



3D-1 Pipe and Manhole Materials

Table 1: Sanitary Sewer Pipe Comparisons

Typical Application	Pipe Material	Size Range	Standard	Thickness Class (min.)	Pipe Stiffness (min.)	Joints
Gravity Flow	PVC Solid Wall	8" - 15"	ASTM D 3034	SDR 35	46 psi	Bell & Spigot
Gravity Flow	PVC Solid Wall	8" - 15"	ASTM D 3034	SDR 26	115 psi	Bell & Spigot
Gravity Flow	PVC Solid Wall	18" - 27"	ASTM F 679	SDR 35	46 psi	Bell & Spigot
Gravity Flow	PVC Truss	8" - 15"	ASTM D 2680	N/A	200 psi	Bell & Spigot
Gravity Flow	Corrugated PVC	8" - 36"	ASTM F 949	N/A	46 psi	Bell & Spigot
Gravity Flow	Closed Profile PVC	21" - 36"	ASTM F 1803	N/A	46 psi	Bell & Spigot
Force Main	PVC	4" - 12"	AWWA C 900	DR 18	150 psi	Bell & Spigot
Force Main	PVC	14" - 30"	AWWA C 905	DR 18	150 psi	Bell & Spigot
Gravity Flow	ES VCP	8" - 42"	ASTM C 700	N/A		Bell & Spigot
Gravity Flow	LRCP	18" - 144"	ASTM C 76	Class IV Wall B	4000 psi	Tongue & Groove
Gravity Flow	DI	8" - 54"	AWWA C151	Class 52	300 psi	MJ or Push on
Force Main	DI	4" - 64"	AWWA C151	Class 52	300 psi	MJ or Push on

Gravity mains greater than 36 inches in diameter will be lined reinforced concrete pipe or ductile iron.
Force mains greater than 36 inches in diameter will be ductile iron.

Table 2: Manhole Types

Figure No.	Type	Description	Depth Restrictions
6010.301	SW-301	Circular Sanitary Sewer Manhole	N/A
6010.302	SW-302	Rectangular Sanitary Sewer Manhole	12' max.
6010.303	SW-303	Sanitary Sewer Manhole Over Existing Sewer	N/A
6010.304	SW-304	Rectangular Base/Circular Top Sanitary Sewer Manhole	12' min. - 22' max.
6010.305	SW-305	Tee-section Sanitary Sewer Manhole	N/A

Table 3: Ring and Cover Types

Figure No.	Casting Type	Number of Pieces	Ring/Cover	Bolted Frame	Bolted Cover (Floodable)	Gasket
6010.601	A	2	Fixed ²	Yes	No	Yes ¹
6010.601	B	3	Adjustable ³	No	No	Yes ¹
6010.601	C	2	Fixed ²	Yes	Yes	Yes ¹
6010.601	D	3	Adjustable ³	No	Yes	Yes ¹
¹ Machine bearing surfaces required.						
² Typically used with non-paved or flexible surfaces, including HMA, seal coat, gravel, and brick.						
³ Typically used with PCC surfaces, including castings in concrete boxouts.						