

CARICO

 G_d Q_{d1}

SOLAIO

$$6,43 \times \frac{5,9}{2} \times 1$$

$$5,4 \times \frac{5,9}{2} \times 1$$

18,9

15,9

9,0

BALCONE

8,6

TAMP.

6,6

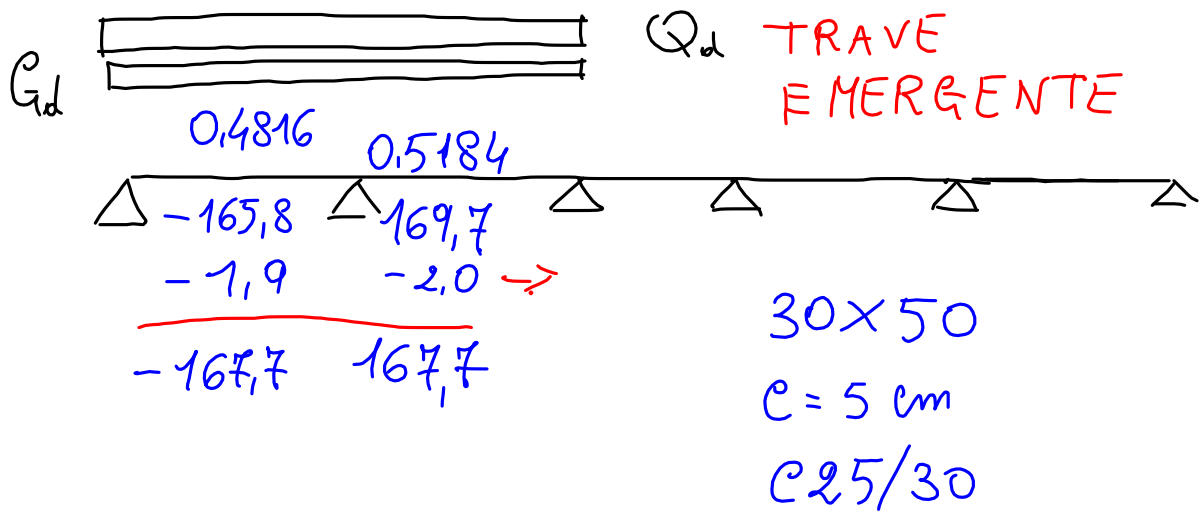
P.P.

3,7

37,8

+

$$24,9 = 62,7 \text{ KN/m}$$



$$M_{Rd} = \frac{b d^2}{\gamma^2} = \frac{0,3 \times 0,45^2}{0,018^2} = 187,5 \text{ KNm}$$

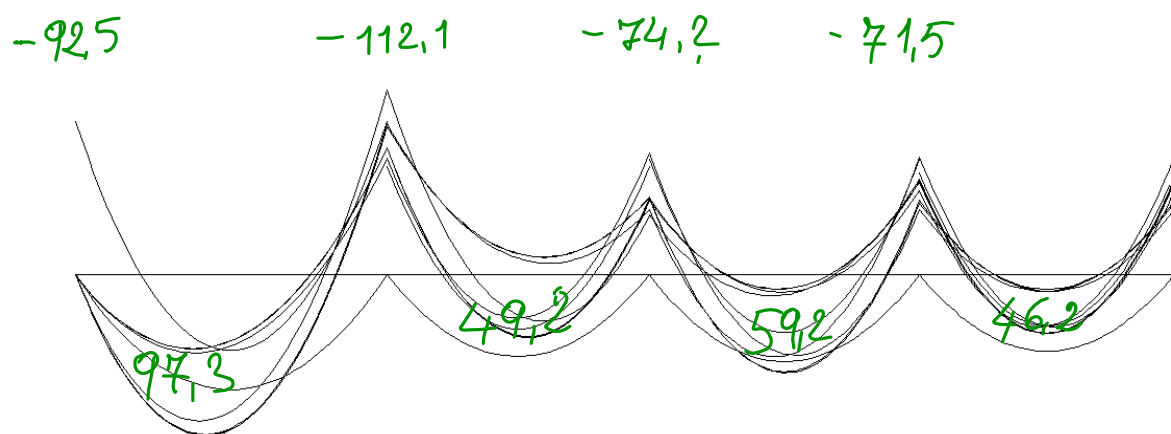
OK!

