

Water Distribution 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 distribution system improvements. Sealed plans 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. Conforms to American Water Works Association (AWWA) standards. In the absence of AWWA standards, the standards for the American Society for Testing and Materials (ASTM), commercial, and other recognized standards; [§290.44(a)]
2. Conforms to ANSI/NSF Standard 61 and is certified; [§290.44(a)(1)]
3. Plastic pipe bears NSF-pw seal; ASTM class 150 psi minimum or SDR-26 or less; [§290.44(a)(2)]
4. Not previously used for any purpose other than drinking water; [§290.44(a)(3)]
5. Installed by manufacturer's instructions; [§290.44(a)(4)]
6. Depth of cover is at least 24 inches; [§290.44(a)(4)]
7. Hydrostatic leakage testing conforms to AWWA method and leakage rate conforms to AWWA formulas; [§290.44(a)(5)]
8. Pipes and fittings contain no more than 0.25% lead; [§290.44(b)(1)]
9. Minimum water line sizes; [§290.44(c)]

CONNECTIONS	MINIMUM DIAMETER
10	2 inches
25	2.5
50	3
100	4
150	5
250	6
>250	8 and larger

10. Air release devices where air locks may occur in the lines. 16-mesh or finer screen on vent; [§290.44(d)(1)]
11. When service is to be provided to more than one pressure plane or when distribution system conditions and demands are such that low pressures develop, the method of providing increased pressure shall be by means of booster pumps taking suction from storage tanks. Otherwise an exception is required; [§290.44(d)(2)]
12. Sufficient valves so that necessary repairs can be made without undue interruption of service over any considerable area; [§290.44(d)(5)]
13. Blow-offs at all dead end mains for flushing the system; [§290.44(d)(5)]

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14. Designed to afford effective circulation of water with a minimum of dead ends; [§290.44(d)(6)]
15. When new potable water distribution lines are constructed, they shall be installed no closer than nine feet in all directions to wastewater collection facilities. All separation distances shall be measured from the outside surface of each of the respective pieces; [§290.44(e)(1)]
16. Potable water distribution lines and wastewater mains or laterals that form parallel utility lines shall be installed in separate trenches; [§290.44(e)(2)]
17. No physical connection shall be made between a drinking water supply and a sewer line. Any appurtenance shall be designed and constructed so as to prevent any possibility of sewage entering the drinking water system; [§290.44(e)(3)]
18. Where the nine-foot separation distance cannot be achieved between parallel water and wastewater lines, the following criteria shall apply: [§290.44(e)(4)(A)]
 - (i) Where a new potable waterline parallels an existing, non-pressure or pressure rated wastewater main or lateral and the licensed professional engineer licensed in the State of Texas is able to determine that the existing wastewater main or lateral is not leaking, the new potable waterline shall be located at least two feet above the existing wastewater main or lateral, measured vertically, and at least four feet away, measured horizontally, from the existing wastewater main or lateral. Every effort shall be exerted not to disturb the bedding and backfill of the existing wastewater main or lateral;
 - (ii) Where a new potable waterline parallels an existing pressure-rated wastewater main or lateral and it cannot be determined by the licensed professional engineer if the existing line is leaking, the existing wastewater main or lateral shall be replaced with at least 150 psi pressure-rated pipe. The new potable waterline shall be located at least two feet above the new wastewater line, measured vertically, and at least four feet away, measured horizontally, from the replaced wastewater main or lateral; and
 - (iii) Where a new potable waterline parallels a new wastewater main, the wastewater main or lateral shall be constructed of at least 150 psi pressure-rated pipe. The new potable waterline shall be located at least two feet above the wastewater main or lateral, measured vertically, and at least four feet away, measured horizontally, from the wastewater main or lateral.
19. Where the nine-foot separation distance cannot be achieved between crossing water and wastewater lines, make note of each crossing and provide sufficient detail in the engineering plans and specifications. Show the crossing in the profile view of the engineering plans so the separation distance between the two lines is shown. Call out all pipe materials and pressure ratings of wastewater lines at each crossing, and make note of the minimum separation distance: [§290.44(e)(4)(B)]
 - (i) For a new waterline that crosses over an existing and non-pressure rated wastewater line, the minimum separation distance is 2 feet. The wastewater line must be perpendicular and constructed in compliance with §290.44(e)(4)(B)(i)(I);
 - (ii) For a new waterline that crosses over an existing and pressure rated wastewater line, the minimum separation distance is 6 inches. The wastewater line must perpendicular and be constructed in compliance with §290.44(e)(4)(B)(i)(II);

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- (iii) For a new waterline that crosses over a new and non-pressure rated wastewater line, the minimum separation distance is 2 feet. The wastewater line must be perpendicular and constructed in compliance with §290.44(e)(4)(B)(ii);
 - (iv) For a new waterline that crosses under a wastewater line, the minimum separation distance is 1 foot with an encasement pipe around the waterline. The waterline and wastewater line must be constructed in compliance with §290.44(e)(4)(B)(iii); and
 - (v) For a new waterline that crosses over a new and pressure rated wastewater line, the minimum separation distance is 6 inches. The wastewater line must be perpendicular and constructed in compliance with §290.44(e)(4)(B)(iv).
20. The separation distance from a potable waterline to a wastewater main manhole or lateral manhole or cleanout shall be a minimum of nine feet. Where the nine-foot separation distance cannot be achieved, the potable waterline shall be encased in a joint of at least 150 psi pressure class pipe at least 18 feet long and two nominal sizes larger than the new conveyance. The space around the carrier pipe shall be supported at five-foot intervals with spacers or be filled to the springline with washed sand. The encasement pipe shall be centered on the crossing and both ends sealed with cement grout or manufactured sealant; [§290.44(e)(5)]
21. Fire hydrants shall not be installed within nine feet vertically or horizontally of any wastewater main, wastewater lateral, or wastewater service line regardless of construction; [§290.44(e)(6)]
22. Suction mains to pumping equipment shall not cross wastewater mains, wastewater laterals, or wastewater service lines. Raw water supply lines shall not be installed within five feet of any tile or concrete wastewater main, wastewater lateral, or wastewater service line; [§290.44(e)(7)]
23. Waterlines shall not be installed closer than ten feet to septic tank drainfields; [§290.44(e)(8)]
24. Pipe shall not be laid in water or placed where it can be flooded with water or sewage during its storage or installation; [§290.44(f)(1)]
25. Special precautions must be taken when waterlines are laid under any flowing or intermittent stream or semipermanent body of water such as marsh, bay, or estuary. In these cases, the water main shall be installed in a separate watertight pipe encasement and valves must be provided on each side of the crossing with facilities to allow the underwater portion of the system to be isolated and tested to determine that there are no leaks in the underwater line. Alternately, and with the permission of the executive director, the watertight pipe encasement may be omitted; [§290.44(f)(2)]
26. Disinfected in accordance with Chapter 290 and AWWA Standard C651. Samples collected for microbiological analysis for every 1,000 feet of completed waterline; and [§290.44(f)(3)]
27. 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 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 February 2019: (subject to change with each subsequent 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:

- City of Burleson Population: 36,690 (Counties: Johnson and Tarrant)
- City of Coppell Population: 38,659 (Counties: Dallas and Denton)

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 Buda: Population 7,295 (County: Hays)
- City of Kyle: Population 28,016 (County: Hays)

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

- City of Crowley: Population 12,838 (County: Johnson)
- City of Glenn Heights: Population 11,278 (County: Ellis county)

§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.