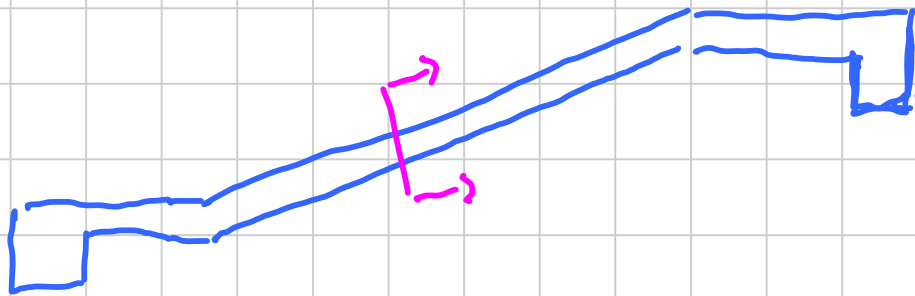
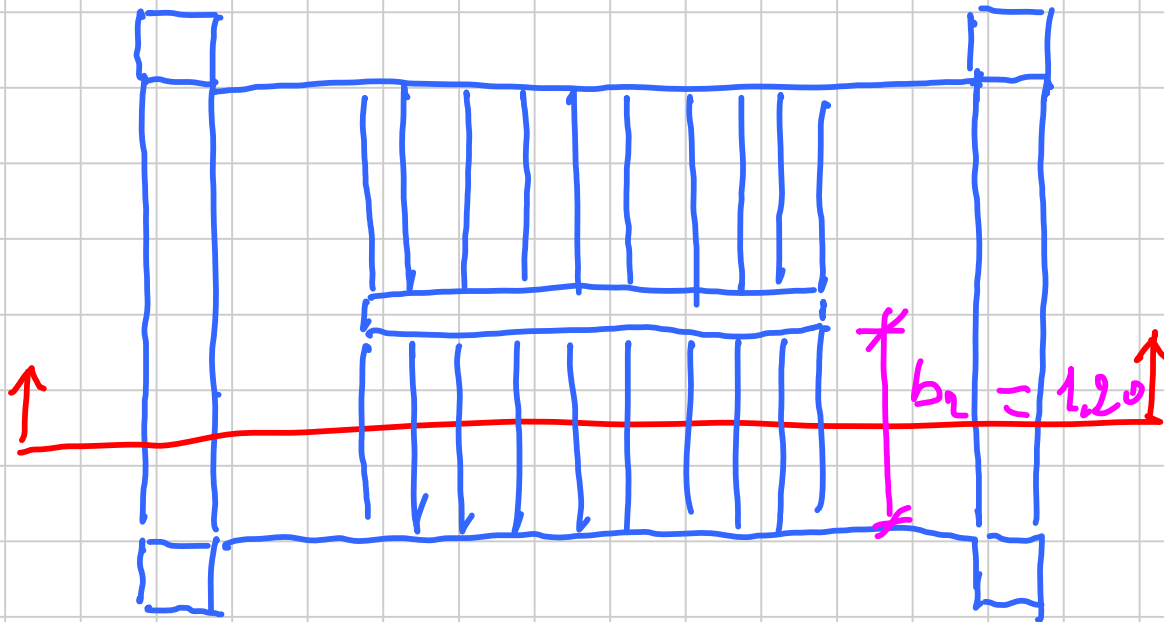


