

March 7, 2008

To: Rebecca J. Fugitt, MS, RS  
Administrator, Residential Water and Sewage Program  
Bureau of Environmental Health, Ohio Department of Health

RE: Voluntary Compliance Program for Precast Concrete Septic Tank Approval Under  
the provisions of ORC §120.02(C)(3) and OAC 3701-29-11

Sponsoring Organization: Ohio Precast Concrete Association

Background: Ohio Revised Code Chapter 3718 was adopted into state law in 2005 and required the Ohio Department of Health to adopt rules related to the siting, design, installation, operation, maintenance and abandonment of sewage treatment systems. These rules, Ohio Administrative Code Chapter 3701-29 became effective on January 1, 2007 and included specifications for establishing structural soundness and watertight testing of septic tanks, treatment component tanks, dosing tanks, pump vaults, holding tanks and privy vaults. Due to concerns over system costs, Am. Sub. H.B. 119, which became effective on July 1, 2007, suspended many portions of ORC Chapter 3718 until July 1, 2009, rescinded the January 1, 2007 rules, and required ODH to adopt the prior 1977 version of OAC Chapter 3701-29 (now called the statewide interim sewage rules). The regulation of septic and other sewage tanks in Ohio is now governed by the requirements under OAC Rule 3701-29-07 and Am. Sub. H.B. 119, Section 120.02 (C)(3) which enacted the following requirement:

*(3) Notwithstanding any rule adopted by the Director of Health or the Public Health Council or standard adopted by a board of health or the authority having the duties of a board of health governing the installation and operation of household sewage treatment systems, all septic tanks, other disposal component tanks, dosing tanks, pump vaults, household sewage disposal system holding tanks and privy vaults, or other applicable sewage disposal system components manufactured after the effective date of this section and used in this state shall be watertight and structurally sound.*

Purpose: After July 1, 2007, in accordance with Am. Sub. H.B. 119, each local government agency responsible for issuing permits for the installation of home sewage treatment systems has the responsibility of confirming that the septic tanks used on such systems are both watertight and structurally sound. The purpose of this voluntary compliance program is to assist the Ohio Department of Health, county health departments and other applicable local agencies meet their obligation under ORC §120.02(c)(3) and establish a method of implementing a consistent, statewide program for the approval of concrete septic tanks.

Under the prior provisions of OAC 3701-29-11(B), septic tank manufacturers were required to submit information on their tanks to the Ohio Department of Health in order to have their tanks placed upon an approved list of septic tanks qualified for use on home sewage treatment systems.

Under the suspended code, tank manufacturers were required to submit the following information:

1. Proof of structural soundness -
2. Design specifications and structural capacity for each model of tank –
3. Proof of watertight assurance -
4. The assurance review method intended to be used by the tank manufacturer –

In order to assist the various governmental departments in implementing the intended quality assurance provisions of the suspended Administrative rules, the membership of the Ohio Precast Concrete Association proposes to voluntarily comply with the rules by submitting the required information as follows to the Ohio Department of Health (herein after referred to as ODH). The purpose for submitting this information is to assist

ODH in compiling a list of “approved tanks” for use on home sewage treatment systems. The list of approved tanks would be maintained by ODH in the same manner as intended under the provisions of the suspended rules. Local health districts would then be able to rely on the approved list in order to meet their requirement, under ORC §120.02(c)(3), of assuring the structural integrity and watertight assurance of tanks being installed within their jurisdictional boundaries.

Proof of compliance which is to be submitted by tank manufacturers under the voluntary compliance program will consist of the following information being supplied with the manufacturer’s application for approval:

**1. Verification of structural capacity for expected loads and volume capacity of tanks**

Tank manufacturers must submit information for each tank using one of the following methods:

- a. Process assurance review - Annual certification of the manufacturer by the National Precast Concrete Association, the Precast Concrete Association of America, IAPMO, or CSA quality management institute.
- b. Product assurance review – certification of compliance with one of the following standards, as appropriate, by an ANSI accredited third party certifier for each model of septic tank;
  - (i) ASTM C-1227 Standard Specification for Precast Concrete Septic Tanks;
  - (ii) IAPMO Property Standard for Prefabricated Septic Tanks;
  - (iii) CAN/CSA B66 For Prefabricated Septic Tanks and Sewage Holding Tanks
- c. Submit tank designs/drawings which (1) have been reviewed for structural integrity and anticipated load and (2) stamped with the seal of a Registered Profession Engineer certifying the structural integrity of the tanks.
- d. Submit test results of structural proof testing which has been witnessed and certified by a Registered Professional Engineer. The proof test shall consist of applying a negative air pressure (vacuum) and/or weight applied to the top of the tank to a determined load factor. For standard tanks designed to be buried with 1 foot to 4 feet of earthen cover, the calculated load factor requires that a tank be tested to a negative air pressure of four (4) inches plus the placing of 2,000 pounds of weighted material on a footprint of two (2) feet by two (2) feet placed in the center of the top of the tank. (See Diagram 1, below.) Note: The calculated load factor is 300 pounds per square foot lateral loads, and 800 pounds per square foot of top loading. The tank will be certified as being structurally sound if it holds the pressure and weight for five (5) minutes. Note: The testing performed under this provision is intended to only be performed in the controlled environment of in-plant testing conforming to industry accepted test procedures.

