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ENGINEERING INSTRUCTION

NEW YORK STATE DEPARTMENT OF TRANSPORTATION

SUBJECT: BRIDGE DESIGN MANUAL - DESIGN CRITERIA FOR BRIDGES. ITEMS 556.0101 AND 556.0102

Subject Code: 7.35-6; 7.27-1-556

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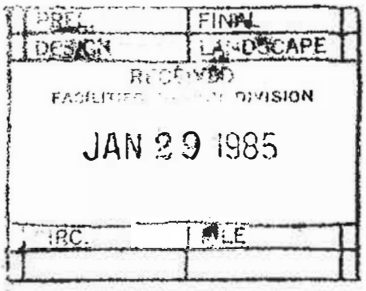
This is to inform you that epoxy coated steel fabric reinforcement for concrete is now available. (Subsection 709-08). Epoxy coated reinforcement should be designated where significant protection from chlorides is desired (e.g. bridge deck overlays.)

Accordingly, Item 556.01 will be invalid beginning with the letting of May 9, 1985 (P.S.& E. February 14, 1985). The replacement items for Item 556.01 are:

1. Item 556.0101 - Uncoated Steel Fabric Reinforcement for Structures.

2. Item 556.0102 - Epoxy Coated Steel Fabric Reinforcement for Structures.

Also, the Method of Measurement for steel fabric has been changed from square feet installed, to square feet as stated in the Estimate of Quantities. Estimators should be instructed not to allow for lapping. The square footage of the area(s) in question is sufficient for these items.



STEEL FABRIC REINFORCEMENT

Make the following changes to the Standard Specifications of 1985:

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Subsection 556-2. Add the following after "Wire Fabric for Concrete Reinforcement":

"Epoxy Coated Wire Fabric Reinforcement... ... 709-08"

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Subsection 556-2.01. In the title Delete "Bar".

Subsection 556-2.02. In the title Delete "Bar".

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Subsection 556-4.01. Delete this subsection. Replace with:

556-4.01 Steel Fabric Reinforcement. The work will be measured as the number of square feet of fabric reinforcement stated in the Estimate of Quantities. Except to provide for progress payments, no field measurements will be taken. Measurements taken for progress payment purposes will not exceed the Estimate of Quantities figure.

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Under Payment Items:

Delete:

ITEM NO.	ITEM	PAY UNIT
556.01	Steel Fabric Reinforcement for structures	S.F.

Replace with:

ITEM NO.	ITEM	PAY UNIT
556.0101	Uncoated Steel Fabrice Reinforcement for Structures	S.F.
556.0102	Epoxy Coated Steel Fabric Reinforcement for Structures	S.F.

709-08 EPOXY COATED WIRE FABRIC REINFORCEMENT

SCOPE. This specification covers sheets of wire fabric reinforcement with protective epoxy coatings that are applied by the electrostatic spray method or electrostatic fluidized bed method.

MATERIAL REQUIREMENTS.

1. Wire Fabric Reinforcement. Wire fabric reinforcement shall conform to the requirements of Section 709-02.

2. Epoxy Coating Material.

   a. The epoxy coating material shall be an organic, powdered epoxy resin that is applied by electrostatic methods. Epoxy coating materials shall be approved by the Materials Bureau.

   Detailed requirements and procedures for the acceptance of epoxy coating materials are available from the Materials Bureau. Upon approval of the product, the epoxy coating will be placed on a Department "Approved List" of materials.

   b. The epoxy coating manufacturer shall supply written certification to the coating applicator that the coating material is the same as that approved by the Materials Bureau.

3. Patching Material. Patching or repair materials shall be supplied by the epoxy coating manufacturer. The patching material shall be compatible with the epoxy coating, inert in concrete, and shall be suitable for use in making field repairs.

Coating Application.

1. Coating Applicator. The coating applicator's facilities shall be approved by the Materials Bureau. Applications for approval of facilities shall be made to the Materials Bureau by the coating applicator . Upon approval, they will be placed on the Department's list of "Approved Applicators For Epoxy Coated Wire Fabric Reinforcement."