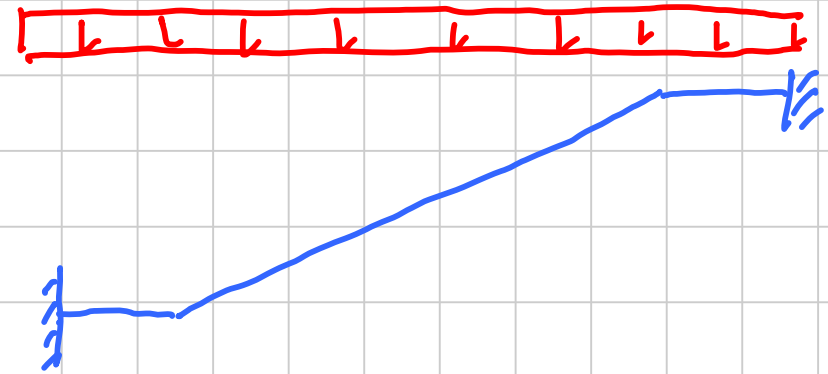
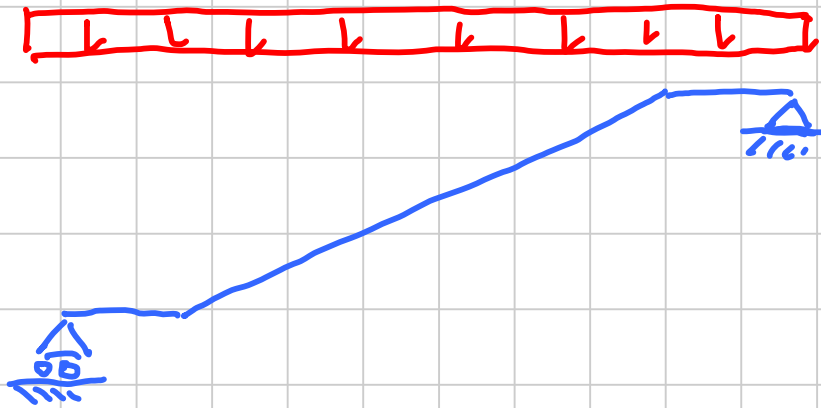
SCALA CON SOLETTA RAMPANTE

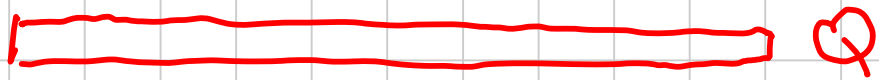
Titolo nota

19/05/2015



$$Q = (g_d + q_d) b_z$$



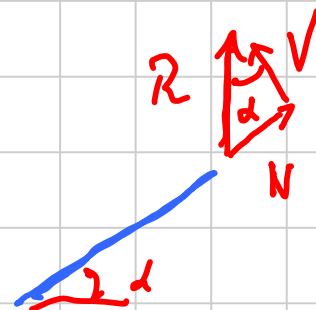
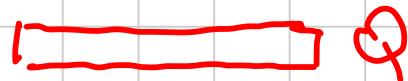


