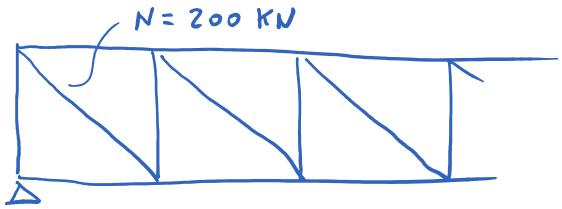


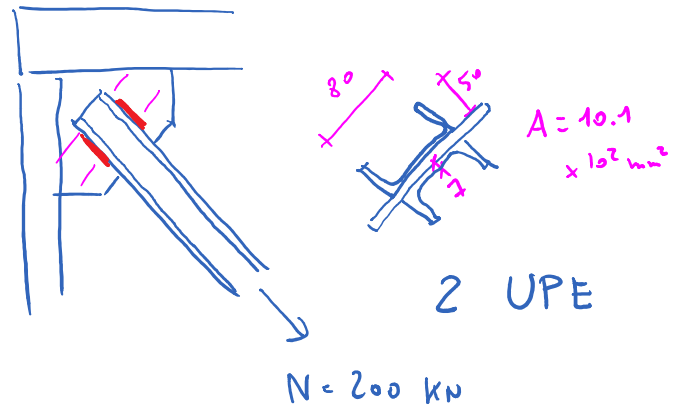
S 275

$$N_{Rd} = A \frac{f_y}{\gamma_{M0}}$$

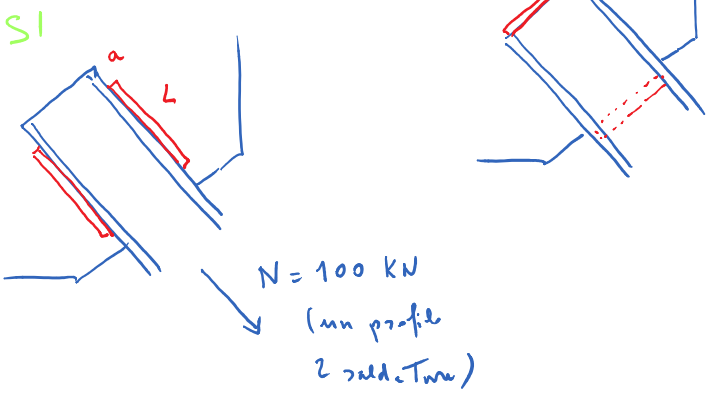
$$N_{Rd} \geq N_{Ed} \qquad A \frac{f_y}{\gamma_{M0}} \geq N_{Ed}$$

$$A \geq \frac{N_{Ed}\,\gamma_{M0}}{f_y} = \frac{200 \times 10^3/2 \times 1.05}{275} =$$

$$= 382\ mm^2 = 3.82 \times 10^2\ mm^2$$



no. 2 UPE 80



SFERA

$$t \leq f_{vwd} = \frac{f_u/\sqrt{3}}{\beta_w \gamma_{M2}}$$

$$f_{wd} = \frac{f_u}{\beta_w \gamma_{M2}}$$

S 275 $f_y = 275$ MPa $f_u = 430$ MPa

$\beta_w = 0.85$

$f_{wd} = 404.7$ MPa $f_{vwd} = 233.7$ MPa

$$\frac{N_{Ed}}{aL} \leq f_{vwd}$$

$$aL \geq \frac{N_{Ed}}{f_{vwd}} = \frac{100 \times 10^3/2}{233.7} = \frac{427.9\ mm^2}{2} = 214.0\ mm^2$$

$a = 4$ mm $\qquad L \geq \frac{214.0}{4} = 53.5$ mm $\qquad L = 60$ mm [$L = 70$ mm]

L = 60 mm L = 70 mm

$-2a$

62 mm

3

mercoledì 29 marzo 2017 16:39

per ogni profilo 2 cordoni $a = 4$ mm $L = 70$ mm (62 mm netti)

