



5

$$G_2 = 18 \text{ kN/m}^3$$

$$G = \quad + \quad +$$

$$W = 15 L_0$$

$$W = G / F_f = 15 A L_0 = 10 A \cdot 18 \cdot 1.5 / 10 A h_w = K$$

$$L_0 = \frac{1.05 \cdot 10 \cdot 13.8 \cdot 3 \cdot 10 \cdot 0.5 \cdot 25 \cdot 18 \cdot 1.5}{15} = 5.02 \text{ m}$$

$$L_0 = 5.5 \text{ m}$$

2

36mm 1080

1.8m x 1.8m

Ra=450kN

2m

5.5m( 3.5 );

110mm

110mm

180mm

III

1

$$3.5 \text{ m} \quad N_{tk} \quad mck \quad a = 0.001 \times 3.14 \times 110 \times 0.3 \times 10^3 \times 1.0 \times 3.5 = 362.7 \text{ kN}$$

$$2.0 \text{ m} \quad N_{tk} \quad mck \quad a = 0.001 \times 3.14 \times 110 \times 0.4 \times 10^3 \times 1.0 \times 2.0 = 276.3 \text{ kN}$$

2

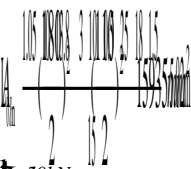
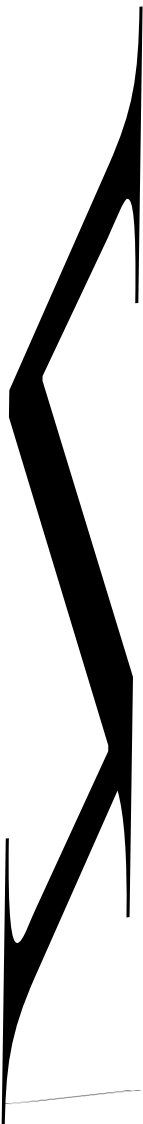
$$N_{tk} = l_r \cdot l_{frk} \cdot A_{ln} = 2.6 \times 3 \times 4.24 \times 10^3 \times 15935 \times 10^{-6} = 527 \text{ kN}$$

$$A_{ln} = A_{ln} \left( \frac{180}{2} \right)^2 + \left( \frac{110}{2} \right)^2 = 15935 \text{ mm}^2$$

3

$$K_r N_{tk} = N_{tk1} + N_{tk2} = 362.7 + 276.3 + 527 = 1166 \text{ kN}$$

$$N_{tk} = 1166 / 2 = 583 \text{ kN}$$



$A_s-$

$$A_{s(36)}=1017\text{mm}^2$$