



SP 4.7-004 (2013)

Standard Specifications for Construction City of Waco 2013 Special Provision to Section 4.7 Piping Materials

October 6, 2022

The Standard Specifications for Construction City of Waco 2013

Section 4.7 Piping Materials

Part 2: Product

A. Pipes

1. Polyvinyl Chloride (PVC) Sewer Pipe & Fittings with Dimension Control
2. Polyvinyl Chloride (PVC) Water Pipe
4. Fiberglass Sewer Pipe

C. Manholes

1. Precast Reinforced Manhole Sections
- d.

are hereby deleted and replaced in their entirety as follows effective for all City projects with bid opening date of December 1, 2022 and thereafter; Developer projects with preconstruction meeting date of December 1 and thereafter; and for right-of-way permits issued December 1 and thereafter to Permittees for work without a preconstruction meeting:

PART 2: PRODUCT

A. PIPES

1. Polyvinyl Chloride (PVC) Sewer Pipe & Fittings with Dimension Control

a. **General** – PVC Sewer Pipe and Fittings shall conform to the current ASTM Designation D3034 or ASTM Designation D2241 as shown on the plans for 4-inch through 15-inch diameter SDR-26, and ASTM Designation F679 or ASTM Designation D2241 for greater than 15-inch diameter. Engineering evaluations of specific installation requirements is recommended.

b. Pipe Sizes

(1) For pipe sizes 4-inch through 15-inch diameter, the pipe shall be Type PSM SDR-26 as specified in ASTM Designation D3034. ASTM D2241 (SDR-26) pipe shall be used for sewer where pipeline crosses waterlines.

(2) For pipe sizes greater than 15-inches in diameter, the pipe shall be as specified in ASTM Designation F679. ASTM D2241 (SDR 26) or AWWA C900 (DR 26) pipe shall be used for sewer where pipeline crosses waterlines.

c. Material – The pipe and fittings shall be made of PVC plastic having cell classifications as defined in ASTM Designation D12454 or D12364.

d. Joints – Joints shall be compression rubber gasket type conforming to ASTM D3212 with gaskets conforming to ASTM F477.

e. Installation – Pipe produced to this specification shall be installed in accordance with ASTM Designation D2321. The internal diameter of the installed barrels of the pipe must not be reduced by more than 5% of its base inside diameter when measured not less than 30 days following completion of installation.

f. Testing – All pipe shall meet ASTM requirements for flattening, impact resistance, stiffness, joint tightness, and extrusion quality as specified in ASTM Designation D3034 and F679.

2. Polyvinyl Chloride (PVC) Water Pipe

a. General – Unplasticized polyvinyl chloride (PVC) water pipe shall meet the requirements of AWWA Standard for Polyvinyl Chloride (PVC) Pressure Pipe, 4-inch through 60-inch diameter, for Water, AWWA Standard C900, with cast-iron outside dimensions. Laying lengths shall be 20 feet +/- 1 inch.

b. Thickness Class – PVC water pipe shall meet the dimension ratios (DR's) and physical dimensions shown in the following table. The pressure classification refers to the maximum hydrostatic pressure to which the pipe shall be subject in normal operations. Pipe will be Class 235 (DR-18) unless noted otherwise.

PVC WATER PIPE DIMENSIONS			
Nominal Size	O.D.*	Class 305 (DR-14)	Class 235 (DR-18)
		Min. Wall Thickness	Min. Wall Thickness
Inches	Inches	Inches	Inches
4	4.800	0.343	0.267
6	6.900	0.493	0.383
8	9.050	0.646	0.503
10	11.100	0.793	0.617
12	13.200	0.943	0.733
14	15.300	1.093	0.850
16	17.400	1.243	0.967
18	19.500	1.393	1.083
20	21.600	1.543	1.200
24	25.800	1.843	1.433
30	32.000	N/A	1.778
36	38.300	N/A	2.128
* CAST IRON PIPE O.D. DIMENSIONS.			

c. Joints - PVC water pipe shall be furnished with gasketed joints. Lubricant used for pipe and fittings assembly shall be nontoxic and shall have no detrimental effect to either gasket or pipe.

d. Fittings - Fittings for PVC water pipe shall conform to American National Standard for Gray-Iron and Ductile-Iron Fittings, 3-inch through 48-inch, for Water and Other Liquids, AWWA Standard C110 (ANSI A21.10), unless otherwise specified in the proposal, special specifications or on the other plans. Fittings joints shall be mechanical joints, unless called for otherwise. Bolts and nuts for mechanical joints shall be of high-strength, corrosion-resistant, low-alloy steel and shall conform to ASTM Designation A 325 (Type 3).

e. Approvals - PVC water pipe shall be approved by the Underwriter's Laboratories and shall be accepted by the State Fire Insurance Commission for use in water distribution systems in cities and towns of Texas. PVC water pipe shall also bear the seal of approval (or "NSF" mark) of the National Sanitation Foundation Testing Laboratory for potable water pipe.

f. Rejection - PVC water pipe may be rejected for failure to meet any of the requirements of this specification.

4. Fiberglass Sewer Pipe

This fiberglass pipe shall conform to ASTM D3262 Standard Specification for "Fiberglass" (Glass-Fiber-Reinforced Thermosetting-Resin) Sewer Pipe. This pipe shall also be pipe manufactured by HOBAS Pipe USA, Inc. with a minimum stiffness number of 115 or approved equal. Fiberglass pipe installed in casing shall have joints manufactured with flush coupling with gasket seal. Fiberglass pipe installed in open cut outside of casing may have joints manufactured with bell and spigot with gasket seal.

Fiberglass pipe installed in boring by jacking shall have jacking bell and spigot. The following stiffness numbers shall be required in the given conditions:

SN-115	Direct bury with depth of cover up to 15'
SN-115	Direct bury with depth of cover to +15' - 20'
SN-115	Direct bury with depth of cover to +20' and above
SN-210	Pipe placed through bore by jacking

C. MANHOLES

1. Precast Reinforced Manhole Sections

d. Manholes shall comply with ASTM C478 latest revision, City of Waco Standard Details latest revision, and Guide to the Standard Inlet and Manhole Program latest revision.

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