

Operation and Maintenance of Septic Systems

ROLE OF THE NORTHWESTERN HEALTH UNIT

The Northwestern Health Unit (NWHU) regulates the design and installation of on-site septic systems under Part 8 of the Ontario Building Code (OBC) through the Northwestern Health Unit sewage permit process. Prior to any installation or replacement of an on-site septic system, the property owner must complete the NWHU sewage permit application and obtain a permit. Through the permit process, the design is reviewed and the installation is subject to milestone inspections by a NWHU Inspector.

PROPERLY DESIGNED AND INSTALLED ON-SITE SEWAGE SYSTEMS

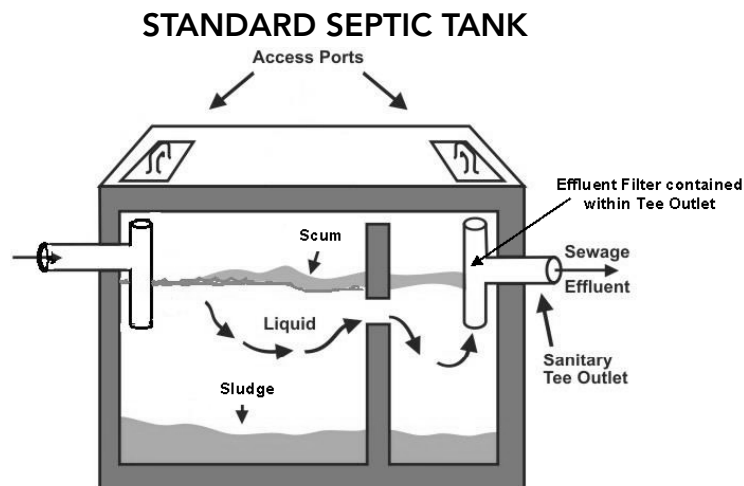
An onsite sewage system is designed to accept, treat and dispose of domestic sewage in a safe and environmentally friendly manner. Each system is designed specifically for the building(s) it serves and takes into account the nature of water consumption on the property and soil conditions in the area of installation.

Like your home, car or appliances, the life of your on-site septic system is governed by proper design, construction, operation and regular maintenance. A properly designed and installed system will still malfunction if not properly operated and maintained. The operation and regular maintenance of a permitted on-site sewage system is the responsibility of the property owner.

As long as an on-site sewage system is working properly, there is no release of untreated wastewater to the surface or groundwater. System failure refers to any release or backup of liquid from any part of the sewage system which could result in human exposure. Sewage effluent exposure is an environmental and human health hazard. A failing system is considered to be in contravention of the Health Protection and Promotion Act (HPPA) and the OBC and can result in an Order or court action.

COMPONENTS OF A CONVENTIONAL ON-SITE SEWAGE SYSTEM:

- A two compartment septic tank equipped with an inlet tee and an effluent filter at the end of the second compartment;
- An optional (not shown) dosing chamber for pumped systems; and
- An absorption area (usually a septic field with stones or chambers) with either a solid header or distribution box; and
- A downslope mantle of porous soil extending a minimum of 15 metres downhill.



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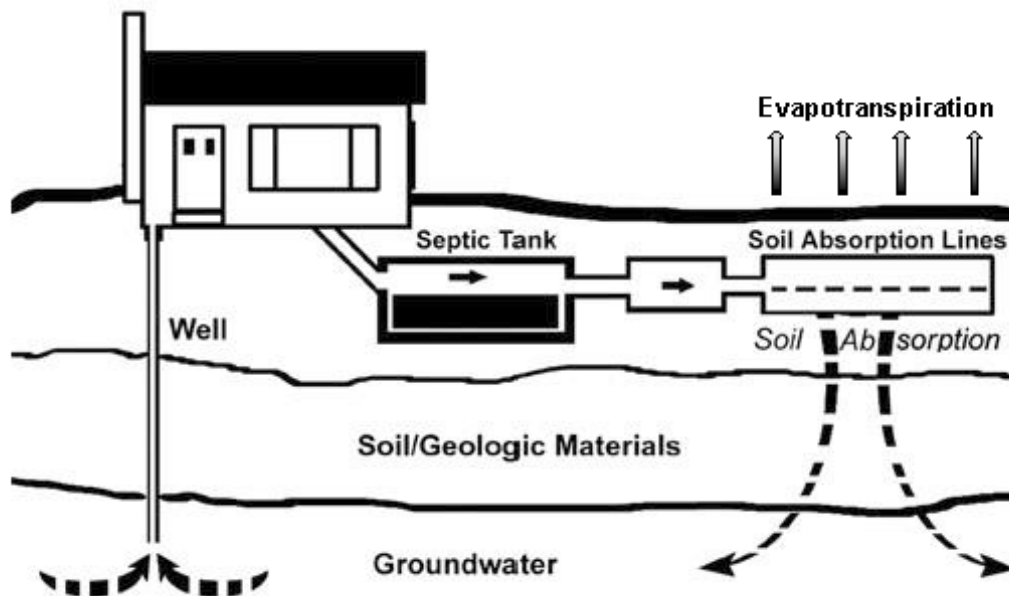
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HOW THEY WORK:

