

**IOWA DEPARTMENT OF TRANSPORTATION**

To Office Bridges and Structures

Date January 1, 2009

Attention All Employees

Ref No. 521.3

From Gary Novey

Office Bridges and Structures

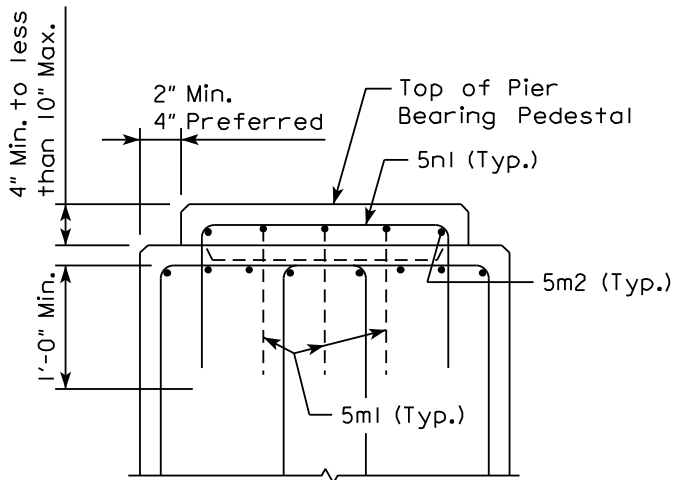
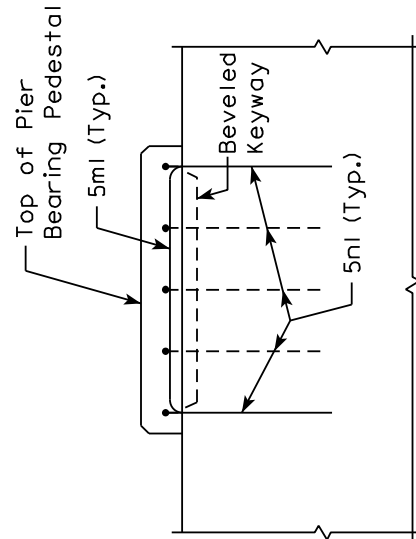
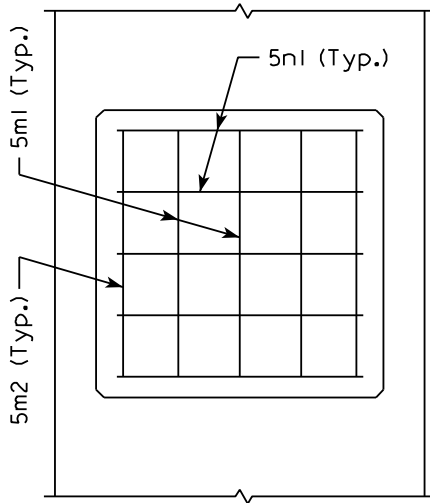
Subject MM No. 196(Pier pedestal design guidelines for aesthetic piers)  
LRFD Bridge Design manual 6.6.4.1.1.2

With the increased use of aesthetic bridge piers, our office has been using more level non-stepped pier caps with individual concrete pedestals to support the beam bearings. To help provide consistent design and details for the pedestal bearing supports when aesthetic piers are used, the following design guidelines have been adopted.

