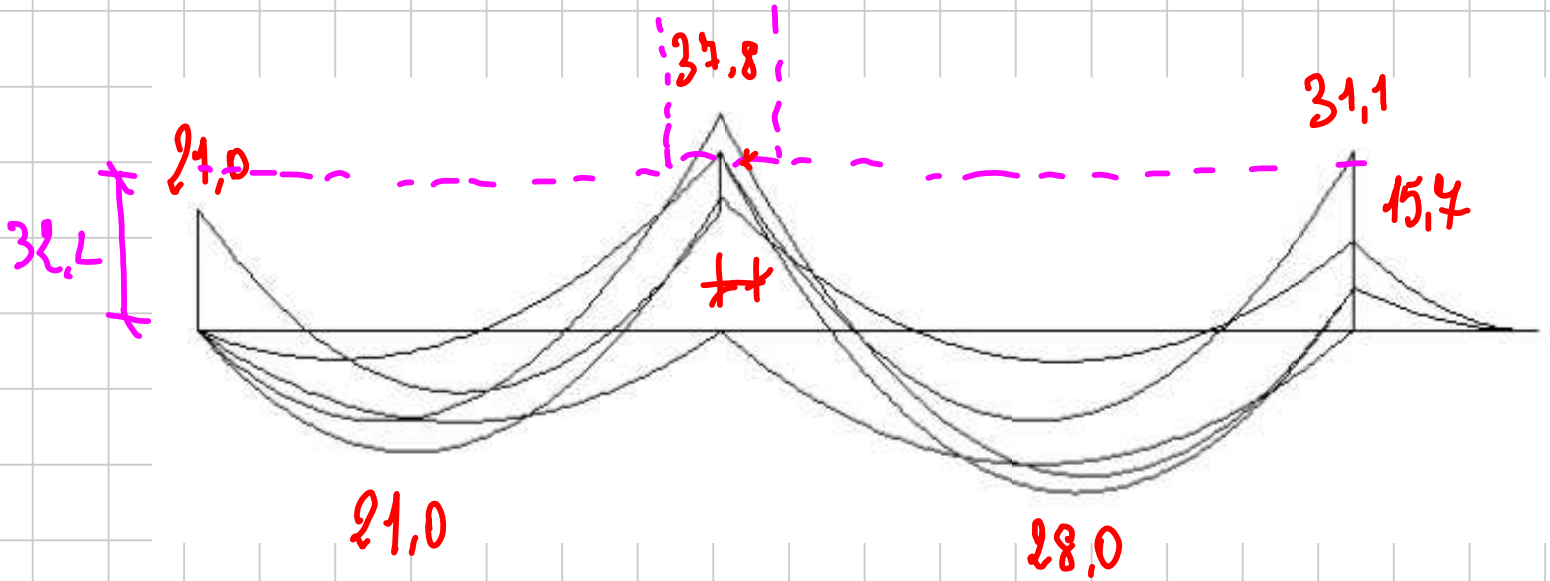
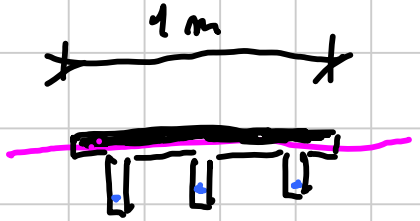
SOLAIO: VERIFICA DELLA SEZIONE IN CALCESTRUZZO