TRAVE A SPESSORE

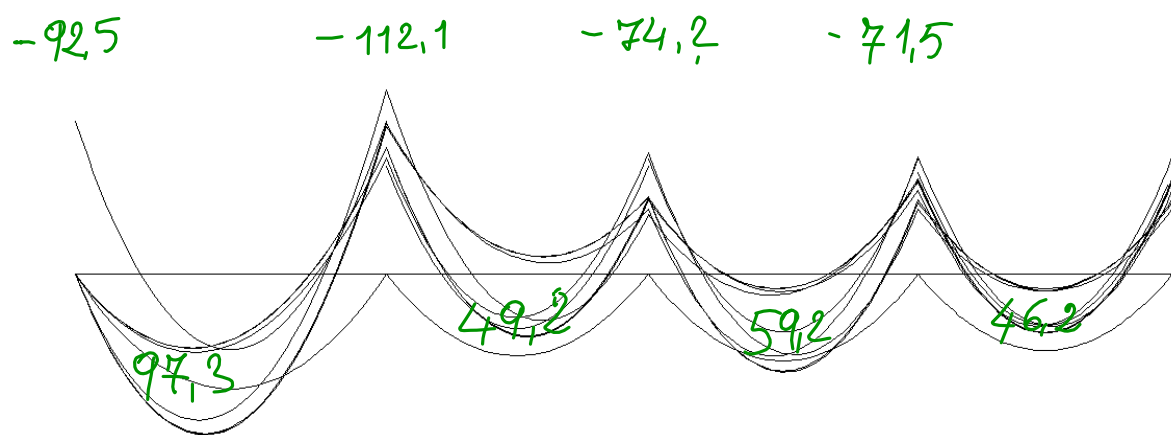
$$\frac{q l^2}{12} = \frac{76,9 \times 3,1^2}{12} = 61,6 \text{ KNm}$$

$$M_{Rd} = \frac{b d^2}{\gamma^2} = \frac{0,8 \times 0,21^2}{0,019^2} = 97,7 \text{ KNm}$$

OK!



30x50 $A_{s,min} = \frac{0.26 f_{ctm}}{f_{yk}} b d = \frac{0.26 \times 2.56}{450} \times 30 \times 45$
 $= 2 \text{ cm}^2 \quad 2 \phi 14$



80x25 $A_{s,min} = \frac{0.26 f_{ctm}}{f_{yk}} b d = \frac{0.26 \times 2.56}{450} \times 80 \times 21$
 $= 2.52 \text{ cm}^2 \quad 4 \phi 14$

$$M_{Rd} = 0,9 d A_s f_{yd} = \frac{99 \times 0,45 \times 3,08 \times 391,3}{10}$$

