



## How do wastewater systems work?

Get to know your septic system. Adequate household wastewater disposal system standards provide for a safe and sanitary means of treating and disposing of household wastewater. When designed, installed, and maintained properly, many can function well for several decades. Diseases such as infectious hepatitis, typhoid fever, and dysentery can be transmitted by water, food, insects, pets, and toys contaminated by human waste. Properly designed, maintained, and operated wastewater disposal systems minimize the possibility of disease and the potential for contamination of ground and surface waters.

Often the layout of the system is determined by the layout of the land, location of the household plumbing, and most importantly the location of the water well. The layout of the soil absorption field is often in an "H" shape instead of the "fork" shape sometimes seen.

Some systems do not use distribution boxes, instead they use a manifold constructed of PVC pipe.

However your system looks, it is a good idea to record the location and dimensions of each component for future use.

A typical on-site sewage disposal system consists of an underground tank called a septic tank, a distribution line, and a soil absorption drainage field. Wastewater leaves the home through an underground pipe connected to the septic tank. Baffles in the septic tank slow the flow of incoming wastewater and prevent sewage from flowing directly through the tank. Heavier solids settle to the bottom and accumulate as sludge. Grease, foam, and some lighter solids float on the surface of the wastewater and form a mat or scum. Bacteria present in the tank digest some of the heavier solids and grease.

Raw household wastewater will quickly clog all but the most porous gravel formations. A septic tank is a watertight chamber which conditions the wastewater to reduce clogging so that it may be more readily absorbed into the soil. The septic tank separates the settled and floatable solids, promotes the growth of anaerobic bacteria necessary to decompose the solids, and provides storage for the resulting sludge and scum.

During the decomposition process some solids are liquefied. The digestive or septic process releases a gas that escapes through the sewer pipe and is discharged up the vent through the roof of the house. The partially treated wastewater or effluent flows out of the tank into the distribution lines to the absorption field. The drain field consists of several legs up to 100 feet in length, buried in a series of parallel trenches.

The wastewater is filtered by the soil and treated by bacterial organisms before reaching the groundwater below. Approximately 40% of the effluent can be wicked up to be used by plants or evaporated, 60% moves horizontally or downward with the flow of water. There are many types

of in ground absorption fields in use today. Each has its benefits for use at a certain location. Several options for a site can be designed which may include 6" perforated pipe, mounds, chambers, lagoons or even more exotic methods of wastewater treatment.

Further treatment of the effluent, including the removal of disease-producing organisms, is accomplished by water movement through the soil. Large numbers of bacteria are removed as the sewage is filtered by the soil. In addition, disease-producing bacteria die out rather quickly in the unfavorable environment of the soil. This combination of factors results in the bacteriological (not chemical) purification of the sewage after travel through just a few feet of aerobic soil.

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