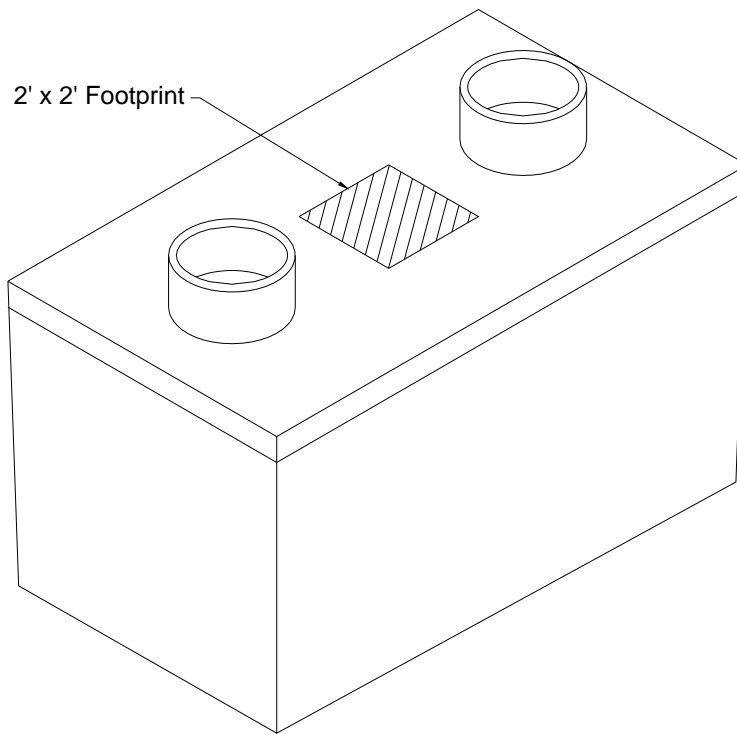


Diagram 1: Placement of Weight for Load Testing

2. Tank manufacturers shall submit the rated volume capacity of each tank. Tank volume for a home sewage treatment system shall follow the minimum capacity requirements of §3701-29-07(A), effective 07/1/2007.
  
- 3 **Verification of watertight assurance of a septic tank and declaration of test review method.**  
 Tank manufacturer must submit information for each tank using one of the following methods:
  - a. Process assurance review - Annual certification of the manufacturer by the National Precast Concrete Association, the Precast Concrete Association of America, IAPMO, or CSA quality management institute.
  - b. Product assurance review – certification of compliance with one of the following standards, as appropriate, by an ANSI accredited third party certifier for each model of septic tank;
    - i. ASTM C-1227 Standard Specification for Precast Concrete Septic Tanks;
    - ii. IAPMO Property Standard for Prefabricated Septic Tanks;
    - iii. CAN/CSA B66 For Prefabricated Septic Tanks and Sewage Holding Tanks
  - c. Watertight Testing, conducted annually. The verification testing shall be witnessed by a Registered Professional Engineer and conducted using one of the two following methods.
    1. Negative Air Pressure (Vacuum) Method
 

Test Procedure:

      - i. The manufacturer shall assemble all tank sections and riser sections, except where the vacuum testing equipment attaches to the tank;
      - ii. The vacuum equipment shall be attached to the tank and all openings temporarily sealed;
      - iii. Negative air pressure is then applied to the sealed tank until the test gauge reaches a reading of 4 inches hg. It is acceptable to initially exceed 4 inches hg to allow the tank to settle and adjust to the pressure.
      - iv. Once the pressure stabilizes at 4 inches hg, the 4 inches of negative pressure must be maintained for a period of 5 minutes. The tank is assured to be watertight after maintaining a minimum vacuum of 4 inches hg for the 5 minute test time.

- v. A test report shall be documented by the manufacturer and signed by the Registered Professional Engineer who witnessed the test.
- vi. Tanks which fail an initial test may be repaired and retested.

## 2. Water Test Method

### Test Procedure:

- (i) The manufacture shall assemble all tank sections and riser sections.
  - (ii) All tank openings, except risers, shall be temporarily sealed;
  - (iii) Mechanical connections securing the lid to the tank or placement of weights on the tank assembly are permitted during the water test. The reason for allowing such precautions is that the water test method unnaturally fills the tank with water beyond the intended service level of the tank.
  - (iv) Fill the tank with water to 2 inches above the first riser to tank connection. Allow the tank to stand for a period of 1 hour.
  - (v) If the water level drops, refill the tank to 2 inches above the first riser to tank connection. Allow the tank to stand for a period of 1 hour.
  - (vi) Once the water level has stabilized and there is no sign of visible leakage on the outside of the tank, the tank passes the test and assured to be watertight.
  - (vii) Damp spots of the exterior surface are not considered a reason to fail the tank. Condensation due to temperature variation can cause moisture on the surface; formation of such moisture is not reason to fail the tank.
  - (viii) A test report shall be documented by the manufacturer and signed by the Registered Professional Engineer who witnessed the test.
  - (ix) Tanks which do not pass an initial test may be repaired and retested. After the tank has been repaired, the tank is retested in accordance with the above listed test procedure.
- 4 A tank manufacturer shall list the recommended method for field testing its tanks when providing the voluntary tank information to ODH. Health departments and local agencies should comply with the manufacturer's recommended test method if there is a need to conduct additional testing once the tank has been approved by ODH. Repairing damage to a structure as a result of failing to follow the manufacturer's recommended method could become the responsibility of the agency requiring a different test method.

Applications for voluntary tank water tightness listing and approval for compliance with OAC Rule 3701-29-07 shall also comply with additional information requested by the Ohio Department of Health, such as the name and location of the manufacturer. Septic tanks supplied under this voluntary approval program shall comply with applicable provisions of OAC §3701-29-07, effective 07/1/2007.