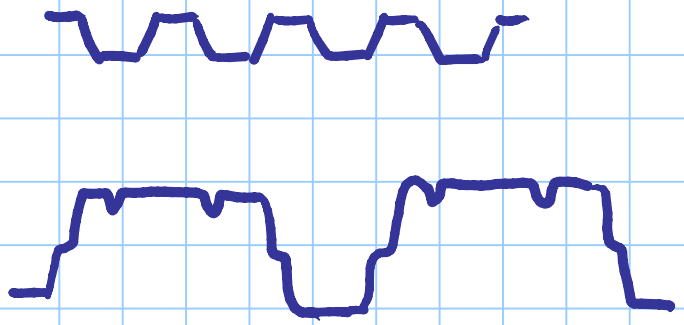
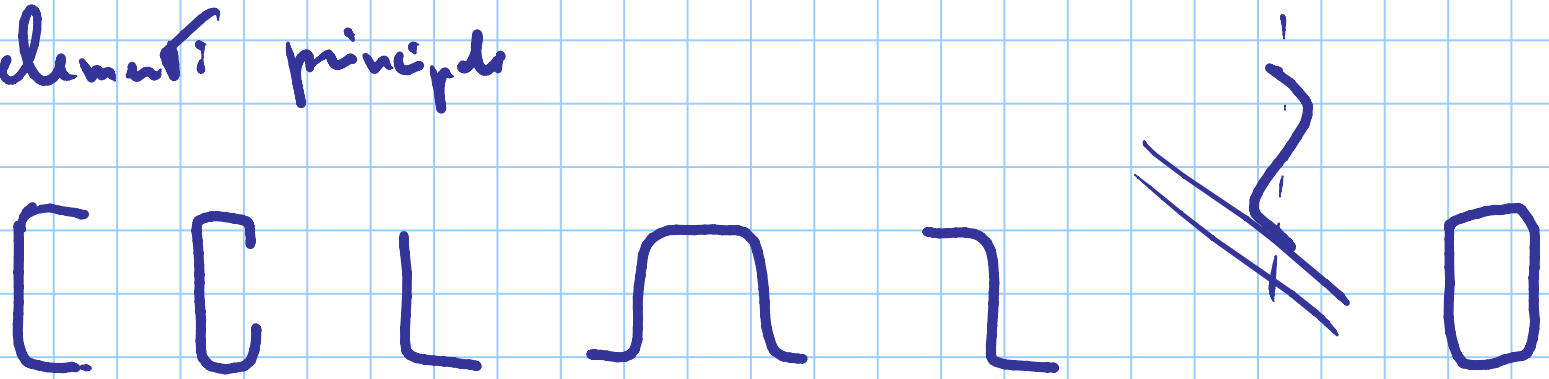
Titolo nota 30/10/2012

elementi piegati a freddo

- lamiere grecate



- elementi principali



VERIFICA/PROGETTO

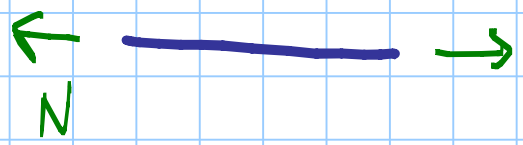
concetti di collaudo

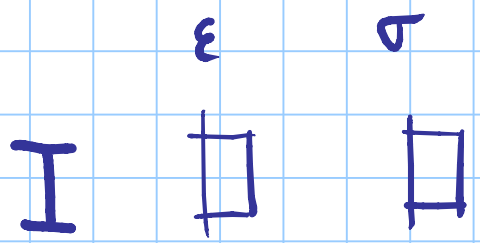
COLLEGAMENTI

bullonati:

