

# 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 In 2006 wall thickness types and associated designators “T1” and “T2” were removed – however, some outdated project specifications still include these “T” descriptors.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