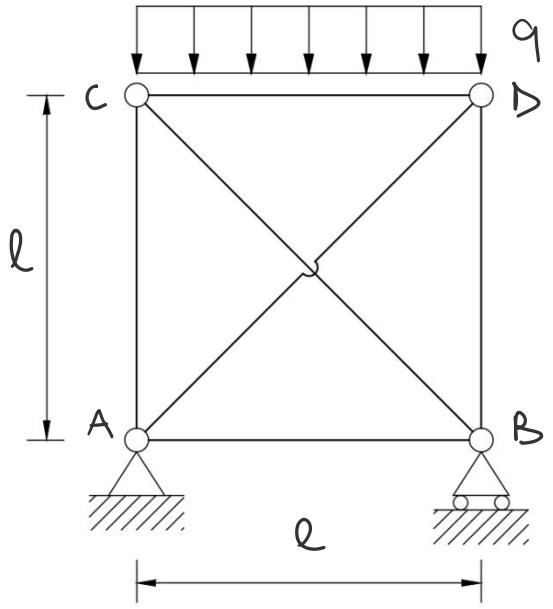
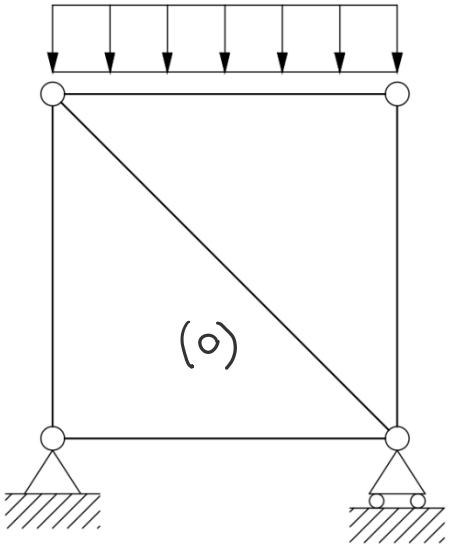
TOTALE SDC

