

HOOT Aerobic Wastewater Septic System

What Is an Aerobic Wastewater Septic System

- Aerobic Wastewater Treatment is a process that uses a combination of physical, chemical, and biological processes to treat and purify wastewater.
- Physical processes such as screening and sedimentation are used to remove solid particles. Chemical processes such as coagulation, flocculation and pH adjustment are used to remove suspended solids and other impurities. Biological processes such as aeration which creates oxygen to feed bacteria, nitrification and denitrification then remove dissolved organics and bacteria from the wastewater, and the treated wastewater is disinfected to remove any remaining pathogens.
- Aerobic Wastewater Treatment is an effective way to remove pollutants from wastewater and produce clean and safe water. “Bacteria is good and needed to ensure you have a healthy septic system.”

How Does It Work

Pretreatment Chamber

- The first stage begins in the pretreatment chamber, raw sewage from your home enters the system where anaerobic digestion occurs. This chamber also acts as storage for non-biodegradable materials. This prevents clogs and damage to downstream components.

Aeration Chamber

- After pretreatment is complete, the effluent transfers into the aeration chamber
- for further processing. Aerobic bacteria feed on any organic matter found in wastewater much faster and more efficiently than anaerobic decomposition used by traditional septic systems. As they break down waste, they produce carbon dioxide and water as byproducts as a byproduct.
- The aerator is located on top of the Pretreatment Chamber poly riser underneath a concrete “doghouse”. The aerator must run 100% of the time.

Clarifier Chamber

- After aeration, the partially treated effluent enters the clarification chamber. In this chamber, any remaining suspended solids and bacteria settle to the bottom as sludge, leaving clearer water at the top.

Pump Tank Chamber (optional – may be a separate tank)

- After clarification, the treated and disinfected effluent enters the pump tank chamber to be stored and pumped.

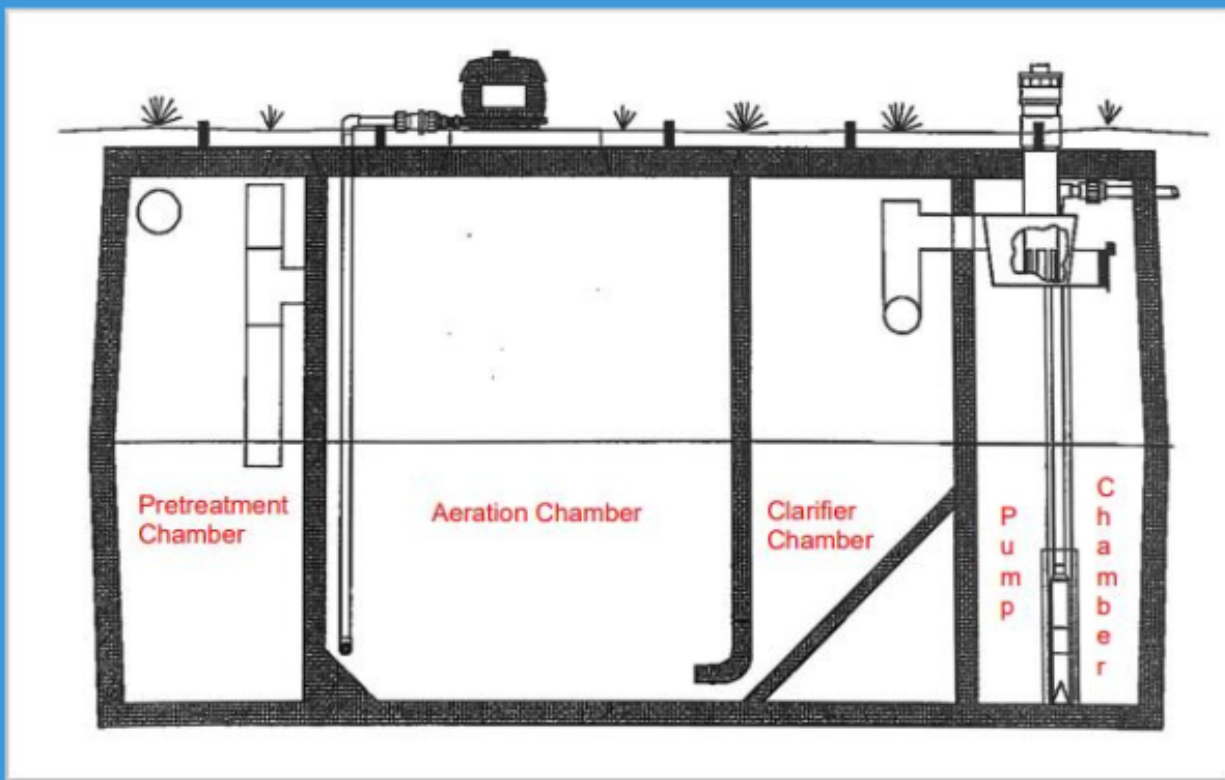
- A control panel is mounted above ground at the Pump Tank Chamber. The
- control panel has a timer and alarm built into it to time dose the treated effluent into the drainfield. If the pump fails or if the Pump Tank Chamber becomes too low or high with water volume, the alarm will go off.

