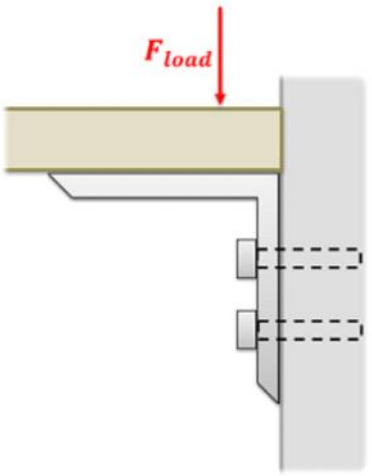
Problem 2

Two quarter inch diameter steel bolts with a shearing strength of 50 ksi are used to support a bracket as shown to the right. Assuming a safety factor of 2, what is the maximum load that should be allowed for the bracket as designed?



$$\tau = 50{,}000 \frac{lbs}{in^2} = \frac{F_{fail}}{(2)(\pi)(.125in)^2}$$

$$F_{fail} = 4909 \text{ lbs}$$

$$F.S. = 2 = \frac{F_{fail}}{F_{allowed}}$$

$$\boxed{F_{allowed} = 2454 \text{ lbs}}$$