



A conventional in-ground septic system consists of a septic tank and a subsurface soil absorption bed. In the septic tank, solids settle out of the waste stream and anaerobic bacteria facilitate the partial breakdown of organic matter (primary treatment). Clarified effluent from the septic tank discharges via gravity to a soil absorption bed.

The soil absorption bed removes pathogens, organic matter, and suspended solids from the septic tank effluent via physical filtration, biological reduction of contaminants by aerobic microorganisms, and ion bonding to negatively charged clay particles. The soil serves as a fixed porous medium on which beneficial aerobic microorganisms grow. These organisms feed on organic matter present in the wastewater and help eliminate pathogens. Research indicates that 3 feet of suitable soil between the distribution trench and bedrock or high groundwater is sufficient to protect public health and groundwater quality. Because a conventional system includes a gravel distribution trench and overlying fill material, the system requires about 5 feet of suitable native soil.

The conventional system is a passive system that relies on gravity flow. The flow volume entering the septic tank controls the volume discharge to the soil. The discharge enters the distribution pipe via gravity, and usually drains out of the first few holes in the pipe, creating areas of favored distribution. This type of distribution can result in localized clogging along the trench as solids and bacterial biomass accumulates in these areas of preferential flow. The effectiveness of a conventional system depends on the type and permeability of native soils and the slope and drainage pattern of the site. The septic tank requires periodic pumping of accumulated solids, as well as inspection to determine that the tank remains watertight.

The conventional system is typically the least expensive system in use in Wisconsin and it is also the most common. These simple, passive systems that rely solely on unsaturated soil for wastewater treatment have been codified in Wisconsin since 1969 and could be used on 47% of the state's land area. They are also in use in most other states. In Wisconsin, they still constitute approximately 63% of all new systems installed and 57% of all replacements.