

Standard Specifications for **REINFORCED CONCRETE SEWER PIPE¹**



ASTM Designation: C 75 - 56

ADOPTED, 1935; REVISED, 1941, 1952, 1954, 1955, 1956.²

This Standard of the American Society for Testing Materials is issued under the fixed designation C 75; the final number indicates the year of original adoption as standard or, in the case of revision, the year of last revision.

Scope

1. These specifications cover reinforced concrete pipe intended to be used for the conveyance of sewage, industrial wastes, and storm water.

Class

2. Pipe manufactured according to these specifications shall be known as "Standard Reinforced Concrete Sewer Pipe."

Basis of Acceptance

3. The acceptability of the pipe shall be determined by the results of the strength and absorption tests prescribed in these specifications, if and when required, and by inspection to determine whether the pipe conforms to these specifications as to design and freedom from defects.

¹ Under the standardization procedure of the Society, these specifications are under the jurisdiction of the ASTM Committee C-13 on Concrete Pipe.

² Prior to adoption as standard, these specifications were published as tentative from 1930 to 1935, being revised in 1934 and 1935.

MATERIALS

Reinforced Concrete

4. The reinforced concrete shall consist of portland cement, mineral aggregates, and water, in which steel has been embedded in such a manner that the steel and the concrete act together.

Cement

5. Portland cement shall conform to the requirements of the Specifications for Portland Cement (ASTM Designation: C 150),³ or shall be air-entraining portland cement conforming to the requirements of the Specifications for Air-Entraining Portland Cement (ASTM Designation: C 175),³ or shall be portland blast-furnace slag cement conforming to the requirements of the Specifications for Portland Blast-Furnace Slag Cement (ASTM Designation: C 205).³

Steel Reinforcement

6. Reinforcement may consist of wire

³ Appears in this publication, see Contents in Numeric Sequence of ASTM Designations at front of book.

conforming to the Specifications for Cold-Drawn Steel Wire for Concrete Reinforcement (ASTM Designation: A 82),⁴ or of wire fabric conforming to the Specifications for Welded Steel Wire Fabric for Concrete Reinforcement (ASTM Designation: A 185),⁵ or of bars of structural or intermediate grade conforming to the Specifications for Billet-Steel Bars for Concrete Reinforcement (ASTM Designation: A 15).⁴

Aggregates

7. Aggregates shall conform to the Specifications for Concrete Aggregates (ASTM Designation: C 33),³ except that the requirement for gradation shall not apply.

Mixture

8. The aggregates shall be so sized and so graded and proportioned and thoroughly mixed in a batch mixer with such proportions of cement and water as will produce a homogeneous concrete mixture of such quality that the pipe will conform to the test and design requirements of these specifications. Admixtures or blends may be used with the approval of the consumer. In no case, however, shall the proportion of portland cement in the mixture be less than six U. S. standard bags (94 lb) per cubic yard of concrete.

DESIGN

Minimum Designs

9. The shell thickness and the amount of circumferential reinforcement shall be not less than the minimum design requirements prescribed in Table I.

Alternate Designs

10. Manufacturers may submit to the purchaser, for approval, designs other than those in Table I, provided that

such pipe shall conform to the same physical tests and inspection requirements prescribed in these specifications for the pipe for which it is substituted. In no alternate design, however, shall the shell thickness be less than that prescribed in Table I.

Placing Reinforcement

11. When two lines of reinforcement are used in circular pipe, one shall be placed near the inner and one near the outer surfaces of the pipe. When a single line of circular reinforcement is used in circular pipe, it shall be placed near the inner surface of the pipe shell. The single line of elliptical reinforcement used in circular pipe, or the single line of circular reinforcement in elliptical pipe shall be placed near the inner surface at the "top" and "bottom" of the pipe and near the outer surface at the sides (see Section 33 (d)).

Longitudinals

12. Each line of circumferential reinforcement shall be assembled into a cage which shall contain sufficient longitudinal bars or members, extending through the barrel of the pipe, to maintain the reinforcement rigidly in exact shape and correct position within the form.

Laps, Welds, and Spacing

13. If the splices are not welded, the reinforcement shall be lapped not less than 30 diameters for bars, and 40 diameters for cold-drawn wire. If welded, the member at either a welded splice or intersection shall develop a tensile strength of not less than 52,500 psi. The spacing center to center of adjacent rings of circumferential reinforcement in a cage shall not exceed 4 in. for pipe up to and including 36 in. in diameter, nor exceed the shell thickness for larger pipe, and shall in no case exceed 6 in. The continuity of the circumferential rein-

⁴ 1955 Book of ASTM Standards, Part 1.

⁵ 1956 Supplement to Book of ASTM Standards, Part 1.