$N_{Rd} = 2\,a\,L\,f_{vwd} = 2.4 \times 62 \times 233.7 \times 10^{-3} = 115.9$ KN

per 2 profili a saldatura $N_{Rd} = 2 \times 115.5 = 231.8$ KN > 200 KN $= N_{Ed}$

completo o parziale ripristino di resistenza ?

quanto può portare l'asta (e il piatto)

2 UPE 80 $\rightarrow$ $A = 2 \times 10.1 \times 10^2$ mm^2 $= 20.2 \times 10^2$ mm^2

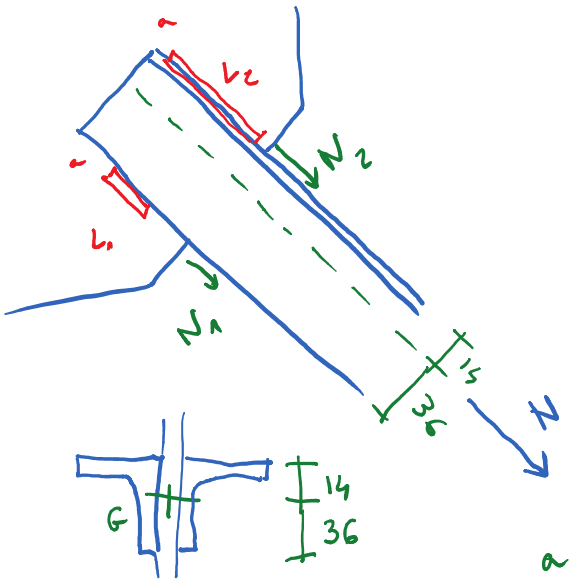
$N_{Rd} = A \dfrac{f_y}{\gamma_{M0}} = 20.2 \times 10^2 \times \dfrac{275}{1.05} \times 10^{-3} = 529.0$ KN

ma controllare anche il piatto

4

mercoledì 29 marzo 2017 16:55

mezzo 2L L 50×50×5 $A = 4.80 \times 10^2\ mm^2$



$N_1 + N_2 = N/2$ (2 profili)

$36 \times N_1 = 14 \times N_2$

$N_1 = \frac{14}{50} N/2 = 28\ KN$

$N_2 = \frac{36}{50} N/2 = 72\ KN$

$a\ L_{T.t} = \frac{N/2}{f_{vwd}} = 427.9\ mm^2$

$a = 4\ mm$ $L_{T.t} = \frac{427.9}{4} = 107.0\ mm$

$L_1 = \frac{14}{50} \times 107 = 30\ mm$

$L_2 = 77\ mm$

5

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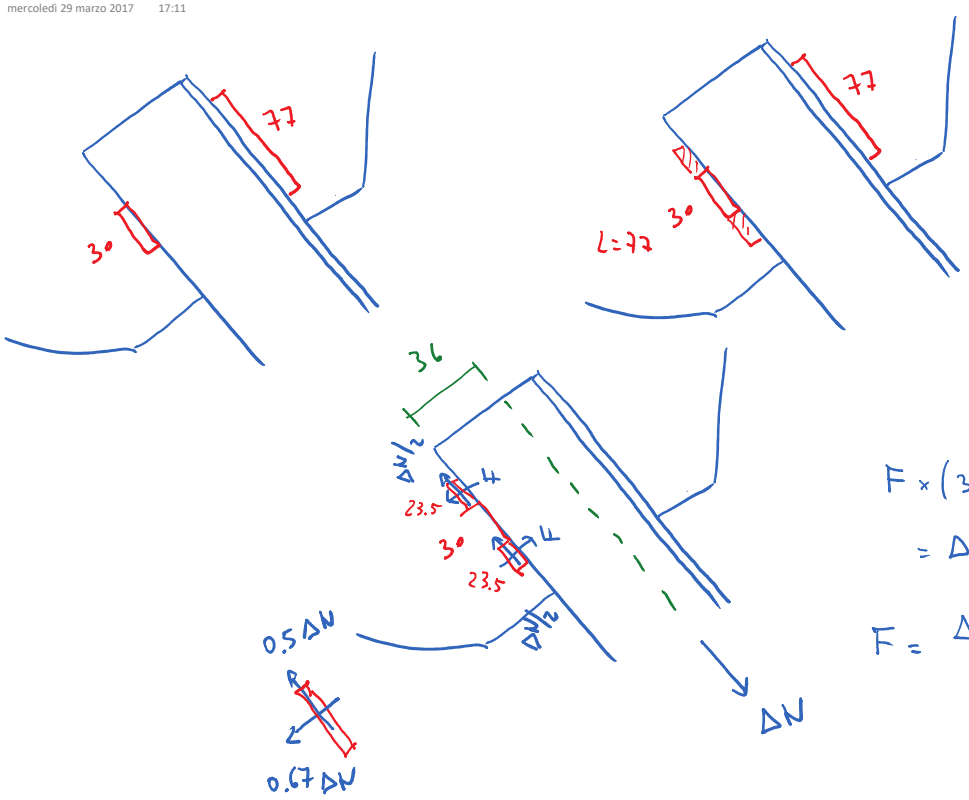


