



**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

FLEXURAL REINFORCEMENT CALCULATION (BS8110:PART1:1997)

(FLANGE BEAM)

$$b_f = b_w + \frac{l_z}{5} =$$

$$K = \frac{M}{b_w d^2 f_{cu}} =$$

$$Z = d \left\{ 0.5 + \sqrt{0.25 - \frac{K}{0.9}} \right\}$$

$$Z =$$

$$x = (d - z)/0.45 =$$

Check

$$0.9x =$$

$$h_f =$$

$$0.9x > h_f$$

$$\text{Therefore, } \beta_f = 0.45 \times \frac{h_f}{d} \left(1 - \frac{b_w}{b} \right) \left(1 - \frac{h_f}{2d} \right) + 0.15 \frac{b_w}{b}$$

$$\beta_f =$$

$$\beta_f f_{cu} b d^2 =$$

$$\text{Therefore, } M < \beta_f f_{cu} b d^2$$

$$A_s = \frac{M + 0.1 f_{cu} b_w d (0.45d - h_f)}{0.95 f_y (d - 0.5h_f)}$$

$$A_s =$$

