

401.12 MACHINE FINISHING OF BRIDGE DECK

(A) Machine Finishing of Structural Slab

Delete paragraphs twelve through fifteen.

(F) Deck Surface Requirements.

Delete this subsection in its entirety and replace with the following:

Bridge deck slabs and approach slabs must meet a 1/8 inch in 10 feet straightedge check made longitudinally and transversely. After the final strike-off of the concrete and as close behind the final strike-off as possible, the Engineer will check the surface with a 10 foot ~~feet~~ straightedge. ~~The surface of concrete bridge deck slabs and approach slabs will be tested with a rolling straightedge that automatically marks the deck surface, in colored dye, the length of deck surface variations which exceed a tolerance of 1/8 inch in 10 feet.~~

The deck slab shall be struck and finished with a self-propelled finishing machine, as specified in Subsection 401.12 (A), and shall be so constructed that, when tested as specified herein, the tolerances specified herein are not exceeded.

Regardless of the overall surface conformity of the bridge deck and approach slab concrete, if surface deviations have a detrimental effect on deck drainage or reinforcement steel cover, appropriate remedial measures to restore any or all of the deck slab surface to the required grades and surface tolerance will be ordered ~~at no additional cost to the Authority~~. When such remedial procedures are ordered, a plan shall be submitted, setting forth the intended limits of the surface restoration and a complete description of the methods, equipment and materials proposed for use.

Following satisfactory completion of the surface restoration measures to the bridge deck slab and/or the approach slab, the affected area shall be retested.

Additional compensation, Extension of Contract Time or other concessions will not be granted for any surface restorations ordered by the Engineer for compliance with the specification.

(1) Ride Quality Test.

After the bridge decks and approach slabs are completed, a qualified Deck Rideability QC Contractor shall perform a Ride Quality Test using the Rainhart Profilograph and a profile index value determined according to GDT 78 which is provided in this specification.

~~High speed profilographs and simulated profilographs will not be permitted as an approved equal.~~

~~A list of potential subcontractors available to perform the ride quality test using the Rainhart Profilograph is as follows:~~

McCartney Construction
331 Albert Reins Rd.
Gadsden, AL 35901
(256) 547-7725 or (563) 528-
1100

Arkansas State Highway
Department
ATTN: Jim Briley
Materials & Test Laboratory
PO Box 2261
Little Rock, AR 72203

MU, Inc.
ATTN: Larry G. Mosher
PO Box 216
Lebanon, TN 37087

Alabama State Highway
Department
ATTN: F. L. Holman, Resident
Engineer
Room 731 - Highway Building
11 S. Union St.
Montgomery, AL 36130

Georgia Department of
Transportation
ATTN: Wouter Gulden
15 Kennedy Dr.
Forest Park, GA 30050
(404) 363-7500

North Carolina Dept. of
Transportation
ATTN: Mr. W. R. Richardson
Materials & Testing Unit
1801 Blue Ridge Rd.
Raleigh, NC 27607

Louisiana Dept. of Transp. &
Development
ATTN: Mr. W. H. Temple
Transportation Research Center
LSU - Gourrier Ave.
Baton Rouge, LA 70808

Oregon State Highway Division
ATTN: Robert W. Kuenzli, Equip. Supt.
Equip. Services Unit
2800 State St.
Salem, OR 97310

South Carolina Dept. of Highways and
Public Transportation
ATTN: R. L. Stewart
1406 Shop Rd.
Columbia, SC 29201

Long Construction Co.
c/o Tom Bailey
1011 Gale Lane
Nashville, TN 37204

Civil Tec, Inc.
ATTN: Brian Colbert
PO Box 3594
Valdosta, GA
(229) 247-5004

Southern Roadbuilders, Inc.
ATTN: Archie F. Carter, Asst. Vice Pres.
PO Box 1129
Augusta, GA 30913

Ballenger Corporation
ATTN: Tony Lovin
PO Box 127
Greenville, SC 29602
(864) 322-2214

Kentucky Transportation Cabinet
ATTN: D. C. Newberry
Trans. Engr. 11
Division of Construction
4th Floor, State Office Building
Frankfort, KY 40622

Rea Construction
Company
6001 Old Dowd Rd.
PO Box 32487
Charlotte, NC 28232
(704) 201-8300

Austin Research Engineers
2604 Dellana Lane
Austin, TX 78746

The Columbus Company
335 Andrews Rd.
PO Box 1828
Columbus, GA 31902

Central Atlantic
Contractors
ATTN: Jerry Issacs
PO Box A
Aberdeen, MD 21001

Tennessee Department of
Transportation
c/o Bob Rorie
Division of Materials & Tests
2200 Charlotte Ave.
Nashville, TN 37203

Colorado Department of Highways
Division of Transportation
Planning
Room 212 - Dennis Donnelly
4201 E. Arkansas Ave.
Denver, CO 80222

Archer-Western
3715 Northside Parkway N4
Bldg. 1100, Suite 550
Atlanta, GA 30291
(770) 306-6490

