

Odrediti potrebnu količinu armature za pravougaoni presjek sljedećih dimenzija:

$$b=25$$

$$d=60$$

Ulazni podaci:

$$M_g=155 \text{ kNm} \quad Z_g=75 \text{ Kn}$$

$$M_p=105 \text{ kNm} \quad Z_p=35 \text{ Kn}$$

MB 30

RA 400/500

Rješenje:

Dimenzionisanje:

$$\text{MB 30} \quad \rightarrow \quad f_b = 20.5 \text{ MPa}$$

$$\text{RA 400/500} \quad \rightarrow \quad \sigma_v = 400 \text{ MPa}$$

$$M_u = 1.6 \cdot 155 + 1.8 \cdot 105 = 437 \text{ kNm}$$

$$N_u = -1.6 \cdot 75 - 1.8 \cdot 35 = -183 \text{ kN}$$

$$M_{au} = 437 + (-183 \cdot (60 - 0.5 - 6)) / 100 = 393.08 \text{ kNm}$$

$$h = 60 - 6 = 54 \text{ cm}$$

$$k = 0.54 \cdot \sqrt{\frac{0.25 \cdot 20.5 \cdot 10^3}{393.08}} = 1.9498 \quad \Rightarrow \quad \epsilon_b / \epsilon_{a1} = 3.5 / 5.537 \text{ ‰}$$
$$\mu_{1M} = 31.3541\%$$

$$A_{a1} = A_{Mau} + A_{Nu} = \frac{31.3541}{100} \cdot 25 \cdot 54 \cdot \frac{20.5}{400} - \frac{-183}{40} = 26.27 \text{ cm}^2$$

Usvojeno 6RØ25 (29.45 cm²)