

ITEM 556.0110-25 - GALVANIZED FABRIC REINFORCEMENT FOR STRUCTURES

1. DESCRIPTION:

- 1.01 The work will consist of furnishing and placing galvanized fabric reinforcement for concrete structure in accordance with the contract plans, and in a manner satisfactory to the Engineer.

2. MATERIALS:

Materials for this work shall meet the following requirements:

- 2.01 **Fabric Reinforcement** shall conform to the requirements of [REDACTED], [REDACTED]
[REDACTED]

- 2.02 **Galvanizing.** Fabric Reinforcement shall be galvanized in accordance with [REDACTED]
[REDACTED]

The Contractor shall follow [REDACTED]
[REDACTED]

The requirements of Section [REDACTED] shall not be waived.

In accordance with [REDACTED], the average coating thickness, of a minimum of [REDACTED], shall be [REDACTED]
[REDACTED]

Bending of fabric reinforcement after galvanizing as provided for in Section [REDACTED] shall not be allowed except as provided for in [REDACTED] of this specification.

Prior to galvanizing, the material shall have all grease, dirt, mortar, mill scale, injurious rust, or any other foreign substance removed.

For the purpose of this specification, the term "injurious rust" shall be interpreted to mean rust which is not firmly bonded to the steel. Rust which is difficult to remove, even by vigorous scrubbing with a wire brush, shall be considered firmly bonded to the steel.

Material galvanized in accordance with these specifications shall be free from any buildup of unadhered wet storage stains (white rust). These corrosion deposits, if present, shall be removed in a manner satisfactory to the Authority prior to incorporation of the material in the work. After removal of these deposits, the coating shall have a uniform appearance free from uncoated spots, lumps, blister, gritty areas, acid flux, and black spots. Materials with these defects, or not meeting the finish and adherence of coating requirements as defined in the above ASTM specification, will be rejected and immediately removed from the work site. Acceptable material will be provided to replace rejected material at no additional cost to the Authority.

- 2.03 **Embrittlement Testing:** The coating applicator shall take the necessary precautions to prevent embrittlement by conforming to the requirements of [REDACTED], [REDACTED]
[REDACTED]

[REDACTED] The test for embrittlement shall be conducted by the coating applicator or its representative according to the bend test described in [REDACTED]
[REDACTED]

[REDACTED] The coating applicator shall include enough reinforcing bar test specimens at least [REDACTED] for each lot to satisfy the requirements of this [REDACTED]. The test specimens shall have the same diameter as the lot members and shall be quenched and galvanized in the same manner and at the same time as the bars whose characteristics they are intended to represent. If the test specimen cracks, or otherwise fails the bend test, it shall be assumed that the lot it represents has been embrittled. A lot of galvanized reinforcing bars shown to be embrittled by this test shall be rejected.

ITEM 556.0110--25 - GALVANIZED FABRIC REINFORCEMENT FOR STRUCTURES

2. MATERIALS: (cont'd)

2.03 Embrittlement Testing: (cont'd)

For test purposes, a lot is any one of the following:

1. Fabric reinforcing of the same diameter comprising a single order.

2.04 Zinc-Rich Paint. Zinc-rich paint used for the field repair of galvanized coatings shall meet the following requirements:

- A. One application of the material shall provide a dry coating thickness of at least 2.0 mils.
- B. The applied coating shall provide barrier protection and shall preferably be anodic to steel.
- C. Application of the coating material shall be possible under shop or field conditions.
- D. The dried film shall have a minimum zinc dust content equal to 94% (by weight).
- E. The brand of material used shall be approved by the galvanizer, and shall be compatible with the galvanizing, and inert in concrete.

2.05 Miscellaneous Hardware. Chairs, tie wires, nuts, bolts, washers, other devices, and miscellaneous hardware used to support, position, or fasten the reinforcement shall be made of or coated with, a non-conducting material, or galvanized. The specific hardware that the Contractor proposes to use shall be approved by the Engineer. If the specific hardware is galvanized, the hardware shall be prepared and galvanized in accordance with the requirements of both [REDACTED] and [REDACTED] [REDACTED]

3. CONSTRUCTION DETAILS:

3.01 Placing and Fastening Galvanized Fabric Reinforcement. Prior to placing galvanized fabric reinforcement, all grease, dirt, mortar and any other foreign substances shall be removed.

Galvanized fabric reinforcement shall be placed in the position indicated and within the allowable tolerances specified. Before concrete is placed, all reinforcement shall be securely fastened and supported with approved chairs or other approved devices.

3.02 Inspection. Concrete shall not be placed until the fabric reinforcing steel is inspected and permission for placing concrete is granted by the Engineer. All concrete placed in violation of this provision shall be rejected and removed.

3.03 Hazardous Materials. The galvanizer's and Contractor's operations shall conform with all OSHA regulations that apply to working with zinc based materials. Contractor's operations which may be affected by these regulations include, but are not limited to, welding splices and coating repair.

3.04 Reinforcement.

- A. **Ordering Fabric reinforcement.** Prior to ordering fabric reinforcement, the Contractor shall carefully check the quantity, required shapes, and assume full responsibility for their accuracy.

