoir that allows the pump to work more efficiently. (See Fig. 1)

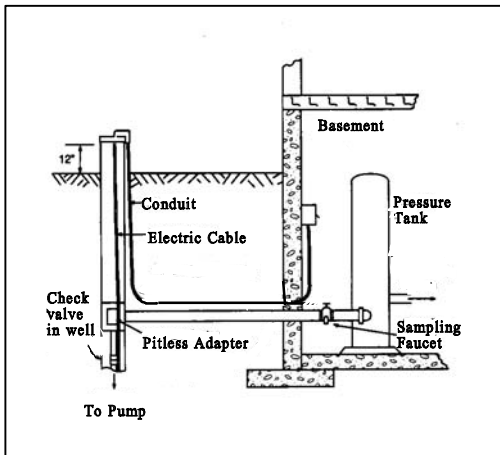


Fig. 1 Typical drilled well and pressure tank cross-section

- **WATER QUALITY**

The most important aspect of water quality is bacteriological safety. Harmful bacteria in your water can make you sick. You want to make sure that no one becomes ill when drinking the water.

Dissolved minerals affect water quality. Some of these include iron, hardness, fluoride and chlorides. The levels of these minerals in your water can affect its taste, odor or appearance.

Since changes in water quality can occur, testing is the best way to learn about your water quality. We recommend testing your water annually for the presence of harmful bacteria.

- **HOW TO PROTECT YOUR WELL**

You can protect your well by preventing contamination from entering it. One way is to direct surface water sources, such as a rain water downspout, water softener discharge, or foundation water sump discharge, away from the well. Another method is to have a “vermin-proof” well cap installed to prevent insects from entering the well. Vermin-proof well caps are required on all new wells constructed after January 31, 1991.

YOU DEPEND ON YOUR SEPTIC SYSTEM

Septic systems are used for the treatment and disposal of wastewater in localities where sewers are not available. Household sewage is water-carried waste from toilets, laundry washers, garbage disposals, and sinks.

As sewage waste exits the house, the septic system treats the waste and disposes it beneath the ground surface where it is filtered by the soil. This filtering action removes harmful bacteria from the wastewater prior to its entering the groundwater.

- **HOW DOES IT WORK?**

There are several types of private sewage systems commonly found serving homes today. One type, the sewage holding tank, temporarily stores the sewage in a watertight tank for later removal by a sewage hauler to a municipal sewage treatment plant.

There are several types of on-site soil absorption systems approved for use in the State of

Wisconsin. The most common system uses a septic tank for primary treatment of household wastewater before it is discharged to the soil absorption field. (See Fig. #2)

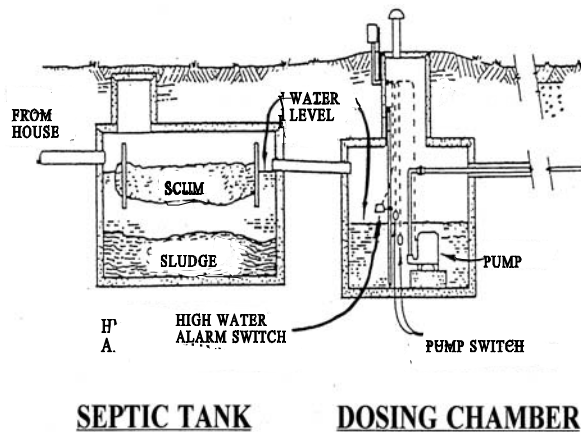


Fig. #2 Cross-section of septic tank, shown with a lift pump tank. (Pump tanks are required for mounds and systems with seepage areas uphill)

When wastewater is discharged to the septic tank, the waste is directed downward by the inlet baffle allowing the larger solids to settle to the bottom of the tank forming a sludge blanket. Grease, oils and floating particles rise to the top to form a scum layer located between the inlet and outlet baffle. The baffle on the outlet side of the septic tank prevents the scum layer from being discharged to the absorption field. While in the septic tank, the wastewater is retained for a period of time to allow anaerobic bacteria to digest and breakdown the solids reducing its volume. The partially treated waste discharged from the septic tank is referred to as sewage effluent.

