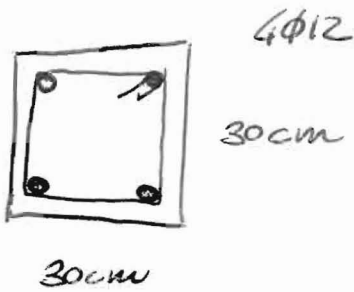


## Ex. 4 - Elementi tesi

$$\overleftarrow{N} \quad \overrightarrow{N=10 \text{ kN}}$$



C/S non resiste a trazione



$$A_{res} = A_s$$

$$\sigma_s = \frac{N}{A_s} = \frac{10 \cdot 10^3 \text{ N}}{4 \cdot 113 \text{ mm}^2} = 11,07 \text{ MPa} < \bar{\sigma}_s$$

occorre verifica di fessurazione

$$\varepsilon \cdot E_s \cdot A_s + \varepsilon E_{ct} A_c = N$$

$$\varepsilon = \frac{N}{E_s A_s + E_{ct} A_c} = \frac{N}{E_s (A_s + A_c / m')}$$

$$m' = \frac{E_s}{E_{ct}} = 2, m = 30$$

$$\varepsilon = \frac{10 \cdot 10^{-3}}{210000 \left( 4 \cdot 113 + \frac{300 \cdot 300}{30} \right)} = 1,22 \cdot 10^{-5}$$

$$\sigma_{ct} = E_{ct} \cdot \varepsilon = \frac{28000}{2} \cdot 1,22 \cdot 10^{-5} = 0,17 \text{ MPa}$$

$$f_{ctm} = 0,28 R_{ck}^{2/3} = 2,33 \text{ MPa}$$

$$f_{ctk} = 0,8 f_{ctm} = 1,63 \text{ MPa} > \sigma_{ct} \quad (\text{verificato})$$