Titolo nota 27/04/2015





M_{Ed}^{+} $\Rightarrow$ $M_{Rd}^{+} = \frac{b\,d^2}{2\cdot 2}$

$b = 1\ m$

$d = 0.22$

$M_{Rd}^{+} = \frac{1 \times 0.22^2}{0.019^2} = 134.1\ KN\,m$

M_{Ed}^{-}

$b = 0.24\ m$

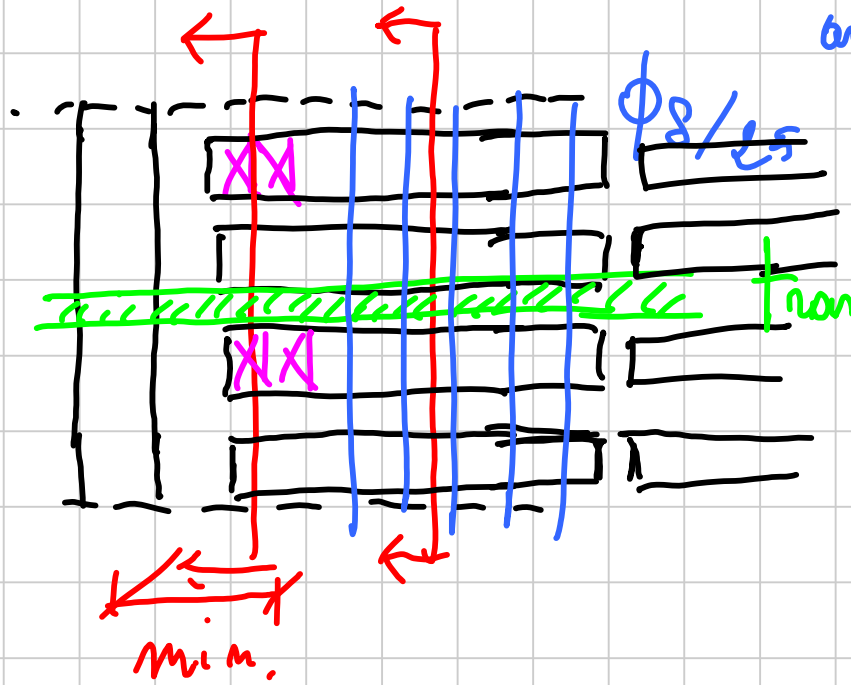
$M_{Rd}^{-} = \frac{b\,d^2}{2\cdot 2} = \frac{0.24 \times 0.22^2}{0.019^2} = 32.2\ kN\,m$

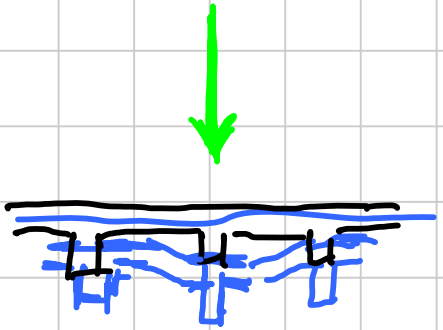
$$2{,}4 + \frac{2{,}5}{2} + 2{,}5 = 6{,}1{,}5 \text{ m}$$

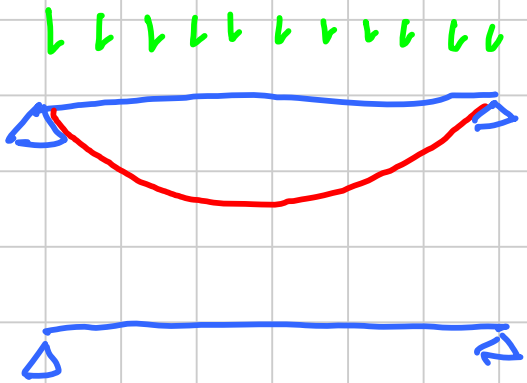
$b = 0{,}615 \text{ m}$

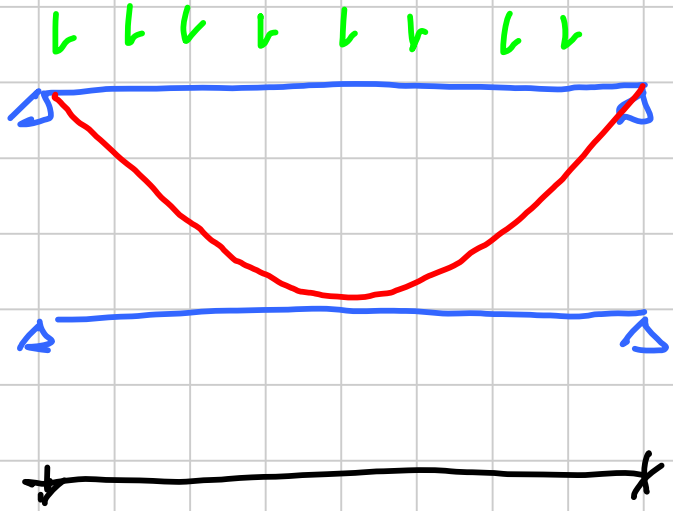
$$M^-_{Rd} = \frac{b\,d^2}{z'^2} = \frac{0{,}615 \times 0{,}22^2}{0{,}019^2} = 82.5 \text{ kN/m}$$

