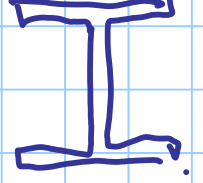
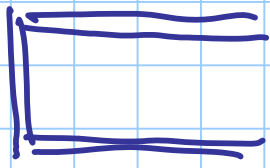
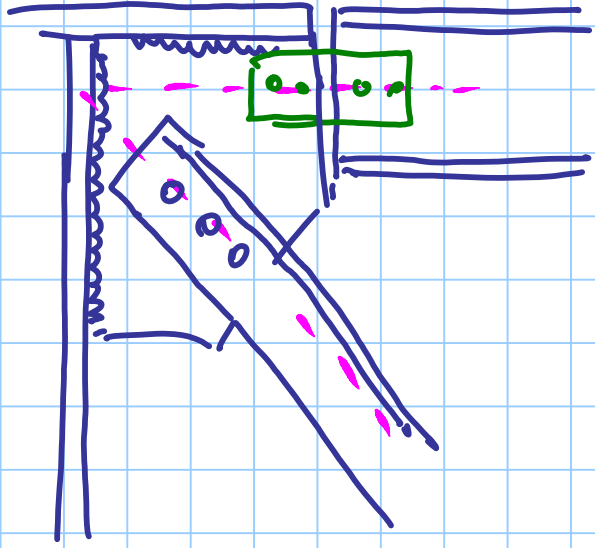
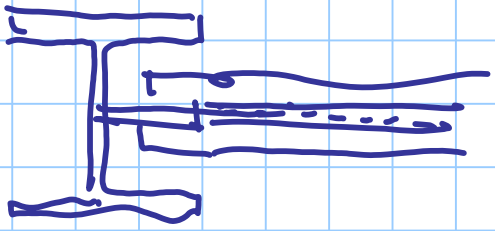
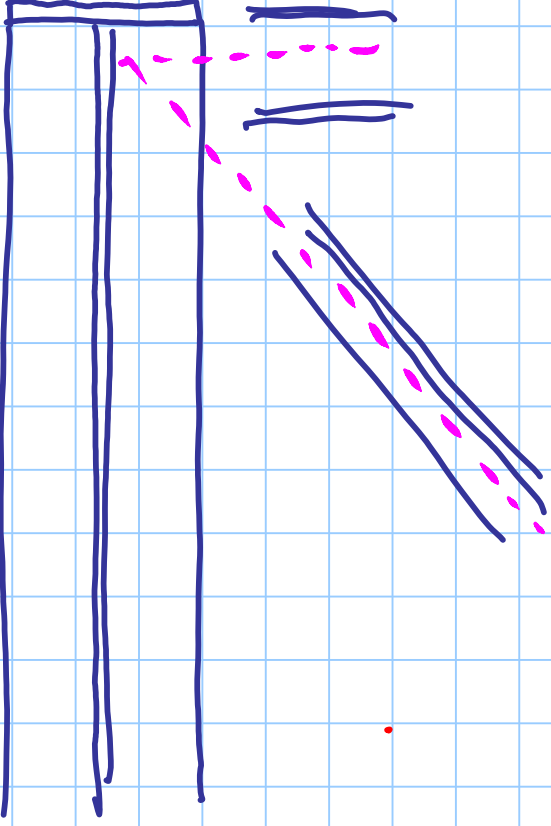
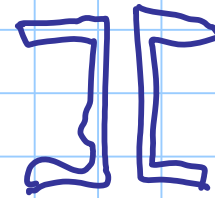