2. Surface Preparation.

   a. The surface of wire fabric to be coated shall be blast cleaned in accordance with the Steel Structures Painting Council - Surface Preparation Specification No. 10 (SSPC-SP10), Near White Blast Cleaning. After blasting, the cleaned surface of the fabric shall be defined by SSPC-Vis 1, Pictorial Standards ASa 2½, BSa 2½, or CSa 2½, as applicable.

   b. The powdered epoxy resin coating shall be applied to the cleaned surface as soon as possible after cleaning and before visible oxidation occurs. In no case shall more than 8 hours elapse between cleaning and coating.

3. Coating Application. The powdered epoxy resin coating shall be electrostatically applied in accordance with the recommendations of the coating manufacturer.

4. Coating Thickness. The epoxy coating shall be applied as a smooth, uniform coat. After curing, the coating thickness shall be a minimum of 4 mils. Coating thickness shall be controlled by taking measurements on a representative sample from each production lot. Coating thickness measurements shall be conducted by the method outlined in ASTM B499.

5. Continuity of Coating.

   a. The coating shall be checked visually after cure for continuity. It shall be free from holes, voids, contamination, cracks and damaged areas.

   b. The coating shall not have more than two holidays (pinholes not visible to the naked eye) in any linear foot of a coated single wire. A holiday detector shall be used, in accordance with the manufacturer's instructions, to check the coating for holidays. Sharp edges at the welded intersection of the wires shall not be considered to be holidays.

6. Coating Cure. The coating applicator shall check each production lot to determine that the entire production lot of coated fabric is in a fully-cured condition.

7. Flexibility of Coating.

   a. The flexibility of the coating shall be evaluated on two representative sections of wire fabric from each production lot or two #5, Grade 60 reinforcing bars that have been coated simultaneously with the wire fabric. A representative wire from the wire fabric shall be bent 120 degrees (after rebound) around a pin or mandrel of 10 diameters or alternately, a reinforcing bar shall be bent 120 degrees around a 6-inch diameter pin or mandrel. Bending shall be done at a uniform rate and may take up to one minute to complete. The test specimens shall be at thermal equilibrium between 20 and 30 degrees C (68-85°F) at the time of testing.

   b. When examined by the naked eye, the outside radius of the bent wire or bar shall be free of cracks in the coating.

Testing and Sampling.

1. Lot Size. For test purposes a production lot is the smallest number of sheets of wire fabric of the same style (gauge, spacing size) from a given manufacturer as determined by the following requirements:

   a. A lot shall not exceed a single order, or delivered load or 1500 sheets, whichever is smaller.

b. A lot shall consist of the number of sheets as defined by the coating applicator except that it shall not exceed the number of sheets coated within a single working shift.

c. A lot shall consist of the number of sheets of mesh coated with the same batch or lot of epoxy.

2. Quality Control. The coating applicator shall be responsible for performing quality control and tests. This will include inspection for compliance with the requirements of Coating Thickness, Continuity of Coating and Coating Cure and the testing required under Flexibility of Coating.

3. Plant Inspection.

a. The Department reserves the right to have its authorized representative observe the preparation, coating and testing of the wire fabric. The representative shall have free access to the plant and any work done when access has been denied shall be automatically rejected.

b. If the representative elects, samples of coated fabric may be taken from the production run, on a random basis, for test, evaluation and check purposes by the Materials Bureau.

Shop Repair of Coated Wire Fabric. Epoxy coated wire fabric reinforcement which does not meet the requirements of Coating Thickness, Continuity of Coating, Coating Cure or Flexibility of Coating shall not be repaired. Reinforcement with these defects shall be replaced or stripped of epoxy coating, recleaned and recoated in accordance with the requirements of this specification.

Any damage to the coated reinforcement, occurring at the coating applicator's facility shall be cleaned and repaired with patching material. The cleaning shall remove loose or deleterious material or both. If rust is present, it shall be removed by blast cleaning prior to patching.

Handling. All systems for coated wire fabric shall have padded contact areas, wherever possible. All bundling bands shall be padded and all bundles shall be lifted with a strong back, multiple supports or a platform bridge so as to prevent sheet to sheet abrasion from sags in the bundle. The sheets or bundles shall not be dropped or dragged.

BASIS OF ACCEPTANCE. Epoxy coated wire fabric reinforcement will be considered for acceptance in stock lot quantities at manufacturing supply locations in accordance with procedural directives of the Materials Bureau.