

ASTA  
ideale

IPE 220

$L = 5.00 \text{ m}$

$$I_y = 2772 \times 10^4 \text{ mm}^4$$

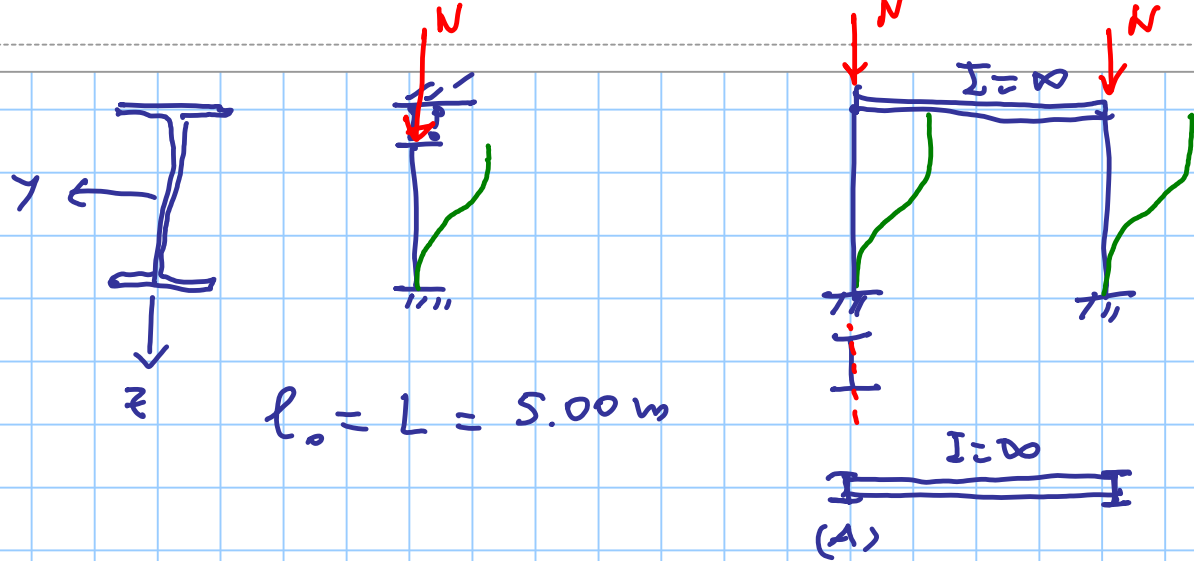
$$I_z = 204,9 \times 10^5 \text{ mm}^4$$

Nel piano del Telaio

$$N_{cr} = \frac{\pi^2 E I}{l_o^2}$$

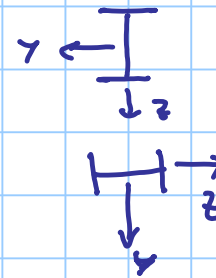
$$I = I_z$$

$$N_{cr} = \frac{3.14^2 \times 210000 \text{ N/mm}^2 \times 204,9 \times 10^5 \text{ mm}^4}{(5 \times 10^3 \text{ mm})^2} \times 10^{-3} = 169.9 \text{ kN}$$



(A)

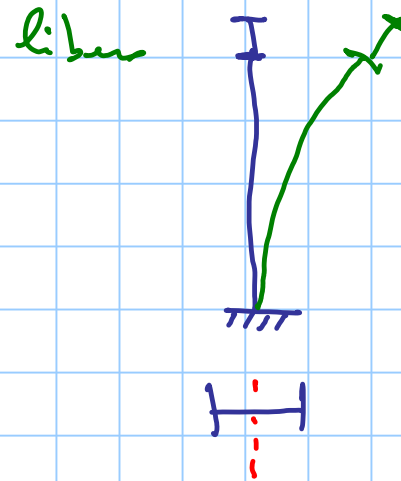
(B)



Nel piano perpendicolare

$$l_0 = 2L = 10.00 \text{ m}$$

$$I = I_y = 2772 \times 10^4 \text{ m}^4$$



$$N_{cr} = \frac{\pi^2 EI}{l_0^2} = \frac{3.14^2 \times 210000 \times 2772 \times 10^4}{(10 \times 10^3)^2} \times 10^{-3} = 574.5 \text{ kN}$$

acciaio S235

$$\lambda_1 = \pi \sqrt{\frac{E}{f_1}} = 3.14 \sqrt{\frac{210000}{235}} = 93.9$$

S275

$$\lambda_1 = 86.8$$

S355

$$\lambda_1 = 76.4$$

ASTA



$$L = 5.00 \text{ m}$$

$$l_0 = 5.00 \text{ m}$$

$$I = I_z = 204.9 \times 10^4 \text{ mm}^4$$

$$i_z = 2.48 \times 10 \text{ mm}$$

$$\lambda = \frac{l_0}{i} = \frac{5 \times 10^3}{2.48 \times 10} = 201.6$$

S 235

$$\bar{\lambda} = \frac{201.6}{93.9} = 2.147$$