08-06-2020

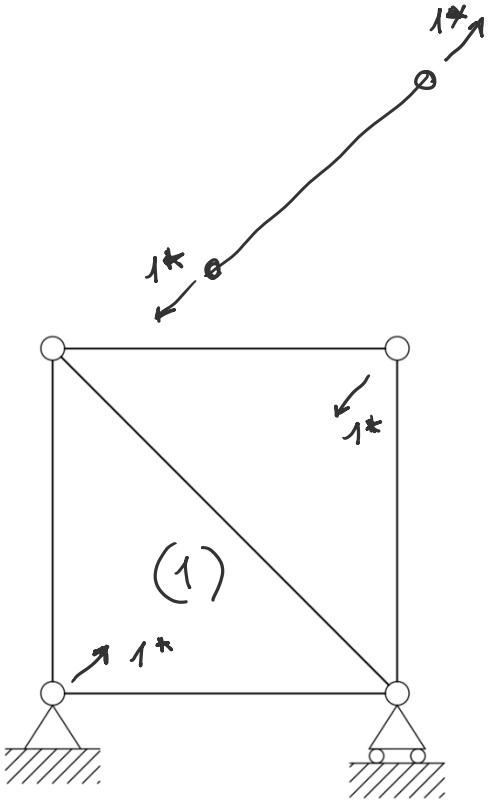


$q = 1000 \ N/m$

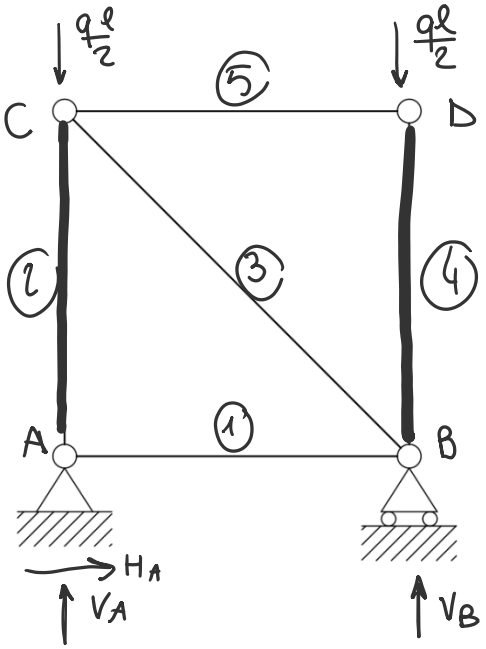
$l = 4 m$



+ X



1) SISTEMA (0) - STATO PRIMARIO



→) $H_A = 0$

↑) $V_A = V_B = \frac{ql}{2}$

NODO A

→) $N_2 = 0$

↑) $N_1 = -\frac{ql}{2}$

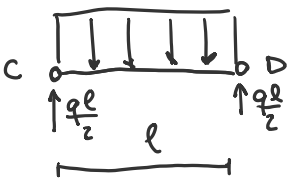
NODO B

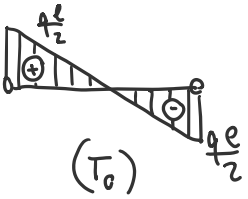
→) $N_3 = 0$

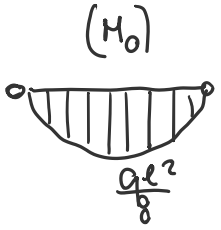
↑) $N_4 = \frac{ql}{2}$

#	N
1	0
2	$-\frac{ql}{2}$
3	0
4	$-\frac{ql}{2}$
5	0

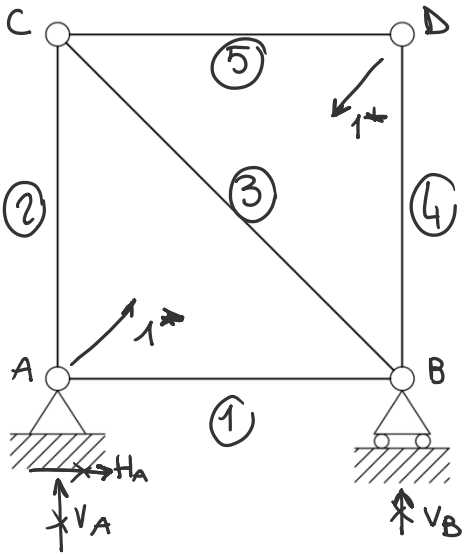
STATO SECONDARIO







SISTEMA (1)

