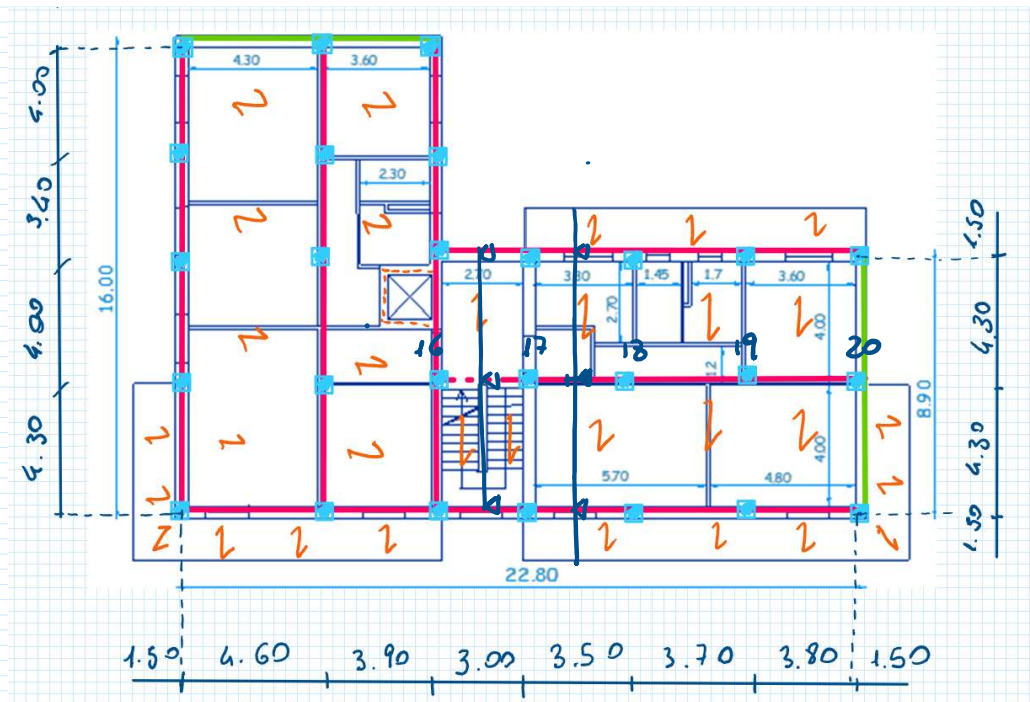


- 1) DIMENSIONI DELLE SEZ. TRASVERSALI

TR. EMERGENTE ✓

TR. SPESSORE (SE C'È) ✓
- 2) MODELLI DI CALCOLO + SCHEMI ✓
- 3) CARICHI SULLE CAMPATE → COMB. DI CARICO ✓
- 4) DIAGRAMMI M E V ✓

1) SEZ. TRASVERSALE TRAVE A SPESSORE



$$M_{17} = \frac{1}{2} \left[\left(\frac{QL^2}{8} \right)_{16 \cdot 17} + \left(\frac{QL^2}{12} \right)_{17 \cdot 18} \right]$$

CAMPATA 16.17

$$L = 3.0 \text{ m}$$



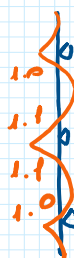
$$Q = \begin{cases} \text{SOLAIO} & = \frac{4.3}{2} \times 1.2 \times (8.4 + 3) = 29.4 \text{ kN/m} \\ \text{SCALA} & = \frac{4.3}{2} \times 1.2 \times (8.97 + 16) = 38.6 \text{ kN/m} \\ \text{P.P. TR.SP} & : 1.0 \times 2.22 = 2.22 \text{ kN/m} \end{cases}$$

$$70.22 \text{ kN/m}$$

$$M_{16.17} = \frac{70.22 \times 3.0^2}{8} = 79.0 \text{ kNm}$$

CAMPATA 17.18

$$L = 3.5$$



$$\left(\text{SOLAIO} = \left[\left(\frac{4.3}{2} \times 1.1 \right) + \left(\frac{4.3}{2} \times 1.1 \right) \right] \times (8.4 + 3) = 53.92 \text{ kN/m} \right.$$

$$Q = \begin{cases} \text{SOLAIO} = \left[\left(\frac{4.3}{2} \times 1.1 \right) + \left(\frac{4.3}{2} \times 1.1 \right) \right] \times (3.4 + 3) = 53.92 \text{ kN/m} \\ \text{P.P. TR. EM} = 1.0 \times 3.74 = 3.74 \text{ kN/m} \end{cases}$$

$$57.66 \text{ kN/m}$$

$$M_{17.18} = \frac{57.66 \times 3.5^2}{12} = 58.86 \text{ kNm}$$

QUINDI:

