

ITEM 709 REINFORCING STEEL

709.00 Epoxy Coated Reinforcing Steel. Provide epoxy coated reinforcing steel according to ASTM A 775/A 775M, with the following modifications:

5.1 Provide steel reinforcing bars free of excessive rust, oil, grease, and paint that conform to 709.01, 709.03, or 709.05.

5.2 Use a coating material that meets the requirements listed in Annex A1 and is colored to facilitate inspection of the installed bar. . The City will approve the color.

5.3 Sample required.

8.3.1 Evaluate the adhesion of the coating by bending production coated bars around a mandrel of specified size according to the bending tables in ASTM A 615 (ASTM A 615M) or ASTM A 996 (ASTM A 996M) as applicable. Perform the bend test for adhesion of the coating at a uniform rate, and ensure that it takes up to 90 seconds to complete. Place the two longitudinal deformations in a plane perpendicular to the mandrel radius. Ensure a thermal equilibrium between 68 and 86 °F (20 and 30 °C) for the test specimens.

12.1 Perform tests, inspection, and sampling at a site specified by the Engineer. Sampling for testing requires three 30-inch (1 m) samples for each bar size, for each coating lot, and for each heat of steel reinforcing bars.

14.1 Report of test results required.

Where fabricating reinforcing bar cages for prestressed concrete beams by tack welding, patch the areas damaged by the tack welding according to ASTM A 775, Section 11, Permissible Amount of Damaged Coating and Repair of Damaged Coating.

709.01 Deformed and Plain Billet Steel Bars for Concrete Reinforcement. Provide deformed and plain billet steel bars for concrete reinforcement according to ASTM A 615 (ASTM A 615M), with the following modification:

13.1 Where the Contractor can make positive identification of a heat , perform one tension test and one bend test from each bar designation number of each heat in the Lot. Where the Contractor cannot practically identify the heat , perform one tension test and one bend test for each bar designation number in each lot of 10 tons (10 metric tons) or fraction thereof.

Furnish certified material according to ODOT Supplement 1068.

709.03 Rail Steel Deformed and Plain Bars for Concrete Reinforcement. Provide rail steel deformed and plain bars for concrete reinforcement according to ASTM A 996/A 996M.

Furnish certified material according to ODOT Supplement 1068.

709.05 Axle Steel Deformed and Plain Bars for Concrete Reinforcement. Provide axle steel deformed and plain bars for concrete reinforcement according to ASTM A 996/A 996M.

Furnish certified material according to ODOT Supplement 1068.

709.08

709.08 Cold-Drawn Steel Wire for Concrete Reinforcement. Provide cold drawn steel wire for concrete reinforcement according to ASTM A 82 or ASTM A 1064, with the following modification:

7.2 Completely cover galvanized wire with a coating of pure zinc of uniform thickness, so applied that it adheres firmly to the surface of the wire. Ensure a minimum weight of zinc coating of 0.8 ounces per square foot (244 g/m^2) of surface as determined by ASTM A 90.

Furnish certified material according to ODOT Supplement 1068.

709.09 Fabricated Steel Bar or Rod Mats for Concrete Reinforcement. Provide fabricated steel bar or rod mats for concrete reinforcement according to ASTM A 184/A 184M, with the following modifications:

4 Use deformed bars.

4.1 Provide longitudinal bars conforming to Grade 60 of 709.01, 709.03, or 709.05.

4.2 Provide longitudinal bars according to 709.01, Grade 60. Provide transverse bars according to 709.01.

Furnish certified material according to ODOT Supplement 1068.

709.10 Welded Steel Wire Fabric For Concrete Reinforcement. Provide welded steel wire fabric for concrete reinforcement according to ASTM A 185 or ASTM A 1064.

Furnish certified material according to ODOT Supplement 1068.

709.11 Deformed Steel Wire for Concrete Reinforcement. Provide deformed steel wire for concrete reinforcement according to ASTM A 496 or ASTM A 1064.

Furnish certified material according to ODOT Supplement 1068.

709.12 Welded Deformed Steel Wire Fabric for Concrete Reinforcement. Provide welded deformed steel wire fabric for concrete reinforcement according to ASTM A 497.

Furnish certified material according to ODOT Supplement 1068.

709.13 Coated Dowel Bars. Provide coated dowel bars according to AASHTO M 254, with the following modifications:

4.1 Provide core material consisting of steel according to 709.01, 709.03, or 709.05.

5.2 Waived. Ensure a coating thickness as approved under 2.5 within the manufacturer's stated tolerance.

Coat all surfaces of dowel bars. Suitably re-coat ends of dowel bars cut to length after coating or have not had the uncoated ends coated during manufacturing or fabrication. Prepare surface and patch uncoated bar ends with material equivalent to the original epoxy coating.

If the Contractor elects to use basket supports for positioning of the above dowel bars as specified in 451.08.B or as shown on the plans, provide a fusion-bonded epoxy coated

basket dowel bar assembly. Repair uncoated areas with surface preparation and patching material equivalent to the original epoxy coating.

Suitably repair coating on the dowel bars or baskets damaged during installation.

Do not expose coated dowels to weather or sunlight for a period exceeding 180 days.

Furnish certified material according to ODOT Supplement 1068.

709.14 Epoxy-Coated Steel Wire and Welded Wire Fabric for Reinforcement. Provide epoxy coated steel wire and welded wire fabric for reinforcement according to ASTM A 884, with the following modifications:

5.1 Use plain or deformed steel wire or welded wire fabric free of oil, grease, or paint and conforming to 709.08, 709.10, 709.11, or 709.12 .

8.1 Ensure that the coating thickness conforms to Type A. Provide dry film thickness of 5 to 12 mils (0.13 to 0.31 mm).

8.4 Test coated steel wire or welded wire fabric at the manufacturer's plant before shipment or at other sites as designated by the Laboratory.

Furnish certified material according to ODOT Supplement 1068.

709.15 Plastic Supports for Reinforcing Steel. Conform to ODOT Supplement 1125.

709.16 Galvanized Reinforcing Steel Option for Bridge Structure Spirals. As an option to 709.00 provide galvanized reinforcing steel for the spiral bars only in round column and drilled shaft reinforcing steel cages. Galvanized steel will conform to ASTM A767, Class 1. The galvanized coated reinforcing steel will meet all other requirements of 509.

Apply the galvanized coating after fabricating the reinforcing. If the galvanized surface becomes damaged during handling in the field, repairs will conform to ASTM A780.

When the City requests a sample, provide a replacement splice conforming to the lap length requirements for epoxy coated reinforcing.

Furnish certified material according to ODOT Supplement 1068.

709.17 General. All reinforcing steel furnished under this specification shall be free of excessive rust, grease, oil and paint.