$$R_1 = R_2 = \frac{Q(l_1 + l_2)}{2}$$



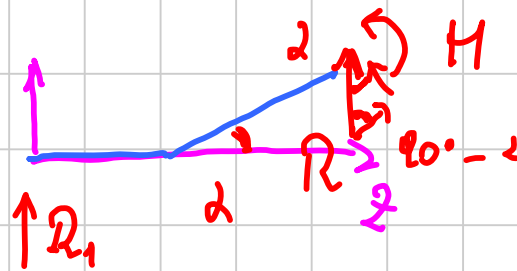
$$R = Qz - R_1$$

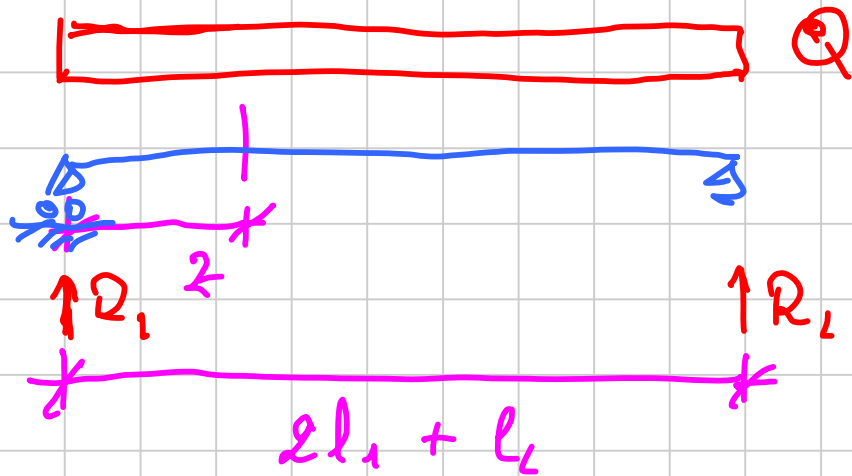
$$M = R_1 z - \frac{Qz^2}{2}$$



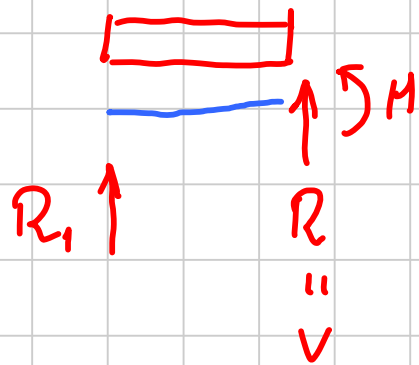
$$V = R \cos \alpha$$

$$N = R \sin \alpha$$



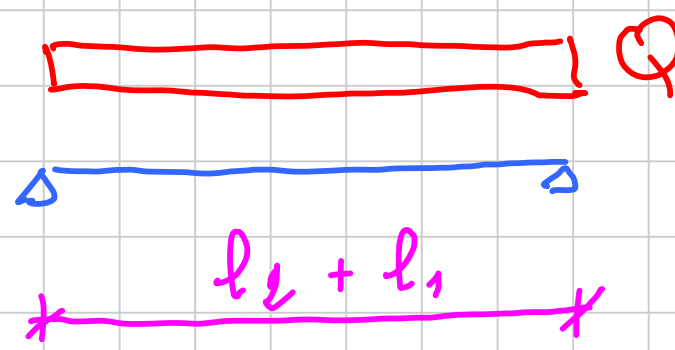
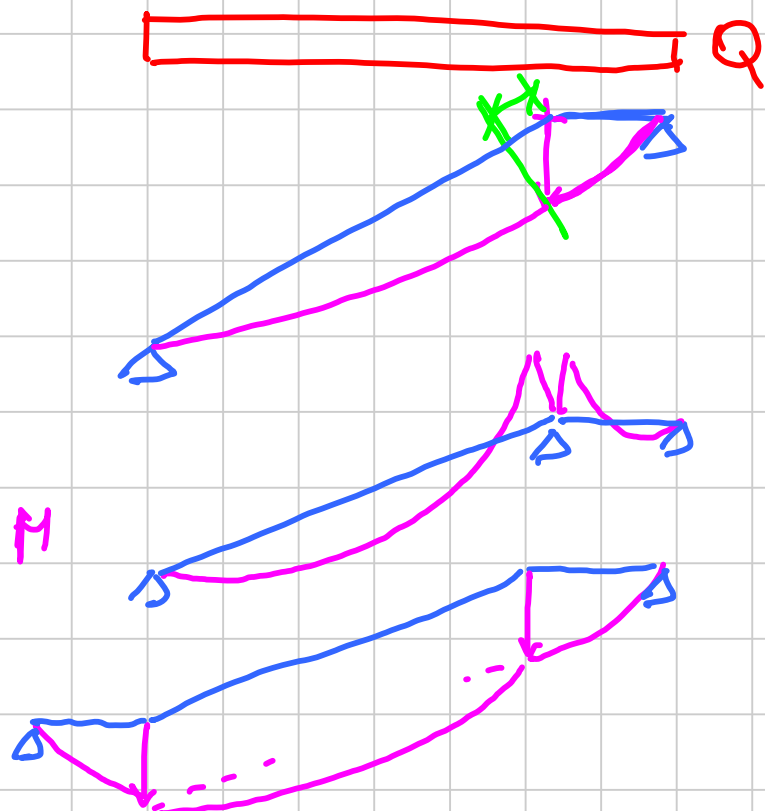