30x50

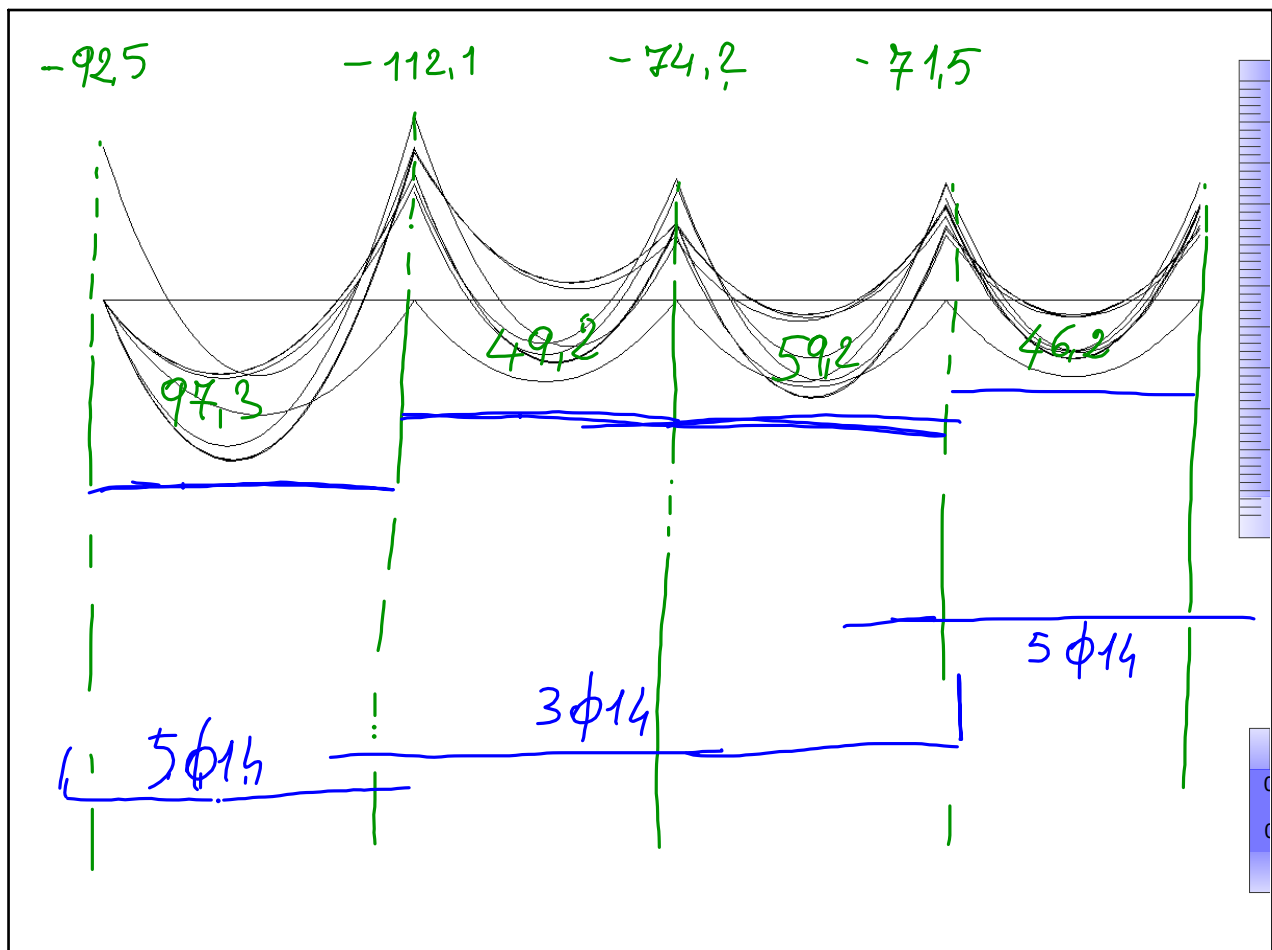
$$= 48,8 \text{ KN m}$$

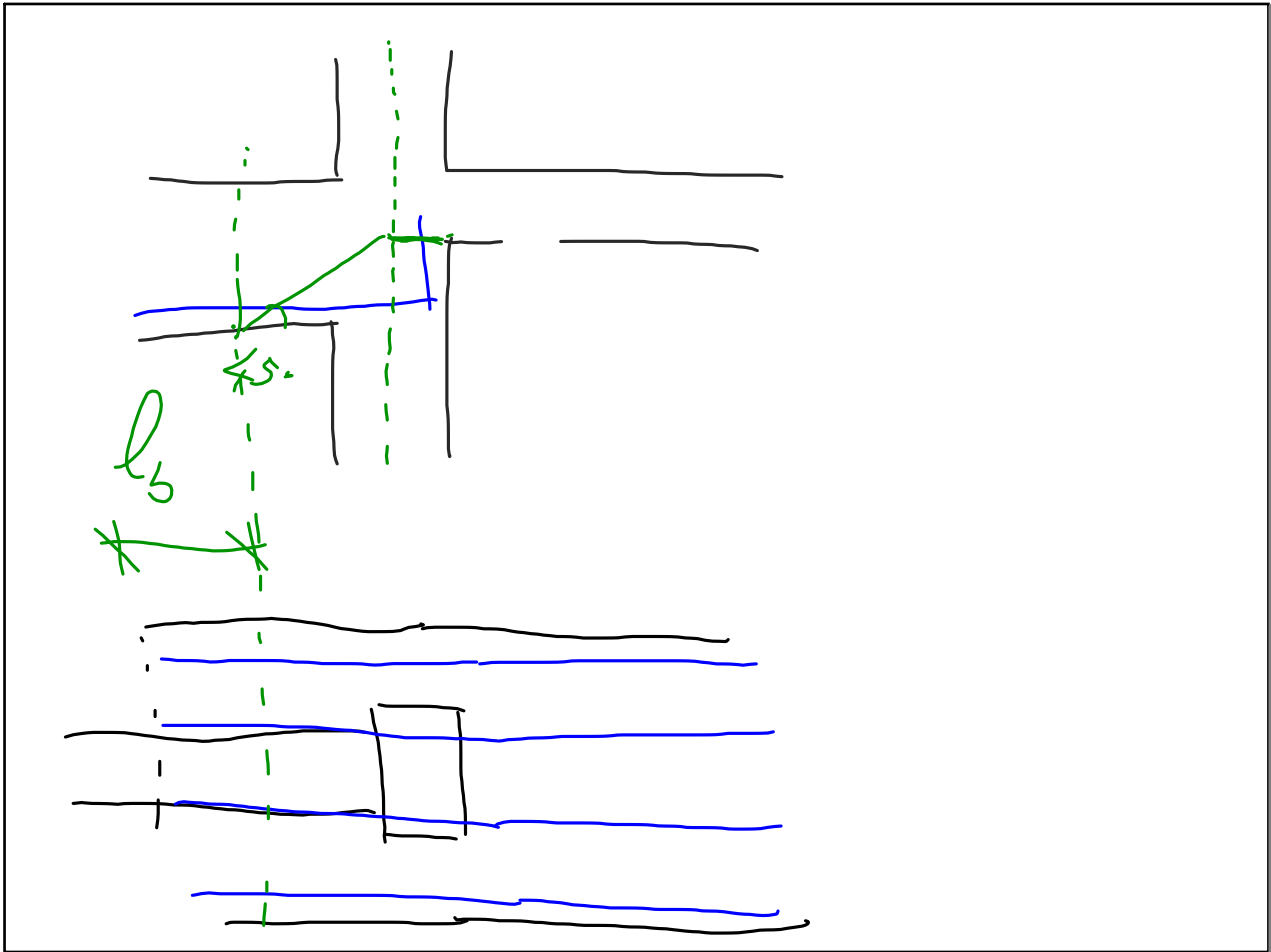
Computa	M_{Ed}	d	A_s	barre	M_{Rd}
1	97,3	45	6,1	4 $\phi 14$	
2	49,2	45	3,1	3 $\phi 14$	
3	59,2	45	3,7	3 $\phi 14$	
4	46,2	21	6,3	5 $\phi 14$	

