Water Storage Tank Construction Checklist

Texas Commission on Environmental Quality
Water Supply Division
Plan Review Team MC-159
P.O. Box 13 087, Austin, Texas 78711-3087

Public Water System I.D. No._____
TCEQ Log No. P-_____

The following list is a brief outline of the "Rules for Public Water Systems" (30 TAC Chapter 290), regarding proposed water storage tank construction. Sealed plans, capacity report, and specifications meeting, but not limited to, the minimum requirements cited here shall be prepared under the supervision of a Texas licensed professional engineer and submitted to TCEQ for approval. This list is not a substitute for the rules and this checklist cannot be accepted in lieu of the required engineering submittals. Failure to submit the following items may delay project approval. Copies of the rules may be obtained from Texas Register, 1019 Brazos St, Austin, TX, 78701-2413, Phone: (512) 463-5561 or downloaded from the website: http://www.tceq.texas.gov/rules/indxpdf.html

Please address the following in your submittal:

1. ☐ The minimum capacity shall be governed by the requirements in §290.45 relating to Minimum Water System Capacity Requirements; [§290.43(a)]
2. ☐ Submission of engineering report showing the adequacy of the facilities with regard to delivery capacity and pressure throughout the system; [§290.39(e)(1)(H)]
3. ☐ Not located within 500 feet of sewage treatment plant or disposal area or any land which is spray irrigated with treated sewage effluent or sludge disposal; [§290.43(b)(1)]
4. ☐ Not located under any buildings and, when possible, constructed partially or above ground; [§290.43(b)(2)]
5. ☐ Not located below ground level within 50 feet of a sanitary sewer or septic tank (10 feet for pressure rated pipe with pressure-tested, watertight joints); [§290.43(b)(3)]
6. ☐ Not below ground level within 150 feet of a drainfield; [§290.43(b)(4)]
7. ☐ All facilities for potable water storage shall be covered and designed, fabricated, erected, tested, and disinfected in strict accordance with current American Water Works Association (AWWA) standards and shall be provided with the minimum number, size and type of: [§290.43(c)]

   (i) ☐ Roof vents;
   (ii) ☐ Manways;
   (iii) ☐ Drains;
   (iv) ☐ Sample connections;
   (v) ☐ Access ladders;
   (vi) ☐ Overflows; and
   (vii) ☐ Liquid level indicators.

8. ☐ The roof of all tanks shall be designed and erected so that no water ponds at any point on the roof and, in addition, no area of the roof shall have a slope of less than 0.75 inch per foot; [§290.43(c)]
9. ☐ Roof vents shall be gooseneck or roof ventilator and designed based on the maximum outflow; [§290.43(c)(1)]
10. ☐ Vents shall be equipped with screens fabricated of corrosion-resistant material and shall be 16-mesh or finer; [§290.43(c)(1)]