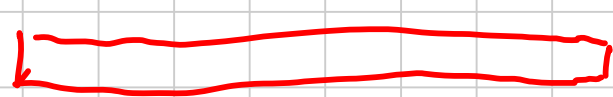
$$R_1 = R_2 = \frac{Q(2l_1 + l_2)}{2}$$



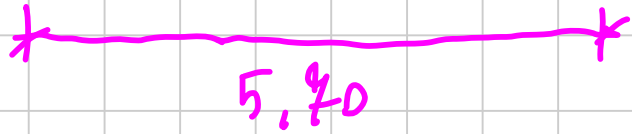
$$V = Qz - R_1$$

$$M = R_1 z - \frac{Qz^2}{2}$$





$$Q = (11,93 + 6) \times 1,2 = 21,5 \text{ KN/m}$$

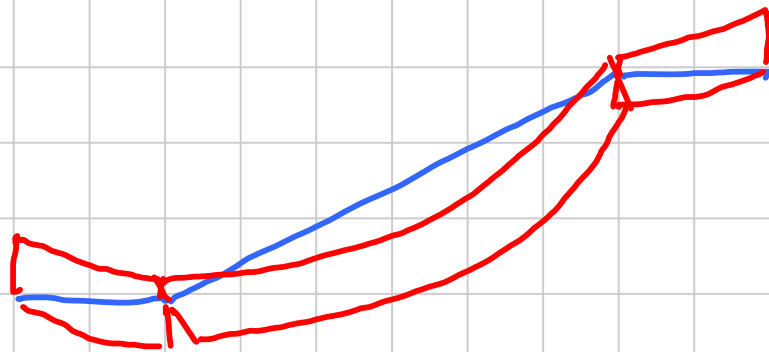


$$H_{\max} = \frac{Q L^2}{8} = \frac{21,5 \times 5,7^2}{8} = 87,3 \text{ KNm}$$



A horizontal beam is shown with a triangular load acting downwards. The load is represented by a red triangle above the beam, with the peak at the right end. The beam is supported by a pin support on the left and a roller support on the right.

$$\frac{QL^2}{12} = \frac{21.5 \times 5.7^2}{12} = 58.2 \text{ kNm}$$

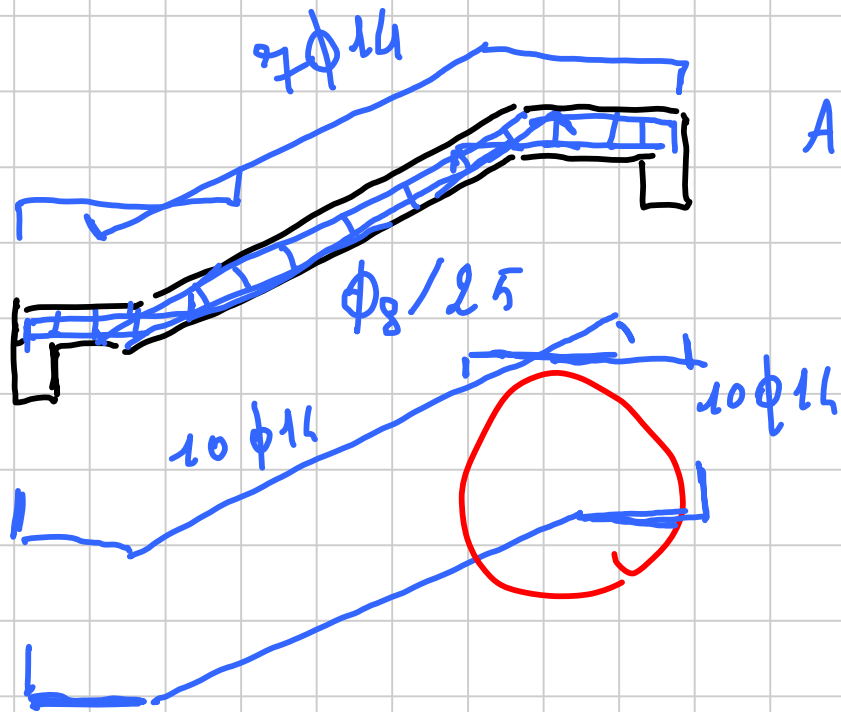


$$d = h - c = 16 \text{ cm}$$

$$c = 2,5 + 0,8 + 0,7 = 4 \text{ cm}$$

$$M_{ed} = \frac{b d^2}{2.1} \geq M_{max} = 87,3 \text{ kNm}$$

$$= \frac{1,2 \times 0,16^2}{0,0194^2} = 79,2 \text{ kNm}$$

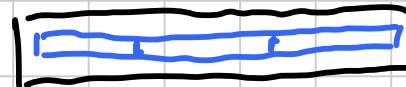


$$A_s = \frac{M_{Ed}}{0,7d f_{yd}} = \frac{87,3 \times 10}{0,7 \times 0,16 \times 391,3} = 15,5 \text{ cm}^2$$

$10 \phi 14$

$$A_s = \frac{58,2 \times 10}{0,7 \times 0,16 \times 391,3} = 10,3 \text{ cm}^2$$

