

Bridges and Structures

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All Employees

521.1

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Gary Novey

MM No. 18 (Minimum Steel for Column Design)

For design of compression members AASHTO Standard Specification article 8.18.1.2 allows for a reduction of the gross section as follows:

“when the cross section is larger than that required by consideration of loading, a reduced effective area may be used”

Based on the reduced effective section the designer can then calculate the minimum reinforcing required using one percent of the reduced section.

However, a question has been raised whether there is a minimum area of reinforcing that is required based on the gross area of the section even if a reduced effective area is used. ACI 318 10.8.4 requires that the minimum area of steel not be less than 0.5 percent of the gross area of the concrete section even if a reduced section is used. In addition, the new AASHTO LRFD Specification 5.7.4.2 requires the area of reinforcing be limited to a minimum of 0.7 percent of the gross area.

Based on the new requirements in the LRFD Specification, the office policy will be to limit the minimum area of steel to 0.7 percent of the gross area of the column section.

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