verifica del puzzolo.

$a\ L\ f_{vwd} = 4 \times 23.5 \times 233.7 \times 10^{-3} = 22.0\ KN$

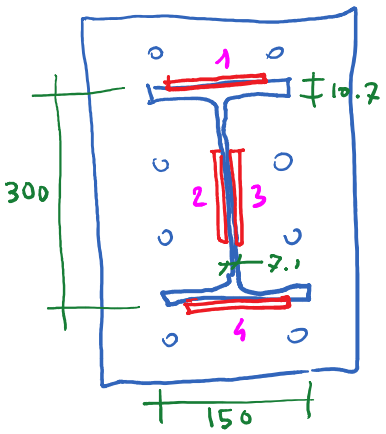
$F \times (30 + 23.5) = = \Delta N \times 36$

$F = \frac{\Delta N\ 36}{53.5} = 0.67\ \Delta N$

$R = \sqrt{0.5^2 + 0.67^2}\ \Delta N = 0.84\ \Delta N = 22\ KN \Rightarrow \Delta N = \frac{22}{0.84} = 26.2\ KN$

6

mercoledì 29 marzo 2017 17:27



1 PE 300

COLLEGAMENTO FLANGIATO

S275

per trasmettere M e V

posso progettare 1 e 4 per M

2 e 3 per V

$M_{Ed} = 150\ kN\,m$

$V_{Ed} = 180\ kN$

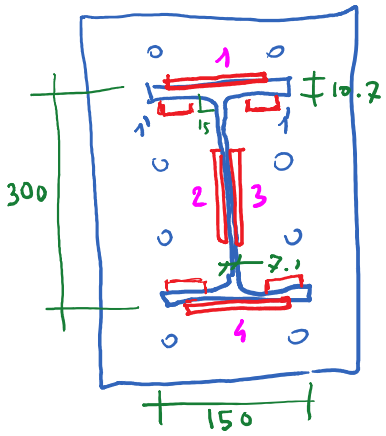
$$M_{Rd} = \frac{W_{pl} \cdot f_y}{\gamma_{M0}} \geq M_{Ed}$$

$$W_{pl} \geq \frac{M_{Ed} \cdot \gamma_{M0}}{f_y} = \frac{150 \times 1{,}05}{275} \times 10^3 = 572{,}7 \times 10^3\ mm^3$$

