

PROGETTO PILASTRI

giovedì 16 aprile 2020

13:58

PIANO	N_{ed}	A_c	A_s	INCREMENTO PER VENTO A_c^{inc} A_s^{inc}	
6	439 kN	①	②	$1,2 A_c$	$1,2 A_s$
5	$439 \text{ kN} \times 2$				
4	\vdots				
3	\vdots				
2	\vdots				
1	439×6				



PER PICCOLI
 M_{ed}

CONSIDERO

$$1,2 N_{ed} \Rightarrow$$

$$\textcircled{1} \quad A_c = \frac{N_{ed}}{f_{cd}} \quad \frac{\text{KN}}{\text{MPe}} \times 10 \rightarrow \text{cm}^2$$

$$\textcircled{2} \quad A_s = 0,2 \frac{N_{ed}}{f_{yd}} \quad \frac{\text{KN}}{\text{MPe}} \times 10 \rightarrow \text{cm}^2$$

RESISTENZA ASSIALE OTTENUTA:

$$N_{rd} = A_c f_{cd} + A_s f_{yd} = N_{ed} + 0,2 N_{ed}$$

Piano	$N_{ed} [\text{kN}]$	SENZA VENTO		INCREMENTATO X VENTO	
		A_c	A_s	A_c	A_s
6	439	309.9	2.24	371.9	2.69
5	878	619.8	4.49	743.7	5.39
4	1317	929.6	6.73	1115.6	8.08
3	1756	1239.5	8.98	1487.4	10.77
2	2195	1549.4	11.22	1859.3	13.46
1	2634	1859.3	13.46	2231.2	16.16

$$\frac{N_{ed}}{f_{cd}}$$

$$0,2 \frac{N_{ed}}{f_{yd}}$$

INCREMENTO ULTERIORE PER 1.2

SCELTA DELLE SEZIONI

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OPZIONE 1

OPZIONE 2

PIANO 6	$A_{c,rich} =$	371,9 cm ²	$30 \times 30 \Rightarrow$	$A_c = 300 \text{ cm}^2$
5		743,7	$30 \times \cancel{30}^{40}$	
4		1115,6 cm ²	$30 \times \cancel{40}^{50}$	$A_c = 1200 \text{ cm}^2$
3		1487,4 cm ²	$30 \times \cancel{50}^{60}$	1500 cm ²
2		1859,3 cm ²	$\rightarrow 30 \times 70$ 40×50	2100
1		2231,2 cm ²	30×80 40×60	2400 cm

OPZIONE 1 \rightarrow INCREMENTO SEZ. DEI PIANI
5,4,3 PER EVITARE
RISEGA DI 20 CM

PROGETTO ARMATURE

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1. DA GEOMETRIA SEZIONE DEFINISCO IL NUMERO DELLE BARRE

2. VERIFICO CHE $A_s > \begin{cases} A_{s,NEC} \\ 0,3\% A_{c,DISP} \end{cases}$

↑
CONSIGLIO ALMENO
0,6%.

OPZIONE 1

NECESSARIA

DISPOSTA

0.60%

Piano	Ned [kN]	Ac	As	Incremento per M		base	altezza	Ac disp	A min	As rich
				Ac	As					
6	439	309.9	2.24	371.9	2.69	30	30	900	5.4	5.4
5	878	619.8	4.49	743.7	5.39	30	40	1200	7.2	7.2
4	1317	929.6	6.73	1115.6	8.08	30	50	1500	9.0	9.0
3	1756	1239.5	8.98	1487.4	10.77	30	60	1800	10.8	10.8
2	2195	1549.4	11.22	1859.3	13.46	30	70	2100	12.6	13.5
1	2634	1859.3	13.46	2231.2	16.16	30	80	2400	14.4	16.2

VALORE MASSIMO
TRA LE DUE
CONDIZIONI
[cm²]

OPZIONE 2

NECESSARIA

DISPOSTA

0.60%

Piano	Ned [kN]	Ac	As	Incremento per M		base	altezza	Ac disp	A min	As rich
				Ac	As					
6	439	309.9	2.24	371.9	2.69	30	30	900	5.4	5.4
5	878	619.8	4.49	743.7	5.39	30	30	900	5.4	5.4
4	1317	929.6	6.73	1115.6	8.08	30	40	1200	7.2	8.1
3	1756	1239.5	8.98	1487.4	10.77	30	50	1500	9.0	10.8
2	2195	1549.4	11.22	1859.3	13.46	40	50	2000	12.0	13.5
1	2634	1859.3	13.46	2231.2	16.16	40	60	2400	14.4	16.2

