



Subject: Standards-Watertight Tanks

Effective: September 1, 1999

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Purpose

To establish minimum construction/design standards to assure watertightness of septic tanks and pump tanks. These minimum standards are intended to minimize the potential of groundwater entry into the tanks and sewage effluent from exiting the tanks except in the proscribed manner. These standards address watertightness only and are intended to compliment existing state and federal construction standards which may be in effect.

Philosophy

The state on-site sewage disposal regulation, WAC 246-272, defines a septic tank as a “watertight pretreatment receptacle...” The OSS Systems installed under the Department of Health (DOH) 1996 revision of the LPD Guidelines requiring the use of timed dosing, first became in operation during the winter of 1998/1999. With timed dosing only allowing the designed flow to be pumped to treatment component, it became evident that many of the tanks were experiencing groundwater entry. Groundwater entry leads to hydraulic overloading of the treatment component thus contributing to premature failure. The DOH is attempting to address this issue in its “Standards for On-Site Wastewater System Tanks” but adoption is still projected for some future date.

Procedure

The following items are the minimum requirements for designation as a concrete watertight tank.

1. Tank Influent/Effluent Gaskets: The gasket must be composed of a rubberized material that is resistant to gases and other forces of its environment, cast into the tank wall to ensure integrity, and capable of accepting a non-corrosive clamp and screw to secure the pipe to the gasket, i.e., boot design. When an effluent outlet is provided in the pump tank, it must be gasketed in the same manner. The clamping of gasket to pipe with a boot design prevents pipe deflection of gasket that may create a gap between gasket and pipe, and greater flexibility of joint to compensate for any settling of tanks or pipe.
2. The sides and bottom must be a mono pour of sufficient mix, and strength to prevent migration of groundwater into the tank and sewage effluent out of the tank.
3. The tank rim and lid base must be free of all irregularities that may prevent a uniform watertight seal.

4. The sealant between tank rim and lid must be able to provide a watertight seal regardless of weather conditions or temperature during sealant application.

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5. The tank riser(s) must be watertight and placed into tank lid at time of pour. Electrical and effluent pipe that exit the riser must use a rubberized gasket as its watertight seal and must be able to withstand vibration and/or settling.
6. An inspection access (4 inch minimum) at the intercompartmental wall of the septic tank is not required by the SHD to be considered for approved use. The DOH may require it in the future. If an inspection access is provided it must be PVC Schedule 40 or equivalent and cast into the tank lid. It must extend above the tank sufficiently to accept a watertight cap/seal.
7. The tanks must be identified by the manufacturer as watertight. A non-deteriorating identification must be located within the riser or on the tank lid and contain the minimum information of manufacturer's name, a W.T. for watertight, and month/year of construction.
8. Manufacturer must submit for SHD review all tank specifications for tanks with the watertight designation.

The following are the minimum requirements for designation as non-concrete watertight tank.

1. The tank riser(s) must be an integral part of the tank and provide a watertight seal/joint at connection to tank and at any riser extensions. A rubberized grommet must be used when exiting the riser with electrical or pump lines.
2. The riser lid must be lockable, water and gas tight, and allow for ease of removal for servicing and inspection.
3. The tanks must be bedded per the manufacturer's specifications. They must also be installed in a manner to prevent movement due to buoyancy during periods of high ground water conditions.
4. The inlet/outlet must be capable of accommodating a flexible rubberized joint approved for this use, and secured by a non-corrosive clamp and screw to tank inlet/outlet and pipe. The flexible joint secured in the noted manner will allow for any settling of tank or pipe deflection during backfill while maintaining watertightness.
5. An inspection access (4 inch minimum) at the intercompartmental wall of the septic tank is not required by the SHD to be considered for approved use. If one is provided it must be an integral part of the tank body and must extend above the tank sufficiently to accept a watertight cap/seal.

The minimum standards in this policy will remain in force until the SHD notes otherwise.