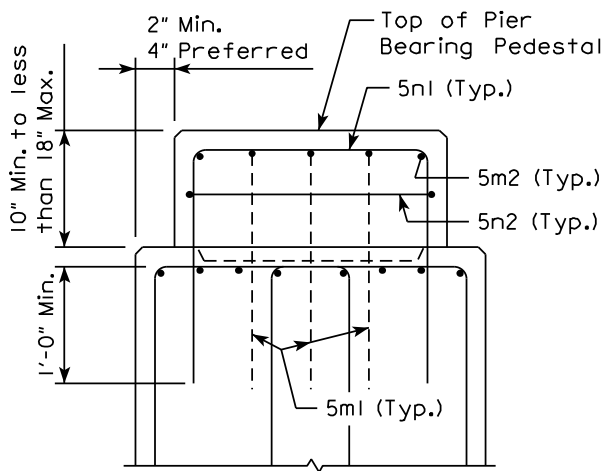
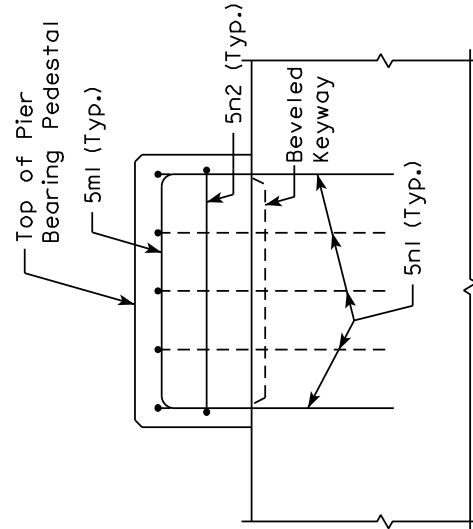
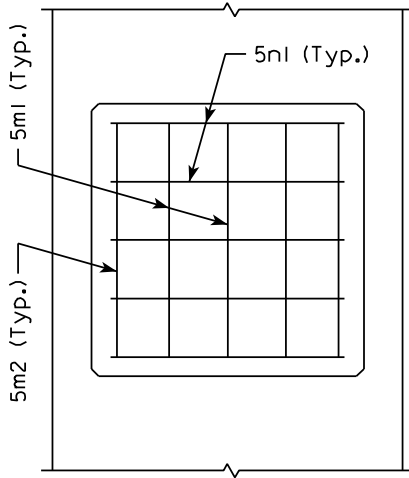
1. Minimum pedestal height at low step shall be 4 inches.
2. For pedestals from 4 inches to less than 10 inches, use 5m1 and 5n1 bars. (see Attachment A)
3. For pedestals from 10 inches to less than 18 inches provide a single tie along with the 5m1 and 5n1 bars (see Attachment B).
4. For pedestals from 18 inches to 24 inches provide two ties along with the 5m1 and 5n1 bars (see Attachment C).
5. Maximum pedestal height shall be 24 inches without special approval from the Section Leader.
6. A horizontal construction joint and keyway are required between the pier cap and pedestal.
7. Minimum bearing edge distance should meet the same guidelines for pier caps {LRFD BDM Figure 6.6.4.1.1.1-1}.
8. The preferred set back from the pier cap vertical face is 4 inches with a minimum set back of 2 inches.
9. If possible the pedestals shall be square, but rectangular shapes may be required for skewed piers.
10. The vertical pedestal bars shall be embedded into the cap a minimum of 12 inches past the main cap reinforcing steel and shall be tied and in place prior to the cap concrete placement.
11. For fixed bearings the anchor bolts should extend into the cap concrete a minimum of 1'-0 for 1 ¼ inch diameter anchor bolts and 1'-3 for 1 ½ inch diameter anchor bolts.
12. For expansion bearings, the anchor bolts do not need to extend into the pier cap and may end in the pedestal concrete; however if guides are used to prevent lateral movement, the anchor bolts for the guides shall meet the same embedment requirements as the fixed bearings in No. 11 above.

If you have any questions, please check with me.

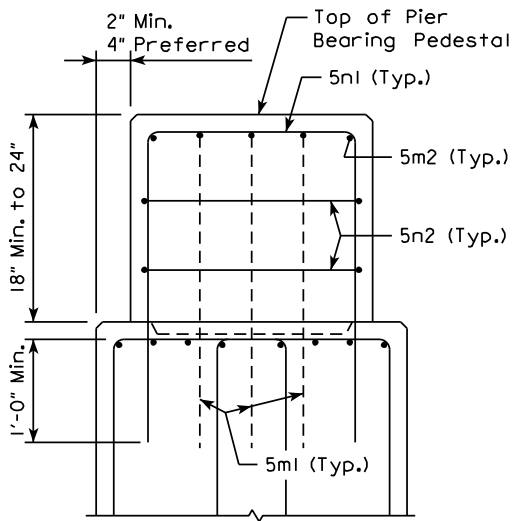
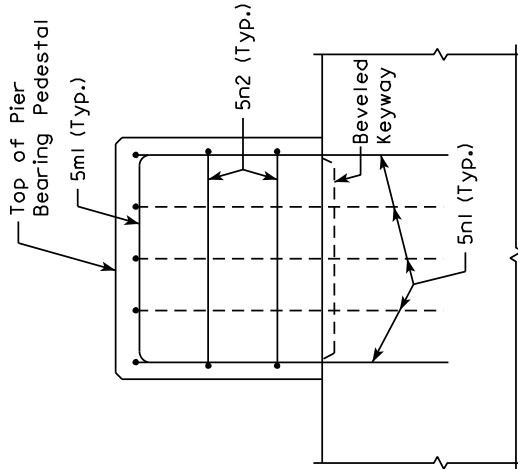
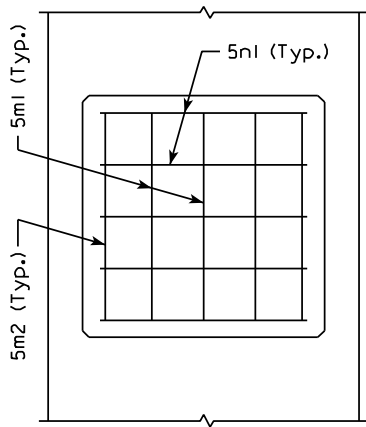
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PIER BEARING PEDESTAL



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