saldati

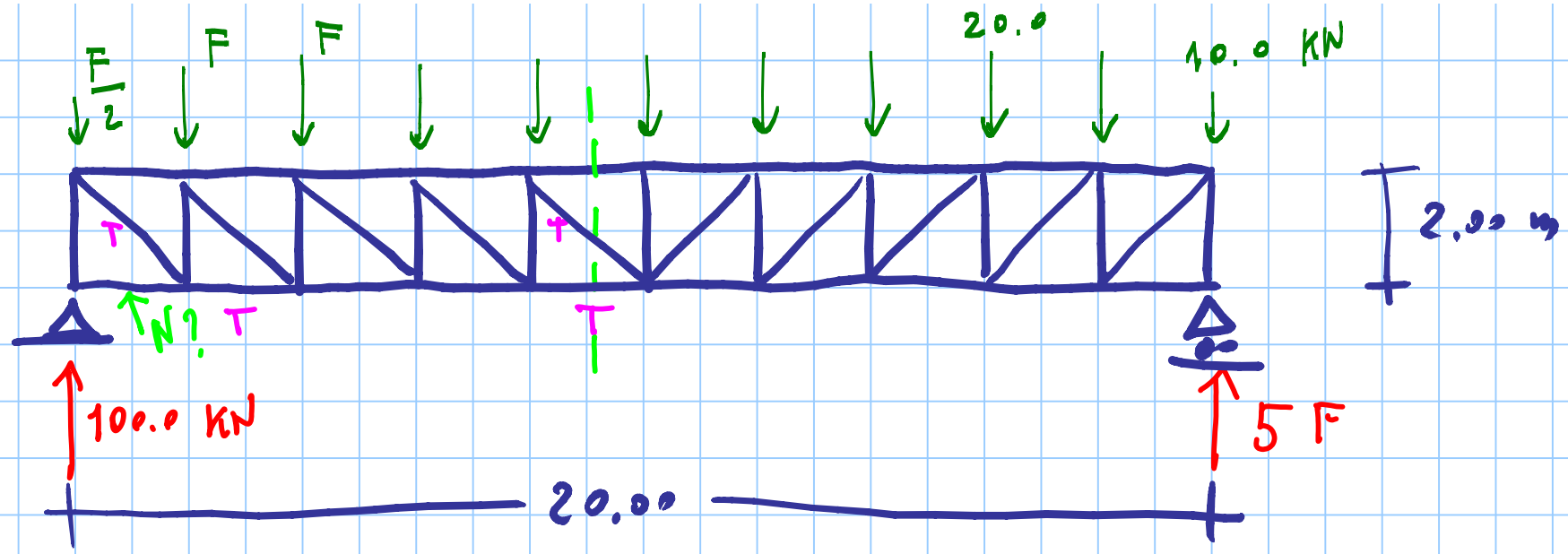
TRAZIONE





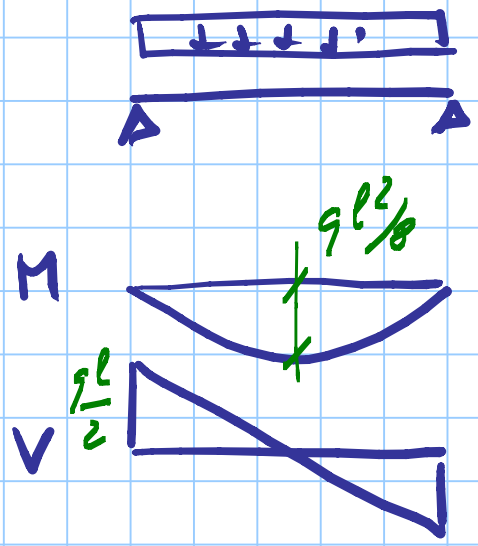
$$\sigma = \frac{N}{A}$$

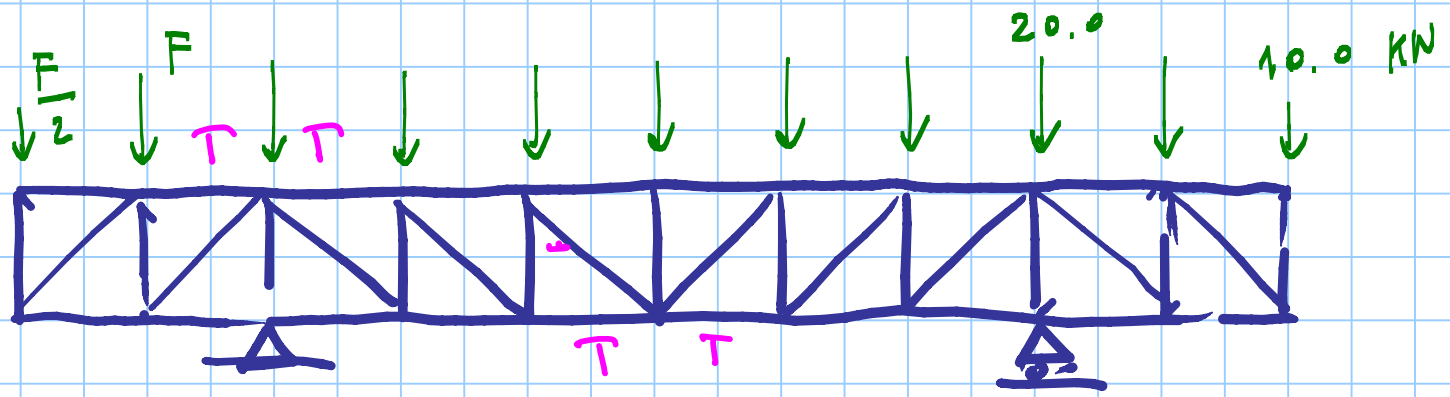
T.A. $\rightarrow$ $\sigma = \frac{N}{A} \leq \sigma_{ll}$

