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**Standard Specification for**

**Precast Reinforced Concrete Box  
Sections for Culverts, Storm  
Drains, and Sewers [Metric]**

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| **AASHTO Designation: M 259M-17<sup>1</sup>**

**Technical Section: 4a, Concrete Drainage Structures**

| **Release: Group 2 (June 2017)**

**ASTM Designation: C789M-98**



**American Association of State Highway and Transportation Officials  
444 North Capitol Street N.W., Suite 249  
Washington, D.C. 20001**

# Precast Reinforced Concrete Box Sections for Culverts, Storm Drains, and Sewers [Metric]

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## 1. SCOPE

1.1. This specification covers single-cell precast reinforced concrete box sections intended to be used for the construction of culverts and for the conveyance of storm water, industrial wastes, and sewage.

1.2. This specification is the metric counterpart of M 259.

**Note 1**—This specification is primarily a manufacturing and purchasing specification. However, standard designs are included and the criteria used to develop these designs are given in the Appendixes. The successful performance of this product depends on the proper selection of the box section, bedding, and backfill, and care that the installation conforms to the construction specifications. The owner of the precast reinforced concrete box sections specified herein is cautioned that the loading conditions and field requirements must properly correlate with the box section specified and that inspection at the construction site must be provided.

**Note 2**—AASHTO M 273M is to be used for box sections with less than 0.6 m of cover subjected to highway loading.

**Note 3**—If load-and-resistance factor design (LRFD) is required, then use ASTM C1577.

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## 2. REFERENCED DOCUMENTS

2.1. *AASHTO Standards:*

- M 6, Fine Aggregate for Hydraulic Cement Concrete
- M 32M/M 32, Steel Wire, Plain, for Concrete Reinforcement
- M 55M/M 55, Steel Welded Wire Reinforcement, Plain, for Concrete
- M 80, Coarse Aggregate for Hydraulic Cement Concrete
- M 85, Portland Cement
- M 157, Ready-Mixed Concrete
- M 221M/M 221, Steel Welded Wire Reinforcement, Deformed, for Concrete
- M 225M/M 225, Steel Wire, Deformed, for Concrete Reinforcement
- M 240M/M 240, Blended Hydraulic Cement
- M 262, Concrete Pipe and Related Products
- M 273M, Precast Reinforced Concrete Box Sections for Culverts, Storm Drains, and Sewers with Less Than 0.6 m of Cover Subjected to Highway Loadings [Metric]

- M 295, Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete
- T 280, Concrete Pipe, Manhole Sections, or Tile
- *Standard Specifications for Highway Bridges*

2.2. *ASTM Standards:*

- C309-03, Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete
- C1116/C1116M, Standard Specification for Fiber-Reinforced Concrete
- C1577, Standard Specification for Precast Reinforced Concrete Monolithic Box Sections for Culverts, Storm Drains, and Sewers Designed According to AASHTO LRFD

2.3. *ACI Code:*

- ACI 318-71, Building Code

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### 3. TERMINOLOGY

- 3.1. *Definitions*—For definitions of terms relating to concrete pipe, see M 262.

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### 4. TYPES

- 4.1. Precast reinforced concrete box sections manufactured in accordance with this specification shall be of three types identified in Tables 1, 2, and 3, and shall be designated by type, span, rise, and design earth cover.