Effluent Pump

- The effluent pump is located within the pump tank chamber and pumps the
- treated effluent to your drain field.

Effluent Distribution

- The final, treated effluent is then distributed into the soil through a drainfield or other approved disposal method (per the County, State or Engineer). The soil works as a natural filter, further purifying the water before it reenters the groundwater system.



Picture above is a combination tank. Some systems have two tanks (aeration tank & pump tank)

Aerobic Wastewater Septic System Tips

- All the water a household sends down its pipes ends up in its septic system. The more water a household conserves, the less water enters the septic system. Efficient water use improves the operation of a septic system.
- Whether you flush it down the toilet, grind it in the garbage disposal, or pour it down the sink, shower, or bath, everything that goes down your drain ends up in your septic system. What goes down the drain affects how well your septic system works.
- Your septic system contains a collection of living organisms that digest and treat household waste. Pouring toxins down your drain can kill these organisms and harm your septic system. Whether you are at the kitchen sink, bathtub, or utility sink:
 - Avoid chemical drain openers for a clogged drain. Instead, use boiling water or a drain snake.
 - Never pour cooking oil or grease down the drain.
 - Never pour oil-based paints, solvents, or large volumes of toxic cleaners down the drain. Even latex paint waste should be minimized.
 - Eliminate or limit the use of a garbage disposal. This will significantly reduce the amount of fats, grease, and solids that enter your septic tank.

Do Not Flush

Your septic system is not a trash can. An easy rule of thumb is not to flush anything besides human waste and toilet paper. Never flush:

- Cooking grease or oil
- Non-flushable wipes, such as baby wipes or other wet wipes
- Photographic solutions
- Feminine hygiene products
- Condoms
- Dental floss
- Diapers
- Cigarette butts
- Coffee grounds
- Cat litter

- Paper towels
- Pharmaceuticals
- Household chemicals like gasoline, oil, pesticides, antifreeze, and paint or paint thinners

Maintain Your Drainfield

Your drainfield is a very important component of your septic system. It helps to equally disperse treated effluent into the soil. Here are a few tips to help maintain it:

- **Parking:** Do not park or drive on your drainfield with heavy equipment or when the field is saturated.
- **Planting:** Do not plant trees within 25' of the drainfield or a garden within the drainfield area. Tree roots and digging can damage your drainfield.
- **Permanent Structures:** Do not build a permanent structure within the drainfield area. Excavating within the drainfield can damage the drainfield piping that is buried.
- **Wet Spots:** Inspect for saturated spots within the drainfield. If a saturated spot is discovered, you may have a cracked pipe or fitting that will require a septic tank installer to make the repair.