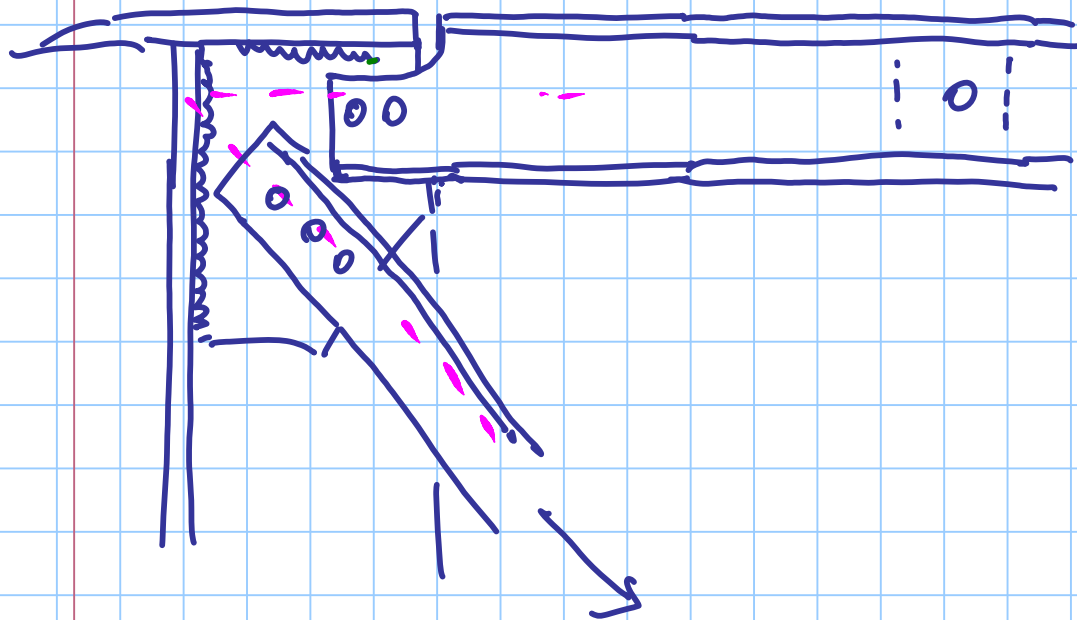
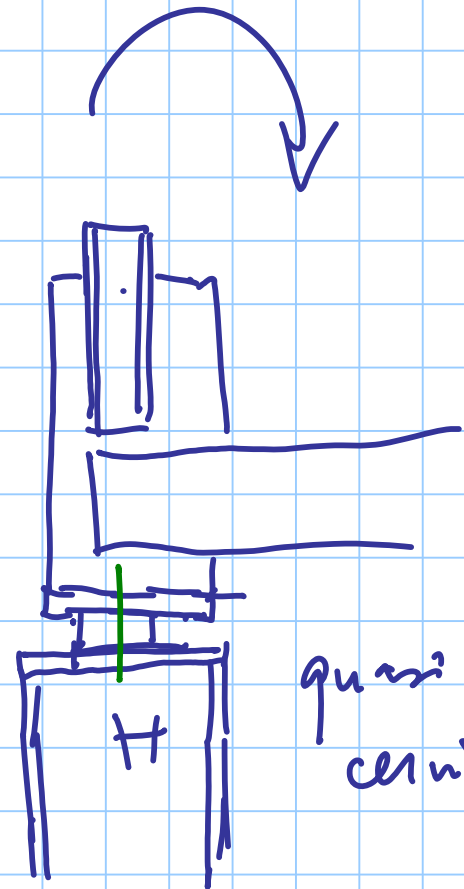
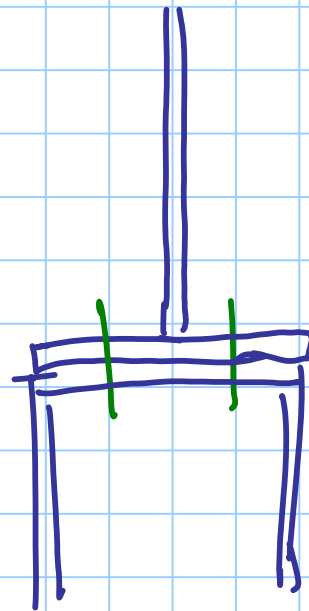
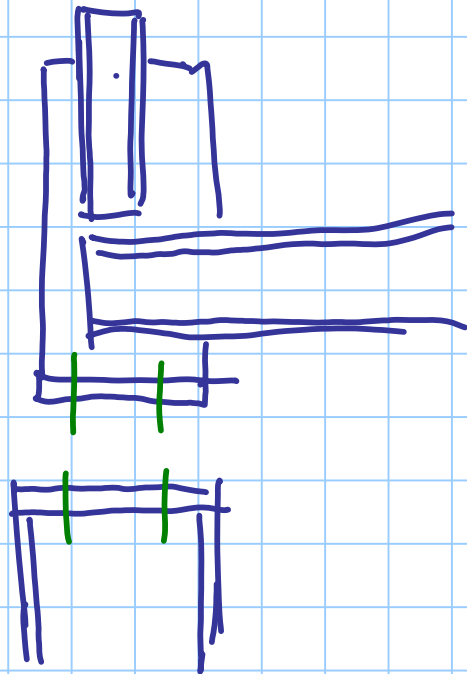
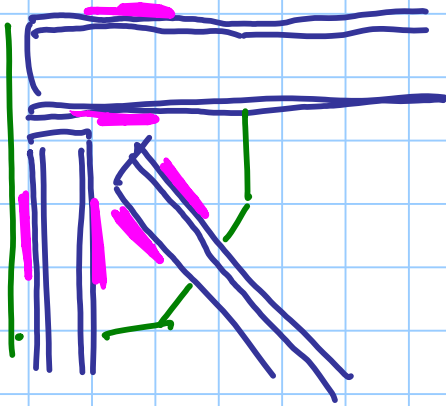