Highway Profile Services
ATTN: John D. Belknap
PO Box 63
Forsyth, GA
(478) 994-1452

The QC Contractor will conduct the test as follows:

- a) Obtain Profile Index Values for bridge deck slabs and approach slabs.
- b) Obtain profiles in each wheel path (2 feet off lane line) of each lane and in shoulder areas to within 12 inches of the barrier parapet.
- c) Average the profile index values for the bridge deck slab including the approach slabs for each of the left and right wheel path for each lane. The average value must not exceed **15 inch/mile** (as computed by the test equipment) for each lane.
- d) **Localized Slab Requirements** - After the test is complete, correct individual bumps or depressions that exceed 2/10 inch from the blanking band on the profilograph trace. (These are localized areas that the trace has defined during the full length test on the deck and approach slab.)

The deck surface must then meet a 1/8 inch in 10 feet straightedge check made longitudinally and transversely.

The Engineer shall witness all profilograph ~~ph~~ measurements and review/approve all index calculations.

Correct the major and localized areas of the bridge deck and approach slabs identified above that do not pass the Ride Quality Test, as described in Subsection 401.12 (F) (2) "Corrective Work", presented below.

(2) Corrective Work.

After the test described in Subsection 401.12 (F) (1) "Ride Quality Test" has been performed, complete the corrective work, if required, at no cost to the Authority and before doing the final saw cut grooving.

Complete corrective work as follows:

Plane the deck according to Subsection 401.12 (F) (3) "Grind Bridge Deck."

- a) Limit concrete removal by planning so that the final bar cover is not less than the Plan cover minus 1/2 inch (13 mm).
- b) If the final bar cover limits cannot be met, perform the corrective work as directed by the Engineer.
- c) Ensure that the final riding surface complies with this Specification and the requirements for a saw cut grooving finish per Subsection 401.17(F) (3).
- d) If necessary, use a hand grinder to correct bumps with a profile base line of 5 feet (1.5 m) or less.
- e) Have planed ~~decks~~ **surface** retested as described in Subsection 401.12 (F) (1) "Ride Quality Test," to ensure that the ride quality meets the requirements of this Specification.

(3) Grind Bridge Deck.

This work includes grinding concrete bridge decks and approach slabs to provide proper drainage and riding characteristics to the pavement surface. Perform the work according to these Specifications and the Plans. Sawcut grooved finish shall be performed after all of the bridge deck slab **and approach slabs** have been checked for conformance to the specification, and all corrective work has been completed.

- (a) Referenced Documents
Georgia Department of Transportation Test No. 78 (See Appendix H).
- (b) Personnel
Deck Rideability QC Contractor's personnel shall meet the requirements set forth under Subsection 104.06.
- (c) Equipment
 - (1) Grinding Equipment
Use power driven, self-propelled grinding equipment with these characteristics:
 - Diamond blades designed to smooth and texture Portland Cement concrete pavement
 - Effective wheel base of at least 12 feet
 - Pivoting tandem bogey wheels at the front of the machine
 - Rear wheels arranged to travel in the track of the freshly cut pavement
 - Grinding head with the center no further than 3 feet forward from the center of the back wheels

Ensure that the equipment:

- Cuts or planes at least 3 feet wide
- Operates without encroaching on traffic movement outside the work area
- Grinds the surface without causing spalls at cracks, joints, or other locations

Periodically check the equipment to ensure that it is in proper working order, especially the wheel "roundness" on the grinding equipment. Immediately correct "out-of-round" wheels.

(2) Rainhart Profilograph

Use the Rainhart Profilograph to test the ride quality of the surface of concrete bridge decks and approach slabs.

Rainhart Co.

P.O. Box 4533

Austin, TX 78765-4533

Fax: (512)452-9883

Telephone: (800)628-0021

Local Phone: (512)452-8848

Email: sales@rainhart.com

Website: <http://www.rainhart.com/index.html>

(d) Construction

Grind the deck slab and approach slab surface areas that do not conform to smoothness requirements defined under Subsection 401.12 (F)(1)

"Ride Quality Test", or as required to promote drainage.

Grind the surface areas as follows:

- (1) Maintain a constant cross slope between grinding extremities in each lane to ensure that grinding provides positive lateral drainage.
- (2) Grind the entire area designated by the Engineer until the deck slab surfaces of the adjacent sides of transverse joints are in the same plane.
- (3) Texture the deck surface, but do not grind extra depth to eliminate minor depressions.
- (4) Remove grinding residue before it is blown by traffic action or wind. Do not allow residue to flow into gutters, drainage facilities, or across lanes used by public traffic.
- (5) Regrinding
To regrind areas to meet the smoothness or final surface finish:
 - Regrind the entire lane width in the area to be corrected. Regrinding of just a portion of the lane width, such as the wheel paths only, will not be permitted.

H) Acceptance Testing.

Delete this subsection in its entirety and replace with the following:

Acceptance Testing is covered under Subsection 401.12 (F) (1) Ride Quality Test.