

Pump Tanks and Pumps Installation and Inspection Guidelines

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All pump tanks manufactured for use in Florida shall have a minimum total capacity as referenced in Table II [64E-6.008, F.A.C., Nov. 26, 2006]. The effective capacity is referenced on the approved tank legend in gallons. Pump tanks shall have a minimum effective capacity measured from the bottom of the tank to the top of the tank.

TABLE II SEPTIC TANK AND PUMP TANK CAPACITY			
AVERAGE SEWAGE	SEPTIC TANK MINIMUM EFFECTIVE CAPACITY	PUMP TANK MINIMUM TOTAL CAPACITY	
FLOW GALLONS/DAY	GALLONS	GALLONS	
		Residential	Commercial
0-200.....	900.....	150.....	225
201-300.....	900.....	225.....	375
301-400.....	1050.....	300.....	450
401-500.....	1200.....	375.....	600
501-600.....	1350.....	450.....	600
601-700.....	1500.....	525.....	750
701-800.....	1650.....	600.....	900
801-1000.....	1900.....	750.....	1050
1001-1250.....	2200.....	900.....	1200
1251-1750.....	2700.....	1350.....	1900
1751-2500.....	3200.....	1650.....	2700
2501-3000.....	3700.....	1900.....	3000
3001-3500.....	4300.....	2200.....	3000
3501-4000.....	4800.....	2700.....	3000
4001-4500.....	5300.....	2700.....	3000
4501-5000.....	5800.....	3000.....	3000

Dose Volume Calculation:

(1) For rectangular tanks, the gallons per inch of depth can be determined by:

$$\text{Width (ft)} \times \text{length (ft)} \times 7.5 \text{ gallons/ft}^3 \div 12 \text{ in/ft} = \underline{\hspace{2cm}} \text{ gallons per inch}$$

(2) For cylindrical tanks, the gallons per inch of depth can be determined by:

$$0.785 \times (\text{diameter [ft]})^2 \times 7.5 \text{ gallons/ft}^3 \div 12 \text{ in/ft} = \underline{\hspace{2cm}} \text{ gallons per inch}$$

Example:

(1) If a rectangular pump tank has inside dimensions of 4 ft. by 5 ft., the volume per depth is:

$$\underline{4} \times \underline{5} \times \underline{7.5} \div \underline{12} = \underline{12.5} \text{ gallons per inch}$$

If the dose volume is 150 gallons, then:

$$\underline{150} \div \underline{12.5} = \underline{12} \text{ inches}$$

The pump start level should be set 12 inches or one foot above the pump stop level.

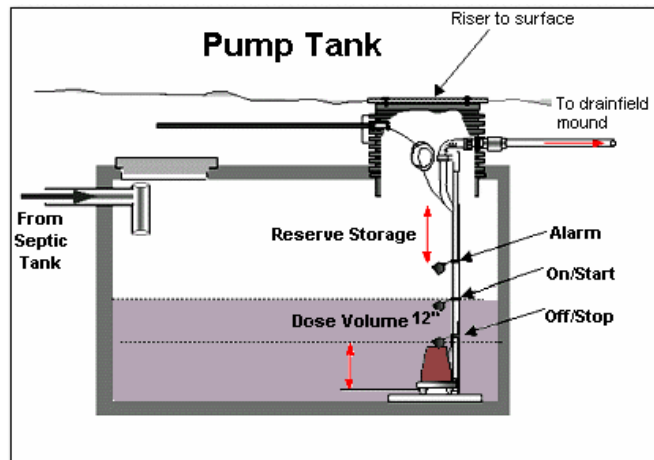
(2) If a circular tank of four feet in diameter is used as a pumping tank, then:

$$0.785 \times 16 \times 7.5 \div 12 = 7.85 \text{ gallons per inch}$$

If the dose volume is 150 gallons, then:

$$\underline{150} \div \underline{7.85} = \underline{19} \text{ inches}$$

The pump start level should be set 19 inches above the pump stop level.



1. Pump levels should be set as low as practical to preserve as much reserve/storage capacity as possible in the event of pump failure.
2. The floats are typically set to discharge the volume of effluent required during each dose cycle. This volume is set by changing the distance between the two floats, where each inch of liquid depth amounts to the gallons per inch as determined in calculation (1) or (2) above.
3. In normal operation, effluent from the septic tank fills the pump chamber and the pump controls keep the effluent level between the two lower floats.
4. The top float is the high water alarm that will give an audio visual alarm to signal the user that there's a problem. Once the alarm is activated, there is an emergency reserve/storage space available before the system backs up into the house. The alarm float should be wired on a separate electrical circuit.
5. Care should be taken that the float switch cannot come to rest on top of the pump, thus preventing the pump from shutting off. This will cause the pump to run continuously and be damaged from operating dry.
6. The pump should be kept submerged to control corrosion due to sewage gasses.
7. Pumps vary depending on how far you will be pumping, how high you need to overcome an elevation difference, while other systems use the pump to distribute effluent evenly in low pressure distribution systems. In general, $\frac{1}{4}$ horse power to $\frac{1}{2}$ horse power pumps are used in residential systems.
8. Electrical conduit and effluent dosing pipe shall exit the dosing chamber through the outlet using a watertight seal or through the riser providing soil-tight seal. If riser is used, the tank outlet shall be sealed with a capped PVC pipe.
9. All electrical installations must be in compliance with electrical code specifications. Contact local electrical inspection authorities for permits, installation and inspection requirements.
10. The alarm system is powered to a separate circuit breaker to prevent tripping the alarm circuit when the pump circuit is tripped.