

How Does an Individual Sewage Disposal System (ISDS) Work?

For your health, your family's health and to protect the environment, you need to know how your individual sewage disposal system works and how to maintain it.

Improper care of your system can cost you thousands of dollars in repair or replacement costs.

Septic systems are individual wastewater treatment systems that use the soil to treat small wastewater flows, usually from individual homes. They are typically used in rural or large lot settings where centralized wastewater treatment is impractical.

Most individual sewage disposal systems have two parts:

- a septic tank
- an absorption field

Septic Tank

The *septic tank* is the first stage of sewage treatment (see Figure 1). It is a water tight container, usually made of concrete, buried underground. A typical septic tank for a three bedroom home will hold 1,000 gallons. Homes with more bedrooms will require larger septic tanks.

Your septic system treats household wastewater by temporarily holding it in the septic tank where heavy solids and lighter scum separate from the wastewater. This separation process is known as primary treatment. The solids stored in the tank are decomposed by bacteria and later removed, along with the lighter scum, by a professional septic tank pump.

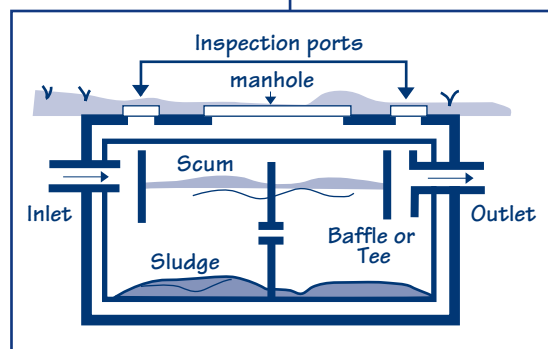


Figure 1

Conventional Absorption Field

A typical *absorption field*, also called a leachfield, is an excavation in the soil that is filled with rock, or plastic "chambers." The septic tank is connected to the absorption field by a pipe, which is connected to a series of distribution lines buried within the rock or to the chambers (see Figure 2). If the distribution lines are buried in rock, they have holes in them which allows the wastewater to flow out of the pipe and into the rock.

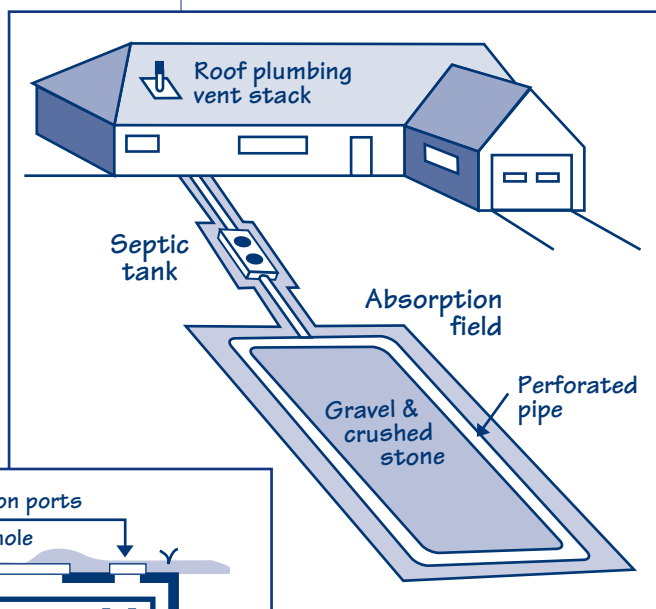


Figure 2

The septic tank only removes a portion of the pollutants in the wastewater. The absorption field provides the remaining treatment. The rock or "chambers" in the absorption field have open spaces or "voids" which hold or store wastewater from the septic tank until it can be absorbed into the soil. The soils treat the wastewater by filtering out pollutants, by absorbing pollutants, and by digestion of pollutants by bacteria in the wastewater and soils.

Engineered ISDS

An ISDS with a septic tank and conventional absorption field will not always work. On lots with clay soils, shallow groundwater or bedrock, an *engineered ISDS* is necessary. Types of engineered systems in the Tri-County region include:

- Evapotranspiration (ET)
- Mounds
- Recirculating sand filters
- Trickling filter systems
- Drip irrigation
- Sand filters
- Aerobic systems

If you have such a system, it may have special operation and maintenance requirements.

How to Maintain Your Septic System

1. Control the amount of water discharged into the system.

Your system is designed to handle a specific amount of water. Larger volumes of water will overload the absorption field. To control the amount of water discharged into the system you should:

- Repair any leaking faucet or toilet immediately.
- Divert run-off water from roof eaves, drainpipes and foundation drains away from the absorption field.

2. Normal amounts of these household products will not harm a septic system:

- Soaps, detergents, bleaches and drain cleaners.
- Wastewater from a home water softener may cause a slight shortening of the life of the absorption field because of the extra volume of water that's used. The salts from water softeners will not harm the septic system.

3. DO NOT dispose of these items in your system:

- These materials do not decompose in the septic tank: Household items such as facial tissues, tampons, sanitary napkins, cigarette butts, coffee grounds, egg shells, oily waste or grease from cooking, bones, paper towels, newspaper, wrapping paper, rags and disposable diapers.
- Materials such as strong acids and photographic chemicals may upset the biological process in the septic tank.
- Latex paint, wastewater from a pottery hobby and sheet rock mud remain in suspension in the septic tank, and then flow into the absorption field and clog the pores of the soil.

Note: *There are many chemical products for sale which claim to improve the digestion process in the septic tank. Tri-County Health Department does not endorse any of these products. With proper care and maintenance, the system should work well without added chemicals.*

4. Regularly inspect the level of sludge and scum in the septic tank.

The rate at which sludge and scum accumulate in the septic tank varies greatly from one household to the next. It is important to have your tank inspected regularly or if you wish to do this inspection yourself, contact Tri-County Health for instructions.

Tri-County Health Department recommends that tanks be inspected once a year.

5. Regularly remove the sludge and scum from the septic tank.

Sludge and scum **must** be pumped out of the septic tank before they reach the outlet tee or baffle, or they will flow out into the absorption field and clog the pores of the soil so it can no longer absorb liquid.

Tri-County Health has a list of licensed septic tank cleaning companies in the metro Denver area.

At a minimum, Tri-County Health Department requires that tanks be pumped every four years.

6. Keep your absorption field in good condition.

- Cut grass and weeds growing on the absorption field often.
- Absorption fields usually are installed at very shallow depths. Because of this (1) vehicles must be kept off absorption fields (2) buildings, corrals for livestock, fences and trenches should not be constructed on top of absorption fields and (3) trees and shrubbery should not be planted within or immediately adjacent to the field.
- Some septic systems have two or more absorption fields. These fields are connected by valves so the flow of wastewater can be alternated between fields. If you have such a system, you should switch the diverter valve every summer.



For more information, contact
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