Effluent flows by gravity or is pumped to the absorption field for filtration by the soil. Within the absorption field, a series of perforated pipes distributes the sewage effluent. The types of absorption fields approved for use include seepage beds, seepage trenches, dry wells, in-ground pressure and mound systems. The size of the absorption field varies depending on the soil permeability and building usage. For residences, the building usage is based on the number of bedrooms in the house.

Soil acts as a filter allowing sewage effluent to be treated as it moves downward through the soil.

As the absorption field ages, the soil's ability to filter and absorb sewage effluent diminishes causing the absorption field to become saturated. Although a saturated system will continue to filter sewage effluent, eventually the sewage effluent accumulates in the absorption field faster than the absorption field can filter and absorb it. As the soil absorption rate decreases due to the clogging of the soil pores, sewage back up or the surface discharge of sewage may result. When this occurs, the absorption field will need to be replaced. Since there are many factors that can effect system longevity, there is no way to determine how long a private sewage system will last.

HOW TO CARE FOR YOUR SEPTIC SYSTEM

Proper care of your private sewage system can result in cost savings due to longer system life. The main goal of any household practice would be to protect the soil absorption area.

- **KNOW WHAT NOT TO FLUSH**

What you put into your septic system greatly affects its ability to do its job. As a rule, do not put anything in your septic system that should be put in the trash.

Don't dispose the following in your septic system:

- 1) Grease, cooking oils, food scraps, coffee grounds, and garbage disposal waste.
- 2) Materials that will not decompose, such as paper towels, feminine hygiene products including the wrappers, cigarette butts, facial tissues, baby wipes, and disposable diapers.
- 3) Washing machine water that has not passed through a lint trap. (All laundry water is sewage and must discharge to the sanitary system.)

- **LEARN WAYS TO CONSERVE WATER**

Reducing the volume of water used within the household can reduce the amount of waste being discharged to your soil absorption field. Because sewage entering the tank is retained longer, more time is available to allow the solids to settle out and be digested by bacterial action. Excessive amounts of water strains the system unnecessarily.

The following are recommended water conservation tips.

- 1) Repair dripping faucets, float valves, etc.
- 2) Install reduced-flow plumbing fixtures or water-saving devices.
 - a) Low-flow shower heads
 - b) Suds-saver washing machines
 - c) Low-flow toilets (5,500 gal/person/yr can be saved compared to a 5 gal/flush toilet)
- 3) Direct water softener backwash water outside if it does not create a nuisance, or to a hand dug pit.

- **LEARN HOW TO PLAN WATER USE**

Proper planning of your water use increases septic system longevity. Rescheduling optional peak water use activities to off peak times reduces the amount of suspended solids discharged from the septic tank.

Here are some suggestions.

- 1) Water usage should be spread throughout the week.
- 2) Wash clothes over a period of several days, trying not to wash more than one load per day.
- 3) Wash full machine loads of dishes and clothing during non-peak hours. Some dishwashers have delay-start timers to make this option easier.

- **SEPTIC TANK CLEANING**

There are several reasons to regularly pump a septic tank. The first is to remove scum and sludge that builds up in the tank. The second reason is to inspect the tank to insure it is structurally sound, to inspect the baffles, and to identify any potential problems with the septic

system's operation that may cause the system to ail prematurely. A licensed sewage hauler can pump the tank and identify potential operational problems.

A septic tank needs to be cleaned every 2-3 years. Under the Waukesha County Maintenance Program, pumping notices are sent to property owners that were issued sanitary permits after July 1, 1979.

- ***KNOW WHERE THE PARTS OF THE SEPTIC SYSTEM ARE LOCATED***

Mark the manhole cover location to make the job of searching for the septic tank easier.

A septic system is expensive to replace. Know where the septic tank, pump tank, absorption area, and replacement absorption areas are located. The septic system can be damaged by driving vehicles over it or by building sheds, a pool, or decks over its parts.

- ***WHAT IF YOU HAVE QUESTIONS***

Environmental Health sanitarians are Certified Soil Testers (CST), Privately Owned Wastewater Treatment System Inspectors (POWTS) and Private Well Inspectors. The sanitarians are certified to provide an evaluation of your private well, private sewage system or both. To request these services or to provide information on private wells, water testing, soils or private sewage systems, please contact this office.

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