

SECTION 454 – RETROFIT DOWEL BARS

454.01 DESCRIPTION

This Section describes the requirements for installing retrofit dowel bars in existing concrete pavement.

454.02 MATERIALS

454.02.01 Materials

Provide materials as specified:

Quick Setting Patch, Type 1, 1A, or 1B	903.07
Dowel Bars	905.03.03

Use aggregate with maximum size no greater than 1/2 inch in the quick setting patch.

For caulk, use a silicon sealer manufactured to adhere to concrete.

Use foam core insert of rigid styrofoam material or closed cell foam, faced with poster board or plastic material.

454.02.02 Equipment

Provide equipment as specified:

Pavement Saw	1008.04
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454.03 CONSTRUCTION

454.03.01 Retrofit Dowel Bars

Demonstrate the method of sawcutting slots and placing the dowels or tie bars for the RE's approval. Sawcut slots in the pavement to a depth that allows placing the center of the dowel at mid-depth in the concrete slab. Perform multiple cuts parallel to the longitudinal joint to remove material from the slot. Use small demolition hammers with a weight less than 30 pounds to break loose the concrete. Sand blast and then clean exposed surfaces in the slot to provide an acceptable bonding surface.

Immediately before placing the dowel bar, caulk the existing transverse joint or crack at the bottom and the sides of the slot. Place the caulking to provide a smooth level surface and tight fit for the foam core insert and to prevent any of the quick setting patch from entering the joint or crack.

Place dowel bar end caps on each end of the dowel to provide a 3/4 inch long void for expansion. Lightly coat the dowel bar with form oil or light grease, and place the foam core insert around the middle of the dowel.

Place the dowel bar at the mid-depth of the slab, parallel to the longitudinal joint, and parallel to the pavement surface. For cracks that are skewed more than 45 degrees, place the dowel bar perpendicular to the crack. Ensure that the foam core insert fits tightly around the dowel and to the bottom and edges of the slot. Install the filler material so that it remains in a vertical position and tight to all the edges during placement of the quick setting patch.

Place quick setting patch to the bottom of the dowel bar. Hand-tamp the quick setting patch in place. Check the position of the dowel bar to ensure that it is parallel to the pavement surface and the longitudinal joint. Place and hand-tamp quick setting patch to fill the slot. Finish the surface flush with the pavement surface.

If the foam core insert shifts during placement of the quick setting patch, remove and replace the dowel bar. Ensure that the foam core insert is cut flush to the surface.

454.04 MEASUREMENT AND PAYMENT

The Department will measure and make payment for Items as follows:

Item	Pay Unit
RETROFIT DOWEL BAR	UNIT

Additional Reference Material

[Item Number List](#)

Construction Details [CD-454-1](#)