



## The Role of Septic Tanks

Onsite wastewater treatment (septic) systems normally include two parts: a septic tank, the first component of the system, followed by a secondary wastewater treatment component, such as a soil absorption leach field. The septic tank acts as a settling chamber that allows wastewater to separate naturally into three distinct layers before liquid flows out of the tank.

First, solid particles settle to the bottom of the tank to form a layer of sludge, where anaerobic bacteria digest some of it. Second, greases and fats float to the top of the wastewater in the tank and form a second layer, or scum layer. Third, a clearer layer of liquid wastewater develops in the middle--between the sludge layer at the bottom and the scum layer at the top of the wastewater in the tank. The liquid layer of wastewater eventually flows out of the tank to the secondary treatment component (usually the final treatment component) of the system.

A normally functioning septic tank provides primary treatment of wastewater, which includes the separation of wastewater into three layers and the partial digestion of sludge by anaerobic bacteria. With normal contributions of wastewater to the system, sludge continues to build up at the bottom of the septic tank over time, despite the anaerobic digestion of some solids.

At the same time, the layer of scum on top of the wastewater continues to grow thicker. The continual growth of the two layers--the sludge at the bottom and the scum at the top—effectively reduces the storage capacity of the tank and shrinks the middle liquid layer of wastewater. As this happens, wastewater flows more rapidly through the tank, which means there is less time for the wastewater to settle out solids and separate scum from the liquid. Unless there is adequate space in the septic tank for wastewater to separate into layers, solids and scum will float out of the tank and into the secondary treatment component of the system. Eventually, the secondary treatment component will clog and the entire system will fail.