3. CONSTRUCTION DETAILS: (cont'd)

3.04 Reinforcement. (cont'd)

- B. **Field Bending.** Field bending of Galvanized Wire Fabric shall be allowed with prior approval by the Authority. Damage of the coating as a result of the bending shall be repaired in accordance with Subsection 3.05 of this specification.
- C. Fabric reinforcement shall be lapped [REDACTED] at splices and tied.
- D. **Placement in Structural Slabs.** Supports shall be spaced no farther apart than 4'-0" center-to-center, nor shall any support be closer than 6 inches from the edge of any future concrete surface. Bridge slab fabric reinforcement shall be placed in accordance with the following tolerances:

Vertical [REDACTED]
Horizontal [REDACTED]

The structural slab fabric reinforcement mat shall be securely connected together. This connection may be accomplished by wiring or other means approved by the Engineer. Connections shall be placed no farther apart than [REDACTED]. The supports may be utilized for this purpose.

Connecting devices shall neither deflect the reinforcement nor interfere with the smooth flow of concrete.

Chairs, tie wires and other similar devices used for galvanized reinforcement shall meet the requirements of Subsection 2.06.

Immediately prior to placement of concrete, the Engineer shall verify that the fabric reinforcing steel is positioned within the above stated tolerances. If the allowable tolerances are exceeded, the Engineer shall order that the position of the fabric reinforcing steel be corrected before he grants permission for placing concrete.

Subsequent to placement of concrete, the Engineer shall verify, at random that the vertical clear distance from the top of the structural slab to the mat of reinforcing, as shown on the contract plans, is correct within a tolerance of [REDACTED] from the bar's theoretical placement position. If the tolerance is exceeded, the Engineer shall reject the work and so advise the Contractor and the Chief Engineer in writing, stating the deficiencies upon which the rejection is based. The Chief Engineer shall review the nature and extent of the deficiencies and shall designate one or more of the following alternatives:

1. The affected concrete placement shall be removed and replaced in whole or in part.
2. The Contractor shall provide special corrective measures as directed by the Chief Engineer – Department of Engineering.
3. The concrete placement shall be accepted without corrective action.

The removal of the concrete placement and its subsequent replacement, or other corrective work which the Contractor is directed to perform, shall be accomplished at no additional cost to the Authority.

ITEM 556.0110--25 - GALVANIZED FABRIC REINFORCEMENT FOR STRUCTURES

3. CONSTRUCTION DETAILS: (cont'd)

- 3.05 **Field Repair - Galvanized Coating.** The Contractor shall be required to field repair any damage to the galvanized coating done during shipping and handling or field bending, and to replace bars exhibiting severely damaged coatings. Repairable damage is defined as any bare or loose spots, or breaks in the coating which affects an area smaller than 4 square inches.

Field repair shall be allowed only when the total number of repairable damaged areas in any 10 foot length of mat is less than 6. Any material with a total number of damaged areas greater than the amount specified above, or material with any damaged area greater than 4 square inches, shall be rejected, immediately removed from the work site, and replaced by the Contractor at no cost to the Authority.

The galvanized coating is to be repaired with a zinc-rich paint by the following method:

1. Clean the damaged area by power disk, wire brushing, sand or grit blasting, or in accordance with SSPC-SP10 1 to 2 mil anchor pattern, as a minimum. The surface shall also be clean, dry, and free of oil, grease, flux residue, corrosion products, and any other foreign substance.
2. Using a minimum of two coats, and the methods recommended by the manufacturer of the zinc-rich paint, spray or brush apply the zinc-rich paint to the area in a manner to achieve the applicable ASTM adherence and quality requirements of the original coating, and a minimum dry film thickness of 4 mils.

These repair procedures are allowed only for those field repairs directed by the Engineer. This method shall not be allowed for shop repairs. All repairs shall be made at no cost to the Authority.

4. QUALITY CONTROL AND INSPECTION:

Inspection off the site of the Contract is a QA function exercised at the option of the Engineer. Its sole intent is as a means of facilitating work and avoiding errors, it being expressly understood Owner QA does not relieve Contractors of responsibility for both QC and QA to insure their materials and end products meet the requirements of the Contract.

- 4.01 **Inspection:** The Engineer shall be notified 30 days prior to the beginning of the galvanizing application. The NYS Thruway Authority reserves the right to conduct in plant quality assurance inspections during the cleaning and galvanizing process or to accept galvanized reinforcing based on manufacturer's certification. The Engineer and/or any other authorized representative of the NYS Thruway Authority shall have free access to the plant for inspection. Work done while any NYS Thruway Authority representative has been refused access shall be automatically rejected.

If the representative so elects, preparation of the bars, quenching and coating shall be done in their presence. On a random basis, lengths of galvanized fabric may be taken by the representative from the production run at the point of coating application for test, evaluation and check purposes.

- 4.02 **Identification:** It is the responsibility of the Contractor to coordinate the tagging and identification requirements for the project and for lot identification and to provide a non-destructive metal tag system for bent reinforcing bars.

ITEM 556.0110--25 - GALVANIZED FABRIC REINFORCEMENT FOR STRUCTURES

5. METHOD OF MEASUREMENT:

- 5.01 The quantity of Galvanized Fabric Reinforcement shall be measured as the number of square feet of Fabric Reinforcement in place, except that the allowance for each lap splice shall not exceed [REDACTED]

6. BASIS OF ACCEPTANCE:

- 6.01 The coating applicator shall furnish a Certificate of Compliance with each shipment of coated fabric reinforcement. The Certificate of Compliance shall state the representative samples of the coated reinforcement and that the test results conform to the requirements described herein. Test results shall be retained and made available, if requested. The Certificate of Compliance and the documentation required for uncoated reinforcement by Subsection 709-02 – Wire Fabric for Concrete Reinforcement shall accompany each shipment to the job site.

7. BASIS OF PAYMENT:

- 7.01 **Galvanized Fabric Reinforcement.** The unit price bid per square foot shall include the cost of all labor, materials, and equipment necessary to complete the work.