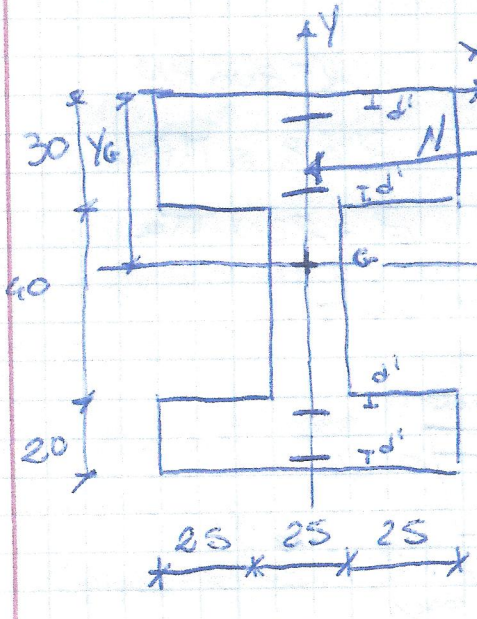
Verifica a presso-flessione sez. a I (tens. ammissibili)



$N = 2000\ kN$

$e = 18\ cm$

$$Y_G = \frac{S_{x_0}}{A_{id}}$$

$$A_{id} = 30 \cdot 75 + 40 \cdot 25 + 20 \cdot 75 + n\left(2 \cdot 18,09 + 2 \cdot 12,06\right) = 5654,5\ cm^2$$

$$S_{x_0} = \frac{75 \cdot 50^2}{2} + 25 \cdot 40 \cdot 50 + 75 \cdot 20 \cdot 80 + 15\left[18,09 \cdot 3 + 12,06 \cdot 27 + 12,06 \cdot 73 + 18,09 \cdot 87\right] = 246261,5\ cm^3$$

$Y_{G_{sup}} = 43,55\ cm$ $\qquad$ $Y_{G\,inf} = 46,45\ cm$

$$\rho_{m,Y_{(sup)}} = \frac{\rho_Y^2}{Y_{G\,inf}}$$

$$\rho_Y^2 = \frac{I_{id(x)}}{A_{id}} \qquad I_{id(x)} = \frac{75 \cdot 43,55^3}{3} - \frac{50 \cdot 13,55^3}{3} + \frac{75 \cdot 46,45^3}{3} - \frac{50 \cdot 26,}{3}$$

$$+ 15\left[18,09 \cdot 40,55^2 + 12,06 \cdot 16,55^2 + 12,06 \cdot 29,45^2 + 18,09 \cdot 43,45^2\right] = 533547$$

cm^4

$\rho_y^2 = 952,42\ cm^2 \quad \Rightarrow \quad \rho_y^2 = 30,86$

$\rho_{n,y(sup)} = 20,50\ cm$

$e < \rho_{n,y} \Rightarrow$ piccola eccentricità

$$\sigma_{c\,max} = \frac{N}{A_{id}} + \frac{N \cdot e}{I_{id(x)}} (y_{G\,sup}) = 6,45\ MPa < \bar{\sigma}_c$$

$$\sigma_{c\,min} = \frac{N}{A_{id}} - \frac{N \cdot e}{I_{id(x)}} (y_{G\,inf}) = 0,432\ MPa < \bar{\sigma}_c$$

$$\sigma_{s\,max} = \sigma_{s_1} = n \left[\frac{N}{A_{id}} + \frac{N \cdot e}{I_{id(x)}} (y_{G\,sup} - d') \right] = 93,7\ MPa < \bar{\sigma}_s$$