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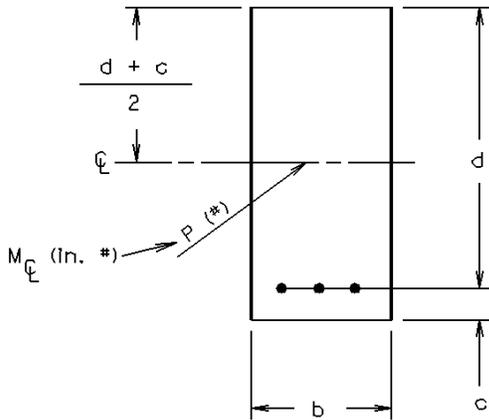
CHAPTER 8

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* Indicates 11 x 17 sheet; all others are 8½ x 11.

This chapter is under development and will be revised at a later date.

Data in this chapter is provided for use until revisions are complete.



$$d = \frac{\sqrt{M_u + \frac{1}{2}P(d-c)}}{\left(\frac{nf_c}{f_s + nf_c}\right) \sqrt{\frac{b}{6n} (3f_s + 2nf_c)}}$$

$$A_s = \frac{nf_c^2 bd}{2(f_s + nf_c) f_s} - \frac{P}{f_s}$$

$$d_{\text{actual}} \geq d$$

dimensions b, c and d in inches; f_c and f_s in psi

$f'_c = 4,000$ psi
 $f'_c = 1,600$ psi
 $f'_s = 24,000$ psi
 $n = 8$
 $b = 12$ "

$$d = 0.01841 \sqrt{M_u + \frac{1}{2}P(d-c)}$$

$$A_s = 0.139d - \frac{P}{24,000}$$

$f'_c = 3,000$ psi
 $f'_c = 1,200$ psi
 $f'_s = 24,000$ psi
 $n = 9$
 $b = 12$ "

$$d = 0.02234 \sqrt{M_u + \frac{1}{2}P(d-c)}$$

$$A_s = 0.093d - \frac{P}{24,000}$$

$f'_c = 4,500$ psi
 $f'_c = 1,800$ psi
 $f'_s = 24,000$ psi
 $n = 8$
 $b = 12$ "

$$d = 0.01680 \sqrt{M_u + \frac{1}{2}P(d-c)}$$

$$A_s = 0.169d - \frac{P}{24,000}$$

Cases for which P is too large for balanced design are revealed by negative value of A_s occurring by computation.

For slightly unbalanced design, depth greater than theoretical, it is conservative to use:

$$A_{s \text{ actual}} = A_{s \text{ theoretical}} \times \frac{d_{\text{theoretical}}}{d_{\text{actual}}}$$

for which f_c will be below limiting value.