

~~entire surface. Correct all irregularities greater than 3/16 inch [5 mm] measured as an ordinate to the straightedge, by grinding. Perform grinding by the abrasive method using hand or power tools or by machine, to leave a smooth surface within a 1/8 inch [3 mm] tolerance.~~

400-15.2.5.4 Smoothness Evaluation, Bridges greater than 300 feet [100 m] in length (including approach slabs): Provide a smoothness evaluation of the completed bridge deck and concrete approach slab riding surfaces by a computerized Cox California-type profilograph in accordance with the criteria herein and FM 5-558. Furnish this evaluation through an independent provider approved by the Engineer, using equipment calibrated by the Engineer. The riding surfaces subject to this evaluation include all traffic lanes, all full width acceleration and deceleration lanes, and lanes planned for future use, on both the bridge deck and concrete approach slabs. For areas outside the traffic lanes, perform testing and meet the smoothness requirements for short bridges.

Prior to initial profilograph testing and grooving, complete work on the bridge deck, except for expansion joint installations. Thoroughly clean and clear the bridge deck and approach slab area to be evaluated for smoothness of all obstructions and provide the smoothness evaluation. Ensure that no radio transmissions or other activities that might disrupt the automated profilograph equipment are allowed during the evaluation.

Average the Profile Index Value for the bridge deck, including the concrete approach slabs, for the left and right wheel path of each lane. The maximum allowable Profile Index Value for acceptable smoothness is 10 inches per mile [158 mm per kilometer] utilizing the 0.2 inch [5 mm] blanking band. Apply this criteria to each 300 feet [100 m] of each lane. Additionally, correct individual bumps or depressions exceeding a cutoff height of 0.3 inch [7.6 mm] from a chord of 25 feet [7.620 m] (see ASTM E-1274) on the profilograph trace and ensure that the surface meets a 1/4 inch in 10 feet [6 mm in 3.048 m] straightedge check made transversely across the deck and approach slabs as determined necessary by the Engineer. Provide at least 1 profilograph test per bridge deck and approach slabs. A single test will occur only when the initial profilograph results satisfy all acceptance criteria. Provide additional profilograph testing as necessary following longitudinal planing and any other actions taken to improve smoothness, until a profile meeting the acceptance criteria is obtained.

For bridges that do not pass the profilograph smoothness criteria given above, longitudinally plane the entire bridge deck and concrete approach slab surfaces using a self-propelled grinding machine with gang mounted diamond saw cutting blades specifically designed for such work. Use a machine with a minimum wheel base length of 15 feet [4.57 m], constructed and operated in such manner that it does not cause strain or damage to the deck surface, excessive ravels, aggregate fractures or spalling. The equipment shall be approved by the Engineer. Perform longitudinal planing parallel to the roadway centerline, and provide a consistent, textured surface that will meet or exceed the profilograph smoothness criteria. Clean the surface of all slurry/debris generated during this work concurrently with operation of the machine. Control the work to limit surface removal by all passes of the longitudinal planing equipment and any other grinding to a total maximum depth of 1/2 inch [13 mm].

After planing, reevaluate the pavement smoothness using the profilograph testing described above. Perform additional retesting with the same equipment if further corrective measures are necessary.

~~**400-15.2.5.5 Grooving:** After the concrete surface profile has been accepted by the Engineer, and prior to opening the bridge to traffic, groove the bridge deck and approach slabs perpendicular to the centerline of the structure. Cut grooves into the hardened concrete using a mechanical saw device which will leave grooves nominally 1/8 inch [3 mm] wide and 3/16 inch [5 mm] deep. Space the grooves apart in random spacing center of grooves in the following sequence: 3/4 inch [20 mm], 1 1/2 inch [30 mm], 5/8 inch [15 mm], 1 inch [2 mm], 5/8 inch [15 mm], 1 1/8 inch [30 mm], 3/4 inch [20 mm] in 6 inch [150 mm] repetitions across the width to be grooved in one pass of the mechanical saw device. One 6 inch [150 mm] sequence may be adjusted by 1/4 sequence increments to accommodate various cutting head widths provided the general pattern is carried out. The tolerance for the width of the grooves~~