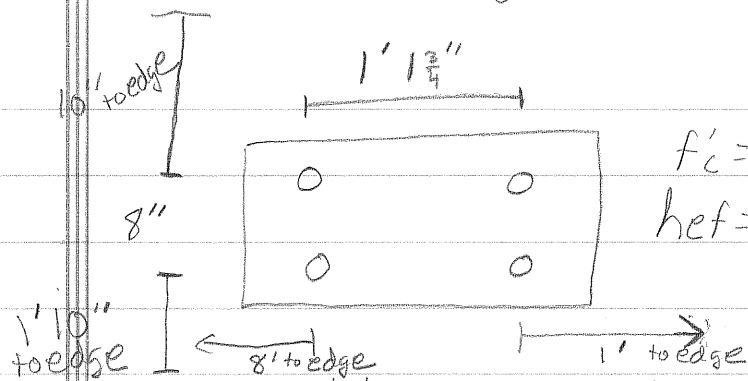


Break Out Calcs

9-29-09



$f'_c = 2500 \text{ psi}$; see ACI

$h_{ef} = 4.75"$? 318-05

D. 5.2

$$N_{cb} = \frac{A_{Nc}}{A_{Nc0}} (\psi_{ec} N) (\psi_{ed} N) (\psi_{cn}) (\psi_{cp} N) N_b$$

$$N_b = 17 \cdot \sqrt{2500} \cdot 4.75^{1.5} = 8,799 \text{ psi} \Rightarrow 8.8 \text{ K}$$

$$A_{Nc0} = 9 h_{ef}^2 = 9 \cdot 4.75^2 = 203 \text{ in}^2$$

$$A_{Nc} = (2 \cdot 1.5 \cdot 4.75 + 13.75) (2 \cdot 1.5 \cdot 4.75 + 8)$$

$$A_{Nc} = 640 \text{ in}^2$$

$A_{Nc} \leq 4 A_{Nc0}$
OK

$$N_{cb} = \frac{640}{203} \cdot 1 \cdot 1 \cdot 1.4 \cdot 1 \cdot 8.8 = 38.8 \text{ K}$$