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On-site wastewater treatment systems

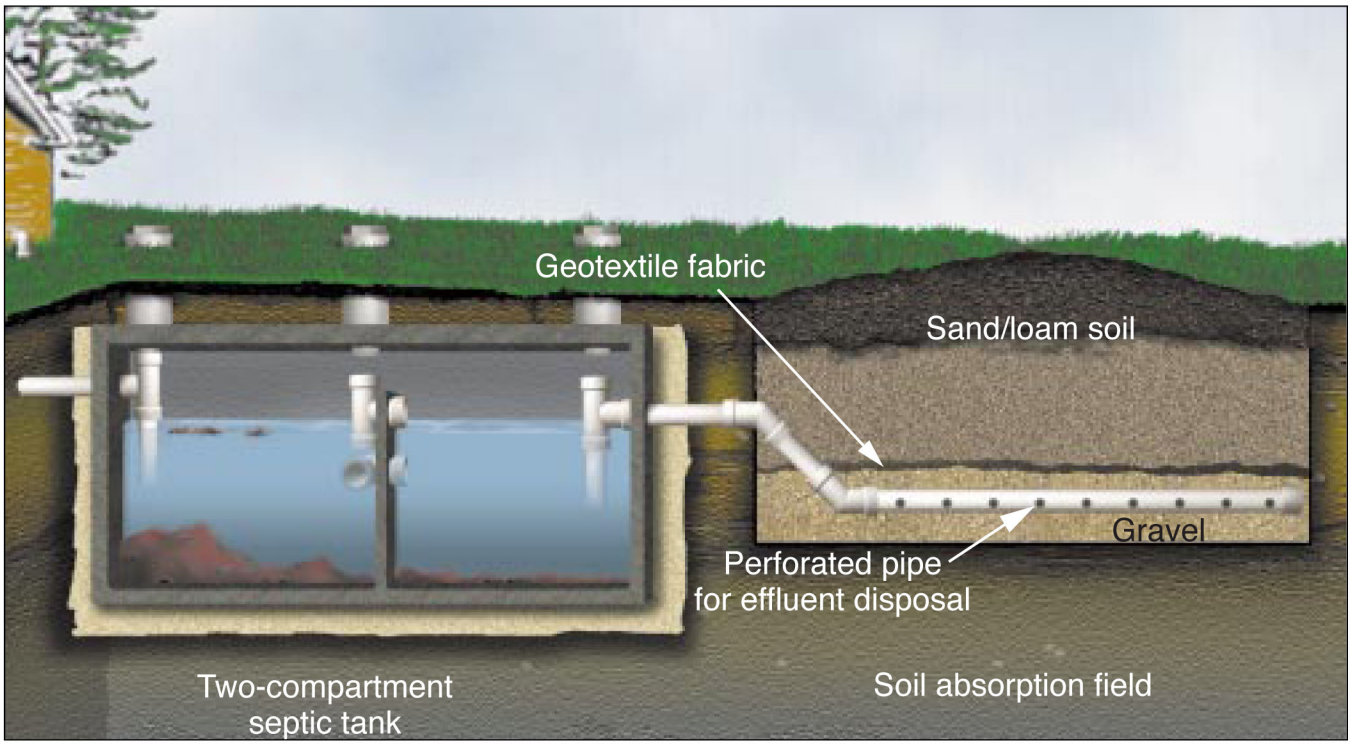

Figure 1: A septic tank and soil absorption field system.

Conventional septic tank/drain field

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Conventional septic systems have traditionally been the most commonly used technology for treating wastewater. These systems use gravity to treat and distribute wastewater in the soil. They have the lowest cost and require the least amount of maintenance, which is generally limited to periodic pumping of the septic tank.

A conventional gravity flow septic system consists of a series of tanks or a compartmented tank followed by a distribution system. The septic tanks are used to settle out solids and partially treat wastewater before it reaches the distribution system. The distribution system can be one of the standard subsurface drain field options. They consist of gravel-filled trenches, plastic chambers or plastic pipe installed underground to hold the wastewater leaving the tanks until it can seep into surrounding soil.

The soil provides most of the wastewater treatment. Soil particles filter solids and organic matter from the wastewater. Microbes living in the soil break down the solids and kill the bacteria and pathogens in the wastewater.

The size of the tanks and distribution system are based on the number of bedrooms in the house and the type of soil where the distribution system is installed.

Advantages

The conventional gravity flow septic system is usually the most inexpensive system to install and operate for on-site wastewater disposal.

Disadvantages

Conventional gravity flow septic systems cannot be installed in clay soils, shallow soils, rock, soils that become saturated during wet periods of the year, or soils with a high water table. A two-foot separation must be maintained between the bottom of the distribution system and saturated soils or restrictive soils such as heavy clay or rock.

How to keep it working

✓ The septic tank needs to be pumped a minimum of every 2 to 3 years. How often the tanks should be pumped depends on their size, the number of people living in the house and their waste management habits.

The distribution systems need limited maintenance:

✓ Generally, the distribution area should be protected from excessive rainwater runoff so it can accept wastewater from the house.

✓ Maintaining a grass cover over the soil distribution system will help remove water from the soil.

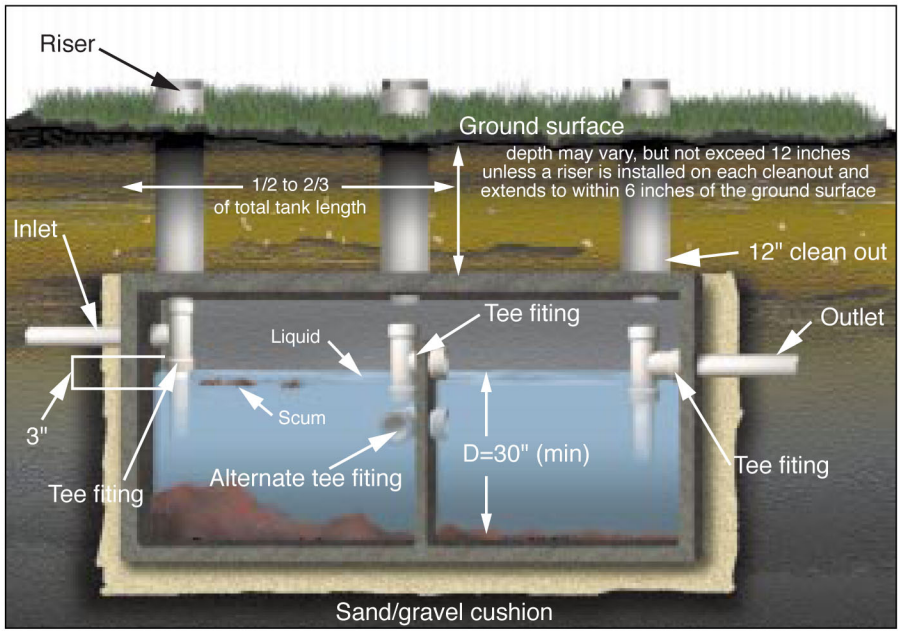

Figure 2: A two-compartment septic tank

✓ The system is designed to manage a specific volume of water. Leaking faucets and toilets need to be fixed. Low-flow devices will help reduce the wastewater volume.

Estimated costs

The installation cost ranges from $2,000 to $6,000, depending on the soil type, house size and other factors.

Septic tank maintenance costs are about $75 a year, based on a 3-year pump out. More frequent maintenance increases the cost.

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