

ITEM 720 PLASTIC PIPE

720.01 Thermoplastic Pipe for Sewers and Other Gravity Flow Applications. Provide all plastic sewer pipe and accessories conforming to the requirements in this section and the stated requirements published in the current applicable ASTM Standards and Manufacturers Specifications. The Engineer will not allow plastic sewer pipe 1 year or older for use on City projects, unless the City has a letter on file from the manufacturer authorizing an additional 1 year exposure life. The City will maintain a list of current Approved Manufacturers, Product Types and Sizes, and Authorization Letters at the City's testing facility.

720.02 Plastic Pipe Fittings. Provide all fittings conforming to the applicable ASTM, AASHTO, and Manufacturer's Specifications.

720.03 Pipe Markings. Legibly mark all pipe with the information required in the ASTM Standards, except indicate production dates by the standard calendar date (day-month-year) or Julian Date with the current numerical year.

720.04 Testing. The Engineer will select random samples of pipe for each size proposed for use on City projects for testing from either the Producer or Suppliers yard a minimum of three (3) times per calendar year. Make samples available from all plants that may furnish pipe to City project. As directed by the City, test the samples at either the City's testing laboratory or manufacturer's facility for physical and dimensional conformance per the applicable ASTM and/or AASHTO Specifications. The City will prohibit use of sizes not submitted for testing, or failing to meet the requirements on City projects until retested and approved during the next testing consignment. The Engineer will allow one retest for each failed size during each consignment at no additional cost to the City. The Contractor may obtain random samples from materials delivered to the project site or at locations designated by the testing authority for additional conformance verification.

720.05 Testing Equipment. Require the manufacturer furnishing plastic pipe under these specifications to provide facilities and personnel available to perform tests if requested by the Engineer.

720.06 Miscellaneous. The Engineer will not allow solvent cement joints.

720.07 Polyvinyl Chloride Plastic Pipe. Provide smooth wall perforated PVC plastic pipe and fittings with nominal size of 4, 6, and 8-inch (100, 150, and 200 mm) diameter in accordance with ASTM F 758, Type PS 46 minimum, with the following modifications:

7.2.4 Provide pipe having a minimum of four rows of perforations.

720.08 Polyvinyl Chloride Solid Wall Pipe. Provide PVC solid wall pipe and fittings with nominal sizes of 4 through 15-inch (100 through 375 mm) diameter in accordance with ASTM D 3034, SDR 35, with the following modifications:

9.1 Perform inspection at the project site.

10.1 The retest provisions do not apply.

11.1 Provide certified test data as defined in 101.03 to the Engineer.

Provide fittings conforming to ASTM F-1336.

720.09

720.09 Polyvinyl Chloride Large Diameter Plastic Pipe. This specification consists of requirements for smooth wall (PVC) plastic pipe and fittings for sizes 18 through 36 inches (450 through 900 mm) diameter. Provide pipe and fittings conforming to ASTM F-679.

720.10 Polyvinyl Chloride Corrugated Smooth Interior Pipe. Provide PVC profile wall pipe with a smooth interior consisting of an outer corrugated wall fused to a smooth inner wall. Use nominal sizes of 4, 6, 8, 10, 12, 15, 18, 21, 24, 27, 30, 36, 42, & 48-inch (100, 150, 200, 250, 300, 375, 450, 525, 600, 675, 750, 900, 1050, & 1200 mm) diameter included for pipe, joints, and fittings. Provide sewer pipe in accordance with ASTM F 794, and ASTM F 949, with the exception that pipe manufactured under ASTM F 949 shall have a minimum pipe stiffness of 46 psi.

720.11 Polyvinyl Chloride Closed Profile Wall Pipe. This specification covers polyvinyl chloride (PVC) closed profile wall smooth flow sewer pipe and fittings with integral bell joints. The inside diameters range from 4 through 48 inches (100-1200 mm). The pipe and fittings shall conform to ASTM F 1803.

720.12 Corrugated Polyethylene Smooth Lined Pipe. This specification consists of requirements for smooth lined corrugated polyethylene pipe, closed profile polyethylene pipe, couplings, and fittings conforming to AASHTO M 252 or AASHTO M 294, Type S, SP, or D, with the following modifications to AASHTO M 294:

1.1.1 Include nominal size of 4 to 60 inches (100 mm to 1500 mm).

4.1.2 Provide annular corrugated pipe (Type S or SP) or closed profile pipe (Type D).

6.1 The Contractor may blend carbon black with the virgin resin by means of a carrier resin. Provide the proportioning of the carrier resin to the carbon black no greater than 3:1.

7.2.1 Use nominal diameters of 4, 6, 8, 10, 12, 15, 18, 24, 30, 36, 42, 48, 54, and 60 inches (100, 150, 200, 250, 300, 375, 450, 600, 750, 900, 1050, 1200, 1350, and 1500 mm).

7.2.2 Provide the inner liner of Type S and SP pipe, and both inner and outer walls of Type D pipe having the following minimum thicknesses, when measured in accordance with Section 7.2.2.

Diameter		Inner Wall Thickness	
(in)	(mm)	(in)	(mm)
4	100	0.020	0.50
6	150	0.020	0.50
8	200	0.025	0.60
10	250	0.025	0.60
12	300	0.035	0.90
15	375	0.040	1.00
18	450	0.050	1.30
24	600	0.060	1.50
30	750	0.060	1.50
36	900	0.065	1.70
42	1050	0.070	1.80
48	1200	0.070	1.80
54	1350	0.070	2.0
60	1500	0.070	2.0

7.4 Provide pipe with a minimum pipe stiffness at 5 percent deflection, when tested in accordance with Section 9.1, as follows:

Diameter		Pipe Stiffness	
(in)	(mm)	(P/I/I)	(N/m/mm)
4	100	50	340
6	150	50	340
8	200	50	340
10	250	50	340
12	300	50	345
15	375	42	290
18	450	40	275
24	600	34	235
30	750	28	195
36	900	22	150
42	1050	20	140
48	1200	18	125
54	1350	16	110
60	1500	14	95

7.8.5 In addition, provide “silt tight” bell and spigot or bell-bell couplings, or clamp-on bands for corrugated pipe for all sizes up to and including 36-inch (900 mm) diameter.

Provide “silt tight” bell-bell or bell and spigot couplings for Type D pipe. The Contractor may weld the coupling on one end of each length of pipe by means of a full circumferential weld. The Engineer will not allow stitch welds.

Use bell-bell or bell and spigot couplings for pipe diameters 42 inches (1050 mm) and larger.

720.13

9.1 Select test specimens with the greater of a minimum length of 12 inches (300 mm) or one pipe diameter.

11.1.3 In addition, the Contractor may mark pipe with diameters 4 through 10 inches (100 through 200 mm) inclusive as "AASHTO M252".

12.1 Only provide materials from manufacturers on the City's pre-approved list.

720.13 Polypropylene Corrugated Double Wall Pipe. Provide poly propylene corrugated double wall pipe for non-pressure sanitary sewer and storm sewer pipe from 6 to 30-inch diameters in accordance with ASTM F 2736, with the following modification.

9.1 Provide a letter of certification to cover each shipment of material verifying that it meets specification requirements.

720.14 Polypropylene Triple Wall Pipe. Provide polypropylene triple wall pipe and fittings for non-pressure sanitary sewer and storm sewer pipe from 30 to 60-inch diameters in accordance with ASTM F 2764, with the following modification.

10.1 Provide a letter of certification to cover each shipment of material verifying that it meets specification requirements.