

IOWA DEPARTMENT OF TRANSPORTATION

To Office Bridges and Structures

Date January 1, 2008

Attention All Employees

Ref No. 521.1

From Gary Novey

Office Bridges and Structures

Subject Method's Memo No. 139 (Deck design LRFD)
Article 5.2.2.4 and 5.2.4 (Bridge Design Manual LRFD)

The Office of Bridges and Structures has updated its bridge deck standards to LRFD and has adopted the following policies for design. These guidelines shall be used on all non-standard deck designs:

1. Unless otherwise specified, the approximate elastic method of analysis (LRFD 4.6.2.1) shall be used with LRFD Table A4-1.
2. The design shall be based on the flexure design requirement (LRFD [9.7.3](#) and 5.7.3). Empirical design will not be allowed.
3. The crack control requirement (LRFD 5.7.3.4) before the 2005 interim shall be used.
4. Nonstandard cantilevers with standard F-section barrier shall be designed using LRFD A13.4. and the values shown below. Please note the M_c value used in design is the average value for the F-section barriers.

Yield line values for F-section barrier rail

Rail rating and condition	R_w kips (kN)	L_c feet (m)	Ave M_c ft-k (kN-m)
TL-4, interior	117 (520)	11.5 (3.510)	13.0 (17.62)
TL-4, end	74 (329)	8.0 (2.438)	13.0 (17.62)
TL-5, interior	128 (569)	16.7 (5.09)	13.9 (18.84)
TL-5, end	133.6 (594)	9.7 (2.96)	13.9 (18.84)

5. The optional cantilever uniform distributed line load of 1.0 k/ft will not be allowed (LRFD 3.6.1.3.4).
6. As a minimum, 5j1 bars should continue to be used at the gutter and the spacing should alternate between the main transverse reinforcing steel. The maximum j bars shall be limited to a no. 6 bar.
7. Clear cover shall be 2 ½ inches for the top reinforcing steel and 1 inches for the bottom steel.

These guidelines shall be used on any LRFD project where deck design is required because of nonstandard cross sections.

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