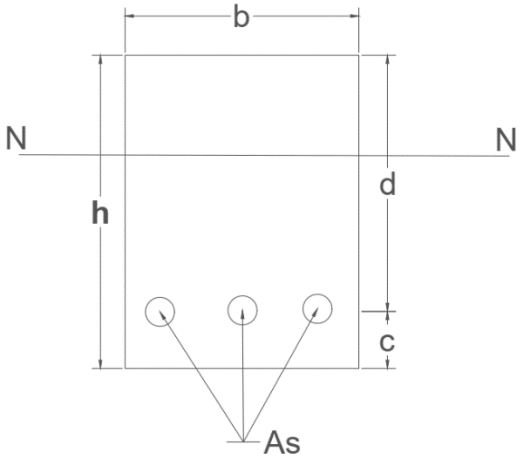
Learning Tool for Reinforced Concrete Design	Project				Job Ref.	
	Section				Sheet no./rev. 1	
	Calc.by	Date	Chk'd by	Date	App'd by	Date

CRACK WIDTH CALCULATION (EC2)

STEP 1

Calculate the neutral axis depth of the cracked section



$$x = \frac{-\alpha_e A_s \pm \sqrt{(\alpha_e A_s)^2 + 2b\alpha_e A_s d}}{b}$$

$$x =$$

STEP 2

Calculate the steel stress at the crack (σ_{s2})

$$Lever\ arm(Z) = d - \frac{x}{3} =$$

$$\sigma_s = M/Z\ A_s =$$

STEP 3

Calculate the effective reinforcement ratio

$$\rho_{p.eff} = \frac{A_s}{A_{c,eff}} \quad =$$

STEP 4

$$S_{r,max} = K_3 C + K_1 K_2 K_4 \frac{\emptyset}{\rho_{p,eff}}$$

$$S_{r,max} =$$

STEP 5

$$\varepsilon_{sm} = \frac{\sigma_s}{E_s}$$

Calculate the maximum crack width; $w_K = S_{r,max} \times \varepsilon_{sm}$

$$w_K =$$