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# Texas Administrative Code

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STANDARDS FOR OSSFS****RULE §285.32****Criteria for Sewage Treatment Systems**

(a) Pipe from building to treatment system.

(1) The pipe from the sewer stub out to the treatment system shall be constructed of cast iron, ductile iron, polyvinyl chloride (PVC) Schedule 40, standard dimension ratio (SDR) 26 or other material approved by the executive director.

(2) The pipe shall be watertight.

(3) The slope of the pipe shall be no less than 1/8 inch fall per foot of pipe.

(4) The sewer stub out should be as shallow as possible to facilitate gravity flow.

(5) A two-way cleanout plug must be provided between the sewer stub out and the treatment tank. Only sanitary type fittings constructed of PVC Schedule 40 or SDR 26 shall be used on this section of the sewer. An additional cleanout plug shall be provided every 50 feet on long runs of pipe and within five feet of 90 degree bends.

(6) Additional cleanout plugs shall be of the single sanitary type.

(7) The pipe shall have a minimum inside diameter of three inches.

(b) Standard treatment systems.

(1) Septic tanks. A septic tank shall meet the following requirements.

(A) Tank volume. The liquid volume of a septic tank, measured from the bottom of the outlet, shall not be less than established in §285.91(2) of this title (relating to Tables). Additionally, the liquid depth of the tank shall not be less than 30 inches.

(B) Inlet and outlet devices. The flowline of the tank's inlet device in the first compartment of a two-compartment tank, or in the first tank in a series of tanks, shall be at least three inches higher than the flowline of the outlet device. For a configuration of the tank and inlet and outlet devices, see §285.90 (6) and (7) of this title (relating to Figures). The inlet devices shall be "T" branch fittings, constructed baffles or other structures or fittings approved by the executive director. The outlet devices shall use a "T" unless an executive director approved fitting is installed on the outlet. All inlet and outlet devices shall be installed water tight to the septic tank walls and shall be a minimum of three inches in diameter.

(C) Baffles and series tanks. All septic tanks shall be divided into two or three compartments by the

use of baffles or by connecting two or more tanks in a series.

(i) Baffled tanks. In a baffled tank, the baffle shall be located so that one half to two thirds of the total tank volume is located in the first compartment. Baffles shall be constructed the full width and height of the tank with a gap between the top of the baffle and the tank top. The baffle shall have an opening located below the liquid level of the tank at a depth between 25% and 50% of the liquid level. The opening may be a slot or hole. If a "T" is fitted to the slot or hole, the inlet to the fitting shall be at the depth stated in this paragraph. See §285.90(6) of this title for details. Any metal structures, fittings, or fastenings shall be stainless steel.

(ii) Series tanks. Two or more tanks shall be arranged in a series to attain the required liquid volume. The first tank in a two-tank system shall contain at least one-half the required volume. The first tank in a three-tank system shall contain at least one-third of the total required volume, but no less than 500 gallons. The first tank in a four or more tank system shall contain no less than 500 gallons, and the last tank in a four or more tank system shall contain no more than one third of the total required volume. Interconnecting inlet and outlet devices may be installed at the same elevation for multiple tank installations.

(D) Inspection and cleanout ports. All septic tanks shall have inspection or cleanout ports located on the tank top over the inlet and outlet devices. Each inspection or cleanout port shall be offset to allow for pumping of the tank. The ports may be configured in any manner as long as the smallest dimension of the opening is at least 12 inches, and is large enough to provide for maintenance and for equipment removal. Septic tanks buried more than 12 inches below the ground surface shall have risers over the port openings. The risers shall extend from the tank surface to no more than six inches below the ground, be sealed to the tank, and capped.

(E) Septic tank design and construction materials. The septic tank shall be of sturdy, water-tight construction. The tank shall be designed and constructed so that all joints, seams, component parts, and fittings prevent groundwater from entering the tank, and prevent wastewater from exiting the tank, except through designed inlet and outlet openings. Materials used shall be steel-reinforced poured-in-place concrete, steel-reinforced precast concrete, fiberglass, reinforced plastic polyethylene, or other materials approved by the executive director. Metal septic tanks are prohibited. The septic tank shall be structurally designed to resist buckling from internal hydraulic loading and exterior loading caused by earth fill and additional surface loads. Tanks exhibiting deflections, leaks, or structural defects shall not be used. Sweating at construction joints is acceptable on concrete tanks.

(i) Precast concrete tanks. In addition to the general requirements in subparagraph (E) of this paragraph, precast concrete tanks shall conform to requirements in the Materials and Manufacture Section and the Structural Design Requirements Section of American Society for Testing and Materials (ASTM) Designation: C 1227, Standard Specification for Precast Concrete Septic Tanks (2000) or under any other standards approved by the executive director.

(ii) Fiberglass and plastic polyethylene tank specifications.

(I) The tank shall be fabricated to perform its intended function when installed. The tank shall not be adversely affected by normal vibration, shock, climate conditions, nor typical household chemicals. The tank shall be free of rough or sharp edges that would interfere with installation or service of the tank.

(II) Full or empty tanks shall not collapse or rupture when subjected to earth and hydrostatic

pressures.

(iii) Poured-in-place concrete tanks. Concrete tanks shall be structurally sound and water-tight. The concrete tank shall be designed by a professional engineer.

(iv) Tank manufacturer specifications. All precast or prefabricated tanks shall be clearly and permanently marked, tagged, or stamped with the manufacturer's name, address, and tank capacity. The identification shall be near the level of the outlet and be clearly visible. Additionally, the direction of flow into and out of the tank shall be indicated by arrows or other identification, and shall be clearly marked at the inlet and outlet.