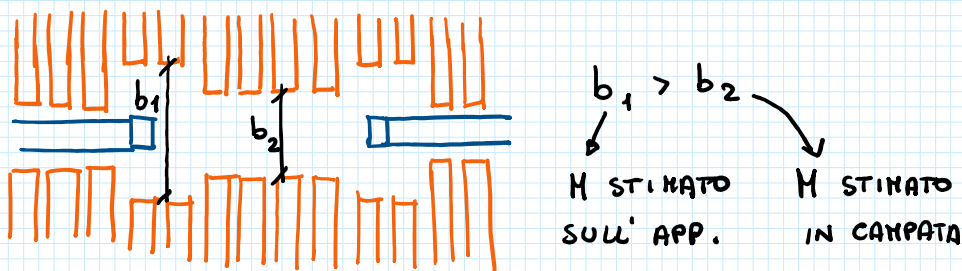
$$M_{17} = \frac{1}{2} (79 + 58.86) = 68.83 \text{ kNm}$$

$$M_{Rd} = \frac{b d^2}{z^2} = M_{Ed}$$

$$d = h_{sol} - c = 23 - 4 = 19 \text{ cm} = 0.19 \text{ m}$$

$$b = \frac{M_{Ed} z^2}{d^2} = \frac{68.83 \cdot 0.019^2}{0.19^2} = \cancel{0.68} \text{ m} \quad 70 \text{ cm}$$

SE LA b È MOLTO GRANDE $\Rightarrow b$ VARIABILE



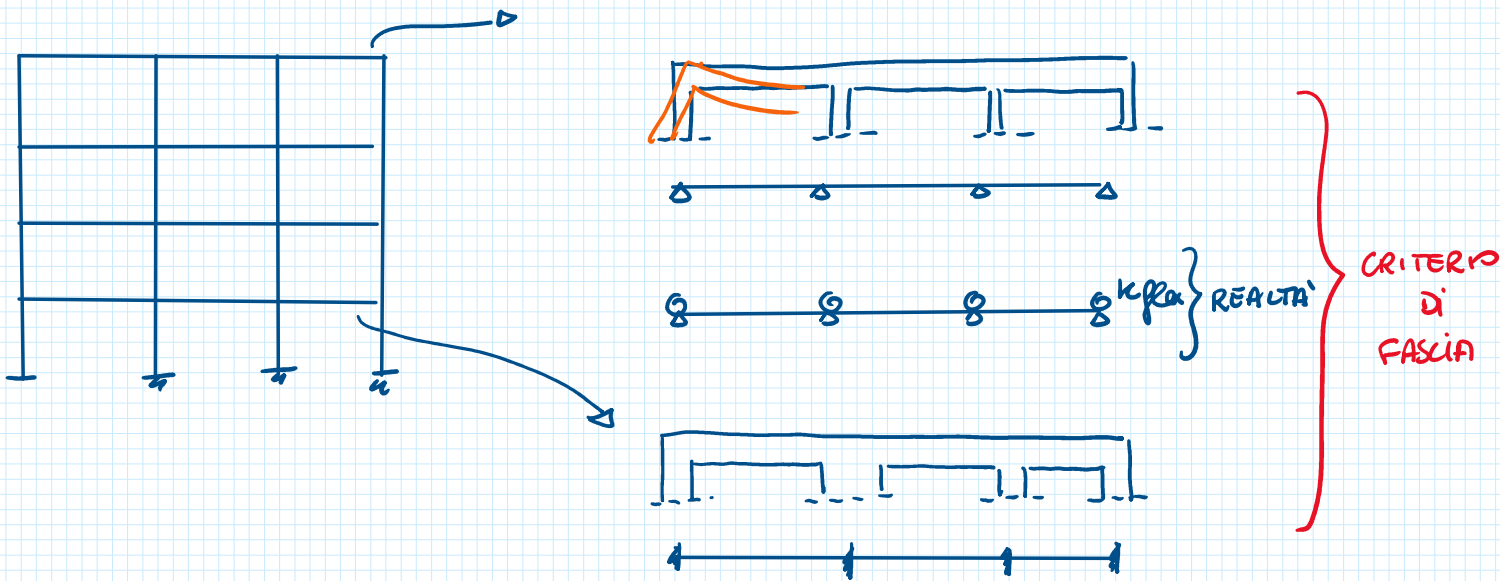
PER STIMARE M_{Ed} IN CAMPATA:

1) $Q = G_d + Q_d$

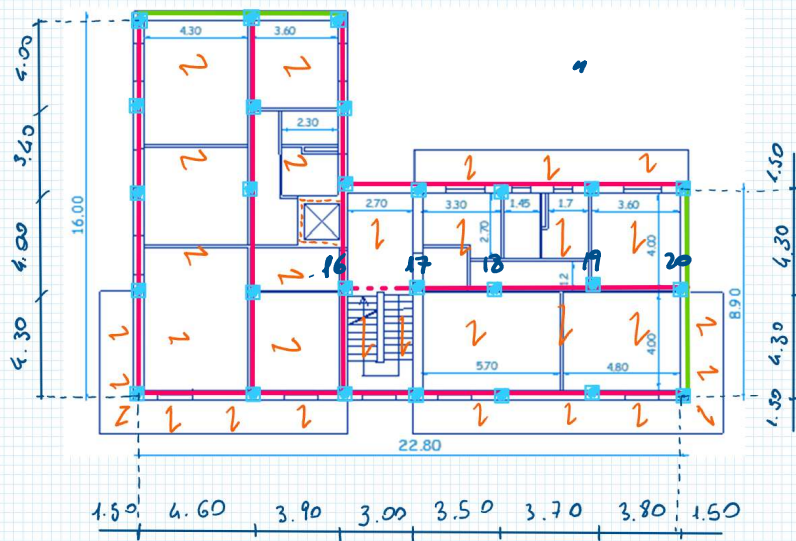
$\frac{QL^2}{14}$

2) $(Q/2) \frac{L^2}{8} = \frac{QL^2}{16}$

2) MODELLI DI CALCOLO



3) CARICHI E COMBINAZIONI



CARICO CAMP. 16 · 17

Carichi	Carichi unitari			Area su 1 m trave	Carichi per 1m			
	gd min	gd max	qd		Gd min	Gd max	Qd	
Solaio	7.6	8.4	3	2.365	17.97	19.87	7.10	
Scala	8.97		6	2.365		21.21	14.19	
Balcone	5.66		6.36			0.00	0.00	
				L su 1 m trave				
Tamp	5.37					0.00	0.00	
PP Tr. Em	3.74					0.00	0.00	
PP Tr. Sp	2.22			1		2.22	0.00	
					Gd min	Gd max	Qd	
					41.41	43.30	21.29	kN/m
						Gd max + Qd	64.59	kN/m

CAMPATA 17-18, 18-19, 19-20

Carichi	Carichi unitari			Area su 1 m trave	Carichi per 1m		
	gd min	gd max	qd		Gd min	Gd max	Qd
Solaio	7.6	8.4	3	4.73	35.95	39.73	14.19
Scala	8.97		6		0.00		0.00
Balcone	5.66		6.36		0.00		0.00
				L su 1 m trave			
Tamp	5.37				0.00		0.00
PP Tr. Em	3.74			1	3.74		0.00
PP Tr. Sp	2.22				0.00		0.00
					Gd min	Gd max	Qd
					39.69	43.47	14.19 kN/m
						Gd max + Qd	57.66 kN/m

COMBINAZIONI DI CARICO

1) MAX M CAMP DISPARI

$$G_{dmax} + Q_d \quad G_{dmin} \quad G_{dmax} + Q_d \quad G_{dmin}$$

$$64.59 \quad 39.69 \quad 57.66 \quad 39.69$$

2) MAX M CAMP PARI

$$G_{dmin} \quad G_{dmax} + Q_d \quad G_{dmin} \quad G_{dmax} + Q_d$$

$$41.4 \quad 57.66 \quad 39.69 \quad 57.66$$

3) MAX M APP 17

$$G_{dmax} + Q_d \quad G_{dmax} + Q_d \quad G_{dmin} \quad G_{dmax} + Q_d$$

$$64.59 \quad 57.66 \quad 39.69 \quad 57.66$$

4) MAX M APP 18

$$G_{dmin} \quad G_{dmax} + Q_d \quad G_{dmax} + Q_d \quad G_{dmin}$$

$$41.4 \quad 57.66 \quad 57.66 \quad 39.69$$

TRAVE CON

$$b_{ALA} = 0 \text{ cm}$$

$$S_{ALA} = 0 \text{ cm}$$

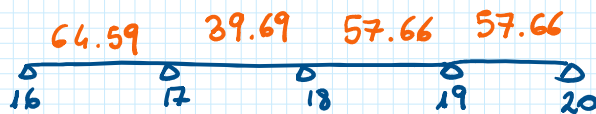
L_{TRAVI} ULTIMO PIANO

$$1:50$$

$$1 \text{ cm} = 25 \text{ kNm}$$

5) MAX M APP 19

$G_{ol_{max}} + Q_d$ $G_{ol_{min}}$ $G_{ol_{max}} + Q_d$ $G_{ol_{max}} + Q_d$



6)

$G_{ol_{max}} + Q_d$ $G_{ol_{max}} + Q_d$ $G_{ol_{max}} + Q_d$ $G_{ol_{max}} + Q_d$

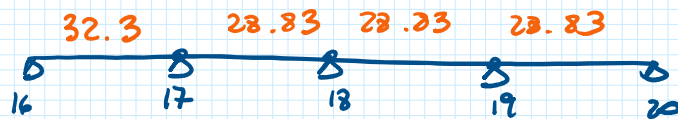


	C 16-17	C 17-18	C 18-19	C 19-20
L (m)	3	3.5	3.7	3.8
G _{ol} max + Q _d	64.59	57.66	57.66	57.66
Q _L ² /12	48.44	58.86	65.78	69.38

MOHCAD

7)

$(G_{ol_{max}} + Q_d)/2$



4) DIAGRAMMI M_{ed}

SCALA LUNGHEZZE 1:50

SCALA MOMENTI 1 cm = 25 kNm

