

A $\frac{3}{4}$ -in. thick steel bar, to be used as a beam, is welded to a vertical support by two 2-in. fillet welds with a leg length of $\frac{5}{16}$ -in. on the top and bottom edge as illustrated. Determine

- The critical stress location in the welds
- The maximum force F with a safety factor of 2 if the allowable shear stress in the welds is 20 ksi.

