### **Steel Quiz**

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, 2<sup>nd</sup> 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:

Keith A. Grubb, P.E., S.E. Modern Steel Construction One East Wacker Dr., Suite 2406 Chicago, IL 60601 fax: 312/670-0341 email: grubb@blacksquirrel.net

It's time for your fall midterm exam. Get ready; get set; go!

### **Questions**

- 1. For a 3/4" A490 bolt, what would be the size of a short-slotted hole?
- 2. What are the two meanings of the acronym HSS?
- 3. Which of the following is NOT an abbreviation for a welding procedure:
  - a. GMAW
  - b. SMAW
  - d. MEOW
- 4. What is the identification color for A572 Grade 50 steel, according to ASTM A6/A6M?
- 5. What is the φ-factor for tension rupture?
  - a. 0.65
  - b. 0.75
  - c. 0.85
- 6. True or False: The AISC Specification requires that bolts be spaced at 3" o.c. minimum.
- 7. True or false: Structural steel must be shop primed to receive spray-applied fire protection.

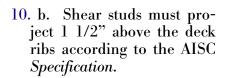
- 8. The AISC *Manual* recommends what weld size for the plate-to-web weld (both sides) of a single plate shear connection:
  - a. 1/2"
  - b. 3/4 of the plate thickness
  - c. 3/4 of the supporting beam web thickness
- 9. What color are the AISC Seismic Provisions (1997)?
- 10. Shear studs must project how far above the ribs of a composite slab?
  - a. 3/4"
  - b. 1-1/2"
  - c. 2"

### Turn page for answers

# **Steel Quiz**

### **Answers**

- 1. For a 3/4" bolt, a short slotted hole would be 13/16" by 1".
- 2. Hollow Structural Section, or High Strength Steel.
- 3. c. (Unless your CWI likes catnip and yarn)
- 4. Green and yellow, usually painted on the ends of the steel sections, identifies it as A572 grade 50.
- 5. b. For tension rupture, the φ-factor is 0.75.
- 6. False. The minimum center-to-center spacing for bolts is 2 2/3  $d_b$ , although  $3d_b$  is preferred.
- False. Spray-applied fire protection won't properly adhere to standard shop primers.
- 8. b. 3/4 of the shear plate thickness is the recommended weld size. This guarantees that the plate will yield before the weld will fail.
- 9. The 1997 AISC Seismic Provisions are this color:



## What do you think?

What would you like to see in Steel Quiz?

Send your ideas and comments to

grubb@blacksquirrel.net