armatura di ripartizione

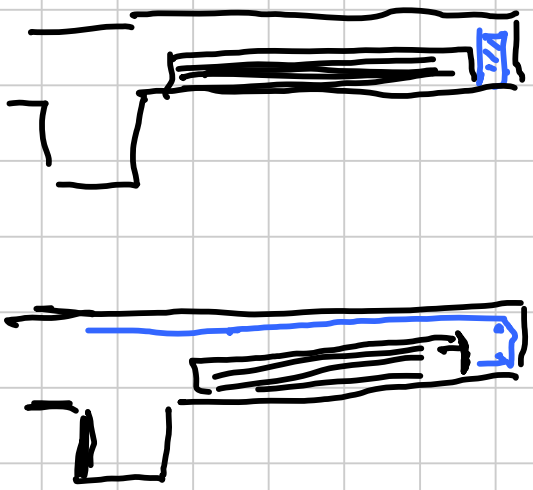


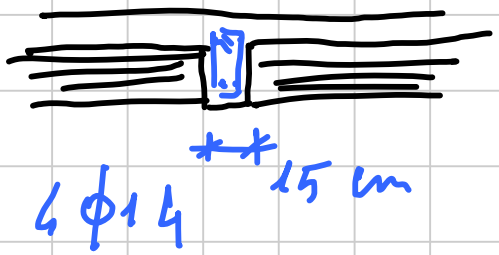






L ≥ 5 m





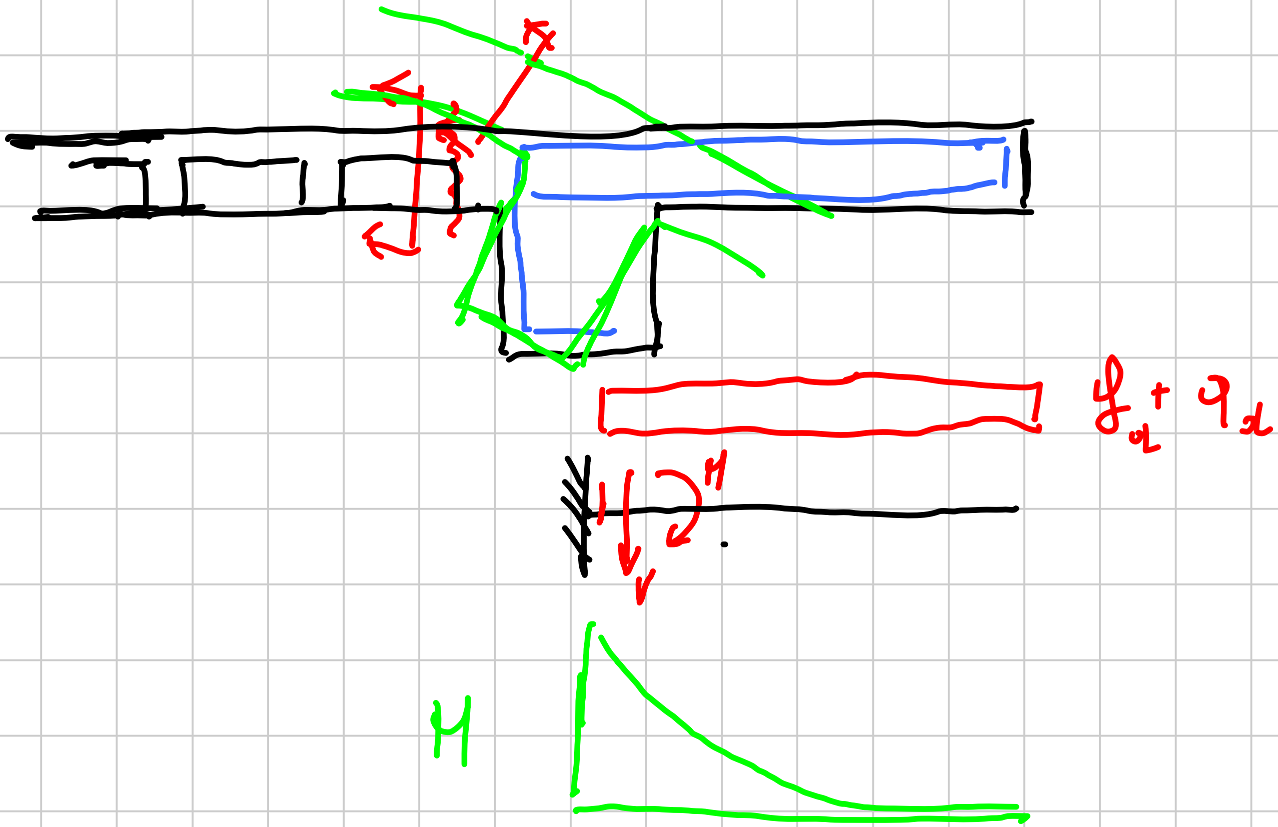
Tronchetto di ripartizione

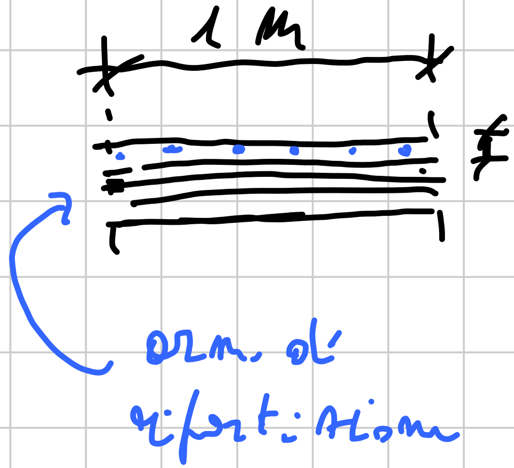
