

PVC PIPE ASSOCIATION TECHNICAL BRIEF

UPDATE ON ASTM F679 STANDARD FOR LARGE-DIAMETER PVC SEWER PIPE

ASTM F679 “Standard Specification for Polyvinyl Chloride (PVC) Large-Diameter Plastic Gravity Sewer Pipe and Fittings” is the product standard for large-diameter solid-wall PVC sewer pipe. In 2006 wall thickness types and associated designators “T1” and “T2” were removed – however, some outdated project specifications still include these “T” descriptors.

Last revised in 2013, the current edition of the standard includes:

- Sizes from 18- through 60-inch (450mm through 1500mm)
- Three pipe stiffness (PS) categories
 - 46 psi (320 kPa)
 - 75 psi (517 kPa)
 - 115 psi (790 kPa)
- Two cell classes for PVC pipe material
 - 12454
 - 12364
- One wall-thickness type (without “T1” or “T2” designators)

INITIAL DESIGN PHILOSOPHY

The first edition of the standard (published in 1980) included only one pipe stiffness = 46 psi, but two wall-thickness options. Each wall-thickness type was based on achieving the require pipe stiffness by using a different modulus of elasticity (E):

- T-1 wall calculated using $E = 400,000$ psi
- T-2 wall calculated using $E = 500,000$ psi

This method resulted in two separate tables that defined specific wall thicknesses corresponding to the two given modulus values.

MORE PIPE STIFFNESS VALUES ADDED

The 2003 edition of ASTM F679 added pipe stiffness 115 psi (which was already a major product known as “heavy-wall sewer” in small-diameter PVC sewer). In 2008, PS = 75 psi was also added to offer an intermediate stiffness level.

REVISED PHILOSOPHY: “T-1” AND “T-2” DESIGNATIONS BECOME OBSOLETE

In 2006, the design philosophy was changed: instead of separate tables for wall thickness, required pipe stiffness was achieved through a combination of non-specific wall thickness and modulus values. As long as a specified minimum wall thickness and minimum modulus of elasticity were met, the standard allowed the manufacturer to achieve the minimum pipe stiffness with any combination of wall-thickness and modulus values. *What remained in the standard was only one table for wall thickness – as a result, the “T-1” and “T-2” designations became obsolete and were removed.*

BOTTOM LINE: NO MORE WALL-THICKNESS CATEGORIES OR “T” DESIGNATIONS

- The current F679 standard includes three PS values: 46, 75, and 115 psi
- The standard does not include any wall-thickness categories or “T” designations
- “T1” and “T2” should be removed from specifications, since they have been obsolete for almost 10 years

References: ASTM D3034; ASTM F679 (several editions); *Handbook of PVC Pipe*, Uni-Bell; “Sewer Pipe Standards Sheet,” Uni-Bell