



**INSPECTION & ACCEPTANCE
CONCRETE PIPE**

Acceptance of concrete pipe shall be on the basis of certification, plant load-bearing tests, material tests and inspection of manufactured pipe for visual defect and imperfections.

CONCRETE PIPE

Concrete pipe and related precast units shall conform to the applicable requirements of AASHTO M86 (M86M), M170 (M170M), M198, M206 or M207 (M207M) for the class and size specified and the additional requirements as set forth in the Standard Road Plans (Design Standards) and in Section 4145 and other sections of the Standard Specifications of the Iowa Department of Transportation. Acceptance of standard strength 75D through 175D (1500D through 3750D) concrete pipe, special sections and related precast units will be on the basis of certification for each class and size from approved producers subject to periodic plant inspections and testing of monitor samples. Producers approved to furnish pipe, special sections and related precast units on the basis of certification are listed in Appendix A and Appendix B of IM 445.01. Monitor inspection and testing will be performed by the Iowa Department of Transportation.

Coupling devices (bands) for field joints shall meet the specification requirements of AASHTO M36 and shall be zinc-coated (galvanized). Bolts, nuts, washers and other threaded items used with coupling bands shall be zinc-coated either by the electroplating process (ASTM B633, Class Fe/Zn 8) or by mechanical process (ASTM A153, Class C).

BOLTS & NUTS

Bolts and nuts for coupling bands shall conform to the following requirements:

<u>Bolts</u>	<u>Nuts</u>	<u>Washers</u>	<u>Thread</u>	<u>Samples</u>
A307 Gr. A	ASTM A563 Hex or Heavy Hex	F436	Rolled or Cut	1 per project

Identification

In addition to the marking requirements of Section 4145 of the Standard Specifications, a Quality Control Technician shall legibly mark the word "certified" on each unit. Each unit of pipe, including special sections so marked and stamped, identifies the pipe as being in compliance with the applicable AASHTO or ASTM Specifications, Standard Road Plans and the Iowa Department of Transportation Standard Specifications. **NOTE:** 18" pipe or smaller may be identified only on the outside surface. All other sizes shall be identified both on the outside and inside surfaces.

All pipes shall have the following markings: class, date manufactured, size, and trademark. Waterproof paint or ink shall be required. The engineer shall approve any other methods.

WET CAST

- A. Air content (when concrete requires air entraining)-one test per week of production
- B. Concrete strength-6 cylinders per mix, per week
- C. Test at 7 days (3 cylinders) and at 28 days (3 cylinders)
- D. Compressive strength requirements:
 - 1. For Class I & Class II Reinforced Concrete Pipe
12-inch to 96-inch diameter, 4000 psi
102-inch to 144-inch diameter pipe, 5000 psi
 - 2. For Class III Reinforced Concrete Pipe
12-inch to 72-inch diameter pipe, 4000 psi
78-inch to 144-inch diameter pipe, 5000 psi
 - 3. Class IV Reinforced Concrete Pipe
12-inch to 144-inch diameter Pipe, 5000 psi
 - 4. Class V Reinforced Concrete Pipe
12-inch to 144-inch diameter pipe, 6000 psi

DRY CAST

Concrete Pipe Absorption Test - two tests per calendar year
Concrete Strength - four tests per calendar year

THREE-EDGE BEARING TEST

The minimum testing rate required shall be two pipes per size, per class, per year. The District Materials Engineer shall be notified prior to testing or a schedule may be mutually agreed upon.

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All pipe suitable for certification shall be stamped "certified" prior to or at the time of stockpiling. Certified pipe that no longer meets specifications (rejected) shall have the certification identification obliterated.

The producer shall test concrete pipes in accordance with the requirements of AASHTO T280 or ASTM C497. Tests results shall comply with the strength and absorption requirements contained therein. District Materials Engineers may observe and monitor the testing and determine the testing frequency. The producer shall supply a copy of all test results and a copy of the report of each annual inspection trip to the Office of Materials and the District Materials Engineer.