

*Steel Quiz*, a monthly feature in *Modern Steel Construction*, allows you to test your knowledge of steel design and construction. All references to LRFD specifications pertain to the 1999 LRFD Specification for Structural Steel Buildings, available as a free download at

[www.aisc.org/lrfdspec](http://www.aisc.org/lrfdspec)

ASD references pertain to the 1989 ASD Specification for Structural Steel Buildings. Where appropriate, other industry standards are also referenced.

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

**Steel SolutionsCenter**

One E. Wacker Dr., Suite 3100  
Chicago, IL 60601  
tel: 866.ASK.AISC  
fax: 312.670.9032

[solutions@aisc.org](mailto:solutions@aisc.org)

This month's *Steel Quiz* on material specification was written by the Steel Solutions Center at AISC.

1. What is the usual material specification for steel channels?  
A. ASTM A992  
B. ASTM A36  
C. ASTM A500  
D. ASTM A572 grade 50
2. What is the usual material specification for steel piles (HP-shapes)?  
A. ASTM A992  
B. ASTM A36  
C. ASTM A500  
D. ASTM A572 grade 50
3. What is the usual material specification for steel angles?  
A. ASTM A992  
B. ASTM A36  
C. ASTM A500  
D. ASTM A53
4. What is the usual material specification for wide flange shapes?  
A. ASTM A992  
B. ASTM A36  
C. ASTM A500  
D. ASTM A572 grade 50
5. What is the usual material specification for steel pipe?  
A. ASTM A992  
B. ASTM A53 grade B  
C. ASTM A500  
D. ASTM A501
6. What is the proper material specification for shear studs?  
A. ASTM A992  
B. ASTM A36  
C. ASTM A500  
D. ASTM A108
7. What is the usual material specification for anchor rods?  
A. ASTM A992  
B. ASTM D210  
C. ASTM F1554  
D. ASTM A307
8. What is the usual material specification for steel hollow structural sections?  
A. ASTM A992  
B. ASTM A36  
C. ASTM A500  
D. ASTM A501
9. What is the usual material specification for steel S- and M-shapes?  
A. ASTM A992  
B. ASTM A36  
C. ASTM A500  
D. ASTM A572 grade 50
10. What is the typical material specification for washers used with ASTM A325 bolts?  
A. ASTM F436  
B. ASTM A36  
C. ASTM D210  
D. ASTM A572 grade 50

**TURN PAGE FOR ANSWERS**

# STEEL QUIZ

## ANSWERS

1. B. ASTM A36 is still appropriate, although the reader should be aware that some mills have started rolling ASTM A992 channels.
2. B or D. It's a toss-up. ASTM A36 has been the dominant selection historically, but ASTM A572 grade 50 is becoming very common.
3. B. ASTM A36.
4. A. ASTM A992. This is a 50 ksi material.
5. B. ASTM A53 grade B.
6. D. ASTM A108.
7. C. ASTM F1554. This can be specified to Grades 36, 55, or 105.
8. C. ASTM A500, Grades B or C.
9. B. ASTM A36.
10. A. ASTM F436.

Watch for an entire article on properly specifying materials in the January 2004 issue of *Modern Steel Construction*.

Confused about the differences between "tubes," HSS and Pipe? Here are just a few of the the frequently asked questions and answers available at [www.aisc.org/faq](http://www.aisc.org/faq):

### FAQ 1.4.6. What is the difference between a round hollow structural section (HSS) and a pipe?

Steel pipe and round HSS are manufactured to meet different ASTM standards. Steel pipe are ASTM A53 grade B ( $F_y = 35$  ksi): proper designations are Std., x-strong or xx-strong; for example, Pipe 6 Std for a 6" standard-thickness pipe column.

Round HSS are usually ASTM A500 grade B ( $F_y = 42$  ksi) or grade C ( $F_y = 46$  ksi). They are available in cross-sections matching each of the cross-sections for ASTM A53 grade B steel pipe. For example, an HSS 6.625×0.280 has the same dimensional properties as a Pipe 6 Std. Additionally, ASTM A500 HSS can be obtained in many more sizes with periphery not exceeding 64" and wall thickness not exceeding  $\frac{5}{8}$ ".

### FAQ 1.4.7. What is the difference between a tube shape (TS) and hollow structural section (HSS)?

Structurally, there is no difference. The Steel Tube Institute, an organization representing the manufacturers of hollow structural sections, initiated the change from "Tube" to "HSS" in 1997 to conform to their designation practices. Thus, "TS" is simply an outdated way to specify "HSS." ★