



Designation: C1577 – 17

Standard Specification for Precast Reinforced Concrete Monolithic Box Sections for Culverts, Storm Drains, and Sewers Designed According to AASHTO LRFD¹

This standard is issued under the fixed designation C1577; 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 specification covers single-cell precast reinforced concrete box sections cast monolithically and intended to be used for the construction of culverts and for the conveyance of storm water, industrial wastes and sewage.

NOTE 1—This specification is primarily a manufacturing and purchasing specification. However, standard designs per the AASHTO LRFD Bridge Design Specifications are included and the criteria used to develop these designs are given in [Appendix X1](#). The successful performance of this product depends upon the proper selection of the box section, bedding, backfill, and care that the installation conforms to the construction specifications. The purchaser of the precast reinforced concrete box sections specified herein is cautioned that proper correlation of the loading conditions and the field requirements with the box section specified, and provision for inspection at the construction site, are required.

1.2 The values stated in inch-pound units are to be regarded as standard. No other units of measurement are included in this standard.

2. Referenced Documents

2.1 *ASTM Standards*:²

- [A1064/A1064M](#) Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete
- [A615/A615M](#) Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement
- [A706/A706M](#) Specification for Deformed and Plain Low-Alloy Steel Bars for Concrete Reinforcement
- [C33/C33M](#) Specification for Concrete Aggregates
- [C150/C150M](#) Specification for Portland Cement
- [C260/C260M](#) Specification for Air-Entraining Admixtures for Concrete

¹ This specification is under the jurisdiction of ASTM Committee C13 on Concrete Pipe and is the direct responsibility of Subcommittee C13.07 on Acceptance Specifications and Precast Concrete Box Sections.

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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.

[C309](#) Specification for Liquid Membrane-Forming Compounds for Curing Concrete

[C494/C494M](#) Specification for Chemical Admixtures for Concrete

[C497](#) Test Methods for Concrete Pipe, Manhole Sections, or Tile

[C595/C595M](#) Specification for Blended Hydraulic Cements

[C618](#) Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete

[C822](#) Terminology Relating to Concrete Pipe and Related Products

[C989/C989M](#) Specification for Slag Cement for Use in Concrete and Mortars

[C990](#) Specification for Joints for Concrete Pipe, Manholes, and Precast Box Sections Using Preformed Flexible Joint Sealants

[C1017/C1017M](#) Specification for Chemical Admixtures for Use in Producing Flowing Concrete

[C1116/C1116M](#) Specification for Fiber-Reinforced Concrete

[C1602/C1602M](#) Specification for Mixing Water Used in the Production of Hydraulic Cement Concrete

[C1619](#) Specification for Elastomeric Seals for Joining Concrete Structures

[C1675](#) Practice for Installation of Precast Reinforced Concrete Monolithic Box Sections for Culverts, Storm Drains, and Sewers

[C1677](#) Specification for Joints for Concrete Box, Using Rubber Gaskets

2.2 *AASHTO Standards*:³

[AASHTO LRFD](#) Bridge Design Specifications

[AASHTO LRFD](#) Bridge Construction Specifications

2.3 *ASCE Standard*:⁴

[ASCE 26–97](#) Standard Practice for Direct Design of Buried Precast Concrete Box Sections

³ Available from American Association of State Highway and Transportation Officials (AASHTO), 444 N. Capitol St., NW, Suite 249, Washington, DC 20001, <http://www.transportation.org>.

⁴ Available from American Society of Civil Engineers (ASCE), 1801 Alexander Bell Dr., Reston, VA 20191, <http://www.asce.org>.