

TEST PROCEDURES FOR THE PLANT INSPECTION OF EPOXY COATED STEEL REINFORCEMENT

- I. SCOPE: This method contains procedures for conducting the various tests that are performed during the in-plant inspection of epoxy coated steel reinforcement (deformed and plain bars.)
2. CLEANLINESS OF BARS:
 - 2.1. Apparatus: Pictorial standards A Sp 10, B Sp 10, or C Sp 10 from the Steel Structures Painting Preparation Specification SSPC-SP10.
 - 2.2. Frequency: Every 4 hours minimum.
 - 2.3. Procedure: Compare the color of the surface of the steel bars to either of the pictorial standards.
 - 2.4. Remarks: The cleaned surface shall correspond with either of the pictorial standards, otherwise recleaning will be required. In addition, the surfaces shall be free of all dust and grit.
3. PREHEAT BAR TEMPERATURE:
 - 3.1. Apparatus: Tempilstiks corresponding to the upper and lower temperature of the manufacturer's recommended coating range.
 - 3.2. Frequency: Each time the coating process is started after a delay or shutdown of more than 10 minutes, and any other time deemed necessary.
 - 3.3. Procedure: Touch the tempilstik representing the lower end of the manufacturer's coating range to the bar just prior to its entering the coating chamber; the tempilstik should melt. Touch the tempilstik representing the upper end of the manufacturer's coating range to the bar just prior to its entering the coating chamber; it should not melt.
 - 3.4. Remarks: The bars shall be preheated so that the bar temperature at the entrance to the coating chamber is within the range recommended by the manufacturer of the powdered epoxy resin.
4. COATING THICKNESS:
 - 4.1. Apparatus: The coating thickness will be determined with an instrument conforming to the requirements of ASTM G 12.

- 4.2. Frequency: Thickness determinations will be made as often as deemed necessary, but at least one bar from each 60 minutes of production time shall be documented.
- 4.3. Procedures: Calibrate the coating thickness instrument on test blocks or plastic strips that have been previously verified as to thickness. The thickness will be measured according to ASTM A 775 with the following exception: instead of a minimum of five recorded measurements on each side of the bar, a minimum of three recorded measurements will be taken on each side of the bar (a measurement is the average of three individual readings obtained between three consecutive deformations).
- 4.4. Remarks: Either an insufficient or excessive film thickness will be cause for rejection of the coated bars.

5. CONTINUITY OF COATING:

- 5.1. Apparatus: A 67 1/2 volt detector such as the Arct T. Flower Co. No. 806 or the Tinker Razor Co. Model M-1.
- 5.2. Frequency: After curing, all bars shall be checked visually for defects in the coating such as holes, voids, delaminations, contamination and damaged areas. In addition, the entire length of at least one bar once per shift will be checked for "holidays" (pinholes not visually discernible).
- 5.3. Procedure: Wet the sponge until it is damp, but not dripping wet. Connect the wire lead to an uncoated spot on the bar and then move the sponge up and down the bar from one end to the other. The holiday detector will beep when a holiday or bare area is touched.
- 5.4. Remarks: When any bar has more than 2 defects and/or "holidays" per linear foot or a total defective area exceeding 0.25% of the surface area per linear foot, the holidays and/or defects shall be repaired with the touch-up material. When any bar has more than 5 defects and/or holidays per linear foot or a total defective area exceeding 0.5% of the surface area per linear foot, the bar shall be rejected.

6. FLEXIBILITY OF COATING:

- 6.1. Apparatus: A mechanical bender with free moving points of contact. A test mandrel having a diameter equal to the diameter in inches corresponding to the bar size number.
- 6.2. Frequency: One bar of each size per 8-hour shift, but with a minimum of 2 tests per 8-hour shift.
- 6.3. Procedure: The bending tests shall be conducted at a room temperature between 68 °F and 85 °F after the specimens have been exposed to the room temperature for a sufficient time to ensure that they have reached thermal equilibrium. The bend shall be made at a uniform rate and may take up to one minute to complete. The two longitudinal deformations may be

placed in a plane perpendicular to the mandrel radius. Deformed bars shall be bent 180 degrees (after rebound) and dowel bars for transfer assemblies shall be bent 60 degrees (after rebound).

- 6.4. Remarks: A satisfactory coating on the bent bars shall not show any visible evidence of cracking.
7. REPORT: The test results, date, project number, and other general information shall be reported on either the Division of Materials or an approved company work sheet for Epoxy Coated Reinforcing Steel.
8. Insure the facility is participating in the Concrete Reinforcing Steel Institute's certification program. Have the facility provide a copy of their last inspection and any remedial work pending.

APPROVED

DIRECTOR
DIVISION OF MATERIALS

DATE

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