

Individual Sewer (Septic) Systems; Guide for Homeowners

Morgan County Health Department: 304-258-1513

Types of Septic Systems

There are three types of standard or Class I septic systems used in West Virginia. They are:

- Gravel and Pipe: This system uses a 4" perforated pipe that has gravel placed under and over the pipe. The gravel is then covered with straw or filtration paper. These drain pipes extend from the septic tank to carry effluent away from the tank to be filtered by the various layers of soil and rock in the ground. This system is an older type that is rarely used today.
- Gravel-less Pipe: This system uses a 10" perforated pipe without any gravel. The pipe is covered with filtration paper and then covered with dirt. These pipes also extend from the septic tank to allow the effluent to seep through the soil layers. This system is still used today, but infrequently.
- Chamber system: Four inch pipes carry the effluent to "chambers", which are heavy duty plastic devices which come in lengths of 4, 5, or 6 feet. These chambers are semi-circular in design, approximately three feet in width, about 18 inches high, and usually extend in various lengths of 60-80 feet. This method of distribution of effluent is so efficient that West Virginia allows a 40% reduction in the drain field size from the other systems mentioned above. This is the method used most often today.

There are also several methods of Class II septic systems approved for use in West Virginia. These systems usually treat the effluent in some manner or create an artificial drain and filtration system. These systems can be quite complicated, therefore contact your local Health Department and have a Sanitarian explain the systems. These systems include:

- Peat filtration
- Sand filtration or mounds
- LPP systems (Low Pressure Pipes)
- Drip Irrigation
- HAU (Home Aeration Units)

Septic Tanks

Pre-cast concrete, fiberglass, and plastic tanks are approved for use. Most are the pre-cast concrete type. Any other type is not approved.

The tanks are usually 1000 gallons, the legal minimum size.

The size of the tank and drain field depends on the number of bedrooms in the home. 1000 gallon tanks are the standard for 1-4 bedroom homes. For each bedroom above 4, the size of the tank increases by 250 gallons.

Drain Fields

The size of the drain field is determined mainly by two factors. They are the percolation tests done by a certified septic installer and the Sanitarian's observations of soil and rock conditions in the 6 foot hole dug by the septic installer, topography, and surrounding areas. Depending on the conclusions of the Sanitarian, drain fields are sized for 300 square feet per bedroom, or 400 square feet per bedroom. Home site analysis and/or high percolation rates may influence the Sanitarian to require a Class II installation or dual drain fields.

Permits

Permits are required to install any septic system, modify any septic system, and to renew any septic permit. Permits must be renewed every year, until the final system has been installed and approved by the sanitarian. No septic system can be used until the Sanitarian inspects and approves the final construction. There are fees for these permits. Contact the Sanitarian division of the Health Department for more information.

System Evaluations

When homes are listed for sale, realtors will request that the Sanitarian inspect and evaluate the existing septic system. We must honestly report how many bedrooms for which the current system has a permit, and whether or not we see any signs of septic failure. Homeowners can also ask for this evaluation to be done in the case of sale of the home by the owner. There is a fee for this service.

Distances involved in septic systems.

- 50 feet-minimum distance of septic tank from well
- 100 feet-minimum distance of drain field from well
- 10 feet-minimum distance of any part of the system to neighboring property.
- 20 feet-minimum distance of any part of the system to streams, or open drainage features
- 10 feet-minimum distance of septic tank from any building or foundation
- No standard system can be installed on slopes of greater than 25%
- No standard system can be installed with percolation rates of less than 5 minutes or greater than 60 minutes
- No system can be installed in filled areas, or areas of seasonal flooding, or poor drainage.

There are other distance requirements for conditions specific to a particular site. Contact the Sanitarian for details.

Plantings and Grading of Drain Fields

It is now required that the septic installer disturb the natural surroundings as little as possible when installing the tank and drain field. No part of the tank or drain field should be paved

over or driven over by heavy equipment or vehicles. The drain lines and/or chambers should not be driven over by equipment used by the septic installer. Trees that are in the area are left there, unless they are in the direct path of the drain lines. New trees should not be planted over the drain field. Digging and fence posts in the drain field area should be avoided, since this may damage the drain lines. Any drainage from the home caused by runoff of rain water should be diverted away from the drain field. Legal restrictions do not allow any building of sheds, additions, etc. over the septic tank or drain field. However, it is a good idea to plant grass or a ground cover over the area to minimize erosion of the disturbed soil. The installer is required to mound the dirt over the drain lines with a minimum of six inches to allow for settling. No large rocks or shale can be used for backfill.

Recommendations for the care of septic tanks and drain fields

It is recommended that homeowners try to avoid any obstructions that may clog the drain lines. Solid waste settles naturally to the bottom of the septic tank. Therefore, it is recommended that the tank be pumped out every 3-5 years, depending on the amount of waste from the household and the number of people living there. Above the solid waste is a layer of effluent, the water that is left after over after the solids settle. It is this effluent that is drained off to the drain field. At the top of the effluent is a scum layer, made up of various grease matter, detergents, oils, and residues of personal care products. This layer is removed when the tank is pumped out. The key to taking care of the tank and drain field is to keep solid waste out of the drain lines and to reduce items that may interfere with the chemistry of the tank. Therefore, the following guidelines are recommended:

- Natural bacteria automatically form in the tank to eliminate some solid waste, and clarify the effluent. This is a good thing; try not to disturb these natural phenomena
- The use of drain cleaners and septic tank additives that are advertised as tank cleaners are not recommended. These products only stir up the solid waste, which can enter and then clog your drain lines.
- The use of bleach and bleach cleaners should be minimized so that the tank's natural bacteria is not killed.
- The use of anti-bacterial soaps and cleansers will also have a negative effect on the bacteria in the tank. After all they are designed to kill bacteria-even the "good" kind.
- Try not to overload your system. Doing multiple loads of laundry, running the dishwasher, numerous showers all on the same day may overload the drain field's capacity. Spread these out over the week.
- Keep grease and oils out of the septic tank as much as possible. These can clog the drain field and the pipes.
- Do not flush feminine hygiene products, condoms, or any other plastic matter as these too can clog pipes and drain fields.
- Do not dispose of medicines into your tank. These also tend to destroy the "good" bacteria.
- Garbage disposals are allowed, but not recommended as they tend to contribute to the solid waste. If you use one, keep grease and oils out, and

you will need to pump your tank more often.

- Do not allow backwash from your water softener into the septic tank.
- In general, remember, your septic tank is **NOT** a garbage can. Do not use it for such.
- Also remember that all drains in your house (sinks, washer, toilets, etc.) flow into your septic tank.