$$A_s = \frac{M_{Ed}}{0,9 d f_{yd}} = \frac{97,3 \times 10}{0,9 \times 0,45 \times 391,3} = 6,1 \text{ cm}^2$$

Calcolata	M_{Ed}	d	A_s	barre	M_{od}
1	97,3	45	6,1	5 ϕ 14	≈ 120
2	49,2	45	3,1	3 ϕ 14	73,2
3	59,2	45	3,7	3 ϕ 14	73,2
4	46,2	21	6,3	5 ϕ 14	57,0

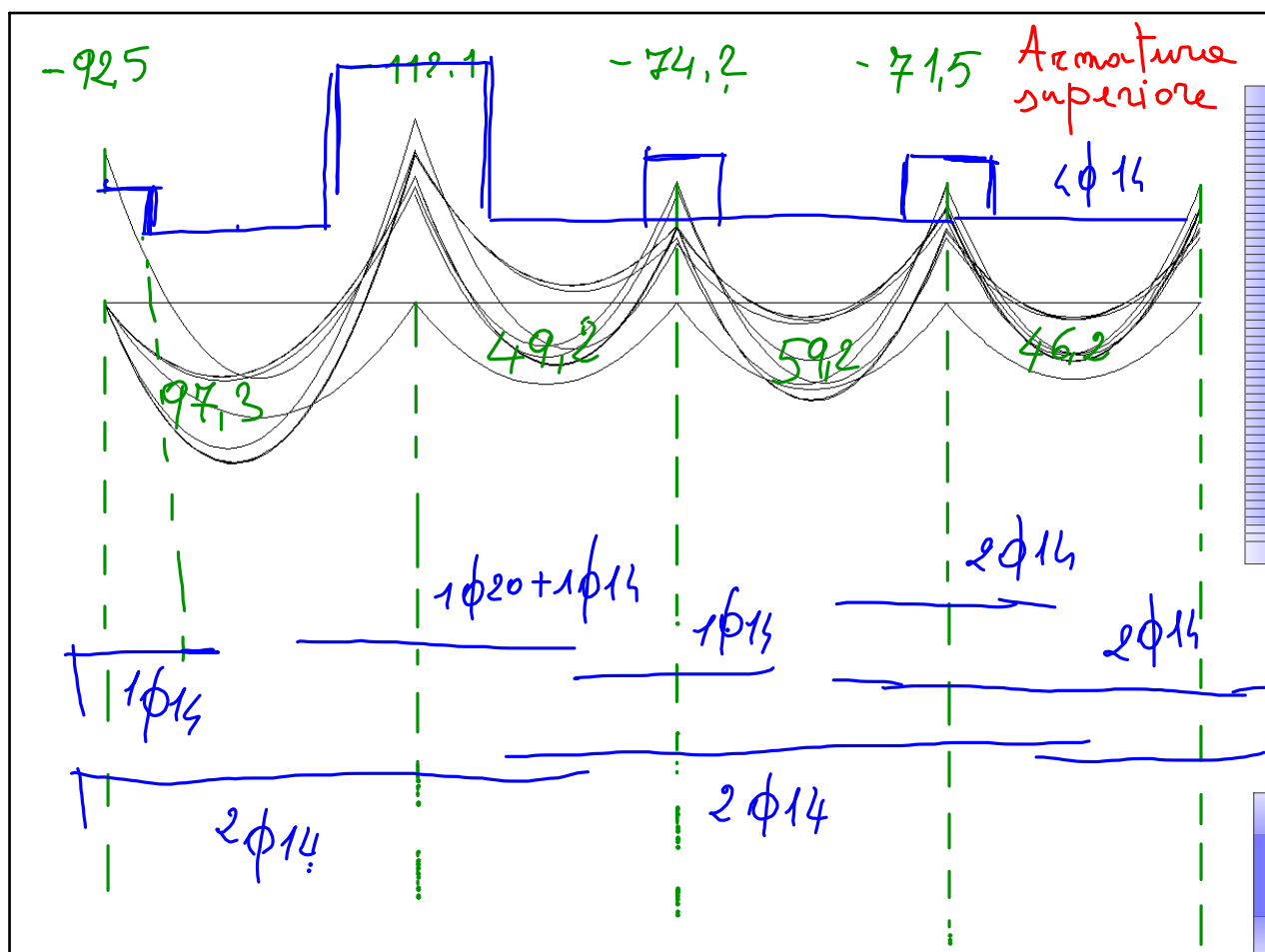
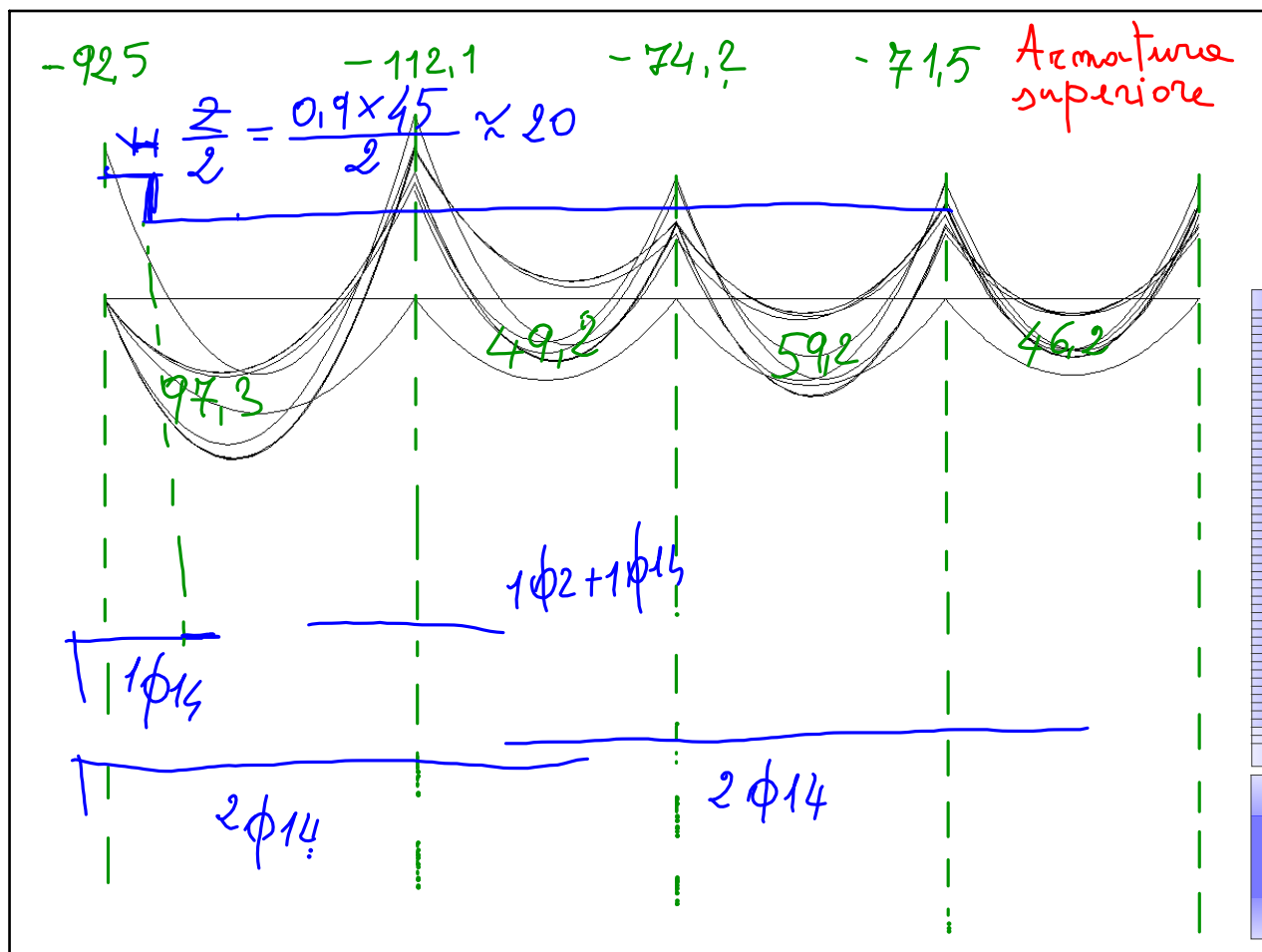
$$M_{Rd} = 0,9 d A_s f_{yd} = \frac{0,9 \times 0,45 \times 6,16 \times 391,3}{10} = 97,7 \text{ kNm}$$

