

**5-01.3(6) Dowel Bar Retrofit**

Dowel bars shall be installed in the existing concrete pavement joints and transverse cracks where shown in the Plans or as marked by the Project Engineer.

Saw cut slots will be required in the pavement to place the center of the dowel at mid-depth in the concrete slab. The completed slot shall provide a level, secure surface for the feet of the dowel bar chairs. Slots that intersect longitudinal or random cracks shall not be retrofitted. When gang saws are used, slots that are not used shall be cleaned and sealed with either Type I or IV epoxy resin as specified in Section 9-26. The transverse joint between Portland Cement Concrete Pavement and a Bridge approach slab shall not be retrofitted.

Saw cut slots shall be prepared such that dowel bars can be placed at the mid depth of the concrete slab, centered over the transverse joint, and parallel to the centerline and to the Roadway surface.

**Placement tolerances for dowel bars**

1.  $\pm 1$ -inch of the middle of the concrete slab depth.
2.  $\pm 1$ -inch of being centered over the transverse joint.
3.  $\pm \frac{1}{2}$ -inch from parallel to the centerline.
4.  $\pm \frac{1}{2}$ -inch from parallel to the Roadway surface.

If jackhammers are used to break loose the concrete they shall weigh less than 30-pounds.

All slot surfaces shall be cleaned to bare concrete by sand blasting. The cleaning shall remove all slurry, parting compound, and other foreign materials prior to installation of the dowel. Any damage to the concrete shall be repaired by the Contractor at no cost to the Contracting Agency. Traffic shall not be allowed on slots where concrete has been removed.

Prior to placement, the dowel bars shall be lightly coated with a parting compound and placed on a chair that will provide a minimum of  $\frac{1}{2}$ -inch clearance between the bottom of the dowel and the bottom of the slot.

The chair design shall hold the dowel bar tightly in place during placement of the concrete patching material. Immediately prior to placement of the dowel bar and concrete patching material, the Contractor shall caulk the transverse joint or crack at the bottom and sides of the slot as shown in the Plans. The caulking filler shall not be placed any farther than  $\frac{1}{2}$ -inch outside either side of the joint or crack. The transverse joint or crack shall be caulked sufficiently to satisfy the above requirements and to prevent any of the patching material from entering the joint/crack at the bottom or sides of the slot.

A  $\frac{3}{8}$ -inch thick foam insert shall be placed at the middle of the dowel to maintain the transverse joint. The foam insert shall fit tightly around the dowel and to the bottom and edges of the slot and be a minimum of  $1\frac{1}{2}$ -inch below the existing concrete surface. The foam insert shall be capable of remaining in a vertical position and held tightly to all edges during placement of the patch. If for any reason the foam insert shifts during placement of the patch the Work shall be rejected and redone at the Contractor's expense.

Patching material shall be consolidated by using a 1.0-inch or less diameter vibrator as approved by the Project Engineer. The Contractor shall not overwork the patching material during the patch consolidation process.

The patching material on the surface of the dowel bar slots shall not be overworked, causing segregation and leaving the fine material on the surface. The patching material shall be left  $\frac{1}{8}$ -inch to  $\frac{1}{4}$ -inch high and not finished flush with the existing concrete surface.

The joint shall be maintained by saw cutting the surface with a hand pushed single blade saw. The cut width shall be  $\frac{3}{16}$  to  $\frac{5}{16}$ -inch and the depth  $1\frac{1}{2}$ -inches. The cut length shall be  $2\frac{1}{4}$ -feet long centered over the 3 retrofit dowel bars and shall be sawed within 24-hours after placement of the concrete patching material.

Opening to traffic shall meet the requirements of Section 5-05.3(17).

#### ~~5-01.3(7) Sealing Existing Concrete Random Cracks~~

~~The Contractor shall route, clean and seal existing concrete random cracks where indicated by the Project Engineer. Cracks smaller than  $\frac{5}{16}$  inch in width shall be routed to  $\frac{5}{16}$  inch wide by 1 inch deep prior to placing the sealant. Cracks over  $\frac{5}{16}$  inch in width shall be cleaned and sealed.~~

~~All incompressible material shall be completely removed from the existing random crack to a depth of  $\frac{3}{4}$  inch. Immediately prior to sealing, the cracks shall be blown clean with dry, oil free compressed air.~~

~~The top surface of the sealant shall be at least  $\frac{1}{4}$  inch below the surface of the pavement.~~

#### ~~5-01.3(8) Sealing Existing Transverse and Longitudinal Joints~~

~~The Contractor shall clean and seal existing transverse and longitudinal joints where shown in the Plans or as marked by the Project Engineer.~~

~~Old sealant and incompressible material shall be completely removed from the joint to the depth of the new reservoir with a diamond blade saw. The removed sealant shall become the property of the Contractor and be removed from the jobsite.~~

~~Removal of the old sealant for the entire depth of the joint is not required if the depth of the new reservoir is less than the depth of the existing joint.~~

~~Joints constructed with joint tape do not require cleaning and sealing.~~

~~Immediately prior to sealing, the cracks shall be blown clean with dry oil free compressed air. The joints shall be completely dry before the sealing installation may begin. Immediately following the air blowing, the sealant material shall be installed in conformance to manufacturer's recommendations and in accordance with Section 5-05.3(8)B.~~

~~The top surface of the sealant shall be at least  $\frac{1}{4}$  inch below the surface of the pavement.~~

#### ~~5-01.3(9) Portland Cement Concrete Pavement Grinding~~

~~Pavement grinding shall begin within 10 working days of placing dowel bar retrofit patching materials. Once the grinding operation has started it shall be continuous until completed. The right travel lane in the direction of traffic shall be ground first.~~

~~The pavement shall be ground in a longitudinal direction beginning and ending at lines normal to the pavement centerline. The minimum overlap between longitudinal passes shall be 2.0 inches. Ninety five percent of the surface area of the pavement to be ground shall have a minimum of  $\frac{1}{8}$  inch removed by grinding.~~

~~Bridge decks, bridge approach slabs and bridge overlay insets shall not be ground. The ground pavement shall be feathered to match the elevation of the above features.~~

#### ~~5-01.3(9)A Surface Finish~~

~~The final surface texture shall be uniform in appearance with longitudinal corduroy type texture. The grooves shall be between  $\frac{3}{32}$  and  $\frac{5}{32}$  inches wide, and no deeper than  $\frac{1}{16}$  inch. The land area between the grooves shall be between  $\frac{1}{16}$  and  $\frac{1}{8}$  inches wide.~~