DS-15104
(New)

DEVELOPMENTAL SPECIFICATIONS
FOR
CROSS STITCHING OF CONCRETE PAVEMENT

Effective Date
February 21, 2023

THE STANDARD SPECIFICATIONS, SERIES 2015, ARE AMENDED BY THE FOLLOWING MODIFICATIONS AND ADDITIONS. THESE ARE DEVELOPMENTAL SPECIFICATIONS AND THEY SHALL PREVAIL OVER THOSE PUBLISHED IN THE STANDARD SPECIFICATIONS.

15104.01 DESCRIPTION.

Drill holes and anchor deformed tie bar reinforcement diagonally across cracks or longitudinal joints in concrete pavement in accordance with the details shown on the plans. Do not use on transverse cracks or joints.

15104.02 MATERIALS.

A. Reinforcing Steel.
Use an epoxy coated No. 6 deformed steel bar meeting Section 4151 of the Standard Specifications.

B. Epoxy Grout.
Use epoxy grout in accordance Materials I.M. 491.11, Appendix A.

15104.03 CONSTRUCTION.

A. Equipment
Use a low impact hydraulic drill with a tungsten carbide bit. Do not damage the surface or crack the concrete when drilling. Demonstrate the process prior to use on the repair pavement.

B. Drilling Holes.

1. Drill a 7/8 inch diameter hole transversely across the joint at an angle and distance as described in Table 15104.03-1.

Table 15104.03-1: Drill Angle, Distance, and Bar Length by Slab Thickness

Angle	Slab Thickness (T) inches				
	8	9	10	11	12
Distance from Joint to Hole (D) inches					
35º	5.75	6.50	7.25	7.75	8.50
40º	-	-	-	6.50	7.25
45°					6.00

Length of Bar (inches)					
35º	9.50	11.00	12.50	14.50	16.00
40º	-	-	-	12.50	14.00
45°					12.00

2. Use a drilling guide to ensure the angle and distance are correct and consistent. Cross sectional view of drilling into slab is shown in the plans.

3. Drill holes on alternating sides of the joint line at 24 inch spacing, avoiding any in-place bars.

4. Do not drill completely through the slab. Leave approximately 1 inch undrilled at the bottom of the slab. If hole punches through bottom of slab, fill with epoxy and move 6 inches.

5. Maintain at least 18 inches from load transfer devices.

C. Cleaning Holes.
Blow air into holes to remove dust and debris. The air must be free of oil and other contaminants.

D. Insert Tie Bar.

1. Pour the epoxy into the hole, leaving some volume for the bar to occupy the hole.

2. Insert the tie bar into the hole, remove excess epoxy and finish flush with the pavement surface.

3. Leave approximately 1 inch of cover at the surface of the slab when using the dimensions in Table 15104.03-1.

E. Opening to Traffic.
The pavement may be opened to traffic after the epoxy is tack free.

15104.04 METHOD OF MEASUREMENT.
The number of each installed cross-stitched tie bar location will be counted.

15104.05 BASIS OF PAYMENT.
The Contractor will be paid the contract unit price for each installed cross-stitched bar. This price is full compensation for furnishing all materials, tools, labor, equipment and incidentals necessary to complete the work.