

## FIBERGLASS BRIDGE DRAIN PIPE: SYSTEM SPECIFICATIONS

- A. Drainage pipe and fittings shall be reinforced thermosetting resin pipe systems meeting the requirements of ASTM D 2996 RTRP-12EA12122, with at least 30,000 psi short time rupture strength in the hoops tensile stress.
- B. UV inhibitors must be included in the resin formula and used throughout the wall of the pipe and fittings. UV resistant surface waxes must also be present on the finished products to further inhibit UV degradation on pipe exposed to sunlight. ASTM G 154 and ASTM D 4329 should serve as base procedures to the test method with tolerances being set forth as acceptable by the regions governing transportation body.
- C. All elbows shall be manufactured only by using smooth radius steel molds. Elbows shall not be mitered. Filament wound pipe may be used for tees, laterals and crosses.
- D. All fiberglass pipe and fittings shall be pigmented throughout the wall. Color to be standard concrete-grey unless otherwise specified. Paint, gel-coat or any other exterior coating will not be accepted for the coloring of new pipe and fittings.
- E. A minimum liner of 40-mil resin-rich 1-1/2 ounce glass mat shall be standard for all elbows.
- F. Adhesive bond joints are acceptable for all joints. No butt and wrap or stab-in and overlay joint connections shall be allowed. Strait socket joints will be used for ease of installation.
- G. Adhesive for bond joint shall be vinyl ester resin based product with silica filler, polyester pigment and methyl ethyl ketone peroxide catalyst. The adhesive formulation shall be certified to be proven suitable for the intended application. The resin shall be certified to have no additives that leach out, catalysts that remain active or extra ingredients that could lead to the products early deterioration.

H. End run connections should feature a fiberglass female threaded outlet. Where specifically shown as a clean out, removal pieces shall be made of a threaded PVC plug. The standard plug shall come white in color.

I. The minimum total wall thickness shall be no less than listed on the chart below.

Nominal Size		Wall Thickness	
(in)	(mm)	(in)	(mm)
4	100	0.125	3.18
6	150	0.125	3.18
8	200	0.125	3.18
10	250	0.125	3.18
12	300	0.125	3.18
14	350	0.125	3.18
16	400	0.125	3.18
18	450	0.125	3.18

J. Runs of pipe shall be supported at spacing no greater than those on the engineer approved drawings. Supports that have point contact or narrow supporting areas shall not be allowed. Standard sling, clamp, and clevis hangers for use with steel pipes shall be used. Supports shall have 120 degrees of contact with the pipe. If support would be less than 120 degrees of contact, a split fiberglass pipe protective sleeve shall be installed and bonded to the pipe. Split sleeve length shall equal pipe diameter.

K. Strap width shall be 1-1/2 inch for nominal fiberglass pipe size 6 inch to 10 inch. Strap width shall be 2 inch for nominal fiberglass pipe size 12 inch to 14 inch. Hanger's thickness shall be 3/16 inch.

Pipe Size (in)	Min. Width (in)
4	1-1/4
6	1-1/2
8	1-1/2
10	1-1/2
12	2
14	2
16	2-1/2
18	2-1/2



- L. All connections between piping systems and roadway drain scuppers shall not be rigid. The deck outlet connection shall be made with a free floating collector assembly sized 4 inches larger than the outlet pipe. Assemblies shall include an oversized fiberglass splash guard at each collector unit.
- M. All fiberglass pipe and fittings shall be handled and installed according to the guidelines and procedures recommended in the printed literature of the manufacturer.
- N. All fiberglass pipe, fittings and bonding adhesives shall be provided from the same manufacturer.
- O. All products to be manufactured in the U.S.A. and are available from Grace Composites, Westfall Company, Inc. and partnering representatives located throughout the country.

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