

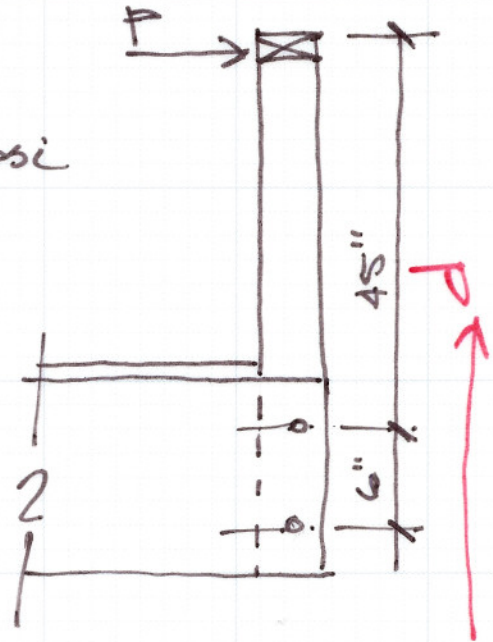
THE DIAGRAM SHOWS A WOOD POST IN A BALLSTRADE.

WHAT IS THE ALLOWABLE LOAD P , BASED ON THE

BENDING CAPACITY OF THE POST.

$$S = 7.15 \text{ in}^3$$

F_b = ALLOW BENDING STRESS = 1,100 psi



① Calculate the moment capacity of the post

② Calculate the load P that will produce the moment equal to the capacity of the post in step 1.

① $f_b = M/S \Rightarrow$ REARRANGE TO $M = (F_b)(S) = (1,100 \text{ psi})(7.15 \text{ in}^3)$
 $= 7,865 \text{ #-IN}$

① A - CONVERT MOMENT FROM #-IN TO K-IN
 $\Rightarrow 7,865 \text{ #-IN} / 1000 \text{ #/KIP} = 7.865 \text{ K-IN}$

② Now find the force P that will equal 7.865 K-IN

$$M = (F) \cdot d \Rightarrow \text{REARRANGE} \Rightarrow F = M/d$$

THIS IS THE FORCE WE ARE SOLVING FOR

$$F = M/d = \frac{7.865 \text{ K-IN}}{45''}$$

← LEVER ARM

$$F = 0.175 \text{ KIPS}$$

Project: NCARB #27

Address:

Job No.:

Date: 4/2/08

Drawn By: HMM

PREPARE

Planning . Education . Architecture . Engineering

1808 Woodfield Drive, Suite 202, Savoy, IL 61874
Ph: (217) 356-0086 • Fax: (217) 356-0088
www.prepa-r-e.com

Seal

Sketch No.