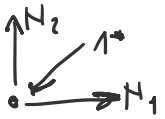


$\rightarrow) \; H_A = 0$

$A\uparrow) \; V_B = 0$

$\uparrow) \; V_A = 0$

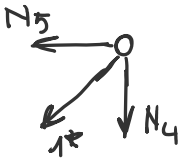
NODO A



$\rightarrow) N_1 = -\frac{\sqrt{2}}{2}$

$\rightarrow) N_2 = -\frac{\sqrt{2}}{2}$

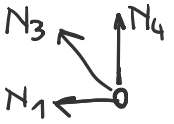
NODO D



$\rightarrow) N_5 = -\frac{\sqrt{2}}{2}$

$\uparrow) N_4 = -\frac{\sqrt{2}}{2}$

NODO B



$\rightarrow) -N_3 \cdot \frac{\sqrt{2}}{2} - N_1 = 0$

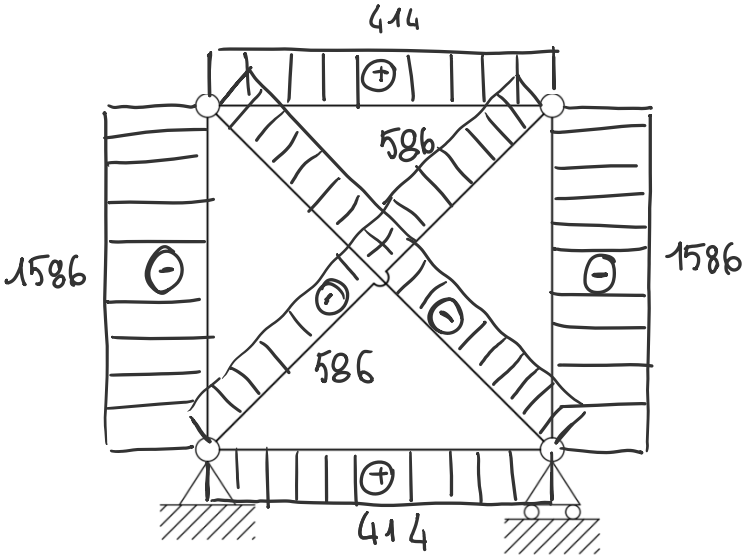
$N_3 = 1$

#	N
1	$-\sqrt{2}/2$
2	$-\sqrt{2}/2$
3	1
4	$-\sqrt{2}/2$
5	$-\sqrt{2}/2$

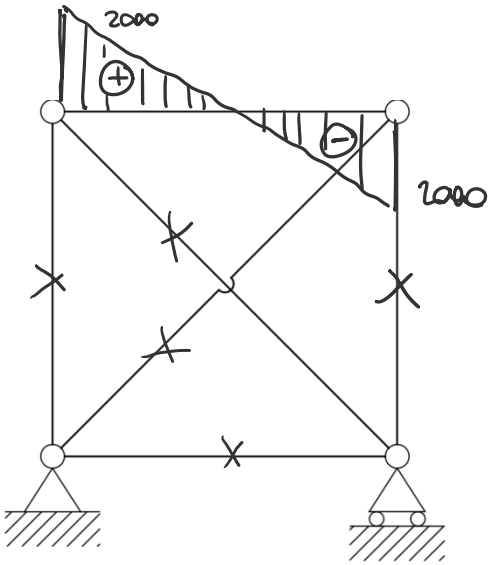
$$\eta_{10} = \frac{2}{EA}\int_0^l \left(-\frac{ql}{2}\right)\cdot\left(-\frac{\sqrt{2}}{2}\right) = \frac{\sqrt{2}ql^2}{2EA}$$

$$\eta_{11} = \frac{4}{EA}\int_0^l \left(\frac{\sqrt{2}}{2}\right)^2 dz + \frac{1}{EA}\int_0^{\sqrt{2}l} 1\, dz = \frac{2l}{EA} + \frac{\sqrt{2}\,l}{EA}$$

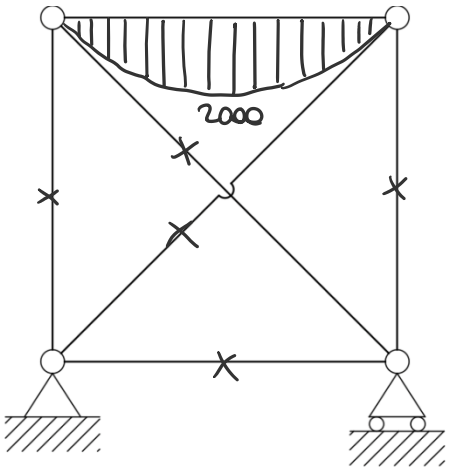
$$l_{ve} = l_{vi}: \quad (-1)\frac{x\sqrt{2}l}{EA} = \eta_{10} + x\,\eta_{11} \qquad x = -\eta_{10}/\left(\eta_{11} + \frac{\sqrt{2}l}{EA}\right) = -585{,}8\ N$$



N [N]



T [N]



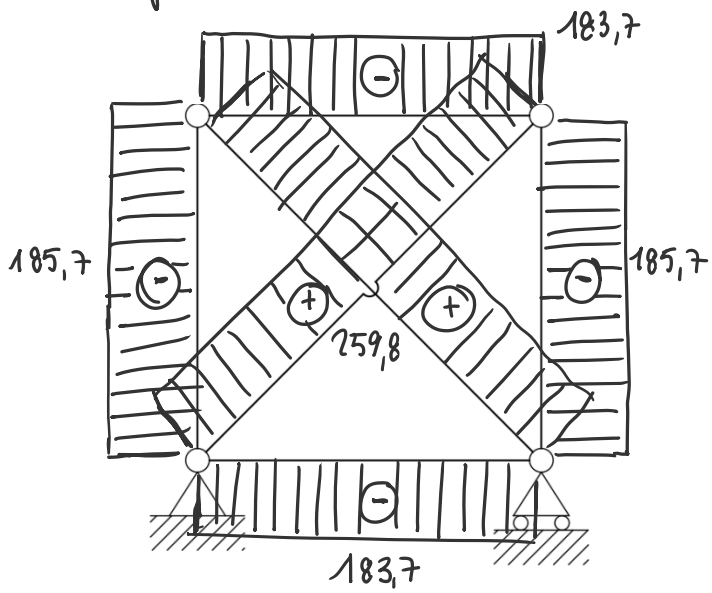
M [Nmm]

2) $\delta = -10\,mm$ $A = 2395\,mm^2$ $E = 210000\,MPa$ $q = 1\,N/mm$ $l = 4000\,mm$

$$L_{ve} = M_{10} + X\,M_{11} + 1^{*} \cdot \delta = 0$$

$$X = -\frac{M_{10} + \delta}{M_{11}} = 259830\,N$$

In seguito al difetto di montaggio, cambiano solo i diagrammi dello sforzo normale



N [kN]