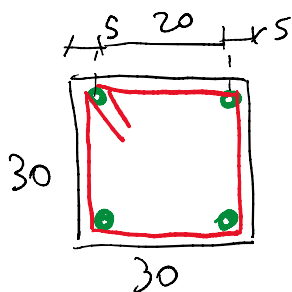
cm²

ABACO DELLE SEZIONI

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UTILIZZO $\phi 14, \phi 20$

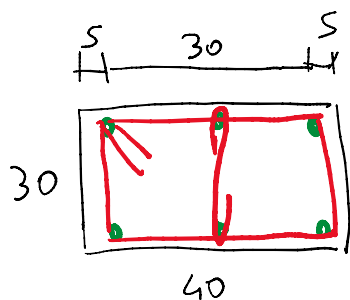
SEZIONE 30×30



4 $\phi 14$

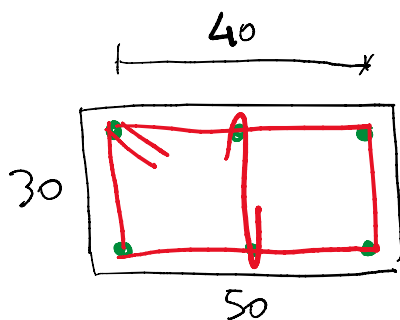
$$\rightarrow A_s = 4 \times 1,54 \text{ cm}^2 \\ = 6,15 \text{ cm}^2 \\ > 5,4 \text{ cm}^2 [A_{s,rich}]$$

SEZIONE 30×40



$$6 \phi 14 \rightarrow A_s = 6 \times 1,54 = 9,24 \text{ cm}^2 \\ > 7,2 \text{ cm}^2$$

SEZIONE 30×50



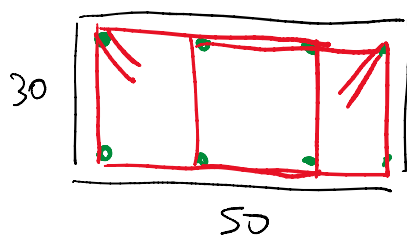
6 $\phi 14$

$$A_s = 9,24 \text{ cm}^2$$

PER OPZIONE 1 $A_{rich} = 9 \text{ cm}^2$

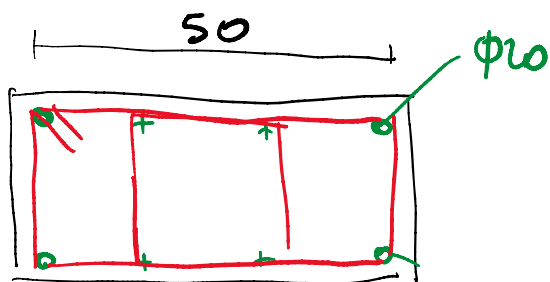
PER OPZIONE 2 $A_{rich} = 10,8 \text{ cm}^2$

