

\* USE IN CONJUNCTION WITH STORED SPECIFICATIONS: 109ACCP \*  
\* 1006PCC \*

(401PCCP, 5/18/06)

**SECTION 401 - PORTLAND CEMENT CONCRETE PAVEMENT:**

**401-3.01 General:** of the Standard Specifications is modified to add:

Portland cement concrete pavement shall be constructed as required, smooth and true to the required lines, grades, and dimensions.

**401-3.02 Pavement Base:** the last sentence of the first paragraph of the Standard Specifications is revised to read:

The surface shall be free of all loose and extraneous material and the surface shall be uniformly moistened immediately prior to placing concrete.

**401-3.04(F) Surface Texturing:** of the Standard Specifications is revised to read:

Surface texturing of the plastic concrete shall begin immediately after placement and finishing of the concrete. All excessive surface water shall be dispersed prior to commencing texturing operations. Texturing shall be performed by applying a longitudinal burlap drag followed by longitudinal texturing using steel tines. When the pavement will be overlaid with asphaltic concrete prior to opening to traffic, only a burlap drag is required.

Steel tines shall be supported by an independent self-propelled rolling mechanical bridge. The tines shall not be supported manually except in areas inaccessible to the bridge.

The rolling mechanical bridge supporting steel tines shall be equipped and operate with automatic sensing and control devices which follow the same control line as the slip form paver. Burlap shall not be supported on the rolling mechanical bridge used to support the steel tines.

Burlap shall be in accordance with AASHTO M 182, Class 3 and shall traverse the full width of the pavement to within 12 inches of the pavement edge.

The timing of the texturing operations is critical. Grooves that close following texturing will not be permitted, and texturing shall be completed so that the surface is not torn or unduly roughened by the texturing operation.

Hand tine brooms shall be provided and available at the job site at all times.

Tine texturing shall be performed so that the grooves produced will be uniform in spacing, depth, and width. Texture shall be parallel to the center line of the roadway and shall extend over the entire roadway width to within three inches of the pavement edge. Swerving groove patterns will not be permitted.

Texture grooves shall be  $1/8 \pm 1/32$  inch in width and  $5/32 \pm 2/32$  inch in depth. The textured groove depth will be measured in accordance with the requirements of Arizona Test Method 310. The center-to-center spacing of the grooves shall be  $3/4 \pm 1/8$  inch.

If necessary, hardened concrete shall be textured by any method that will produce the required grooves.

**401-3.05(B) Longitudinal Joints:** the last three paragraphs of the Standard Specifications are revised to read:

Load transfer bars shall be provided as shown on the plans, and shall be placed in all longitudinal construction and weakened plane joints by acceptable mechanical methods, either while the concrete is still plastic or after the concrete has hardened. Bars placed in hardened concrete shall be anchored with an adhesive approved by the Engineer. Bars placed in adjacent slabs of different thicknesses shall be placed within one inch of the mid-depth of the thinner slab.

**401-3.05(C) Transverse Joints:** of the Standard Specifications is revised to read:

Transverse expansion joints shall be located at the junction of roadway pavement slabs and bridge approach slabs. Transverse expansion joints at locations other than bridge approaches shall be located as shown on the plans. The joints shall be formed in accordance with the plans, or as directed by the Engineer.

Transverse construction joints shall be constructed as shown on the plans and as specified herein. They shall be placed at the end of each day's production, or when placement of concrete is discontinued for more than 90 minutes. Excess concrete shall not be placed beyond a construction joint at the end of a day's production.

Load transfer bars shall be provided as shown on the plans, and shall be placed in all transverse construction joints by acceptable mechanical methods, either while the concrete is still plastic or after the concrete has hardened. Bars placed in hardened concrete shall be anchored with an adhesive approved by the Engineer. Bars placed in adjacent slabs of different thicknesses shall be placed within one inch of the mid-depth of the thinner slab.

Transverse construction joints shall be formed perpendicular or skewed to the center line of the roadway, as shown on the plans.

Transverse weakened plane joints shall be formed by sawing and shall be constructed perpendicular or skewed to the centerline of the roadway, as shown on the plans.

The location of transverse weakened plane joints shall be as shown on the plans.