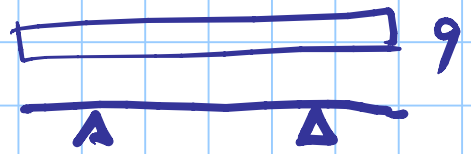


F $\quad G_k = 5.0$ kN

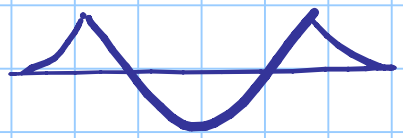
$Q_k = 15.0$ kN



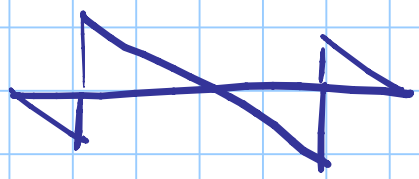


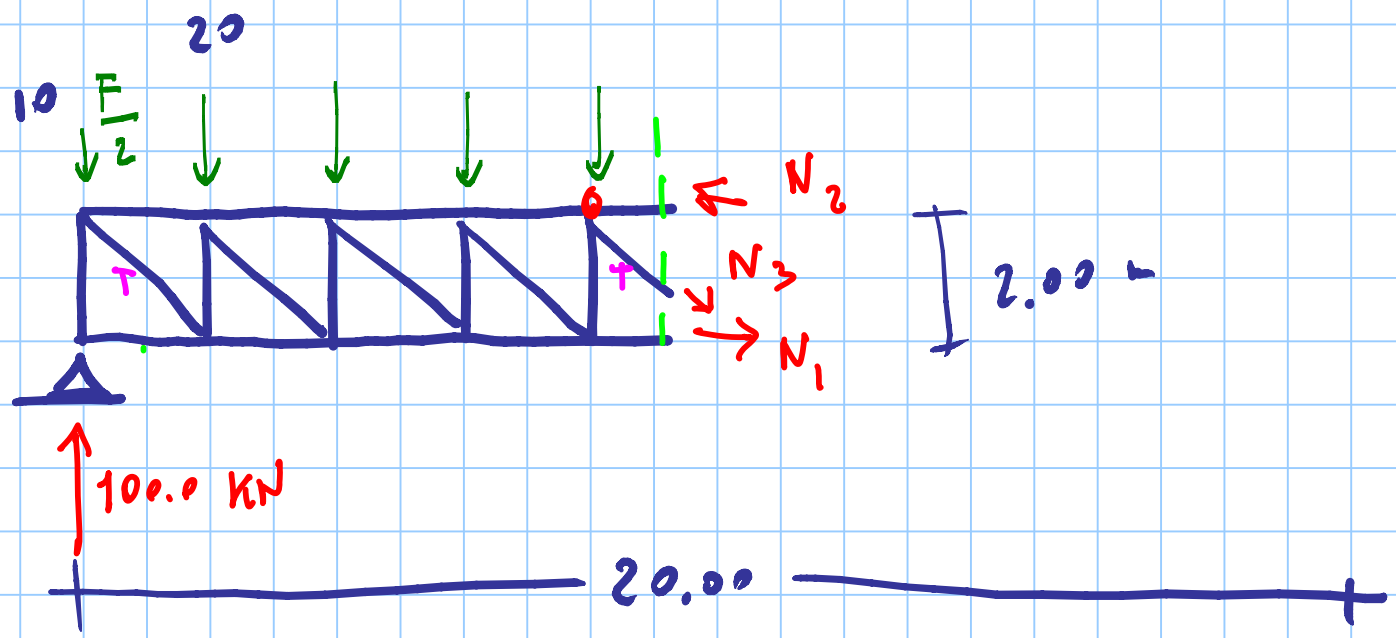


M



V



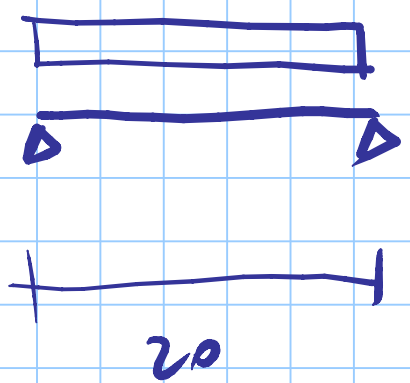


$$-90 \times 8 + \underbrace{20 \times 6 + 20 \times 4 + 20 \times 2}_{+240} + N_1 \times 2 = 0$$