... IN CASO DI OPZIONE 2



$$8 \phi 14 \quad A_s = 12,32 \text{ cm}^2$$

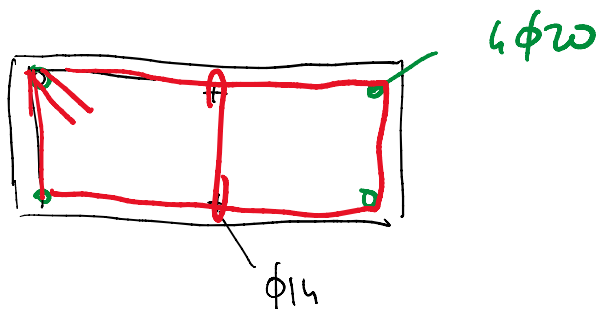
SEZIONE 30x60



$$4\phi 20 + 4\phi 14$$

$$A_s = 28.72 \text{ cm}^2$$

OPPURE

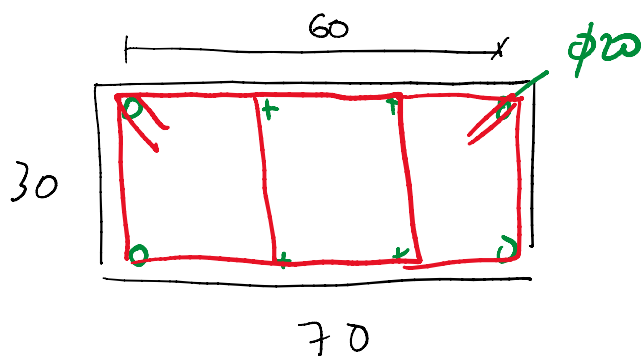


$$4\phi 20 + 2\phi 14$$

$$A_s = 15.65 \text{ cm}^2$$

NOTA: SE $h_{pil} \geq 60 \text{ cm}$ MEGLIO $\phi 20$ AGLI SPIGOLI

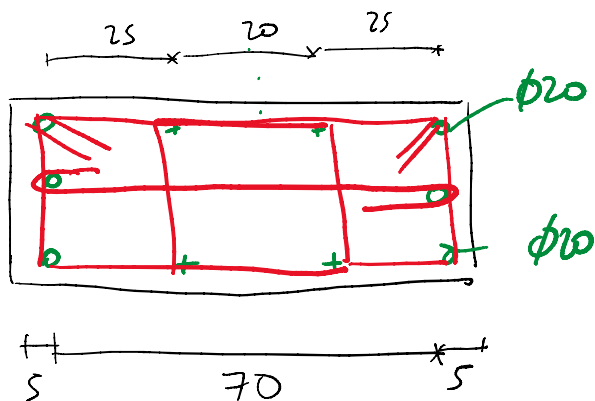
SEZIONE 30x70



$$4\phi 20 + 4\phi 14$$

$$A_s = 18.72 \text{ cm}^2$$

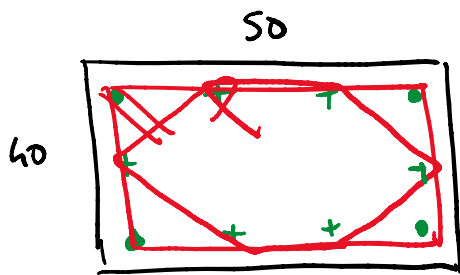
SEZIONE 30x80



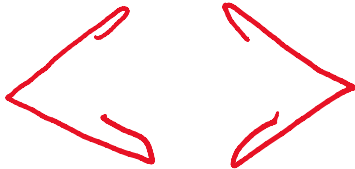
$$6\phi 20 + 4\phi 14$$