**401-3.06(B) Construction Joints:** the third paragraph of the Standard Specifications is hereby deleted:

**401-4.02 Pavement Smoothness:** the eleventh and twelfth paragraphs of the Standard Specifications are revised to read:

Profile Indexes greater than nine inches per mile per 0.1-mile section shall be reduced to nine inches or less per mile per 0.1-mile section by grinding or pavement removal and replacement as specified herein.

When pavement will not be overlaid with asphaltic concrete prior to opening to traffic, grinding of pavement which has a Profile Index of nine inches or less per mile per 0.1-mile section will only be permitted to correct deviations in excess of 0.3 inches in 25 feet ("must-grinds") as specified herein and when directed by the Engineer.

**401-4.03(B)(3)(a) Routing-and-Sealing Method:** the first sentence of the Standard Specifications is revised to read:

When the routing-and-sealing crack repair method is specified, the top of the crack shall be routed, with a routing machine approved by the Engineer, to a depth of at least 3/4 inch and to a width not less than 3/8 inch or more than 5/8 inch.

**401-4.03(C) Pavement Removal and Replacement:** the ninth paragraph of the Standard Specifications is revised to read:

After removal of cracked pavement, dowel bars shall be placed by drilling and anchoring, using an approved epoxy, at approximately mid-depth in the existing concrete pavement. Dowel bars placed in longitudinal construction joints shall be 24-inch long, epoxy-coated, 5/8-inch diameter smooth dowels spaced at 30 inches, center-to-center. Dowel bars placed in transverse construction joints shall be 24-inch long, epoxy-coated, 1-1/2 inch diameter smooth dowels spaced at 12 inches, center-to-center. Dowel bars shall be placed in construction joints which coincide with existing transverse weakened plane joints. These dowel bars shall be 24-inch long, epoxy-coated, 1-1/2 inch diameter smooth dowels placed at distances of 6, 24, 42, 90, 117, and 135 inches from the adjacent longitudinal joint which is nearest to the outside shoulder.

**401-4.04 Pavement Thickness:** the second paragraph of the Standard Specifications is revised to read:

Pavement will be evaluated for thickness by the lot. Lot limits will be identical to those specified in Subsection 1006-7.03 for compressive strength of Class P concrete. The contractor shall obtain ten cores per lot, in accordance with Arizona Test Method 317, under the observation of an ADOT representative, and at randomly selected locations designated by the Engineer. However, the Engineer may exclude certain locations from random sampling should the Engineer

determine that the location of the work precludes normal construction operations. The ADOT representative shall take immediate custody of the cores. All cores will be measured by the Department in accordance with the provisions of AASHTO T 148, except that measurements will be to the nearest thousandth of an inch, and the average of such measurements will be to the nearest hundredth of an inch. If any core indicates a deficiency of 0.60 inches or more from the specified thickness, that core shall not be used for determining the thickness property of the lot, and additional cores shall be drilled at intervals not exceeding ten feet in each direction from the deficient core location, measured parallel to the center line, until one core is obtained in each direction which is not deficient by 0.60 inches or more. Pavement between these two cores shall be considered as rejected. The average of the measurements of the two cores will replace the measurement of the original deficient core in determining the thickness property of the lot.

**401-6**                    **Basis of Payment:** of the Standard Specifications is revised to read:

The accepted quantities of Portland cement concrete pavement, measured as provided above, will be paid for at the contract unit price adjusted as hereinafter provided, and shall include full payment for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work involved in constructing the pavement complete in place as shown on the plans and specified herein. When load transfer dowel assemblies are specified, separate payment for this work will be as specified in the Special Provisions.

No separate payment will be made for joints, the cost being considered as included in the contract item for Portland cement concrete pavement.

Cracked pavement slabs which require repair in accordance with the provisions of Subsection 401-4.03(B) will be paid for at 80 percent of the contract unit price for the pavement repaired, as measured between the original longitudinal and transverse pavement joints abutting the repaired pavement; however, no adjustment to the contract unit price will be made for pavement slabs which contain only cracks which are observed later than 28 days after concrete placement. Unit price adjustments for cracked pavement slabs which require repair will be made independently of all unit price adjustments made for compressive strength, pavement thickness, and pavement smoothness.

