



MEMORANDUM

TO: District Engineers **DATE:** November 23, 2009

FROM: Mark A. Marek, P.E.

SUBJECT: Revised Roadway Standards
CRCP(1)-09 and CRCP(2)-09

Changes have been made to the Continuously Reinforced Concrete Pavement standard sheets, in accordance with cost saving measures outlined in the memorandum "Changes to TxDOT's Rigid Pavement Design Procedures" from Mr. Casteel dated November 2, 2009.

The new sheets will be applicable to all new construction projects beginning with the April 2010 letting. If possible, the use of these sheets prior to that date is strongly encouraged. The new standards are available from the Roadway Standards web page in Microstation® "dgn". See <http://www.dot.state.tx.us/business/standardplanfiles.htm>. Please distribute this information to the appropriate district staff and area offices, as well as consulting engineers working on TxDOT projects.

The following represents a summary of the individual sheet changes:

CRCP(1)-09 (One Layer Steel Bar Placement)

The CRCP(1)-09 sheet is a revision of CRCP(1)-03. This standard applies to 6.0 inch to 13.0 inch thick slabs in half-inch increments.

1. Changes for thickness
 - Added 6.0 inch to 7.5 inch slabs.
 - Added 8.5 inch, 9.5 inch, 10.5 inch, 11.5 inch, and 12.5 inch slabs.
2. Changes for Table No.1 Longitudinal Steel
 - Use #5 bars at about 0.68% of steel for 6.0 inch to 7.5 inch slabs.
 - Use #6 bars at about 0.61% of steel for 8.5 inch, 9.5 inch, 10.5 inch, 11.5 inch, and 12.5 inch slabs.
 - No change for 8.0 inch, 9.0 inch, 10.0 inch, 11.0 inch, 12.0 inch, and 13.0 inch slabs (Use #6 bars at about 0.61% of steel).
 - The second spacing "b" at edge or joint has been eliminated. The field steel layout will be based on first spacing "a" and regular spacing "c".
3. Changes for transverse steel size and spacing
 - The transverse steel has been standardized to #5 bars at 48 inch spacing for all the pavement widths and thicknesses.

4. Changes for tie bars size and spacing

- Tie bars are placed at 48 inch spacing for longitudinal contraction joints and at 24 inch spacing for longitudinal construction joints. Use #5 tie bars for 6.0 inch to 7.5 inch thick slabs, and use #6 tie bars for 8.0 inch to 13.0 inch thick slabs.

5. Free Longitudinal Detail

- See concrete barrier standards for anchorage details.

6. Changes for Notes

- General Note 1: Pavements wider than 100 feet without a free longitudinal joint are not covered by this standard.
- General Note 4: Calculated average bar spacing (concrete placement width / number of longitudinal bars) shall conform to Table No. 1 and as specified.
- General Note 6: The saw cut depth for the longitudinal contraction joint shall be one third of the slab thickness.
- General Note 7: When approved by the Engineer, single piece tie bars may be used by inserting into plastic concrete at longitudinal construction joints.
- General Note 8: When tying concrete gutter at a longitudinal joint, the tie bar length or position may be adjusted. Provide 3 inch of concrete cover from the back of gutter to the end of tie bar.
- General Note 10: Omit tie bars located within 18 inch of the transverse construction joints. Use hand-operated immersion vibrators to consolidate the concrete adjacent to all formed joints.
- General Note 11: Obtain the Engineer's written approval if the concrete mix design uses more than 5.5 sacks/cubic yard.
- Transverse Construction Joint, Section x – x: No splices allowed within 10 feet of the joint.
- Longitudinal Contraction Joint, Section z-z: Single piece tie bars should be in same plane as transverse bars for 6.0 inch to 9.5 inch slabs. Single piece tie bars may be placed above longitudinal bars for 10.0 inch to 13.0 inch slabs.
- Free Longitudinal Joint Detail: Asphalt impregnated fiberboard conforming to ASTM D 994.

CRCP(2)-09 (Two Layer Steel Bar Placement)

The CRCP(2)-09 sheet is a revision of CPCR(2)-03. This standard applies to 14 inch and 15 inch thick slabs. The maximum concrete pavement thickness is reduced from 15 inches to 13 inches. Districts should submit designs thicker than 13 inches, including the justification for doing so, to the District Engineer for approval.

1. Changes for Table No.1 Longitudinal Steel
 - The second spacing “b” at edge or joint has been eliminated. The field steel layout will be based on first spacing “a” and regular spacing “c”.
2. Changes for transverse steel size and spacing
 - The transverse steel has been standardized to #5 bars at 48 inch spacing for all the pavement widths and thicknesses.
3. Changes for tie bars size and spacing
 - At longitudinal contraction joints, #6 tie bars are placed at 48 inch spacing for the lower steel mat only.
 - At the longitudinal construction joints, #6 tie bars are placed at 24 inch spacing for both steel mats.
4. Changes for height of steel mats
 - The height of top steel mat has been decreased by 0.5 inch. There are no changes to the height of lower steel mat. The clearance between two mats is reduced from 4 inches to 3.5 inches.
5. Free Longitudinal Detail
 - See concrete barrier standards for anchorage details.
6. Changes for Notes
 - General Note 1: Pavements wider than 100 feet without a free longitudinal joint are not covered by this standard.
 - General Note 4: Calculated average bar spacing (concrete placement width / number of longitudinal bars) shall conform to Table Nos. 1 & 2 and as specified.
 - General Note 6: The saw cut depth for the longitudinal contraction joint shall be one third of the slab thickness.
 - General Note 9: At longitudinal construction joint, multiple piece tie bars shall be placed at 24 inch spacing for both steel mats. When approved by the Engineer, single piece tie bars may be used by inserting into plastic concrete at longitudinal construction joints.
 - General Note 10: When tying concrete gutter at a longitudinal joint, the tie bar length or position may be adjusted. Provide 3 inches of concrete cover from the back of gutter to the end of tie bar.
 - General Note 12: Omit tie bars located within 18 inches of the transverse construction joints. Use hand-operated immersion vibrators to consolidate the concrete adjacent to all formed joints.

- General Note 13: Obtain the Engineer's written approval, if the concrete mix design uses more than 5.5 sacks/cubic yard.
- Transverse Construction Joint, Section x – x: No splices allowed within 10 feet of the joint.
- Free Longitudinal Joint Detail: Asphalt impregnated fiberboard conforming to ASTM D 994.

If you have any questions or need additional information concerning these CRCP standard details, contact Elizabeth Lukefahr of the Construction Division, Materials and Pavements Section, at (512) 506-5858.

Note: Original signed by Mark A. Marek, P.E.

cc: Administration
Audit Office
Bridge Division
Construction Division
Design Division
General Services Division
Maintenance Division
Texas Turnpike Authority Division
Traffic Operations Division
Federal Highway Administration