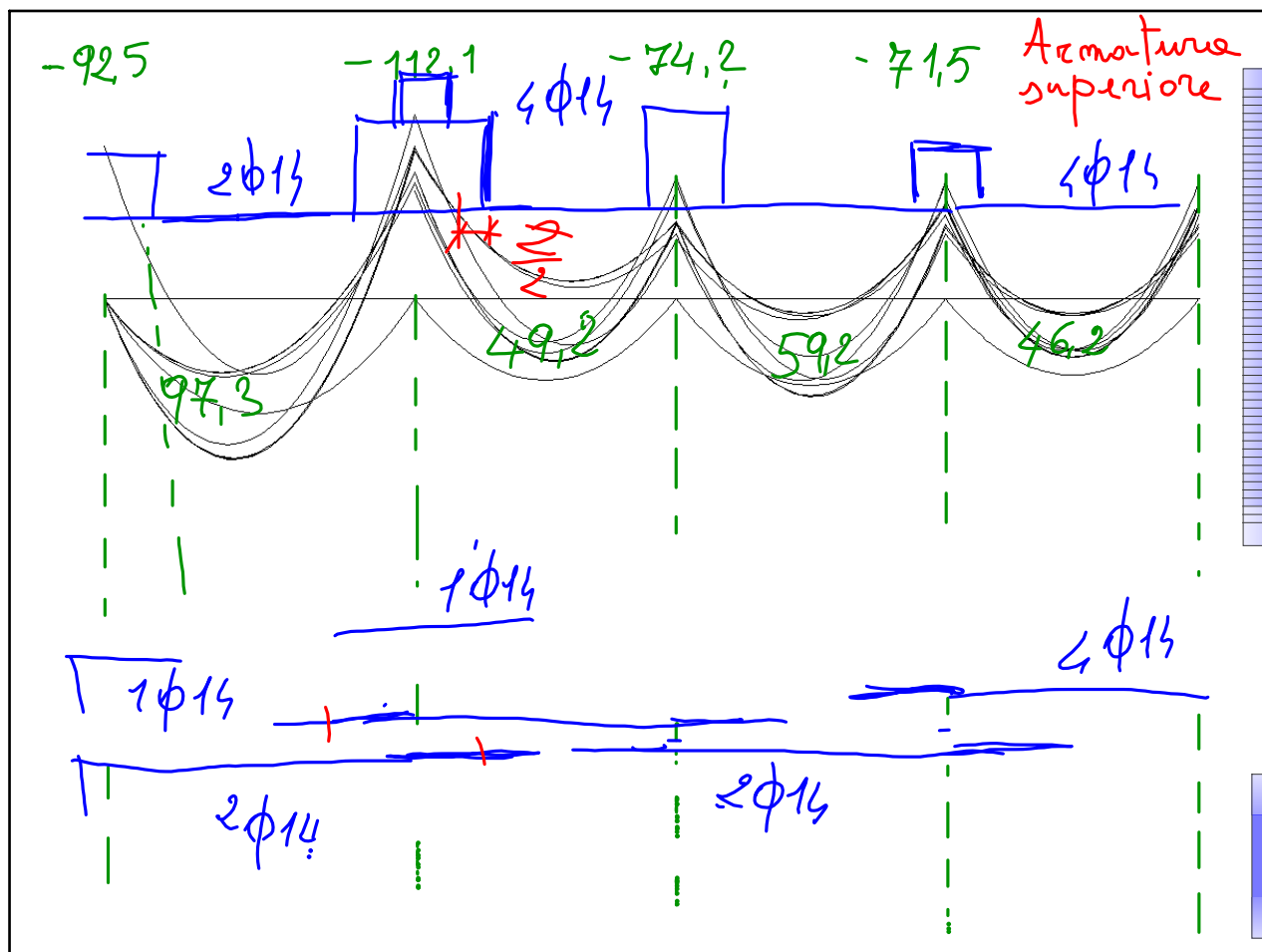




App.	M_{Ed}	α	A_s	barre	M_{pd}
1	-92,5	0,45	5,8	3 ϕ 14	73,2
2	-112,1	0,45	7,1	1 ϕ 20+3 ϕ 14	
3	-74,2	0,45	4,7	3 ϕ 14	
4	-71,5	0,21	9,7	6 ϕ 14	

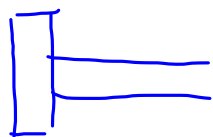
$$A_s = \frac{92,5 \times 10}{0,9 \times 0,45 \times 391,3} = 5,8$$

