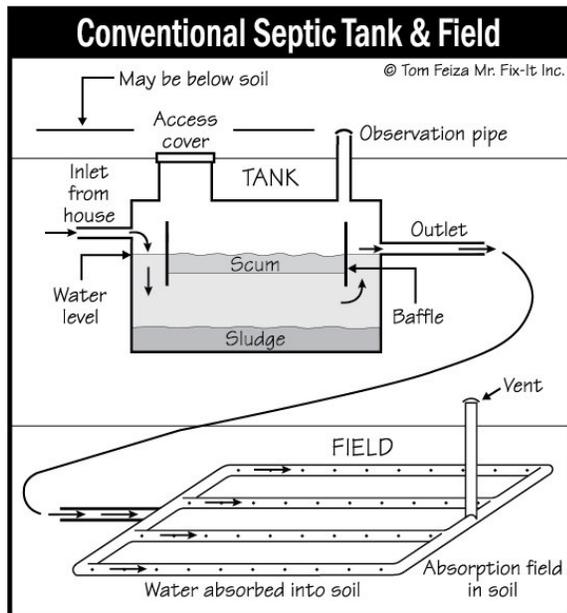


## Living with a Septic System

Septic systems are private waste treatment plants. Waste drains from the house empty into an underground tank, where bacteria digest most of the solids, and liquids flow into a series of perforated pipes and drain into the ground.

### Types of septic systems

#### Conventional



P078

Most septic systems are conventional, with the waste draining directly into the tank and the liquids draining into the absorption field. This type of system requires no electrical power, as it is entirely gravity fed.

When waste from the house enters the tank, the organic solids float on the surface, forming a layer of scum. Bacteria feast on the scum, releasing the liquids. The byproducts of this digestion sink to the bottom of the tank, along with the inorganic solids, to form a layer of sludge. It is this layer that must be pumped out periodically; if it rises to the level of the outlet, it can clog the absorption field, causing it to fail.

#### Sand Mound

Sometimes a property will not pass the “perc,” or “percolation” test. During this test, a large hole is excavated and a known volume of water is pumped into the hole. The time it takes for the water to “percolate” back into the soil indicates whether that spot is suitable for a septic field. In areas that don’t perc properly, a “sand mound” system may be permitted. These rely on gravity to drain the waste into the septic tank, but then a pumping system is used to bring the liquids up into a raised mound on the property. This mound is constructed to permit better draining of the liquids in otherwise poorly-draining soil.

#### Sewage Ejection

Sometimes it isn’t possible to use gravity to drain the wastes into a buried tank. For example, the house may be constructed at the bottom of a hill. In cases like this, a sewage ejector pump is installed at the lowest point of the house. All waste is directed to the sewage pump pit, where it is pumped up to the septic tank. From there the liquids can drain into the absorption field. An ejection system is especially susceptible to clogging by inorganic materials, even items labeled “safe for septic systems”. The only thing that should be flushed is body waste and toilet paper.

These systems usually come with alarm systems to warn the occupants in the event that the pump fails. And since sand mound and sewage ejection systems rely on electricity, it is important to be prepared in the event of a power failure. There will usually be some sort of alarm system or warning light connected to the pumping system to alert the occupants that the pump is not working. **We highly recommend that houses with either of these powered septic systems have an automatic standby generator so that the occupants can continue to use the plumbing during a power outage.**

#### Important Considerations

A septic system relies on healthy bacterial population in order to work properly. Therefore, it is important to be careful about what goes down your drains.

In general, the largest wastewater producer in the average household is the toilet. It's important not to flush any unnecessary solids; this includes feminine hygiene products, cigarettes, diapers, or inorganic materials. Make sure the toilet paper you use is labeled "safe for septic systems."

Also, don't flush medications into a septic system, especially antibiotics. The last thing you want to do is introduce anything into the system that could kill the bacteria!

The next big wastewater generator is bathing. While most bathing products are not going to create problems in a septic tank, the products used to clean the tub and shower could cause major issues. Products containing chlorine bleach should be used sparingly, if at all.

Next we move into the kitchen. Again, be careful about what gets put down the drain, especially if you have a garbage disposer. Don't let excessive grease or fat go down the drain, and scrape plates into a trash can rather than stuffing them into the disposer. Generally, homes with garbage disposers will need to have their septic systems serviced more often.

The laundry room presents another potential problem for septic systems. Every time an article of clothing is washed, it loses some fibers in the process. Back when clothing was made of natural fibers, this didn't cause a problem in septic systems because the fibers could be digested along with the regular waste. However, today's clothing is increasingly synthetic, and the fibers washed into the septic system do not degrade at all. This can lead to premature failure of the system, which can lead to very expensive repair bills.

One way to prevent these clogging issues is to install a filtration system on the washing machine drain. This filters the fibers out of the water before they can go down the

drain and into the septic system. An example of this type of filter is the Filtrol system, shown below.

The canister is installed on the wall and the washing machine drain is diverted so the water flows through the filter bag. The filtered water then flows into either the laundry sink or the standpipe. It is entirely gravity-powered and uses no electricity.

## Beyond Maintenance

In our area, many homes were built with septic systems because the municipal sewer system had not been extended to service that particular area. However, the increase in development has led to the extension of the sewer system, and it is possible that a property with a septic system is now able to tie in to the municipal sewer.

Here is the main point to keep in mind: if your home has a septic system, but the municipal sewer is now accessible to the property, it is possible that if your septic system is damaged or fails, you might not be permitted to repair or replace it. You could be required to tie into the municipal system at your own expense, and that could run into the tens of thousands of dollars.

Another issue to consider is that the size of the septic system dictates the number of plumbing fixtures permitted in a house. This capacity is determined by the perc test performed before the house is built. So if you purchase a two-bathroom home with a septic system and want to add a third bathroom, you may not be able to get permission from the local authorities.

If your septic system is the sand mound or ejection type, you will also need to be prepared in the event of power outages. Without power, these two types of septic systems will not function properly, and you will not be able to use any of the plumbing fixtures in the house. In the case of an ejector system, you would be limited to the capacity of the pump reservoir, which isn't much.



*Left: The Filtrol system installed behind a washing machine.*

*Right: Fibers caught in the Filtrol filter after about eight loads of laundry. Many of these fibers are synthetic, and could lead to premature failure of the septic field.*