-720

$$2N_1 = 480$$

$$N_1 = 240 \text{ KN}$$



$$M_{max} = \frac{qL^2}{8} = \frac{10 \times 20^2}{8} = 500\ kNm$$

$$N_T = N_C = \frac{500}{2} = 250\ kN$$

---

dimensionare (alla T.A.) un'asta con $N = 240\ kN$

- scegliamo l'acciaio

	f_{yk}	f_{uk}	$\bar{\sigma}_s$
S 235	235 MPa	360 MPa	160 MPa
S 275	275	430	190 MPa
S 355	355	510	240 MPa

PROGETTO

T.A.

$$A \geq \frac{N}{\bar{\sigma}_s}$$

S 275 $\quad \bar{\sigma}_s = 190$ MPa

$$A \geq \frac{240 \times 10^3}{190} = 1263 \text{ mm}^2 \quad (12.63 \text{ cm}^2)$$

$\Downarrow$

singolo profilo

$A \geq 631.5 \text{ mm}^2$

$6.315 \times 10^2 \text{ mm}^2$

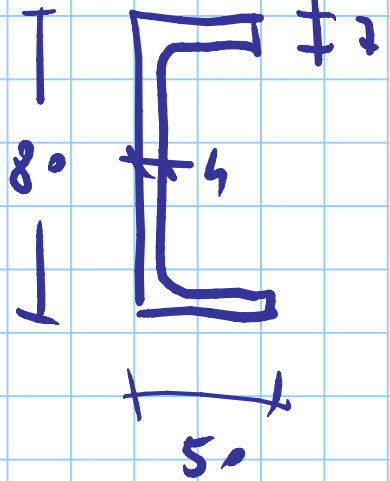
CORRENTE INFERIORE

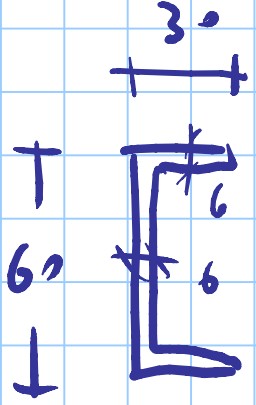
UPE 80 $\quad A = 10.1 \times 10^2 \text{ mm}^2$

