

## 727-B-012 CONCRETE REPAIR BY EPOXY INJECTION

(Revised 09-01-05)

The Standard Specifications are revised as follows:

SECTION 727, BEGIN LINE 1, INSERT AS FOLLOWS:

**SECTION 727 – CONCRETE REPAIR BY EPOXY INJECTION****727.01 Description**

*This work shall consist of furnishing all supervision, labor, materials, and equipment to structurally rebond concrete cracks, fractures, or delaminations by means of an epoxy injection system.*

**727.02 Approvals**

10 *Prior to the start of the work, the Contractor shall submit a certification which indicates that the firm has been engaged in this type of work for not less than five years. The certification shall also indicate that the personnel performing the repair shall have a minimum of five years experience with the epoxy injection system.*

*The epoxy injection system proposed for use shall be subject to approval prior to the start of the repair work. One copy of comprehensive preparation, mixing, and application instructions shall be furnished. Such instructions shall have been developed especially for use with the proposed epoxy injection system.*

**727.03 Construction Requirements**

20 *The location and extent of cracks to be repaired by epoxy injection will be determined.*

*The work shall be performed with 2-component automatic metering and mixing equipment.*

30 *Concrete surfaces adjacent to the cracks shall be cleaned to the extent necessary to achieve adequate bond of the surface seal material. Entry ports shall be provided along the crack at intervals determined in the field to ensure full depth penetration of the injection resin. Surface seal shall be applied between entry ports, and on both faces of through cracks when possible.*

*Epoxy injection shall begin at the lower entry port and continue until there is an appearance of epoxy at the adjacent entry port. Injection shall continue until all cracks are completely filled. If port to port travel is not apparent, the work shall be stopped immediately. The Engineer shall be notified.*

40 *Upon completion of the injection, the adhesive shall be permitted to cure for sufficient time to permit removal of surface seal without draining or runback of material from the cracks. Surface seal material and injection adhesive runs or spills shall be removed from concrete surfaces. The face of the crack shall be finished flush to the adjacent concrete. The face of the concrete shall show no indentations or protrusions caused by the placement of entry ports.*

**727.04 Method of Measurement**

*Furnishing equipment for epoxy injection will not be measured for payment. Crack preparation for epoxy injection will be measured by the linear foot (meter) of prepared crack. Epoxy material will be measured by the gallon (liter) placed.*

**727.05 Basis of Payment**

50 *This work will be paid for at the contract lump sum price for epoxy injection, furnishing equipment. Crack preparation will be paid for at the contract unit price per linear foot (meter) for epoxy injection, crack preparation. Epoxy resin adhesive will be paid for at the contract unit price per gallon (liter) for epoxy injection, epoxy material.*

*Payment will be made under:*

<b>Pay Item</b>	<b>Pay Unit Symbol</b>
Epoxy Injection, Crack Preparation .....	LFT (m)
Epoxy Injection, Epoxy Material.....	GAL. (L)
Epoxy Injection, Furnishing Equipment .....	LS

SECTION 909, AFTER LINE 637, INSERT AS FOLLOWS:

**909.12 Epoxy Resin Additives for Injection into Concrete**

*The epoxy resin adhesive shall be of low enough viscosity such that it flows to the next open port in the surface seal material. The adhesive shall be capable of penetrating crack widths down to 0.005 in. (125 µm). The adhesive shall be capable of bonding to dry or damp surfaces. The adhesive shall exhibit a slant shear strength exceeding the concrete strength when tested fully cured in accordance with AASHTO T 237.*

*The surface seal material shall have adequate strength to hold injection fittings firmly in place and to resist injection pressures adequately to prevent leakage during injection.*

*The epoxy resin adhesive for injection shall be covered by a type C certification in accordance with 916.*