Polypropylene Pipe vs. RCP

Data based on 24-inch diameter ASTM F2881 polypropylene and ASTM C76, B-Wall reinforced concrete pipes

	Polypropylene Pipe (PP)	Reinforced Concrete Pipe (RCP)
Joint integrity	Extended bell and spigot joint with standard rubber gasket exceeds 25 feet of head pressure per ASTM D3212.	Bell and spigot joints when gasket is specified exceeds 25 feet of head pressure per ASTM C1628. Unspecified joints normally are not leak resistant.
Maximum cover	Compacted Class I Backfill = 37 feet 95% SPD Class II Backfill = 26 feet 95% SPD Class III Backfill = 19 feet 95% SPD Class IV Backfill = 14 feet (See Technical Note 2.04)	Type 1 Installation, Class IV pipe = 35 feet Type 1 Installation, Class III pipe = 23 feet Type 2 Installation, Class III pipe = 17 feet Type 3 Installation, Class III pipe = 14 feet (See ACPA Fill Height Tables, Resource #16-201 [Revised 08/13])
Minimum cover height	95% SPD Class III Backfill - 1.0 feet (See Technical Note 2.04)	Type 1, 2, 3, 4 Installation - 1.0 feet (Class IV pipe is required) (See ACPA Fill Height Tables, as above)
Installation rate	200 feet/day per RS Means	100 feet/day per RS Means
Allowable backfill	Based on installation requirements, Class I, II, III, or IV backfills may be used. High plasticity soils (MH & CH) are not recommended (See ASTM D2321)	Based on installation requirements, Category I, II, or III backfills may be used. High plasticity soils (MH & CH) are not recommended (See ASTM C1479).
Number of joints	9 joints per 200 linear feet of pipe (based on 20 feet standard pipe length. 13 foot lengths available upon request)	24 joints per 200 linear feet of pipe (based on 8 feet standard pipe length)
Product weight	220 pounds per 20 feet stick of pipe	2,120 pounds per 8 feet of pipe
Corrosion resistant	Unaffected by salts, most chemicals, and “hot” soils (See Technical Note: 4.01)	Salt and chemicals like hydrogen sulfide can degrade steel and concrete (see Design Manual “Sulfide and Corrosion Prediction and Control)
Design service life	100 years (Based on FDOT analysis)	100 years (Based on FDOT analysis)

ADS™

National Specifications

Common ASTM and AASHTO Standards for PP and RCP Pipe

	Specification	Description
Polypropylene (PP) pipe manufacturing standards	ASTM F2881	Material specification for 12”-60” (300-1500 mm) dual wall polypropylene (PP) pipe with variable pipe stiffness for non-pressure storm sewer applications.
	AASHTO M330	12”-60” (300-1500 mm) polypropylene (PP) pipe & fittings used in surface and subsurface drainage systems
	ASTM F2764*	6”-60” (750-1500 mm) polypropylene (PP) dual wall and triple wall pipe and fittings for non-pressure sanitary sewer applications*
Reinforced Concrete Pipe (RCP) manufacturing standards	ASTM C76	Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe
	AASHTO M170	Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe
	ASTM C361	Reinforced Concrete Low-Head Pressure Pipe
	ASTM C655	Reinforced Concrete D-Load Culvert, Storm Drain and Sewer Pipe
	ASTM C1417	Manufacture of Reinforced Concrete Sewer, Storm Drain and Culvert Pipe for Direct Design
PP joints	ASTM D3212	Joints for Drain and Sewer Plastic Pipes using Flexible Elastomeric Seals (lab test)
RCP joints	ASTM C443	Joints for Concrete Pipe and Manholes, Using Rubber Gaskets (lab test)
	ASTM C1628	Joints for Concrete Gravity Flow Sewer Pipe, Using Rubber Gaskets (new lab test)
PP installation	ASTM D2321	Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications
	AASHTO Sect. 30	Thermoplastic Pipe - Installation Standard
RCP installation	ASTM C1479	Standard Practice for Installation of Precast Concrete Sewer, Storm Drain, and Culvert Pipe Using Standard Installations
	AASHTO Sect. 27	Concrete Culverts - Installation Standard
PP in-field inspection	ASTM F2487	Standard Practice for Infiltration & Exfiltration Acceptance of Installed HDPE Pipe
	ASTM F1417	Standard Test Method for Installation Acceptance of Plastic Gravity Sewer Lines using Low-Pressure Air**
RCP in-field inspection	ASTM C969	Practice for Infiltration and Exfiltration Acceptance Testing of Installed Precast Concrete Pipe Sewer Lines
	ASTM C924	Practice for Testing Concrete Pipe Sewer Lines by Low-Pressure Air**

* ASTM F2736 has been incorporated into the latest version of ASTM F2764.
**Recommend use of rolling joint tester, unless pipes are cracked or porous. Testing full lengths of pipe using air pressure is extremely dangerous.

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