U 60×30 $\quad A = 6.43 \times 10^2 \text{ mm}^2$

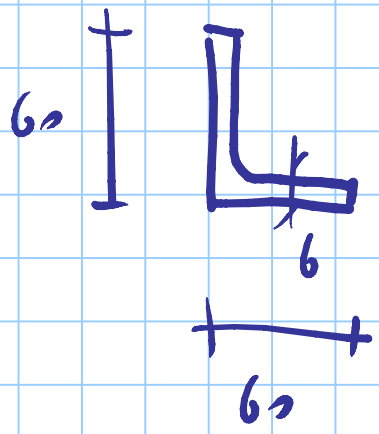
L 60×60 $A = 6.91 \times 10^2$ mm²

UPE 80

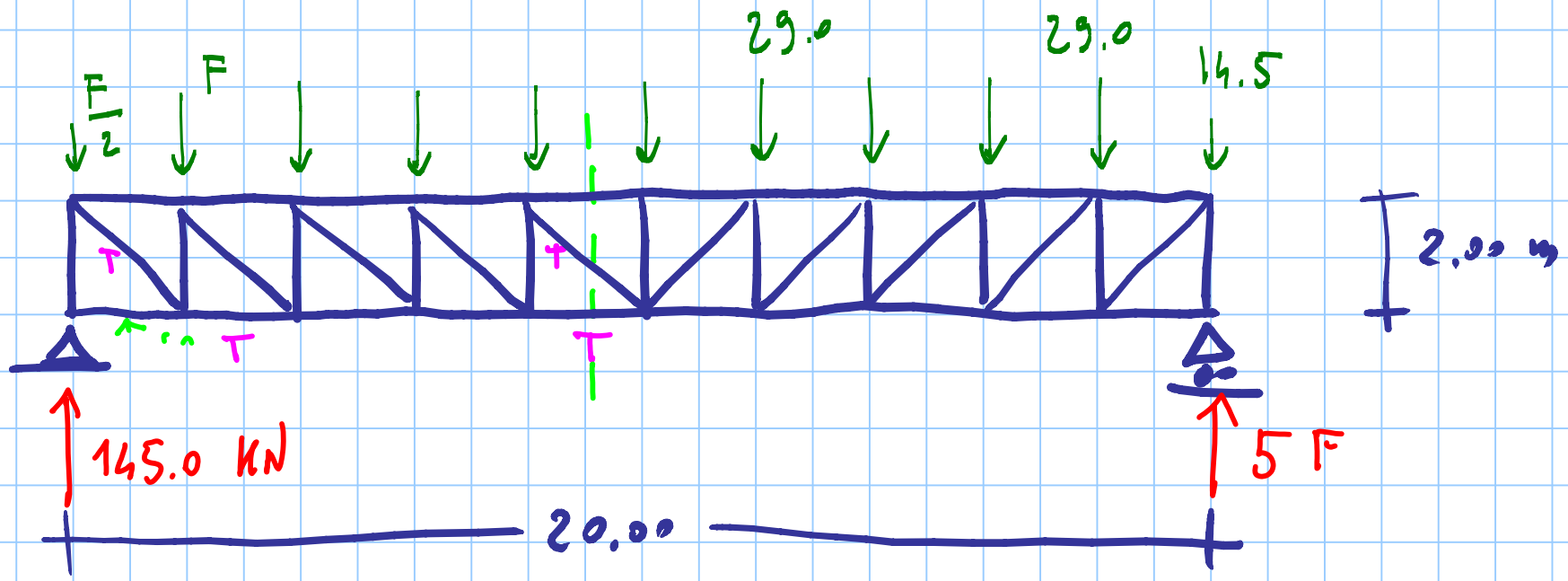




U 60×30



L 60×60×6

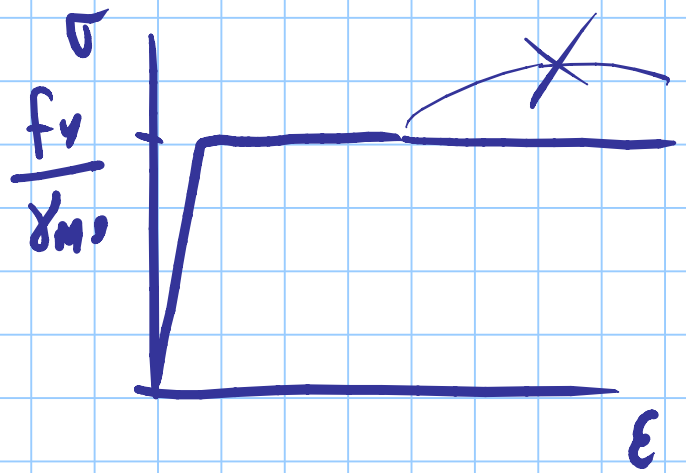


F $G_k = 5.0$ kN $\quad G_d = \gamma_G G_k = 1.3 \times 5.0 = 6.5$ kN

$Q_k = 15.0$ kN $\quad Q_d = \gamma_Q Q_k = 1.5 \times 15.0 = 22.5$ kN

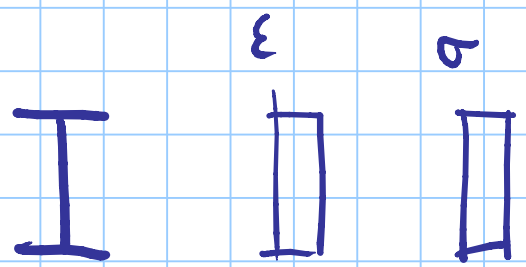
29.0 kN

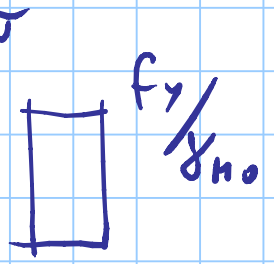
$N_{Ed} = 348$ kN



f_y	γ_{M0}	RESISTENZA	1.05
f_y	γ_{M1}	STABILITA'	1.05
f_u	γ_{M2}	COLLEGAM. SEZ. FORATE	1.25

S.L.U.





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

$$N_{Ed} \leq N_{Rd}$$

S275

$f_y = 275$ MPa

$$\frac{f_y}{\gamma_{M0}} = \frac{275}{1.05} = 261.9 \text{ MPa}$$

$$\frac{261.9}{190} = 1.38$$

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

$$A \geq \frac{N_{Ed}}{f_y / \gamma_{M0}} = \frac{N_{Ed}\ \gamma_{M0}}{f_y}$$

$N_{Ed} = 348\ kN$

$$A \geq \frac{348 \times 10^3 \times 1.05}{275} = 1329\ mm^2$$

single profile $A > 6.645 \times 10^2\ mm^2$