

## S.S.P. 422 - GRINDING CONCRETE PAVEMENT

**422.01- Description** The work shall consist of grinding Portland Cement concrete pavement to eliminate joint faulting and/or to restore proper drainage, riding characteristics and skid resistance to the pavement surface in accordance with the tolerances provided in these specifications. The work shall be accomplished in accordance with S.S.P. 420 in regard to scheduling.

**422.02 - Equipment** The grinding equipment shall be a power driven, self-propelled machine that is specifically designed to smooth and texture Portland Cement concrete pavement with diamond blades. The effective wheel base of the machine shall not be less than 12 feet. The equipment shall be of a size that will cut or plane at least 3 feet wide. It shall also be of a shape and dimension that does not encroach on traffic movement outside the work area. The equipment shall be capable of grinding the surface without causing spalls at cracks, joints, or other locations.

**422.03 - Construction** The plans will designate the areas of pavement surfaces to be ground. Grinding of bridge decks and roadway shoulders will not be required unless indicated on the plans or required to promote drainage.

The construction operation shall be scheduled and proceed in a manner that produces a uniform finished surface. Grinding will be accomplished in a manner that eliminates joint or crack faults while providing positive lateral drainage by maintaining a constant cross slope between grinding extremities in each lane. Auxiliary or ramp line grinding shall transition as required from the mainline edge to provide positive drainage and acceptable riding surface.

The entire area designated on the plans shall be ground until the pavement surfaces of adjacent sides of transverse joints and cracks are in the same plane. The operation shall result in pavement that will not show surface deviations in excess of 1/4 inch when tested with a 10-foot straightedge. It is the intention of this specification that the faulting at joints and cracks be eliminated, that the overall riding characteristics be within acceptable limits, and that the depth of material removed shall be sufficient that all of the pavement surface is textured including the bottom of ruts, except extra depth grinding to eliminate minor local depressions will not be required.

The contractor shall establish positive means for removal of grinding residue from the project. Solid residue shall be removed from pavement surfaces before it is blown by traffic action or wind. Residue shall not be permitted to flow across lanes used by traffic or into gutters or drainage facilities. The Contractor shall provide for a waste site for disposal.

**422.04 - Final Surface Finish & Acceptance** The grinding process shall produce a pavement surface that is true to grade and uniform in appearance with longitudinal corrugations that present a narrow ridge, corduroy appearance. The peaks of the ridges shall be approximately 1/16 inch higher than the bottoms of the grooves with approximately 53 to 57 evenly spaced grooves per foot. Fins resulting from grinding shall be substantially removed prior to opening to traffic.

The finished pavement shall conform to the following requirements. Tests shall be performed no later than 24 hours following the previous days grinding.

The surface will be straightedged, with a 10-foot straightedge at locations to be determined by the Engineer. When the straightedge is laid on finished pavement in a direction parallel with centerline or perpendicular to centerline, the surface shall not vary more than 1/4" from the lower edge. Any high points that cause the surface to exceed these tolerances shall be removed by grinding. Straightedge requirements will not apply outside of areas ground.

Transverse joints and transverse cracks shall be inspected to ensure that adjacent surfaces are in the same plane. Misalignment of the planes of the surfaces on adjacent sides of the joint or crack, which are in excess of 1/16 inch, shall be ground until the surfaces are flush. At transverse boundaries between ground and unground areas of concrete, smoothly feathered transitions shall be made.

At longitudinal boundaries between ground and unground areas of concrete, vertical misalignment between ground and unground concrete surfaces shall not exceed 1/8 inch. Corrective treatment, if required, shall consist of additional grinding with appropriate cross slope adjustment to feather out the misalignment.

The surface will be profiled using a California Profilograph in accordance with Idaho T-140 and these provisions:

Profiles will be made 3 feet from and parallel to one edge of each driving lane in which grinding is required, and in other locations as directed, with a maximum of two profiles per driving lane.

Pavement tested shall conform to the following Profile Index requirements.

- A. When longitudinal grade is 4.5% or less, pavement on tangent alignment and pavement on horizontal curves having a centerline radius of curve 2,000 feet or more shall have a profile Index of 0.5-inch or less per 0.1 mile. Consecutive one tenth mile sections of roadway will be tested with no overlapping.
- B. Pavement on horizontal curves having a centerline radius of curve 1,000 feet or more but less than 2,000 feet and pavement within the superelevation transition of such curves or any pavement with grade greater than 4.5%, shall have a Profile Index of 0.7 inches or less per 0.1 mile.

The following areas of pavement will not be profiled, unless otherwise specified.

- A. Pavement on Horizontal curves having a centerline radius of curve less than 1,000 feet and pavement within the superelevation transition of such curves.
- B. Pavement within 50 feet of a transverse joint that separates the pavement from an existing pavement not constructed under the contract.
- C. Pavement for ramps, approaches, structure decks, city streets or county roads.
- D. Pavement within 50 feet of a transverse joint that separates the pavement from a structure deck or an approach slab.

Individual high points in excess of 0.3-inch, as determined by measurements of the profilogram in accordance with Idaho T-140, shall be reduced by grinding, until such high points as indicated by reruns of the

profilograph do not exceed 0.3-inch.

After grinding has been completed to reduce individual high points in excess of 0.3-inch, additional grinding shall be performed as necessary to reduce the Profile Index to values specified above in any 0.1-mile section along any line paralleled with the pavement edge.

Regardless of straightedge allowances, sufficient grinding is required to remove rutting and local minor depressions, giving the pavement a uniform surface texture. This may require extending the grinding laterally across longitudinal joints to avoid excessive vertical misalignment at the boundaries of ground areas, as described in the fifth paragraph of this subsection, (422.04).

The profilograph equipment shall be a California Profilograph furnished and operated by the contractor in accordance with Idaho T-140. It shall be equipped with a recorder capable of producing a graph chart which shall be evaluated by the contractor in conformance with Idaho T-140; then given to the state for review and retention, no later than the next working day after the chart is produced. The profilograph shall be operated at no greater speed than 3 MPH. It shall be calibrated at the beginning of the project and as needed thereafter.

**422.05 - Method of Measurement** Pavement grinding will be measured by the square yard. The quantity of pavement grinding will be determined by multiplying the finished ground width by the total length ground. No allowance will be made for extra passes with the grinder, when required, unless otherwise provided for.

**422.06 - Basis of Payment** The contract price per square yard for grinding concrete pavement shall be full compensation for furnishing all labor, materials, tools, equipment, incidentals, and for doing all work involved in grinding the existing surface, removing residue and cleaning the pavement and furnishing and operating the profilograph.

Payment will be made under:

<b>Pay Item</b>	<b>Pay Unit</b>
Grind Concrete Pavement	Square Yard