

Steel Quiz, a monthly feature in *Modern Steel Construction*, allows you to test your knowledge of steel design and construction. Answers can generally be found in the *LRFD Manual of Steel Construction*, 2nd edition, but other industry standards are often referenced.

Questions and answers for this month's *Steel Quiz* were submitted by **Jan Sheehan** on behalf of the **Steel Joist Institute**.

If you or your firm are interested in submitting a *Steel Quiz* question or column, please contact Keith Grubb at grubb@blacksquirrel.net

Questions

1. Will a type "R" top chord extension support more load than a type "S" extension?
2. When is it necessary for the specifier to provide a loading diagram for the joist manufacturer?
3. Why does the SJI recommend that all dead loads be in-place prior to the field attachment of a joist girder bottom chord to the column?
4. Is "uplift bridging" required for bottom-bearing joists?
5. What is the correct method for the specifying professional to use to avoid chord member bending stresses resulting from concentrated loads applied at other than top or bottom chord panel points?
6. Why are bolted connections required for the bearing seat when joists and/or joist girders are located at columns?
7. Why is bolted diagonal bridging required for certain joists?
8. Is it a requirement that all bridging rows be anchored during the erection process?

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Answers

1. Yes. The type “R” extension has a greater section modulus and a greater moment of inertia.
2. A loading diagram must be provided to the joist manufacturer whenever other than a constant uniform loading is required.
3. SJI recommends that all dead loads be in-place prior to the field attachment of a joist girder bottom chord to the column to avoid the additional stresses resulting from dead load moments.
4. No, “uplift bridging” is not required for bottom-bearing joists because the first panel point is already braced through the attachment of the bottom chord to the support.
5. There are two methods for the specifying professional to use to avoid chord member bending stresses resulting from concentrated loads applied at other than top or bottom chord panel points: (1) Note on the structural drawings that web struts be field applied for concentrated loads not occurring at joist panel points, or (2) specify the exact location for the concentrated load(s) on the structural drawings and include a note instructing the joist manufacturer to provide shop applied struts.
6. This is an OSHA requirement and the intent is to aid the erector in stabilizing the structural frame.
7. Bolted diagonal bridging is required to aid in stabilizing longer joists during the erection process.
8. Yes. It is a requirement that all bridging rows be anchored during the erection process.

Correction

In the June 2001 *Steel Quiz*, there is a typo in question 5: The actual KL/r is 133, not 130 as printed.