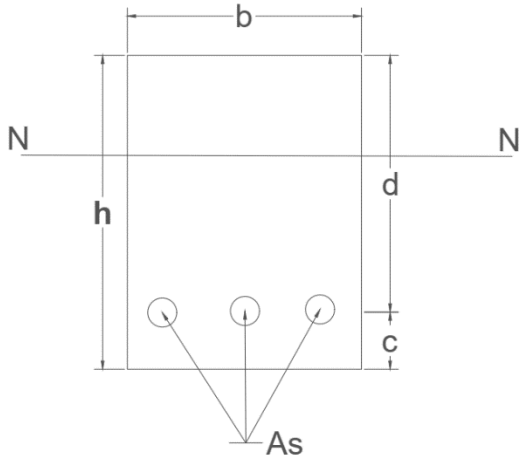
Learning Tool for Reinforced Concrete Design	Project				Job Ref.	
	Section				Sheet no./rev. 1	
	Calc.by	Date	Chk'd by	Date	App'd by	Date

CRACK WIDTH CALCULATION (BS8110:PART2:1997)

Reference	Calculations	Remarks
		
	$f_{cu} =$ $f_y =$ $E_s =$ $A_s =$ $b =$ $h =$ $c =$ $\emptyset =$ M=	
Clause 3.2.4	**STEP 1** Calculate the neutral axis depth of the cracked section $\boldsymbol{x = \frac{-\alpha_e A_s \pm \sqrt{(\alpha_e A_s)^2 + 2b\alpha_e A_s d}}{b}}$	$\boldsymbol{x =}$
	STEP 2 Calculate the design service stress at steel $\boldsymbol{f_s}$ $\boldsymbol{f_s = \frac{M}{\left(d - \frac{x}{3}\right) A_S}}$	$\boldsymbol{f_s =}$ $\boldsymbol{N/mm^2}$
	STEP 3 $\boldsymbol{\varepsilon_1 = \frac{(h - x) \times f_S}{(d - x) \times E_S}}$	$\boldsymbol{\varepsilon_1 =}$

Learning Tool for Reinforced Concrete Design	Project				Job Ref.	
	Section				Sheet no./rev. 2	
	Calc.by	Date	Chk'd by	Date	App'd by	Date

Reference	Calculations	Remarks
Clause 3.8.3 Equation 13	**STEP 4** $\varepsilon_m = \varepsilon_1 - \frac{b_t(h-x) \times (a' - x)}{3E_S A_S (d-x)}$	$\varepsilon_m =$
Clause 3.8.3 Equation 12	**STEP 5** $w_{max} = \frac{3a_{cr}\varepsilon_m}{1 + 2\left(\frac{a_{cr} - c_{min}}{h-x}\right)}$ $w_{max} =$	$w_{max} =$ mm