$$N_{ED} = \frac{F_{ED}}{\cos \alpha}$$



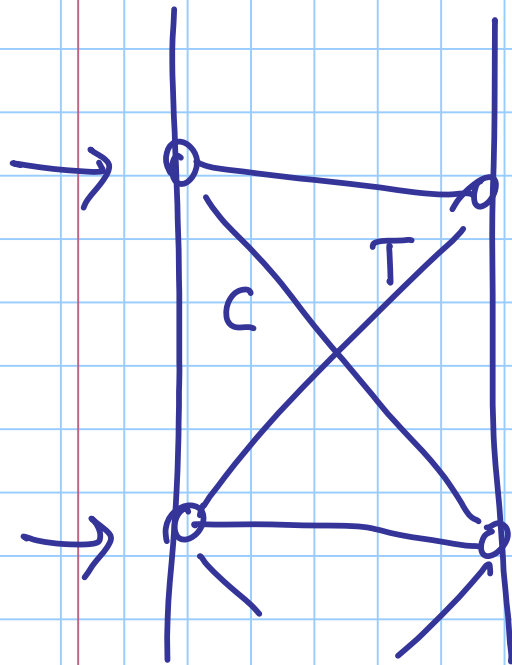


MEGLIO

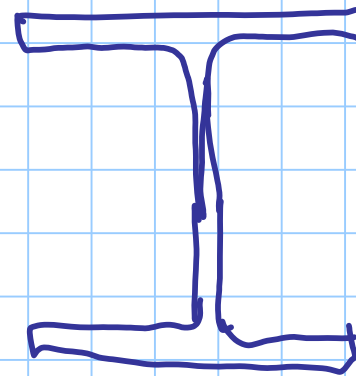
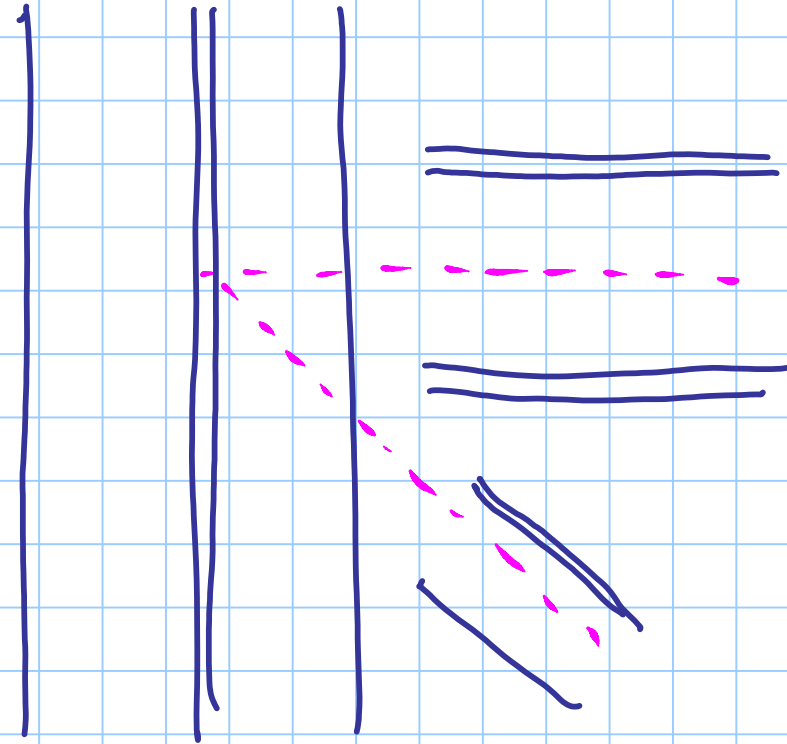