7

mercoledì 29 marzo 2017 18:08

17:27

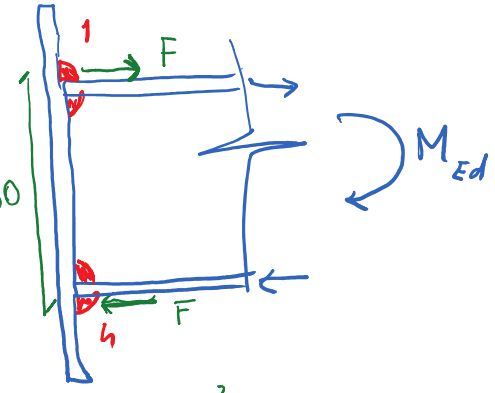


IPE 300

$M_{Ed} = 150\ kNm$

$V_{Ed} = 180\ kN$

forza $z = 289.3\ mm$

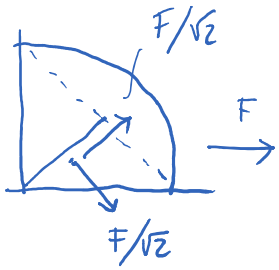


$$F = \frac{M_{Ed}}{z} = \frac{150}{0.3} = 500\ kN$$

$$a \cdot L \cdot f_{vwd} \geq F$$

$$a \cdot L \geq \frac{F}{f_{vwd}} = \frac{500 \times 10^3}{233,7} = 2140\ mm^2$$

$L = 214\ mm \quad a = 10\ mm$

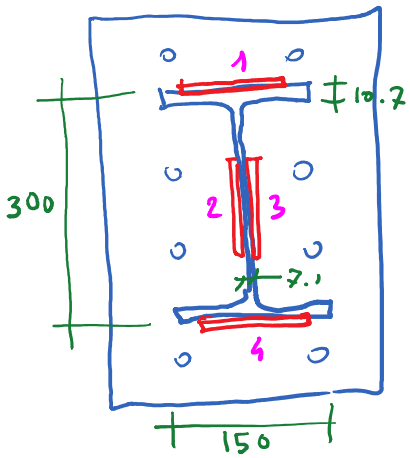


lunghezza cordone 1 $L = 130\ mm$ (150)

cordone 1' $L = 45\ mm$ (65)

$$\sigma_\perp = \tau_\perp = \frac{F/\sqrt{2}}{aL}$$

17:27



PE 300

$V_{Ed} = 180\ kN$

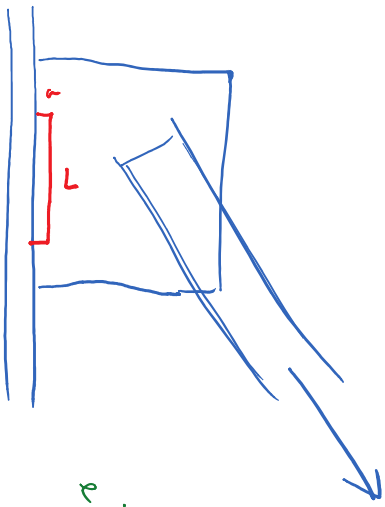
$$a\,L\,f_{vwd} \geq 180$$

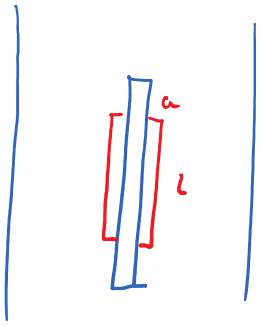
$$aL \geq \frac{180 \times 10^3}{233.7} = 770.2\ mm^2$$

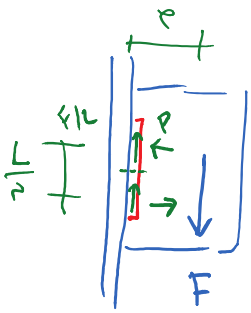
2 cordoni

$a = 5\ mm$

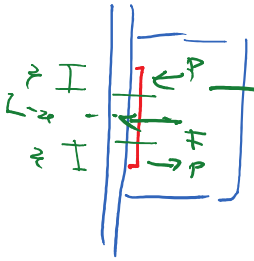
$L = 77.02\ mm \rightarrow 80\ mm$ (50)







$$P\frac{L}{2} = Fe$$



$$a(L-x)f_{vwd} = F$$

$$axf_{vwd}(L-x) = Fe$$