Payment for thickness and compressive strength will be by the lot. Lot limits are described in Subsection 401-4.04 and Subsection 1006-7.03. For each lot, pay factors will be determined for increasing or decreasing the unit price of the lot or rejection of the lot. The "Percent of Lot Within Limits (PWL)" for thickness and compressive strength shall be determined in accordance with the requirements of Subsection 109.11 of the Specifications. Pay factors for thickness and compressive strength shall be determined by entering Table 401-1 with PWL.

<b>TABLE 401-1</b>	
<b>Pay Factors for Thickness and Compressive Strength</b>	
<b>PWL</b>	<b>Pay Factor (Dollars/Square Yard)</b>
100	+1.00
95-99	+0.75
90-94	+0.50
85-89	0.00
80-84	-0.25
75-79	-0.75
70-74	-1.75
65-69	-3.25
60-64	-5.00
Below 60	Reject

Pay Factors for thickness and compressive strength will be determined and applied separately. A total Pay Factor shall be determined for each lot by summing the individual pay factors for thickness and compressive strength. Any lot with a total Pay Factor less than minus \$5.00 will be rejected. Any lot with a PWL below 60 for either thickness or compressive strength will be rejected.

When pavement will not be overlaid with asphaltic concrete prior to opening to traffic, the unit price paid for pavement on mainline traffic lanes and freeway-to-freeway ramps which have a Profile Index less than or equal to 9.0 inches per mile per 0.1-mile section after correction of all deviations in excess of 0.3 inches in 25 feet ("must-grinds") will be adjusted in accordance with Table 401-2.

<b>TABLE 401-2</b> (Use when pavement <b>will not</b> be overlaid with asphaltic concrete prior to opening to traffic.)	
<b>Profile Index (P.I.) [inches per mile per 0.1 mile section]</b>	<b>Unit Price Adjustment</b>
7.0 or Less	Plus (\$0.20) x [7.0 - (P.I.*)] per square yard (\$1.00 Maximum) (See Notes)

7.1 to 8.0	Minus \$0.50 per square yard
8.1 to 9.0	Minus \$1.00 per square yard
Notes: 1. P.I.* = Profile Index (P.I.) rounded to the nearest whole number. 2. The "plus" unit price adjustment will not be made for pavement placed within each 0.1-mile section which has grinding in excess of 1.5 percent of the area included in any traffic lane involved.	

When pavement will be overlaid with asphaltic concrete prior to opening to traffic, the unit price paid for pavement on mainline traffic lanes and freeway-to-freeway ramps which have a Profile Index less than or equal to 9.0 inches per mile per 0.1-mile section will be adjusted in accordance with Table 401-3.

<b>TABLE 401-3</b> (Use when pavement <b>will</b> be overlaid with asphaltic concrete prior to opening to traffic.)	
<b>Profile Index (P.I.)</b> [inches per mile per 0.1 mile section]	<b>Unit Price Adjustment</b>
7.0 or Less	Plus $(\$0.10) \times [7.0 - (P.I.*)]$ per square yard (\$0.50 Maximum) (See Note)
7.1 to 8.0	Minus \$0.25 per square yard
8.1 to 9.0	Minus \$0.50 per square yard
Note: P.I.* = Profile Index (P.I.) rounded to the nearest whole number.	

Unit price adjustments for pavement smoothness will not be made for pavement in distress lanes, shoulders, service interchange ramps, tapers, cross roads, or frontage roads.

Unit price adjustments for pavement smoothness will be made independently of all unit price adjustments made for pavement thickness, compressive strength, and cracked pavement slabs which require repair.

Pavement rejected in accordance with this Section or Section 1006 shall be removed and replaced with pavement meeting the requirements of both sections. However, within ten days of notification of rejected pavement, the contractor may submit a written proposal to accept the pavement at a reduced unit price. When the contractor has elected to rely on the results of core testing for compressive strength, the ten days will commence upon notification of the results of core testing. Such proposal shall contain an engineering analysis of the anticipated performance

of the pavement if allowed to remain in place. The reduction in unit price shall reflect the commensurate reduction in life expectancy, but in no case shall it be less than the total of the negative pay factors involved. Within five working days after receiving the contractor's proposal, the Engineer will determine whether or not to accept it and will so notify the contractor. If the proposal is not accepted, the pavement shall be removed and replaced as hereinbefore specified. If the proposal is accepted, the Engineer will specify the conditions of acceptance.