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11. ☐ All roof openings shall be 30 inches in diameter. If an alternate 30-inch diameter access opening is provided, the roof opening shall not be less than 24 inches in diameter. Each access opening shall have a raised curbing at least four inches in height with a lockable cover that overlaps the curbing at least two inches in a downward direction. Where necessary, a gasket shall be used to make a positive seal when the hatch is closed; [§290.43(c)(2)]
12. ☐ Overflows: [§290.43(c)(3)]
    - (i) ☐ Gravity-hinged and weighted cover, an elastomeric duckbill valve, or other approved device to prevent the entrance of insects and other nuisances;
    - (ii) ☐ Cover shall close automatically and have no gap over 1/16 inch;
    - (iii) ☐ Sized to handle the maximum possible fill rate; and
    - (iv) ☐ Discharge opening shall be above the surface of the ground and shall not be subject to submergence.
13. ☐ All tanks shall have a liquid level indicator located at the tank site. The indicator can be a float, an ultrasonic, or a pressure gauge calibrated in feet of water. Pressure gauges must not be less than three inches in diameter and calibrated at not more than two-foot intervals; [§290.43(c)(4)]
14. ☐ Inlet and outlet located to prevent short circuiting; [§290.43(c)(5)]
15. ☐ Clearwells used for disinfectant contact time shall be appropriately baffled; [§290.43(c)(5)]
16. ☐ Tight against leakage, above the ground water table, and no common walls with any other plant units containing water in the process of treatment; [§290.43(c)(6)]
17. ☐ Provided with a means of removing silt and deposits. Drains shall not be connected to any waste or sewage disposal system; [§290.43(c)(7)]
18. ☐ Painted and disinfected with AWWA standards. Paint conforms to ANSI/NSF Standard 61; [§290.43(c)(8)]
19. ☐ No tanks or containers shall be used to store potable water that have previously been used for any nonpotable purpose. Where a used tank is proposed for use, a letter from the previous owner or owners must be submitted to the executive director which states the use of the tank; [§290.43(c)(9)]
20. ☐ Access manways in the riser pipe, shell area, access tube, bowl area or any other location opening directly into the water compartment shall not be less than 24 inches in diameter. However, in the case of a riser pipe or access tube of 36 inches in diameter or smaller, the access manway may be 18 inches times 24 inches with the vertical dimension not less than 24 inches. The primary access manway in the lower ring or section of a ground storage tank shall be not less than 30 inches in diameter;
21. ☐ Intruder resistant fence with lockable gates. Pedestal-type elevated storage tanks with lockable doors and without external ladders are exempt; [§290.43(e)]
22. ☐ Service pump installations taking suction from storage tanks shall provide automatic low water level cutoff devices to prevent damage to the pumps. The service pump circuitry shall also resume pumping automatically once the minimum water level is reached in the tank; and [§290.43(f)]
23. ☐ Submit all necessary information to demonstrate the minimum capacity requirements specified in §290.46(x) and (y) have been met, if applicable [§290.45(f)(7)] such as:
    - ☐ a. Fire hydrants placed as required by city ordinance and TCEQ rules 290.44(e)(6).
    - ☐ b. GST capacity sufficient for water supply and fire flow (i.e. 250 gpm for 120 minutes or ordinance requirements, whichever greater).
    - ☐ c. Service pumps sufficient for water supply and fire flow (250 gpm or ordinance requirements whichever greater).
    - ☐ d. Distribution piping sized at least 6-inches or distribution model to demonstrate sufficient capacity (250 gpm or ordinance requirement, whichever greater).

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Fire Flow Requirements Breakdown

§290.46(x) Public safety standards.

This subsection only applies to a municipality with a population of 1,000,000 or more, with a public utility within its corporate limits; a municipality with a population of more than 36,000 and less than 41,000 located in two counties, one of which is a county with a population of more than 1.8 million; a municipality, including any industrial district within the municipality or its extraterritorial jurisdiction (ETJ), with a population of more than 7,000 and less than 30,000 located in a county with a population of more than 155,000 and less than 180,000; or a municipality, including any industrial district within the municipality or its ETJ, with a population of more than 11,000 and less than 18,000 located in a county with a population of more than 125,000 and less than 230,000.

Fire Flow Requirements at a Glance as of May 2023: (subject to change with each subsequent decennial census)

30 TAC 290.46(x) Flow requirements are applicable only to investor-owned utilities within municipal jurisdiction.

Municipalities >1,000,000 population:

- City of Dallas
- City of Houston
- City of San Antonio

Municipalities >36,000 <41,000 population located in two counties. One of which is greater than a population of 1.8 million:

- None

30 TAC 290.46(x) Flow requirements are applicable only to investor owned utilities within municipal jurisdiction including ETJ and Industrial district)

Municipalities >7,000 <30,000 pop., in one county >155,000 <180,000 population:

- City of Azle
- City of Fair Oaks Ranch
- City of Forney
- City of Heath
- City of Mineral Wells
- City of Seagoville
- City of Seguin
- City of Selma
- City of Terrell
- City of University City

Municipalities >11,000 <18,000 pop., in one county >125,000 <230,000 population:

- City of Azle
- City of Canyon
- City of Glenn Heights
- City of Mineral Wells
- City of Red Oak
- City of Terrell

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§290.46(y)(2) The governing body of a municipality by ordinance may adopt standards set by the executive director requiring a utility to maintain a minimum sufficient water flow and pressure to fire hydrants in a residential area located in the municipality or the municipality's ETJ. The municipality must submit a signed copy of the ordinance to the executive director within 60 days of the adoption of an ordinance by its governing body.

The engineer shall check municipal requirements and ensure the design is adequate to meet specific municipal requirements.