
CLOSURE

AISC LRFD Rules for Block Shear in Bolted Connections—A Review

Paper by GEOFFREY L. KULAK and GILBERT Y. GRONDIN
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The writers of the Discussion on “AISC LRFD Rules for Block Shear in Bolted Connections—A Review” state that Epstein (1992) reports five tests for which block shear was the sole mode of failure, and these are listed by the writers in their Table 1.

First, each of Epstein’s reported results is the average of three individual tests. Thus, there were a total of 15 tests that involve block shear, not five. This was clearly pointed out in the authors’ paper, “AISC LRFD Rules for Block Shear in Bolted Connections—A Review”. Second, in these 15 tests, there was only one case, Epstein’s Connection No. 11, in which the bolts (placed on two lines) were not staggered. It was the decision of the authors to not include connections in which the holes were staggered because this introduces another parameter into the strength equations. This also is clearly stated in the paper. The authors’ position remains the same—only one data set (Epstein’s Connection No.11, three individual tests) should be used in the analysis and evaluation of block shear models for angles.

The second point made by the writers of the Discussion is that although the authors used the gage distances oriented as shown in Epstein’s Figure 1, they should have used the opposite orientation. The writers state that Epstein’s figure

is wrong, and that this is clear from the photographs of failed specimens, Epstein’s Figure 3. The authors observe that no Erratum to the Epstein paper was published.

There are three citations in the Epstein paper (Epstein, 1992) for the gage orientation: Figure 1, Figure 3 (photographs), and reference to use of “standard gages.” The first of these, which is what the authors used, appears to be in contradiction to the other two. It is not appropriate for the authors to “correct” the Epstein paper, but if the gage dimensions shown in Figure 1 are taken as measured from the heel of the angle and not from the toe, as shown in Figure 1, then the Test/LRFD ratio is 0.98 and the Test/Proposed ratio is also 0.98. This is a considerable improvement over the results calculated previously.

[*Editor’s Note:* An erratum to the paper “An Experimental Study of Block Shear Failure of Angles in Tension” by Howard I. Epstein is being published in this 4th Quarter 2002 issue of the *Engineering Journal*.]

REFERENCES

- Epstein H.I. (1992), “An Experimental Study of Block Shear Failure of Angles in Tension”, *Engineering Journal*, AISC, Second Quarter, Vol. 29, No. 2, pp. 75-84.