



Designation: A796/A796M – 17

Standard Practice for Structural Design of Corrugated Steel Pipe, Pipe-Arches, and Arches for Storm and Sanitary Sewers and Other Buried Applications¹

This standard is issued under the fixed designation A796/A796M; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reapproval.

1. Scope*

1.1 This practice covers the structural design of corrugated steel pipe and pipe-arches, ribbed and composite ribbed steel pipe, ribbed pipe with metallic-coated inserts, closed rib steel pipe, composite corrugated steel pipe, and steel structural plate pipe, pipe-arches, and underpasses for use as storm sewers and sanitary sewers, and other buried applications. Ribbed and composite ribbed steel pipe, ribbed pipe with metallic-coated inserts, closed rib steel pipe, and composite corrugated steel pipe shall be of helical fabrication having a continuous lockseam. This practice is for pipe installed in a trench or embankment and subjected to earth loads and live loads. It must be recognized that a buried corrugated steel pipe is a composite structure made up of the steel ring and the soil envelope, and both elements play a vital part in the structural design of this type of structure. This practice applies to structures installed in accordance with Practice A798/A798M or A807/A807M.

1.2 Corrugated steel pipe and pipe-arches shall be of annular fabrication using riveted or spot-welded seams, or of helical fabrication having a continuous lockseam or welded seam.

1.3 Structural plate pipe, pipe-arches, underpasses, and arches are fabricated in separate plates that, when assembled at the job site by bolting, form the required shape.

1.4 Deep corrugated plates are covered in this standard as a means of providing design properties only. The structural design of deep corrugated structures is not supported by this standard.

1.5 This specification is applicable to design in inch-pound units as A796 or in SI units as A796M. Inch-pound units and SI units are not necessarily equivalent. SI units are shown in brackets in the text for clarity, but they are the applicable values when the design is done per A796M.

1.6 This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.

2. Referenced Documents

2.1 ASTM Standards:²

A760/A760M Specification for Corrugated Steel Pipe, Metallic-Coated for Sewers and Drains

A761/A761M Specification for Corrugated Steel Structural Plate, Zinc-Coated, for Field-Bolted Pipe, Pipe-Arches, and Arches

A762/A762M Specification for Corrugated Steel Pipe, Polymer Precoated for Sewers and Drains

A798/A798M Practice for Installing Factory-Made Corrugated Steel Pipe for Sewers and Other Applications

A807/A807M Practice for Installing Corrugated Steel Structural Plate Pipe for Sewers and Other Applications

A902 Terminology Relating to Metallic Coated Steel Products

A964/A964M Specification for Corrugated Steel Box Culverts

A978/A978M Specification for Composite Ribbed Steel Pipe, Precoated and Polyethylene Lined for Gravity Flow Sanitary Sewers, Storm Sewers, and Other Special Applications

A1019/A1019M Specification for Closed Rib Steel Pipe with Diameter of 36 in. [900 mm] or Less, Polymer Precoated for Sewers and Drains (Withdrawn 2012)³

A1042/A1042M Specification for Composite Corrugated Steel Pipe for Sewers and Drains (Withdrawn 2015)³

D698 Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³ (600 kN-m/m³))

¹ This practice is under the jurisdiction of ASTM Committee A05 on Metallic-Coated Iron and Steel Products and is the direct responsibility of Subcommittee A05.17 on Corrugated Steel Pipe Specifications.

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² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

³ The last approved version of this historical standard is referenced on www.astm.org.

*A Summary of Changes section appears at the end of this standard