3.7-5 What size A36 threaded rod is required for member *AB,* as shown in Figure P3.7-5? The load is a service live load. (Neglect the weight of member *CB*.)

a. Use LRFD.

b. Use ASD.

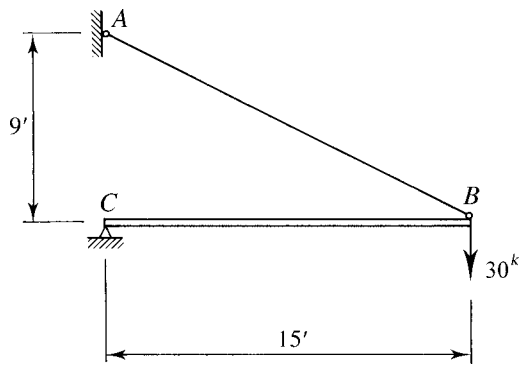

FIGURE P3.7-5

3.7-6 A pipe is supported at 12-foot intervals by a bent, threaded rod, as shown in Figure P3.7-6. If an 8-inch-diameter standard weight steel pipe full of water is used, what size A36 steel rod is required?

a. Use LRFD.

b. Use ASD.

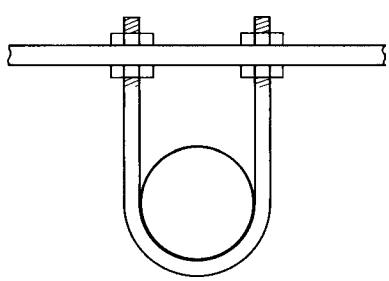

FIGURE P3.7-6

Tension Members in Roof Trusses

3.8-1 Use A992 steel and select a structural tee for the top chord of the welded roof truss shown in Figure P3.8-1. All connections are made with longitudinal plus transverse welds. Assume a connection length of 12 inches. The spacing of trusses in the roof system is 15 feet. Design for the following loads.

Snow: 20 psf of horizontal projection

Roofing: 12 psf

MC8 × 8.5 purlins

Truss weight: 1000 lb (estimated)

a. Use LRFD.

b. Use ASD.

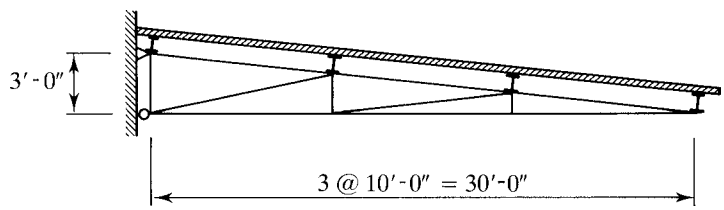

FIGURE P3.8-1

3.8-2 Use ASD and select single-angle shapes for the web tension members of the truss loaded as shown in Figure P3.8-2. The loads are service loads. All connections are with longitudinal welds. Use A36 steel and an estimated shear lag factor, U, of 0.85.

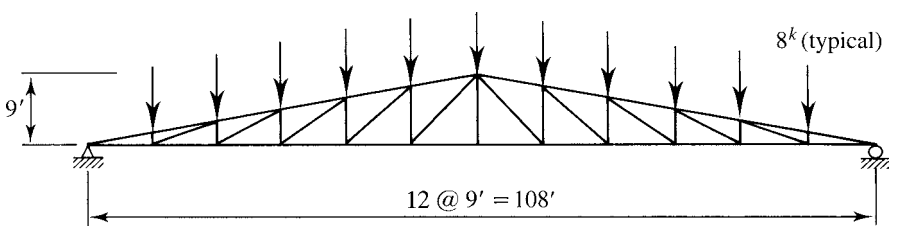

FIGURE P3.8-2

3.8-3 Compute the *factored* joint loads for the truss of Problem 3.8-2 for the following conditions.

Trusses spaced at 18 feet

Weight of roofing = 8 psf

Snow load = 20 psf of horizontal projection

W10 × 33 purlins located only at the joints

Total estimated truss weight = 5000 lb

3.8-4 Use LRFD and design the tension members of the roof truss shown in Figure P3.8-4. Use double-angle shapes throughout and assume $\frac{3}{8}$-inch-thick gusset plates and welded connections. Assume a shear lag factor of $U = 0.80$. The trusses are spaced at 30 feet. Use A36 steel and design for the following loads.