NOTA. PER PILASTRI MOLTO ALLUNGATI MEGLIO AUMENTARE ARMATURA SUL LATO CORTO

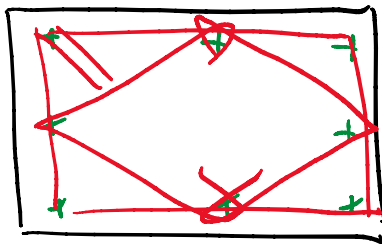
SEZIONE 40 x 50



OPPURE



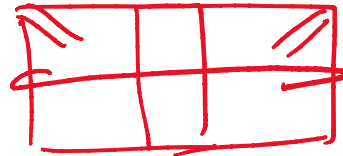
OPPURE



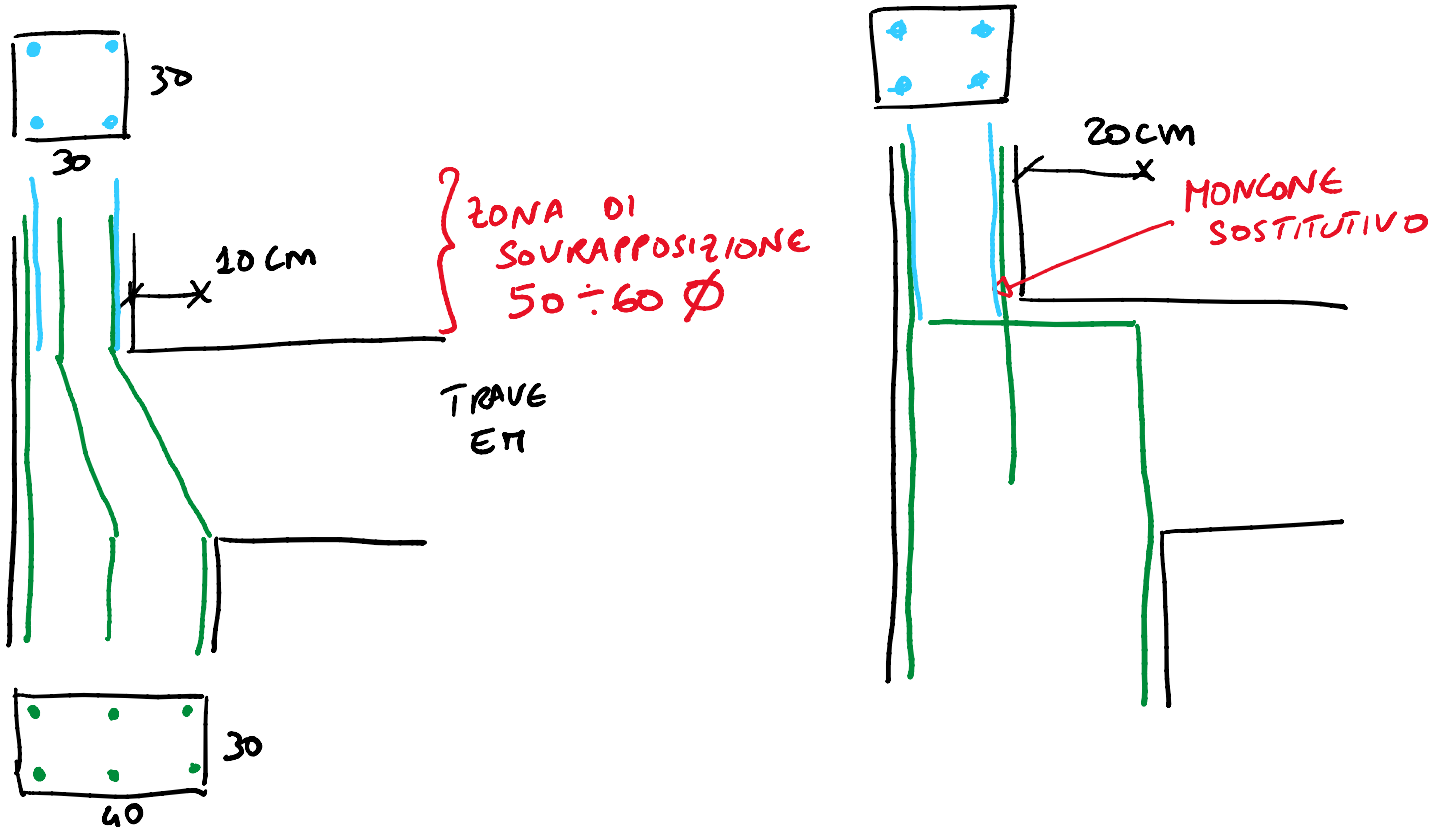
$4\phi 20 + 6\phi 14$

OPPURE $10\phi 14$

OPPURE



RISEGA LATERALE CON TRAVE EMERGENTE



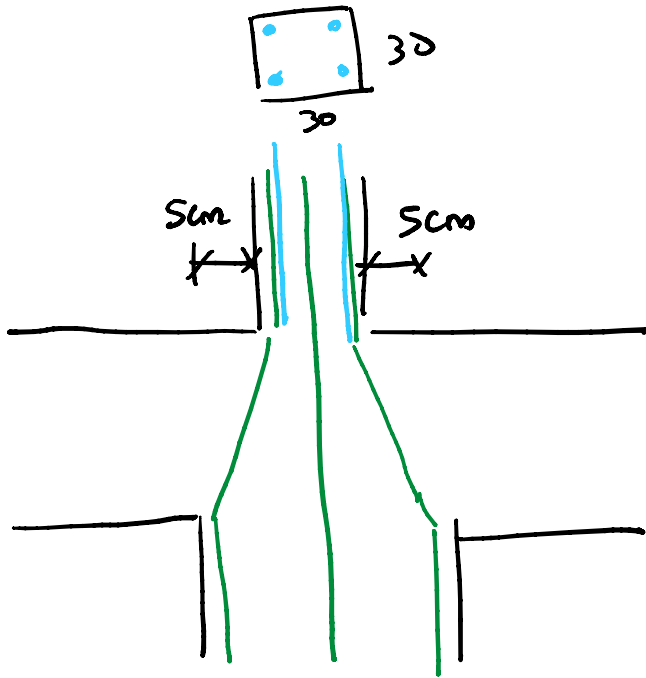
RISEGA LATERALE CON TRAVE A SPESSORE



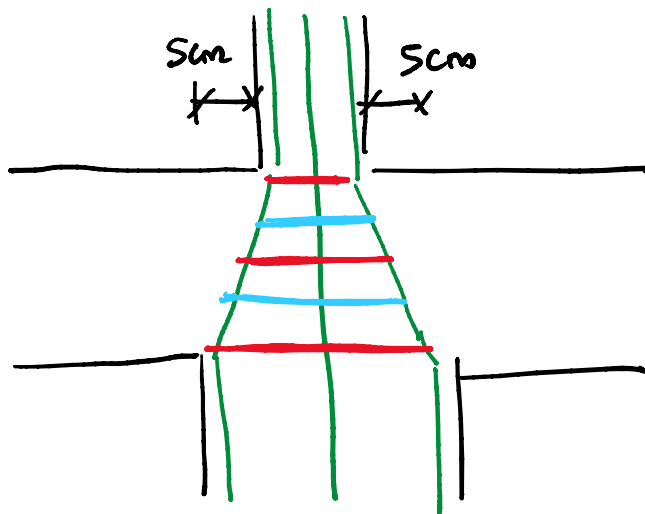
RISEGA CENTRALE

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15:32



STAFFE NEL NODO



LUNGHEZZA DEFINITA
NELLA PARTE
PIU' STRETTA



SOVRAPPOSIZIONE VARIABILE



LUNGHEZZA
VARIABILE