$7 \phi 14$



$$V_{\max} = \frac{Q(2l_1 + l_2)}{2} = \frac{21.5 \times 5.7}{2} = 61.3 \text{ KN}$$

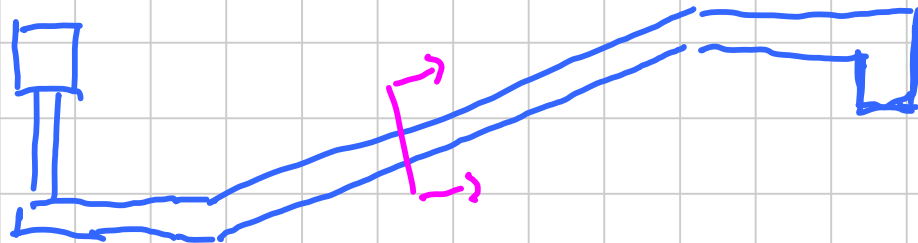
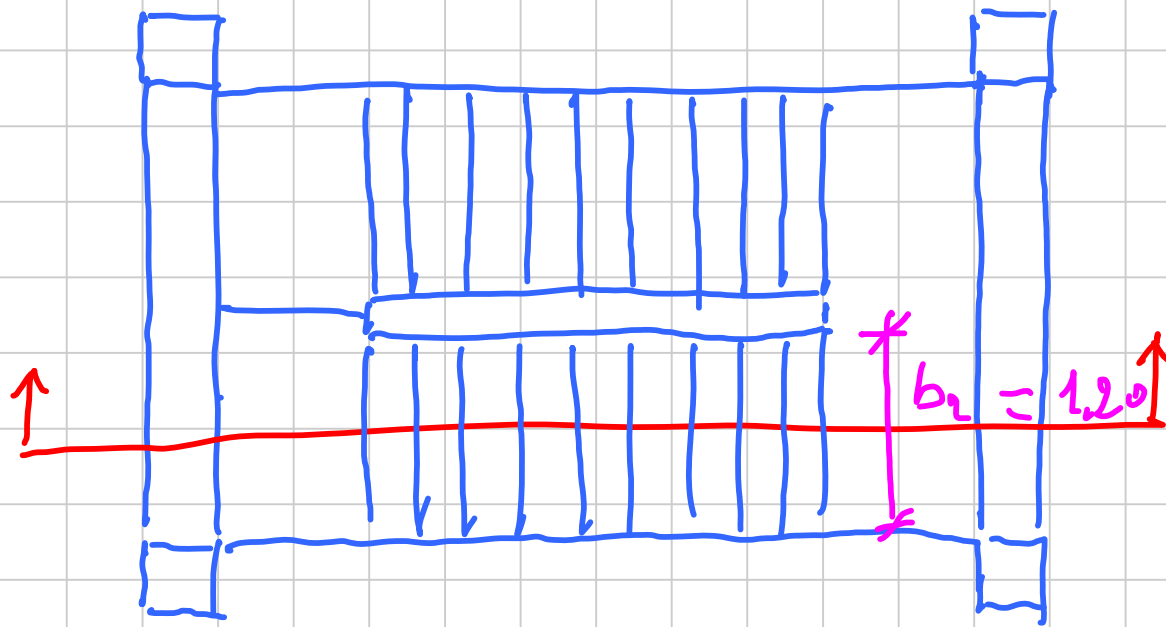
$$V_{Rd,e} = 0.18 K \sqrt[3]{100 \rho_l f_{ctk}} b_2 d \geq \frac{0.18 \times 2 \times \sqrt[3]{100 \times 0.0057 \times 25}}{1.5} \times 1200 \times \frac{160}{10^3}$$

