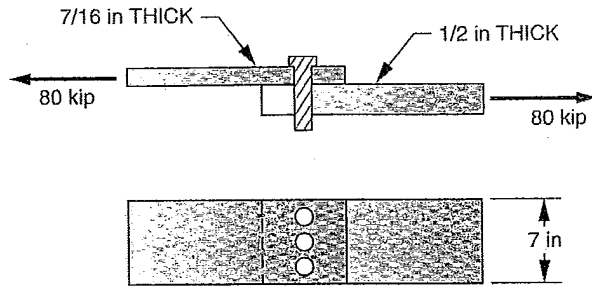


Name:

- The connection shown below is pulled on with 80 kips of force. Calculate the shear stresses that will be developed in the $\frac{3}{4}$ " diameter bolts. Calculate the tensile stress that exists in both plates.



- A circular steel bar is 50mm in diameter and 5m long. A force, P , is applied that stretches the bar 75mm. If the bar were made from aluminum instead of steel, what force would make the bar stretch the same amount? $E_s = 210,000\text{MPa}$, $E_a = 70,000\text{MPa}$.
- A tension test is performed on a $\frac{1}{2}$ " diameter specimen with the results shown below. If the gauge length was 2", plot the stress-strain curve, calculate the modulus of elasticity, and determine the yield stress using the 0.2% offset method shown.

Load (lb)	Deformation (inches)
0	0
1500	0.0003
3000	0.0006
4500	0.0009
6000	0.0013
7500	0.0017
9000	0.0022
10500	0.0027
11000	0.0035
12000	0.0045
13000	0.0059
13600	0.0076

Note:
 Use excel for calculation and plotting the curves.
 Hand calculation will not be accepted.