4 ϕ 14

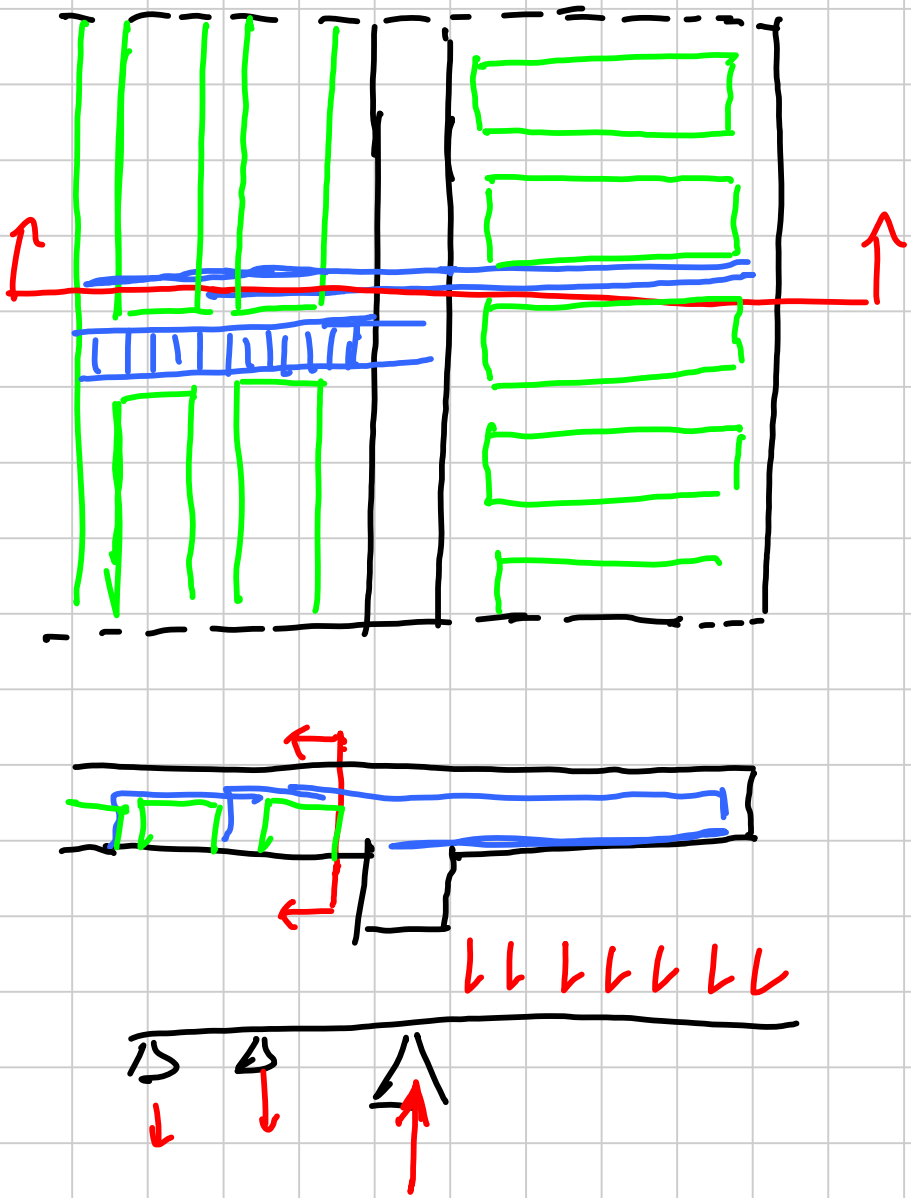
15 cm

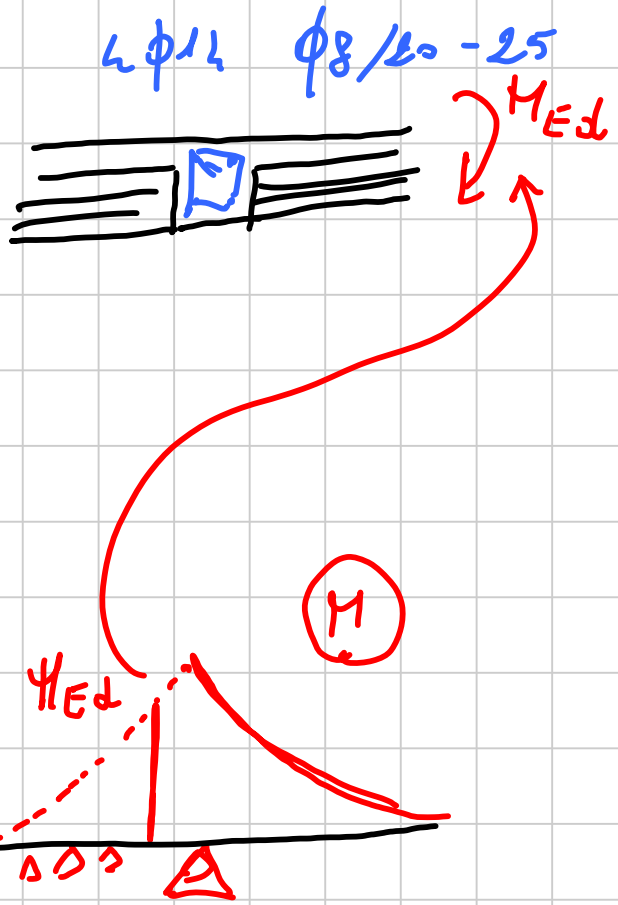
staffe ϕ8/20 - 25 cm

SBALZO LATERALE



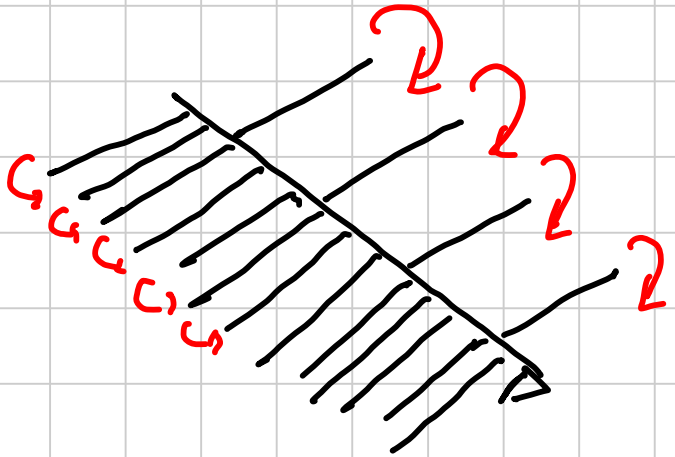


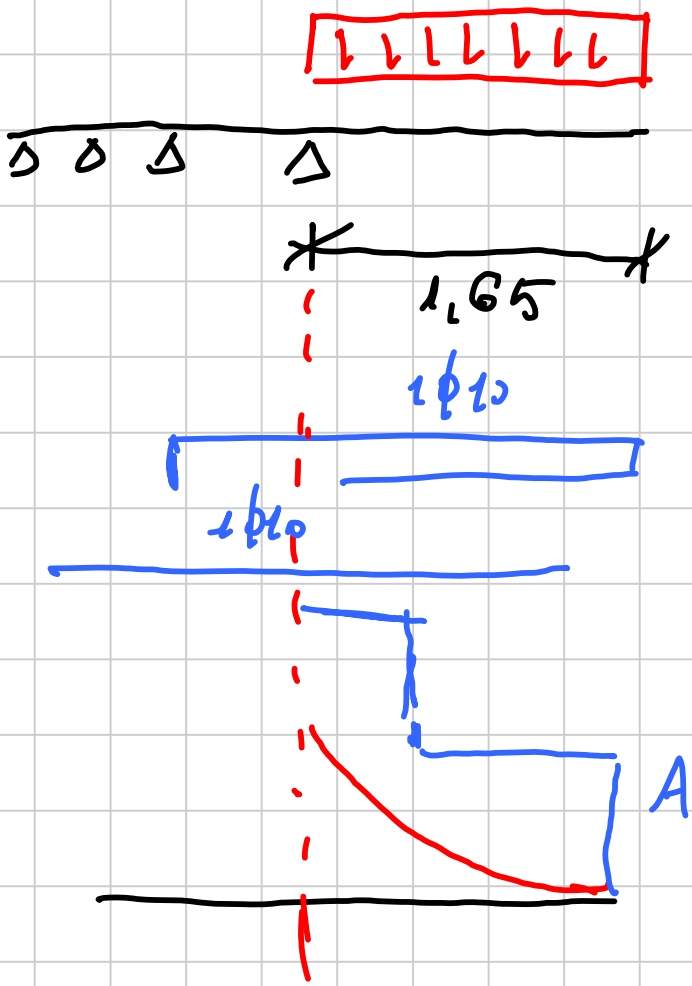



4 ϕ 14
ϕ 8 / 20 - 25
M_Ed
M
M_Ed

$$M_{Ed} = M_{Rd} = \frac{b\,d^2}{\eta \cdot \ell} \Rightarrow b = \frac{\eta^2 \cdot M_{E.L}}{d^2}$$ per fascia larga 1 m

$$\frac{b}{1\,m} = \frac{b_{data}}{i} \Rightarrow i = 1\,m \times \frac{b_{data}}{b}$$





$g_d + q_d = 6 + 6 = 12.0 \ kN/m$

$$M_{Ed} = \frac{q l^2}{2} = \frac{12 \times 1{,}65^2}{2} = 16{,}3 \ kNm$$

$$A_s = \frac{M_{Ed}}{0{,}9 d f_{yd}} = \frac{16{,}3 \times 10}{0{,}9 \times 0{,}18 \times 391{,}3} = 2{,}29 \ cm^2$$

