IF YOU'VE EVER ASKED YOURSELF . WHY? about something related to structural steel design or construction, *Modern Steel Construction's* monthly Steel Interchange column is for you! Send your questions or comments to solutions@aisc.org.

KL/r M d d S . -A .

A question and answer on this subject appeared in the January 2008 Steel Interchange (reprinted below). LeRoy Lutz, a member of the AISC Specification Task Committee covering the design of members, was kind enough to provide the following supplementary discussion pertaining to the design of single-angles: Single-Leg Angles per E5.

This is a response to the the heE3ḃ e gFp5 *S* *a* in the

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e *KL/* (i.e. *L/*

$_z$) calculated from (a) would be 86.2 and from (b) would be 75.2. The axial load design at these values of slenderness would account for strength reduction based on the load's eccentricity reduced some by the end restraint (as compared to a pinned-end member).

2) For an L3×3×¼ equal-leg angle with $L/\ _z$ of 160 (and *L/* is 101), *KL/* (i.e. $L/\ _z$) calculated from (a) would be 158 and from (b) would be 146. The axial load design at these values of slenderness account for a slight strength increase due to the end restraint and reduction based on the load's eccentricity (as compared to a pinned-end member).

L R . L

Original question/answer from the January 2008 Steel Interchange:

For a single-angle compression member, I followed AISC specification section E5 to calculate the modified *KL/r*. I also calculated KL/r_z, and it turns out to be greater than *KL/r* modified. Should I use the larger of the two (*KL/r* modified, or KL/r_z) in section E3?

If you are in compliance with E5 (including attaching the angle using the longer leg) then you can use the limits on $L/\ _z$ that are provided at the ends of the both sections (a) and (b). In the first case the limit is $0.95L/\ _z$ and in the second case it is $0.82L/\ _z$. In essence, with your condition, you are still designing for $KL/\ _z$ but with a *K* value of less than 1.0 because of the higher end restraints.

A a G , *P.E.*

F a Ca ac C a .

Why are the maximum strong and weak axis bending stress values for channels limited to $0.6F_y$ and $0.66F_y$ respectively?