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.

If you or your firm are interested in submitting a Steel Quiz question or column, please contact:

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Questions

1. Where can you find information on the metric section properties of steel shapes used in the U.S.?

2. True or False: A minimum “stickout” of 2 threads beyond the nut is required for a properly installed bolt.

3. When some of, but not all of, the elements of the cross-section of a tension member are connected, the effective net area may be less than the total net area due to a phenomenon known as....?

4. To what standards must rolled steel shapes conform?

5. True or False: A 1/16” gap is permissible in compression bearing joints such as column splices and bearing stiffeners.

6. What is the definition of “backgouging”?

7. What two AISC documents are available as free downloads at the AISC web site?

8. Name the three types of stresses usually considered in a member subject to torsion.

9. What is the AWS definition of a plug weld?

10. What grades may be specified for ASTM F1554 anchor rods?

See next page for answers
Steel Quiz

Answers

9. A plug weld is “a weld made in a circular hole in one member of a joint fusing that member to another member. A fillet-welded hole is not to be construed as conforming to this definition.”

10. ASTM F1554 is available in grades 36, 55, and 105 ksi.


2. False. Neither the AISC LRFD Specification nor the RCSC Specification for Structural Joints Using ASTM A325 or A490 Bolts contains such a requirement.


4. ASTM A6/A6M specifies the cross-sectional and overall tolerances that are acceptable for rolled steel shapes.

5. True. The LRFD Specification, section M4.4, states that “Lack of contact bearing not exceeding a gap of 1/16″...is permitted.”

6. According to AWS D1.1-2000, backgouging is “the removal of weld metal and base metal from the weld root side of a welded joint to facilitate complete fusion and complete joint penetration upon subsequent welding from that side.”


8. The three stresses are: pure torsional shear stresses, shear stresses due to warping, and normal stresses due to warping.