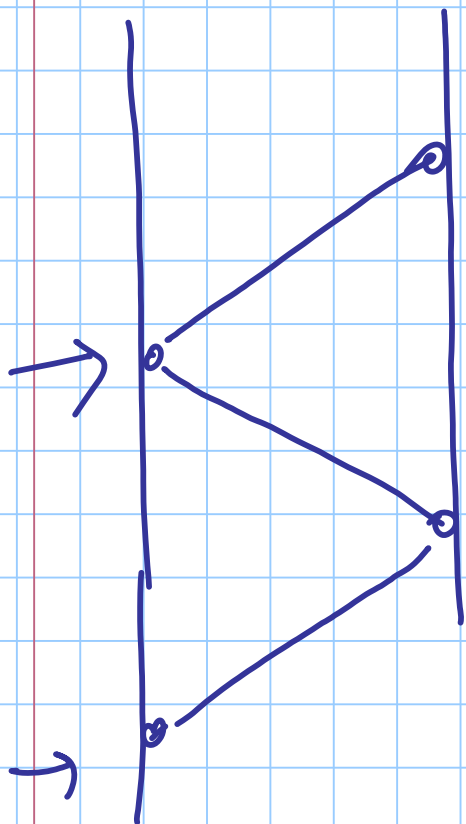
quasi  
cerviera

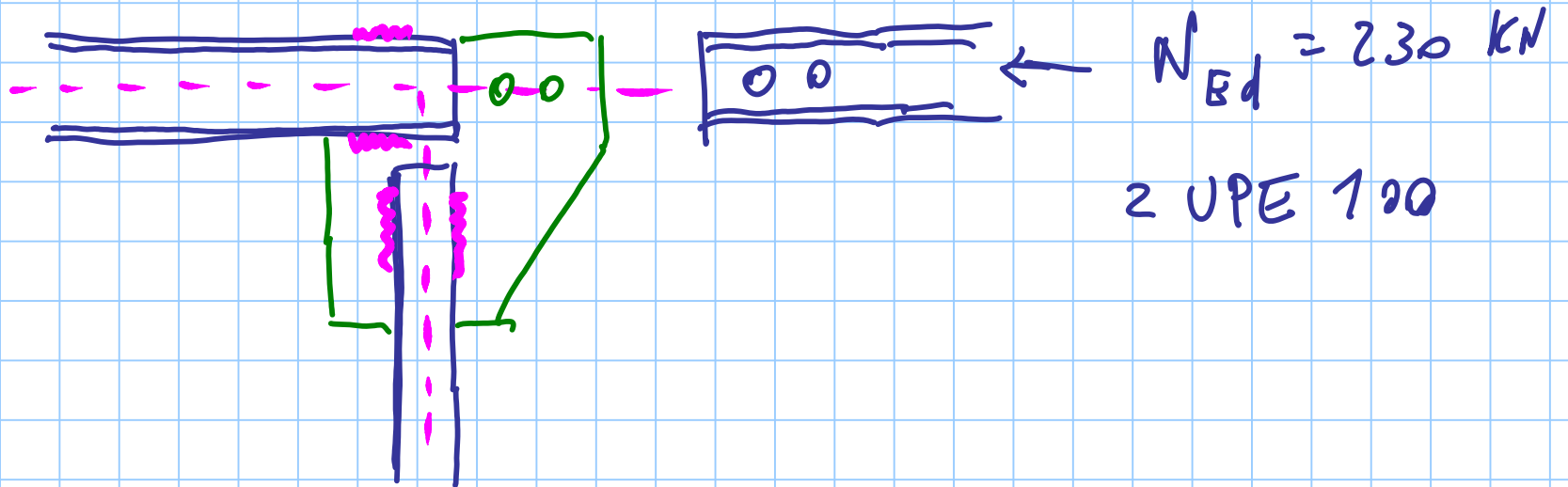
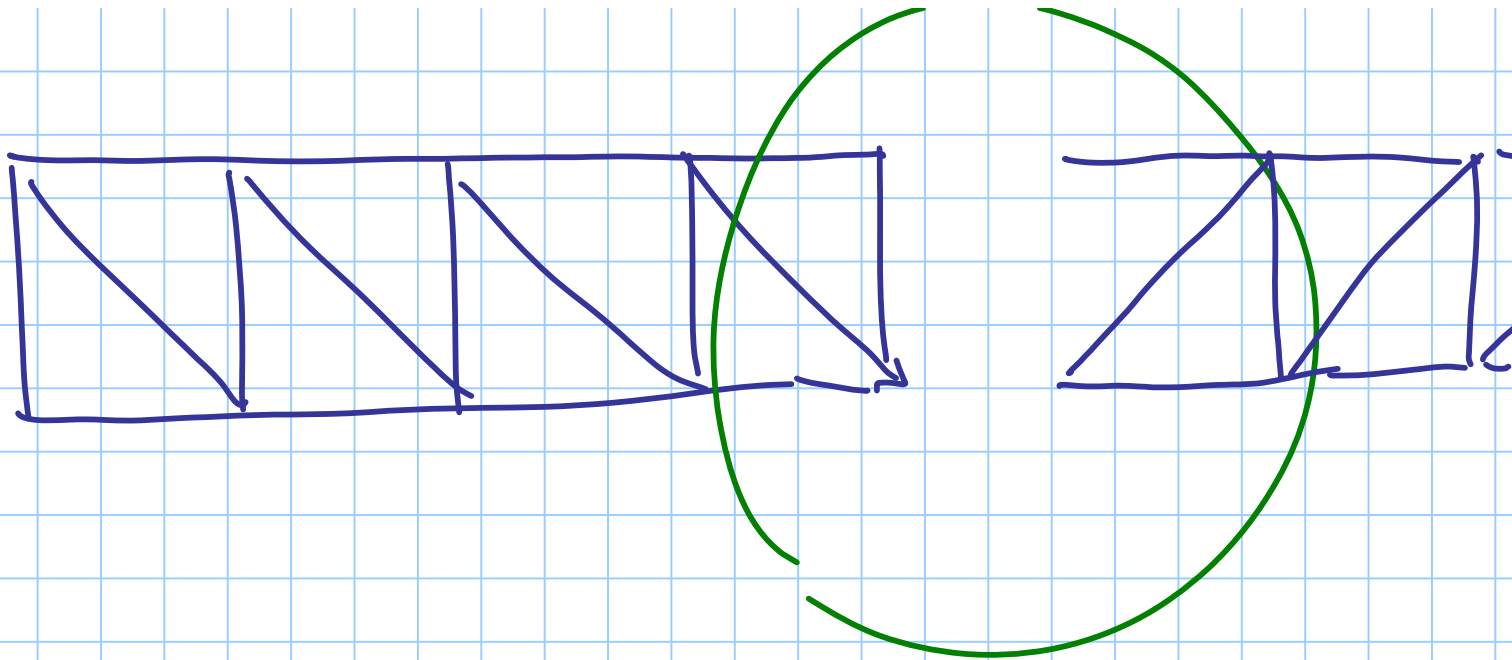
SCALA



I









$$F_{V,Ed} = 230 \text{ kN}$$

$$F_{V,Rd} = n_b n_s \underset{\downarrow}{0.6 A} \frac{f_{ub}}{\gamma_{M2}} \geq F_{Ed}$$

class 5.6

$$n_b = 2$$

$$A \geq \frac{F_{V,Ed} \gamma_{M2}}{n_b n_s 0.6 f_{ub}} = \frac{230 \times 10^3 \times 1.25}{2 \times 2 \times 0.6 \times 500} = 239.6 \text{ mm}^2$$

2 M18  $A = 254 \text{ mm}^2$   
gambi non tutti filetti

oppure  $n_b = 3$   $A \geq 159.7 \text{ mm}^2$

3 M16 gambi non tutti filetti

3 M18 " tutti filetti

S275

UPE 100

$t_w = 4.5 \text{ mm}$

piatto 10 mm

rifollamento 2 UPE 100 (stacco peggio del piatto)

$$F_{b,R1} = K_{\alpha} d t \frac{f_y}{\gamma_{m2}} \cdot n_b$$

$d = 18 \text{ mm}$

$t = 9 \text{ mm}$  (2 UPE)