(F) Installation of tanks. For gravity disposal systems, septic tanks must be installed with at least a 12 inch drop in elevation from the bottom of the outlet pipe to the bottom of the disposal area. A minimum of four inches of sand, sandy loam, clay loam, or pea gravel, free of rock larger than 1/2 inch in diameter, shall be placed under and around all tanks, except poured-in-place concrete tanks. Unless otherwise approved by the permitting authority, tank excavations shall be left open until they have been inspected by the permitting authority. Tank excavations must be backfilled with soil or pea gravel, that is free of rock larger than 1/2 inch in diameter. Class IV soils and gravel larger than one-half inch in diameter are not acceptable for use as backfill material. If the top of a septic tank extends above the ground surface, soil may be mounded over the tank to maintain slope to the drainfield.

(G) Pretreatment (Trash) tanks. If an aerobic treatment unit does not prevent plastic and other non-digestible sewage from interfering with aeration lines and diffusers, the executive director may require the use of a pretreatment tank. All pretreatment tanks shall meet all applicable structural and fitting requirements of this section.

(2) Intermittent sand filters. A typical layout and cross-section of an intermittent sand filter is presented in §285.90(8) of this title. Requirements for intermittent sand filters are as follows.

(A) Sand media specifications. Sand filter media must meet ASTM C-33 specifications as outlined in §285.91(11) of this title.

(B) Loading rate. The loading rate shall not exceed 1.2 gallons per day per square foot.

(C) Surface area. The minimum surface area shall be calculated using the formula:  $Q/1.2 = \text{Surface Area (Square Feet)}$ , where Q is the wastewater flow in gallons per day.

(D) Thickness of sand media. There shall be a minimum of 24 inches of sand media.

(E) Filter bed containment. The filter bed containment shall be an impervious lined pit or tank. Liners shall meet the specifications detailed in §285.33(b)(2)(A) of this title (relating to Criteria for Effluent Disposal Systems).

(F) Underdrains. For gravity discharge of effluent to a drainfield, there shall be a three inch layer of pea gravel over a six inch layer of 0.75 inch gravel, that contains the underdrain collection pipe. When pumpwells are to be used to pump the effluent from the underdrain to the drainfield, they must be constructed of concrete or plastic sewer pipe. The pumpwell must contain a sufficient number of holes so that effluent can flow from the gravel void space as rapidly as the effluent is pumped out of the pumpwell to the drainfield. Refer to §285.90(9) of this title.

(c) Proprietary treatment systems. This subsection does not apply to proprietary septic tanks described in subsection (b)(1) of this section.

(1) Installation. Proprietary treatment systems shall be installed according to this subchapter. If the manufacturer has installation specifications that are more stringent than given in this subchapter, the manufacturer shall submit these specifications to the executive director for review. If approved by the executive director, the treatment systems may be installed according to these more stringent specifications. Any subsequent changes to these manufacturer's installation specifications must be approved by the executive director before installation. Tank excavations shall be backfilled according to the backfill provisions in subsection (b)(1)(F) of this section.

(2) System maintenance. Ongoing maintenance contracts are required for all proprietary treatment systems. The maintenance contract shall satisfy §285.7(c) of this title (relating to Maintenance Requirements).

(3) Electrical wiring. Electrical wiring for proprietary systems shall be according to §285.34(c) of this title (relating to Other Requirements).

(4) Approval of proprietary treatment systems. Proprietary treatment systems must be approved by the executive director prior to their installation and use. Approval of proprietary treatment systems shall follow the procedures found in this section. After the effective date of these rules, only systems tested according to subparagraph (A) or (B) of this paragraph will be placed on the list of approved systems. The list may be obtained from the executive director. All systems on the list of approved systems on the effective date of these rules shall continue to be listed subject to the retesting requirements in paragraph (5) of this subsection. In addition, all proprietary treatment systems undergoing testing under this paragraph on the effective date of these rules shall be considered for inclusion on the list of approved systems.

(A) Treatment systems that have been tested by and are currently listed by NSF International as Class I systems under NSF Standard 40 (1999), or have been tested and certified as Class I systems according to NSF Standard 40 (1999) by an American National Standard Institute (ANSI) accredited testing institution, or under any other standards approved by the executive director, shall be considered for approval by the executive director. All systems approved by the executive director on the effective date of these rules shall continue to be listed on the list of approved systems, subject to retesting under the requirements of NSF Standard 40 (1999) and Certification Policies for Wastewater Treatment Devices (1997) or under any standards approved by the executive director. The manufacturers of proprietary treatment systems and the accredited certification institution must comply with all the provisions of NSF Standard 40 (1999) and Certification Policies for Wastewater Treatment Devices (1997) or under any standards approved by the executive director.

(B) Treatment systems that will not be accepted for testing because of system size or type by NSF International, or ANSI accredited third party testing institutions, and are not approved systems at the time of the effective date of these rules, may only be approved in the following manner.

(i) The proprietary systems shall be tested by an independent third party for two years and all the supporting data from the test shall be submitted to the executive director for review and approval, or denial before the system is marketed for sale in the state.

(ii) The independent third party shall obtain a temporary authorization from the executive director before testing. The temporary authorization shall contain the following:

(I) the number of systems to be tested (between 20 and 50);

(II) the location of the test sites (the test sites must be typical of the sites where the system will be used if final authorization is granted);

(III) provisions as to how the proprietary system will be installed and maintained;

(IV) the testing protocol for collecting and analyzing samples from the system;

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