

14. Complete the statement. _____ is especially critical for beams with short spans and large loads.

- A. Deflection
- B. Horizontal shear
- C. Flexural stress
- D. Bending moment

15. Select the incorrect statement.

- A. Most structural lumber is softwood.
- B. Wood members shrink when drying, with the greatest amount of shrinkage occurring perpendicular to the grain.
- C. Wood continuously submerged in water should be treated with preservatives to prevent decay.
- D. Most designs do not consider thermal expansion and contraction of wood members.

16. The maximum moment in a select structural Douglas Fir roof beam is 25,000 foot-pounds. What is the required section modulus?

- A. 187.5 inches³
- B. 150 inches³
- C. 156.25 inches³
- D. 184.6 inches³

17. A sawn floor beam spans 24 feet. What is the maximum recommended allowable deflection limit for live load only, and for total load?

- A. 0.80 inches for live load, 1.20 inches for total load
- B. 1.20 inches for live load, 1.60 for total load
- C. 0.67 inches for live load, 1.00 inches for total load
- D. Deflection is not limited

18. An 8 x 8 select structural Douglas Fir column is 20 feet long. How much axial load can it safely support?

- A. 21,656#
- B. 33,398#
- C. 26, 367#
- D. 64,688#

19. Select the lightest column of ASTM A36 steel which can safely support an axial load of 250 kips. The unsupported length is 20 feet and $K = 1.0$

- A. W12 x 65
- B. 10" x 10" x 3/8" tube
- C. 10" x 10" x 1/2" tube
- D. 12" round standard pipe