$$A_s^{trasv.} = \frac{2.29}{3} = 0{,}76 \ cm^2$$

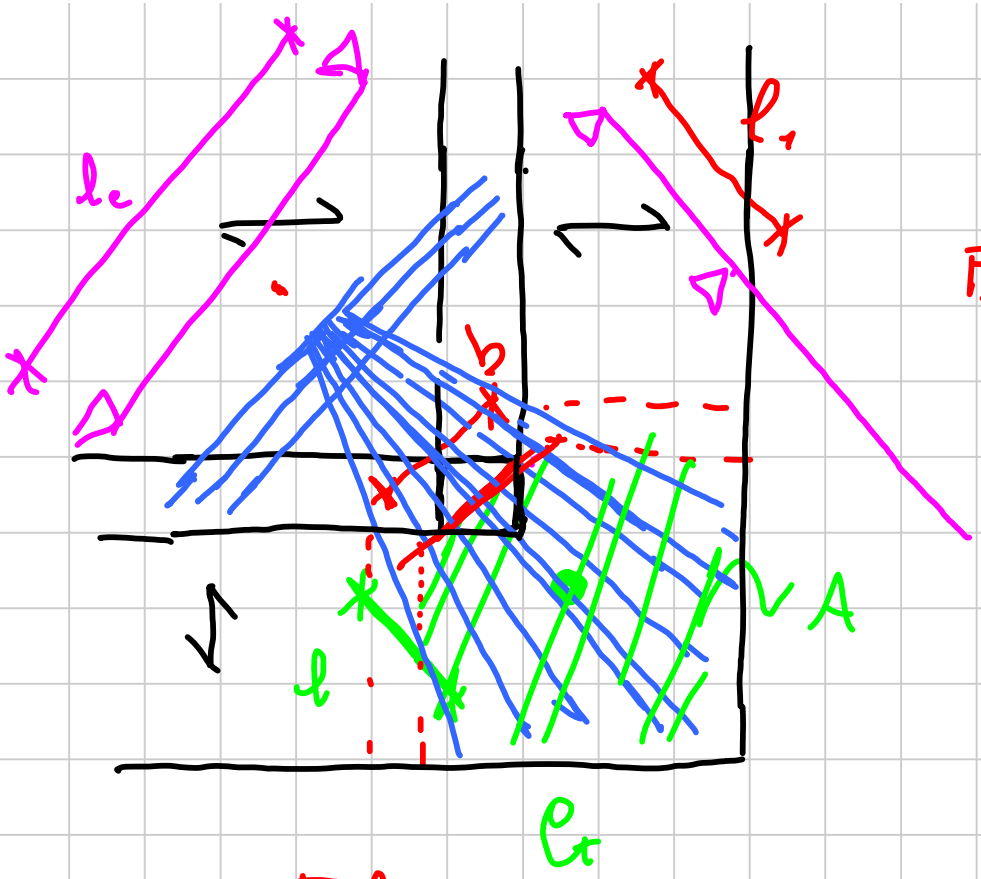
~~1ϕ10~~ 2ϕ10

$$b = \frac{r'^2 \, M_{Ed}}{d^2} = \frac{0.019^2 \times 16.3}{0.18^2} = 0.18 \text{ m}$$

$$b_{data} = b_{figure} = 40 \text{ cm}$$

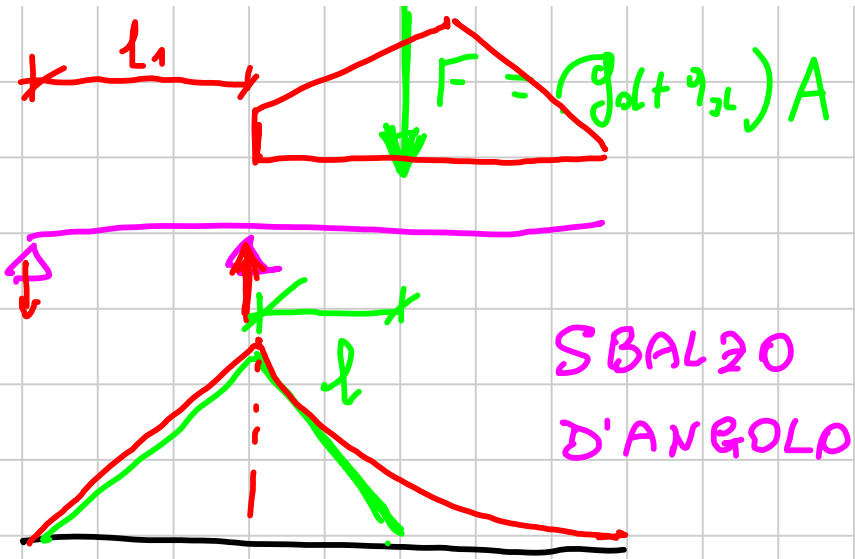
$$i = 1 \text{ m} \times \frac{b_{data}}{b} = 1 \text{ m} \times \frac{40}{18} = \cancel{2.2 \text{ m}}$$

