

Septic Systems

Private Wells and Public Water Systems

Nearly 25 percent of the population in the United States—in more than 25 million homes—disposes of wastewater through onsite, or unsewered, systems.

With unsewered systems, homeowners are responsible for treating and maintaining the disposal of wastewater. Most are typically found where centralized wastewater treatment would be impractical, such as in rural areas.

The most popular method used is with a septic system. Septic systems use soil to treat small wastewater flows. When properly maintained, septic systems are safe and reliable.

There are many types of septic systems, but all operate with the same philosophy. Following is more information on how they work and tips to ensure they are always operating efficiently.

How They Work

A typical system contains a septic tank, a distribution box, and a rock-and-gravel-lined absorption field, sometimes called a drain field. All are connected by pipes called conveyance lines.

Tanks are made of concrete, fiberglass, or plastic. They are usually buried, and should be watertight. They are usually designed to hold a minimum of 750 to 1000 gallons of sewage. Their purpose is to temporarily hold the wastewater as solids and liquids separate. The solids, known as sludge, collect at the bottom of the tank, while scum floats on top of the liquid. The sludge and scum will remain in the tank and need to be pumped out periodically.

The wastewater, or effluent, will pass through the tank to the distribution box. The distribution box separates the flow of the water into a network of underground perforated pipes in the absorption field. The effluent passes through the holes in the pipes into the rock-and-gravel zone. It will be stored there until it is absorbed by the soil.

The absorption field treats the wastewater through physical, chemical, and biological processes. The soil acts as a natural buffer to filter out bacteria, viruses, and excessive nutrients. Essentially, the wastewater is treated before reaching the groundwater.

Septic Systems and Groundwater

A properly maintained septic system poses no threat to groundwater. However, a failing system can be harmful as wastewater can include many types of contaminants.

There are regulations that require the septic system to be certain distances from water wells, streams, lakes, and houses. These are horizontal separation distances. In order to remove

contaminants effectively, the absorption field must also be adequately separated from the groundwater. This is the vertical distance. Both distances are specified by local regulations.

However, various geologic conditions, such as fractured bed-rock or shallow groundwater tables, can also allow bacteria or viruses to reach the groundwater. This is why it is essential to also have the home's water well system regularly checked.

Dos and Don'ts of Septic Systems

- Send all wastewater from your home to the system. This includes water from a sink, bath, shower, toilet, washing machine, and dishwasher.
- Conserve water to avoid overloading the system. Repair leaky faucets and use low-flow fixtures.
- Do not use the system as a trash can. Don't put grease, disposable diapers, paper towels, paint, pesticides, or other items in it.
- Plant only grass over and near your septic system. Roots from trees or shrubs may clog and damage the absorption field.
- Keep roof drains, sump pump drains, and other rain or surface water drainage systems away from the absorption field. Flooding can keep the soil from naturally cleansing the wastewater.
- Be alert. Unpleasant odors, soggy soil, liquid waste flow, or excessive grass growth over the soil absorption area can be signs that the system is in need of service.
- Have the septic system checked every one to two years and pumped every three to five years by a professional contractor.

Where can I get more information?

For more information on your private water well, contact your local contractor. Also, visit the website of the National Ground Water Association, www.ngwa.org, and its site just for well owners, www.wellowner.org.