$$F_{b,R1} \geq F_{Ed}$$

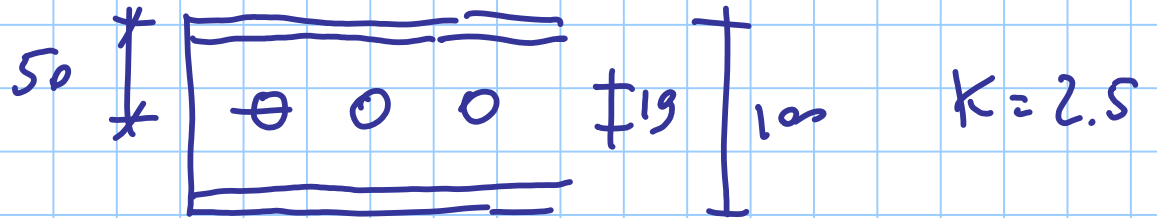
$F_{Ed} = 230 \text{ kN}$

$f_y = 430 \text{ MPa}$

$$n_b K_{\alpha} d t \frac{f_y}{\gamma_{m2}} \geq F_{Ed}$$

$$K_{\alpha} \geq \frac{F_{Ed} \gamma_{m2}}{d t f_y n_b} = \frac{230 \times 10^3 \times 1.25}{18 \times 9 \times 430 \times 3}$$

$$K \alpha \geq 1.38$$



$$K = \min \left( 2.5 ; \frac{2.8 l_2}{d_0} - 1.7 \right)$$

$$\frac{2.8 \times 50}{19} - 1.7 = 5.6$$

$$l_2 > 1.5 d_0 \Rightarrow K = 2.5$$

$$\alpha \geq \frac{1.38}{2.5} = 0.552$$

$$\alpha = \min \left( \frac{l_1}{3 d_0} ; \frac{p_1}{3 d_0} - 0.25 \right)$$

$$\frac{e_1}{3d_o} \geq 0.552 \rightarrow e_1 \geq 3 \times 0.552 d_o = 31.5 \text{ mm}$$

$$e_1 = 35 \text{ mm}$$

$$\frac{p_1}{3d_o} - 0.25 \geq 0.552 \rightarrow p_1 \geq 0.802 \times 3 \times 19 = 45.7 \text{ mm}$$

$$p_1 = 50 \text{ mm}$$

$$d = \text{MIN} \left( \frac{35}{3 \times 19} ; \frac{50}{3 \times 19} - 0.25 \right) = 0.614$$

0.614
0.627

$$F_{b,RI} = 3 \times 2.5 \times 0.614 \times 18 \times 9 \times \frac{430}{1.25} \times 10^{-3} =$$

$$= 256.6 \text{ kN} > 230 \text{ kN}$$

$$F_{v,RI} = 3 \times 2 \times 0.6 \times 192 \times \frac{500}{1.25} \times 10^{-3} =$$

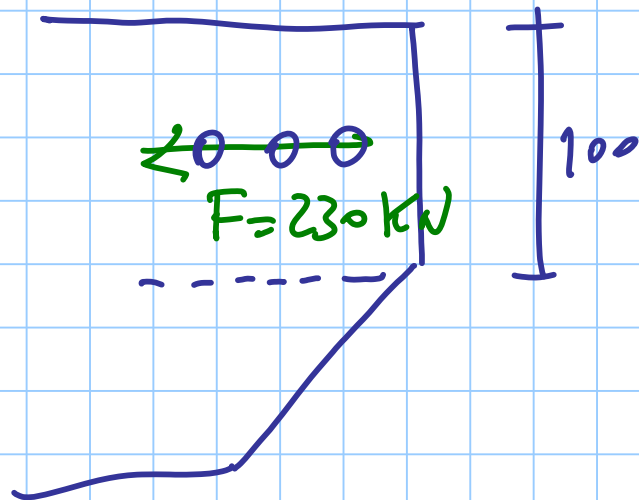
$$= 276.5 \text{ kN} > 230 \text{ kN}$$

$$F_{RI} = \min(F_{b,RI}; F_{v,RI}) = 256.6 \text{ kN} > 230 \text{ kN}$$

# VERIFICARE

profilo forato  
piatto forato } a tensi

piatto (in generale)



verificare sezione  $100 \times 10$

$$N_{Ed} = 230 \text{ kN}$$

$$N_{Rd} = 1000 \times \frac{275}{1.05} \times 10^{-3} = 261.9 \text{ kN}$$

$$N_{Rd} > 230 \text{ kN} \quad \text{OK}$$