2 m



C_t

$F_1 = \frac{F\,l}{l_1}$ $\quad M_{Ed} = \frac{F_1\,l_c}{4}$

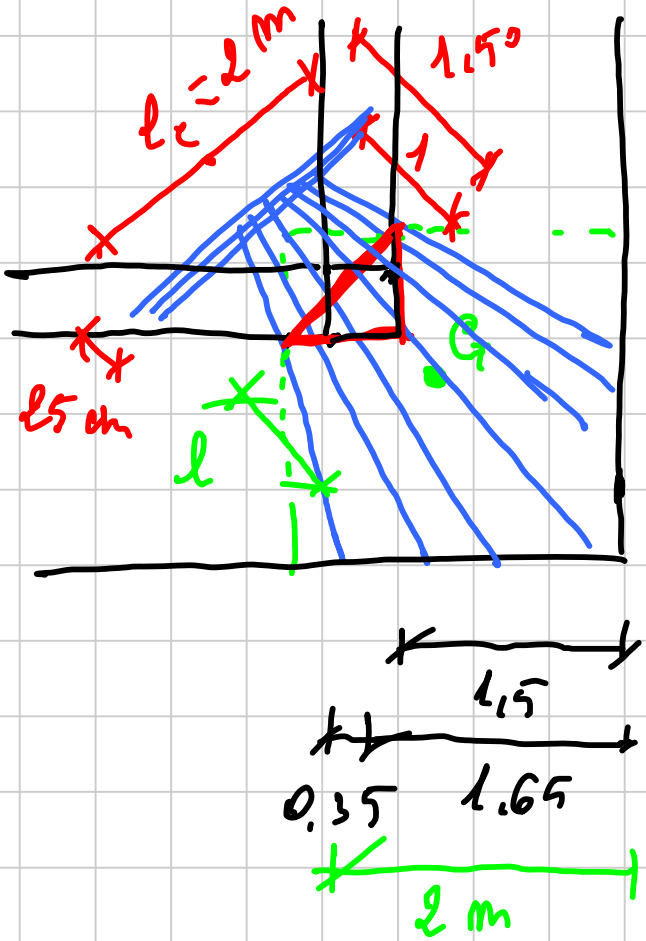


SBALZO D'ANGOLO

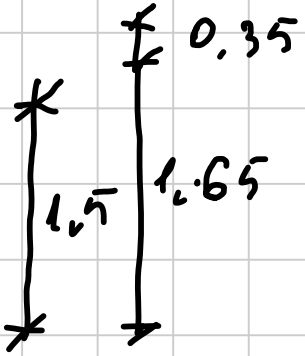
$M_{Ed} = F\,l$

$M_{Rd} = \frac{b\,d^2}{2'L} \geq M_{Ed}$

$A_s = \frac{M_{Ed}}{0{,}9\,d\,f_{yd}}$



$$b = (0{,}15 + 0{,}35) \times \sqrt{2} = 0{,}7 \text{ m}$$



$$A = 2 \times 2 = 4 \text{ m}^2$$

$$F = 12 \times 4 = 48 \text{ KN}$$

$$l = \frac{2 \times \sqrt{2}}{2} - \frac{0{,}7}{2} = 1{,}05 \text{ m}$$

$$M_{Ed} = Fl = 48 \times 1.05 = 50{,}4 \text{ kNm}$$

$$M_{Rd} = \frac{b d^2}{z^2} = \frac{0{,}7 \times 0{,}18^2}{0{,}019^2} = 62{,}8 \text{ kNm} \quad \text{OK!}$$

$$A_s = \frac{M_{Ed}}{0{,}1 d f_{yd}} = \frac{50{,}4 \times 10}{0{,}7 \times 0{,}18 \times 391{,}3} = 8{,}0 \text{ cm}^2$$

$11 \phi 10$

$A_s = 8{,}6 \text{ cm}^2$

$$F_1 = F \frac{l}{l_1} = 48 \times \frac{1{,}05}{1} = 50{,}4 \text{ kN}$$

$$M_{Ed} = F_1 \times \frac{l}{4} = 50{,}4 \times \frac{2}{4} = 25{,}2 \text{ kNm}$$

$$M_{Ed} = \frac{b d^2}{2^{\cdot 2}} \Rightarrow b = \frac{2^{\cdot 2} M_{Ed}}{d^2} = \frac{0.019^2 \times 25.2}{0.21^2} =$$

$$= 0.21 \text{ m}$$

25 cm

$$A_s = \frac{M_{Ed}}{0.1\, d\, f_{yd}} = \frac{25.2 \times 10}{0.1 \times 0.21 \times 321.3} = 3.41 \text{ cm}^2$$

$3\phi 14$ $A_s = 3 \times 1.54$

$= 4.62 \text{ cm}^2$

armature superior