#Jenny

Finally I get this ebook, thanks for all these I can get now!

#Rio

Cool! I'am really happy

#Markus Jensen

I did not think that this would work, my best friend showed me this website, and it does! I get my most wanted eBook

#Hun Tsu

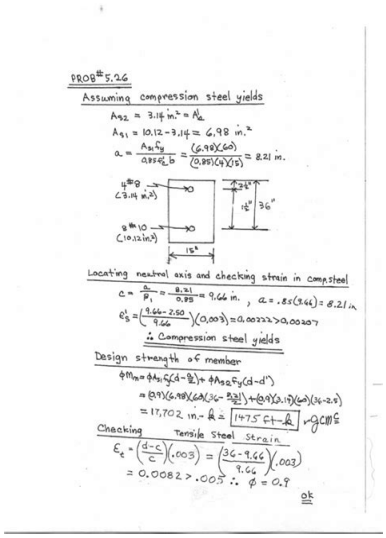
wtf this great ebook for free?!

#Che Salsa

My friends are so mad that they do not know how I have all the high quality ebook which they do not!

#Diego Butler

so many fake sites. this is the first one which worked! Many thanks


PROB#5.26

Assuming compression steel yields

$A_{s2} = 3.14\ in^2 = A'_s$

$A_{s1} = 10.12 - 3.14 = 6.98\ in^2$

$a = \frac{A_{s1} f_y}{0.85 f'_c b} = \frac{(6.98)(60)}{(0.85)(4)(15)} = 8.21\ in.$

4#9 (3.14 in²)

8#10 (10.12 in²)

2.5" 12" 36" 15"

Locating neutral axis and checking strain in comp. steel

$c = \frac{a}{\beta_1} = \frac{8.21}{0.85} = 9.66\ in.$, $a = .85(9.66) = 8.21\ in.$

$\varepsilon'_s = \left(\frac{9.66 - 2.50}{9.66}\right)(0.003) = 0.00222 > 0.00207$

∴ Compression steel yields

Design strength of member

$\phi M_n = \phi A_{s1} f_y (d - \frac{a}{2}) + \phi A_{s2} f_y (d - d')$

$= (.9)(6.98)(60)(36 - \frac{8.21}{2}) + (.9)(3.14)(60)(36 - 2.5)$

$= 17,702\ in.\text{-}k = \boxed{1475\ ft\text{-}k}$ vgcmf

Checking Tensile Steel Strain

$\varepsilon_t = \left(\frac{d - c}{c}\right)(.003) = \left(\frac{36 - 9.66}{9.66}\right)(.003)$

$= 0.0082 > .005$ ∴ $\phi = 0.9$ ok

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