

FIGURE P3.6-3

- 3.6-4** Select an S shape for the tension member shown in Figure P3.6-4. The member shown will be connected between two plates with eight $\frac{7}{8}$ -in. diameter bolts. The service dead load is 216 kips, the service live load is 25 kips, and the length is 22 ft. Use A36 steel.
- Use LRFD.
 - Use ASD.

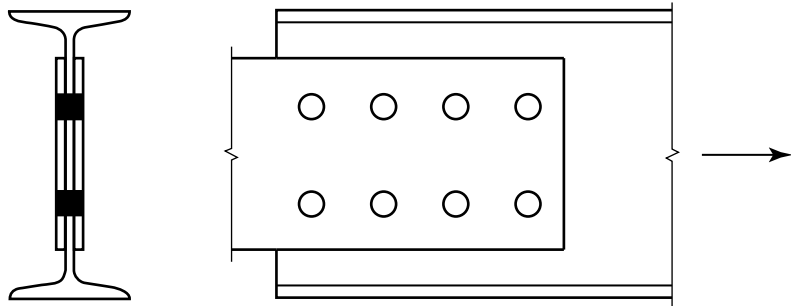


FIGURE P3.6-4

- 3.6-5** Choose a pipe to be used as a tension member to resist a service dead load of 10 kips and a service live load of 25 kips. The ends will be connected by welding completely around the circumference of the pipe. The length is 8 feet.
- Use LRFD.
 - Use ASD.
- 3.6-6** Use LRFD and select an American Standard Channel shape for the following tensile loads: dead load = 54 kips, live load = 80 kips, and wind load = 75 kips. The connection will be with two 9-in.-long longitudinal welds. Use an estimated shear lag factor of $U = 0.85$. Once the member has been selected, compute the value of U with Equation 3.1 and revise the design if necessary. The length is 17.5 ft. Use $F_y = 50$ ksi and $F_u = 65$ ksi.

Threaded Rods and Cables

- 3.7-1** Select a threaded rod to resist a service dead load of 43 kips and a service live load of 4 kips. Use A36 steel.
- Use LRFD.
 - Use ASD.

- 3.7-2** A $W16 \times 36$ is supported by two tension rods AB and CD , as shown in Figure P3.7-2. The 30-kip load is a service live load. Use load and resistance factor design and select threaded rods of A36 steel for the following load cases.
- The 30-kip load cannot move from the location shown.
 - The 30-kip load can be located anywhere between the two rods.

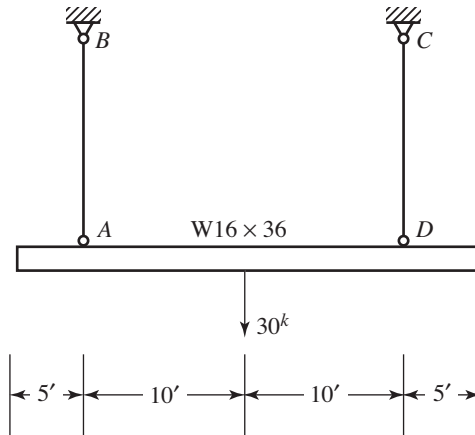


FIGURE P3.7-2

- 3.7-3** Same as problem 3.7-2, but use allowable *stress* design.
- 3.7-4** As shown in Figure P3.7-4, members AC and BD are used to brace the pin-connected structure against a horizontal wind load of 10 kips. Both of these members are assumed to be tension members and not resist any compression. For the load direction shown, member AC will resist the load in tension, and member BD will be unloaded. Select threaded rods of A36 steel for these members. Use load and resistance factor design.

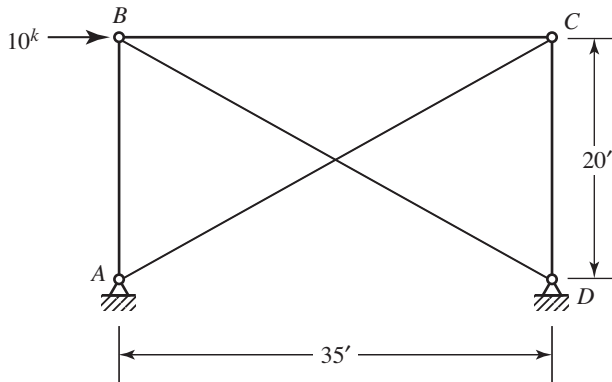


FIGURE P3.7-4