



Designation: C 14M – 99

METRIC

Standard Specification for Concrete Sewer, Storm Drain, and Culvert Pipe [Metric]¹

This standard is issued under the fixed designation C 14M; 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.

This standard has been approved for use by agencies of the Department of Defense.

1. Scope

1.1 This specification covers nonreinforced concrete pipe intended to be used for the conveyance of sewage, industrial wastes, storm water, and for the construction of culverts.

1.2 This specification is the metric counterpart of Specification C 14.

NOTE 1—This specification is a manufacturing and purchase specification only and does not include requirements for bedding, backfill, or the relationship between field load condition and the strength classification of pipe. However, experience has shown that the successful performance of this product depends upon the proper selection of the class of pipe, type of bedding and backfill, and care that the installation conforms to the construction specifications. The owner is cautioned that he must correlate the field requirements with the class of pipe specified and provide for or require inspection at the construction site.

2. Referenced Documents

2.1 ASTM Standards:

C 33 Specification for Concrete Aggregates²

C 150 Specification for Portland Cement³

C 309 Specification for Liquid Membrane-Forming Compounds for Curing Concrete²

C 443M Specification for Joints for Circular Concrete Sewer and Culvert Pipe, Using Rubber Gaskets [Metric]⁴

C 497M Test Methods for Concrete Pipe, Manhole Sections, or Tile [Metric]⁴

C 595 Specification for Blended Hydraulic Cements³

C 618 Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use as a Mineral Admixture in Concrete²

C 822 Terminology Relating to Concrete Pipe and Related Products⁴

C 1116 Specification for Fiber-Reinforced Concrete and Shotcrete²

3. Terminology

3.1 *Definitions of Terms Specific to This Standard*—For definitions of terms relating to concrete pipe, see Terminology C 822.

4. Classification

4.1 Pipe manufactured according to this specification shall be of three classes identified as “Class 1 Nonreinforced Concrete Pipe,” “Class 2 Nonreinforced Concrete Pipe,” and “Class 3 Nonreinforced Concrete Pipe.” The corresponding strength requirements are prescribed in Table 1.

5. Basis of Acceptance

5.1 The acceptability of the pipe shall be determined by the results of the test prescribed in this section, when required, and by inspection to determine whether the pipe conforms to this specification as to design and freedom from defects.

5.2 *Acceptance as to Strength Properties*—Pipe shall be acceptable under the strength tests when they have met the requirements as prescribed in 10.3.

5.3 *Acceptance as to Absorption Properties*—Pipe shall be acceptable under the absorption test when they have met the requirements as prescribed in 10.4.

5.4 *Acceptance as to Permeability Properties*—Pipe shall be acceptable under the permeability test when they have met the requirements as prescribed in 10.5.

NOTE 2—Prior to purchase, the owner may specify the hydrostatic test prescribed in 10.6 instead of the permeability test.

5.5 *Acceptance as to Hydrostatic Properties*—Pipe shall be acceptable under the hydrostatic test when they have met the requirements as prescribed in 10.6.

6. Materials

6.1 *Concrete*—The concrete shall consist of cementitious materials, mineral aggregates, and water.

6.2 Cementitious Materials:

6.2.1 *Cement*—Cement shall conform to the requirements for portland cement of Specification C 150 or shall be portland blast-furnace slag cement or portland-pozzolan cement conforming to the requirements of Specification C 595, except that

¹ This specification is under the jurisdiction of ASTM Committee C-13 on Concrete Pipe and is the direct responsibility of Subcommittee C13.01 on Reinforced Concrete Sewer, Drain, and Irrigation Pipe.

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² *Annual Book of ASTM Standards*, Vol 04.02.

³ *Annual Book of ASTM Standards*, Vol 04.01.

⁴ *Annual Book of ASTM Standards*, Vol 04.05.