Frequently Asked Questions

- **What is a Class 1 Concrete Septic Tank System?** A Class 1 Concrete Septic Tank System is another way of saying Aerobic Wastewater Treatment System.
- **What does ATU mean?** An ATU is an Aerobic Treatment Unit, which is the same as a Class 1 System.
- **What does oxygen dependency mean?** Aerobic systems rely heavily on oxygen for efficient functioning, while anaerobic systems operate in oxygen-depleted environments. An oxygen-rich environment in aerobic systems speeds up decomposition processes more rapidly, producing cleaner effluent.
- **What does treatment efficiency mean?** Aerobic septic systems are far more effective at breaking down organic matter compared to anaerobic ones, leading to significant reductions in solids, pathogens and pollutants in treated effluent.
- **What if there is a power outage?** Aerobic systems rely on electricity to power aerators and pumps. During power outages, these components may stop functioning, potentially causing backups or system failure. Installing a backup power source, for instance a generator, can mitigate this issue.

- **Aerator Malfunctions?** Aerators play a crucial role in introducing oxygen into the system. If an aerator malfunctions, it can disrupt the treatment process. Regular inspection and cleaning are essential to prevent this issue.
- **Overloading the System?** Overloading the system with excessive water usage or waste can overwhelm the bacteria population, leading to suboptimal treatment. Proper water conservation practices and responsible waste disposal are essential.
- **Alarm Going Off?** Both the aerator and the control panel (optional) have alarms. If the aerator alarm is going off, make sure the air filter is clean and make sure the black discharge aerator hose is not pinched or disconnected. If the control panel alarm is going off, confirm the disc filter is clean - located underneath the green poly lid at the Effluent Pump Chamber. Other reasons for the control panel alarm to sound would be the failure of the effluent pump or failure of one of the floats. When this happens, it's important to immediately seek professional help to have it fixed.
- **Odor?** Plumbing vents sticking out of your roof are designed to allow sewer gases to escape. When you flush your stool or drain the bathtub, as water rushes into the drains, the air must escape, hence the reason for the green vent cap on top of your septic tank. Depending on the location of your aerobic septic system, whether it be built in the woods, down in a draw or located where strong air currents exist, you may experience a slight odor from time to time. If a very foal odor exists, you should check to make sure that the aerator is operating. The aerator must run all of the time to feed the bacteria which helps break down the waste which will decrease the odor. Charcoal filters can be purchased and installed to minimize the odor.

Semi-Annual Checklist

Maintaining a precast septic tank is essential for ensuring it functions properly and lasts for years to come. Regular maintenance can help to avoid costly repairs or replacements. Here are some tips to help ensure your precast septic tank remains in good condition:

- Inspect the green poly risers and green poly lids of the tank annually for any cracks or damage.
- Have the tank pumped every two to three years by a licensed septic tank pumping company. This process should involve removing any built-up sludge or solids and replacing the tank lid.
- Ensure the tank is not overloaded with waste. If the tank is too full, it can cause the system to become overwhelmed and lead to backups or system failure.
- Make sure there is adequate drainage around the tank to prevent flooding or waterlogging.

- Check the vent cap on the poly riser lid to ensure it is not blocked by debris and clean the aerator air filter every 6 months.
- If you notice any strange noises coming from the tank, contact a professional for assistance.
- By following these tips, you can help to ensure your precast septic tank is properly maintained and functioning as it should. If you have any questions or concerns about your tank, it is best to contact a professional septic tank installer for assistance.

Service Agreement

Aerobic septic systems do require more maintenance than anaerobic systems due to the presence of mechanical components like aerators and pumps. However, regular maintenance ensures their continued effectiveness and longevity.

Depending on the State and County you live in, you may be required to obtain a service contract agreement from a local manufacturer's representative or septic tank installer.

The service agreement should include inspection of the aerobic septic system every 6 months. Such as, verify the aerator and control panel have power as well as clean/replace the aerator filter and clean the disc filter.

Pumping Services

Over time, non-biodegradable waste and sludge will accumulate in the Pretreatment Chamber. Periodic septic tank pumping will be needed.

The septic tank will need to be pumped by a licensed septic tank pumping company every 2 to 3 years depending on the size of the household.

Performing basic maintenance tasks such as cleaning and pumping, help maintain a functional septic system.