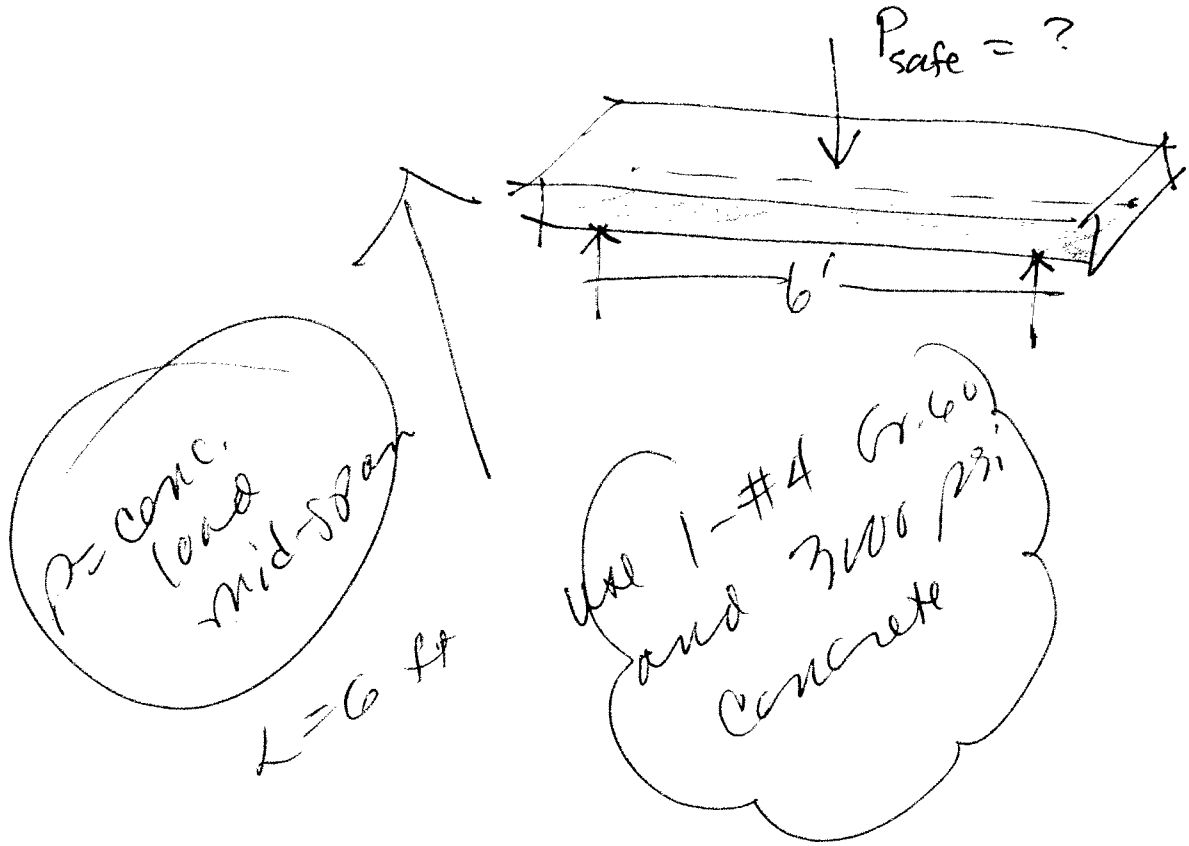


3. Determine the corresponding Safe load P (P_{safe}) using the factors on Ambrose p. 377 assuming the beam self weight to be the only Dead load and all of P to be occupancy Live load. If the reinforcing ratio fall outside the min. – max. limits I still want you to do the calc but state boldly with your answer if the amount of reinforcement is a violation of Code.



Problem 3

now let's calc the P_{safe} for
3000 psi, 1-#4 Gr. 60 bar -
our beam laying flat (4x5)

let factored load = factored strength

Solve for P

call it P_{safe}

$$M_u = 1.2 \frac{wL^2}{8} + 1.6 \frac{PL}{4} = 0.9 M_{ult}$$

$$= 1.2 \frac{\overset{w_{s.w.} \rightarrow 46.7}{(211)}(6)^2}{8} + 1.6 \frac{(P)6ft}{4} = 0.9(2688)$$

problem 2
↓

$$= \frac{252}{1139} 16-ft + 2.4P = 2419 16-ft$$

$$P = \frac{(2419 - \frac{252}{1139}) 16-ft}{2.4 ft} = \frac{903}{533} 16$$

$P_{safe} = \frac{900}{530} 16$ not too much -
maybe 3 linebackers.