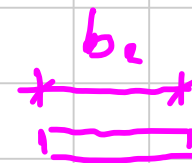
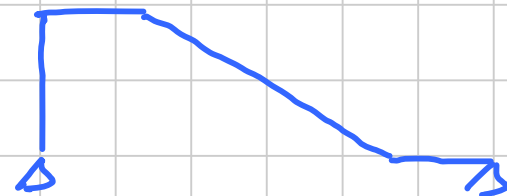
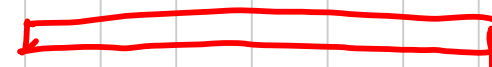
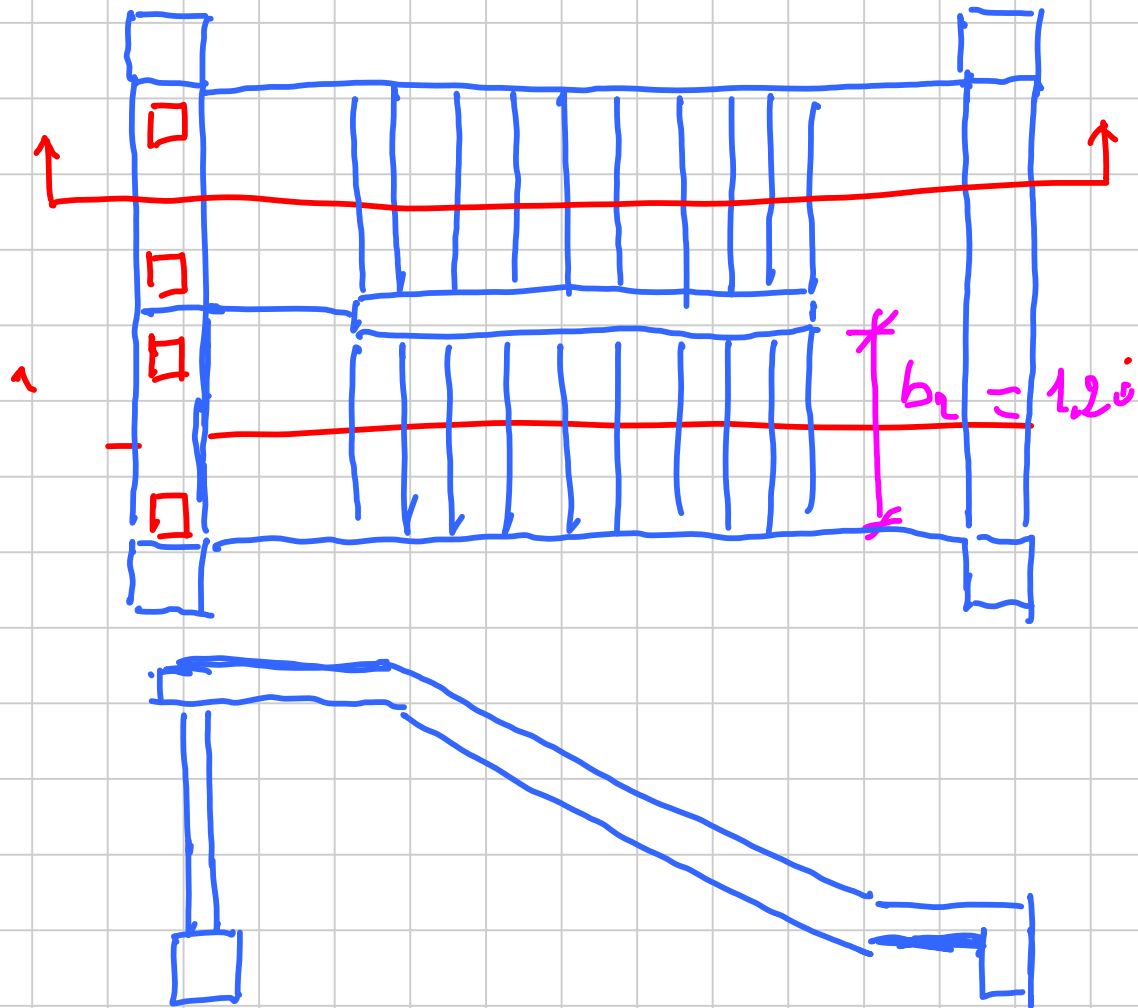
$$\stackrel{\gamma_c}{=} 111.7 \text{ KN} \geq 0.035 \sqrt{K'} f_{ctk} b_2 d$$

$$K: 1 + \sqrt{\frac{200}{d}} : 1 + \sqrt{\frac{200}{160}} = 2.12 \leq 2$$

$$\rho_l = \frac{A_s}{b_2 d} = \frac{4 \times 1.51}{120 \times 16} = 0.0057 \leq 0.02$$

SCALA ALLA GILBERTI





$\square 20 \times 10$

$\square 20 \times 10$

$\Rightarrow \square 40 \times 20$