- Sewage flows to the septic tank where the primary treatment occurs. In the tank, the heavy solids settle to the bottom of the tank, forming sludge, and the lighter material (body and food oils) will float to the surface, forming scum.
- In between the sludge and the scum layers is a relatively clear layer of liquid which moves on to the next stage for treatment and disposal.
- The clear liquid (effluent) drains into the dosing chamber or directly into the distribution box or solid header of the absorption area.
- Within the absorption area the effluent is drained into the soil through perforated piping. The effluent drains through a stone layer and into the soil for additional treatment.
- Within the soil, bacteria grows, forming a "bio-mat", which feeds off of nutrients and organic matter in the effluent, effectively treating it.
- When the effluent has passed through the absorption area it passes on into native subsurface soil or is released to the environment through evaporation (into the air) and evapotranspiration (through the vegetative cover on the area). At no time should the absorption area discharge liquid onto the surface.

COMPONENTS OF A CONVENTIONAL ON-SITE SEWAGE SYSTEM STANDARD ABSORPTION FIELD



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OPERATION

- Repair all plumbing leaks immediately upon discovery. Leaking fixtures cause unnecessary loading to your system.
- Install low water use fixtures and appliances.
- Install an effluent filter if you have an older system that does not have one. They promote system life.
- All storm water drainage, including sump water, must be excluded from entering your system. Roof and cellar drains can be discharged to the environment without treatment.
- Remove furnace condensate water or consider adding a furnace condensate neutralizer to adjust the pH back up to near neutral. Condensate water from gas furnaces is very acidic and can harm the system.
- Remove water treatment backwash water as this water often contains concentrated salts that adversely affect the system's biological communities. The extra volume can also tax a system with too much water.
- Spread water usage as evenly as possible throughout the day and week.
- Detergents, kitchen wastes, laundry wastes and household chemicals in normal amounts do not affect the proper operation of the system. However, excessive quantities can be harmful.
- Garbage grinders substantially increase the accumulation of solids in the septic tank, which can clog your effluent filter and/or eventually enter your absorption area. Their disadvantages outweigh the convenience they provide and are not recommended. Investigate composting options instead.
- Provide covered or private (under sink) garbage cans in bathrooms to discourage flushing of unfriendly products such as disposable diapers, sanitary napkins, plastics and other trash into your system. These items are not readily decomposed and will either clog your plumbing or cause pump trouble.
- Wash only full loads of clothing and dishes.
- Do not allow drywall compound into the system by cleaning drywall tools in sinks. The fine material can clog the soil beyond the effluent filter before it clogs the filter.
- Septic tank additives/starters may be harmful and are unnecessary.

MAINTENANCE

- The septic tank must be cleaned or pumped every one to three years or when the total depth of sludge and scum exceeds one-third of the liquid depth of the tank. If the tank is not cleaned periodically, the solids will clog the effluent filter and cause the system to back up.
- All pumps and motors should be routinely checked for proper operation.
- Effluent filters prevent larger solids from entering the absorption area from the tank. They should be cleaned or replaced regularly (usually yearly for residential or cottage).
- A vegetative cover must be maintained on the absorption area to prevent erosion and to aid in evapotranspiration. This cover should consist of grasses which are mowed routinely to keep to a reasonable length. Avoid deep rooted plants, shrubs or vegetables over your system.
- Ensure the area around your system remains landscaped to prevent surface runoff from draining towards the system.



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MAINTENANCE (*continued*)

- Inspect all components of your system annually for signs of erosion or failure. Drainage is very important and one of the necessary solutions when fixing a failed system.
- Never permit vehicles or equipment to pass over your absorption area. This can compact the soil and cause system failure. In the winter months, having traffic of any kind on or near your septic field can damage the insulating snow cover and drive frost into the field resulting in premature system failure. This includes the downslope mantle.

WARNING
NEVER ENTER THE SEPTIC TANK. IT DOES NOT CONTAIN OXYGEN
AND MAY CONTAIN DANGEROUS GASES.



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