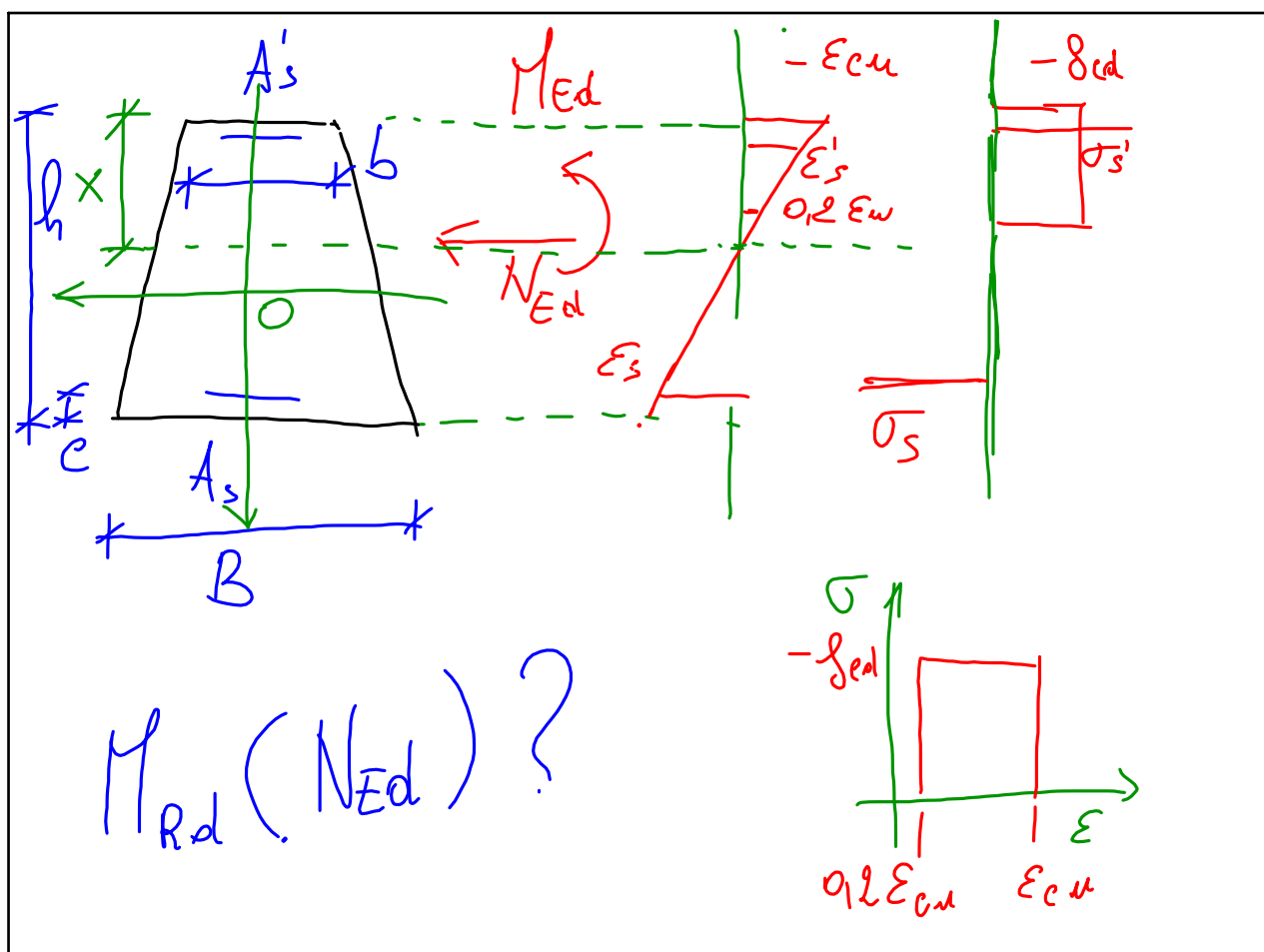
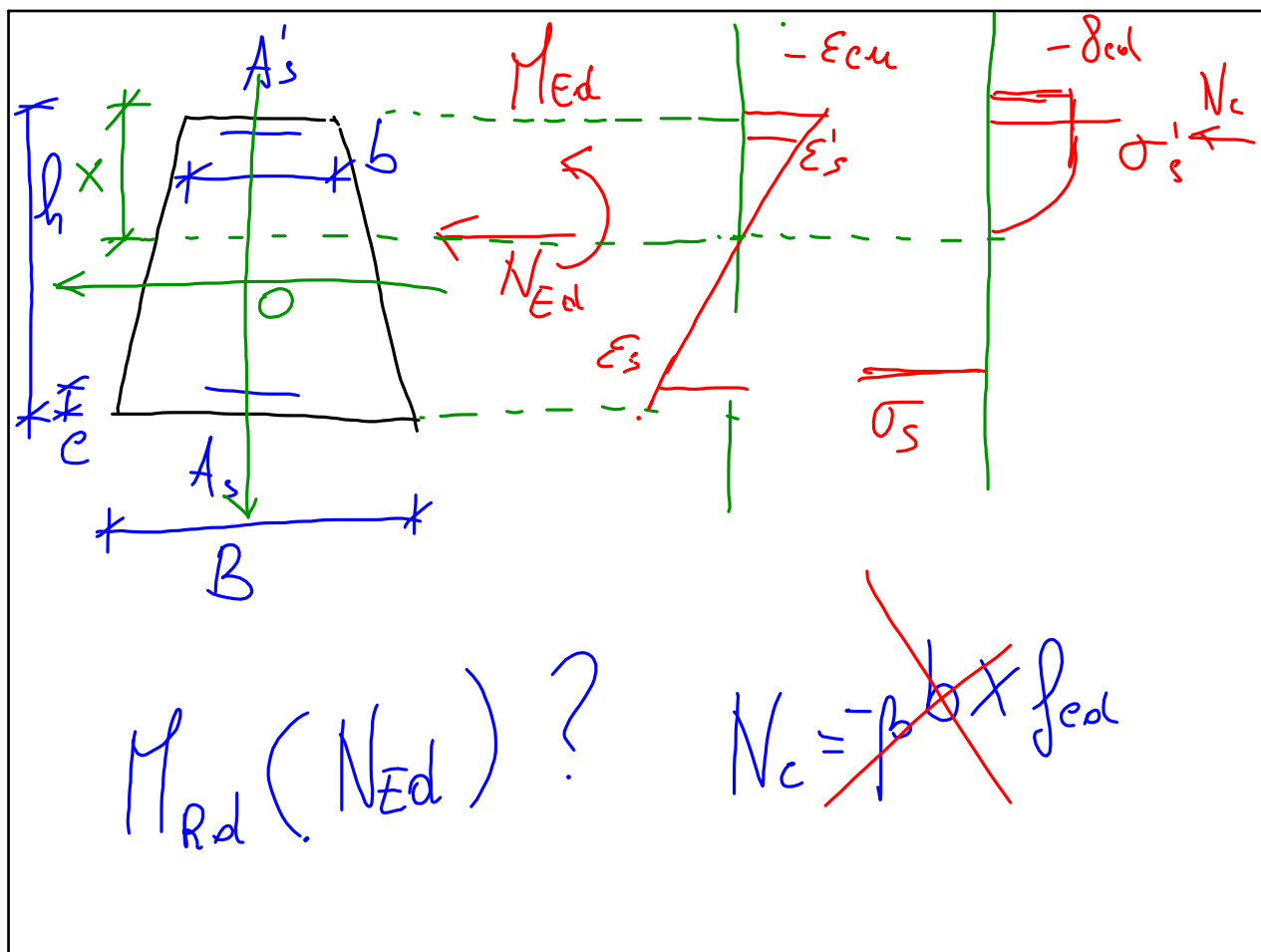


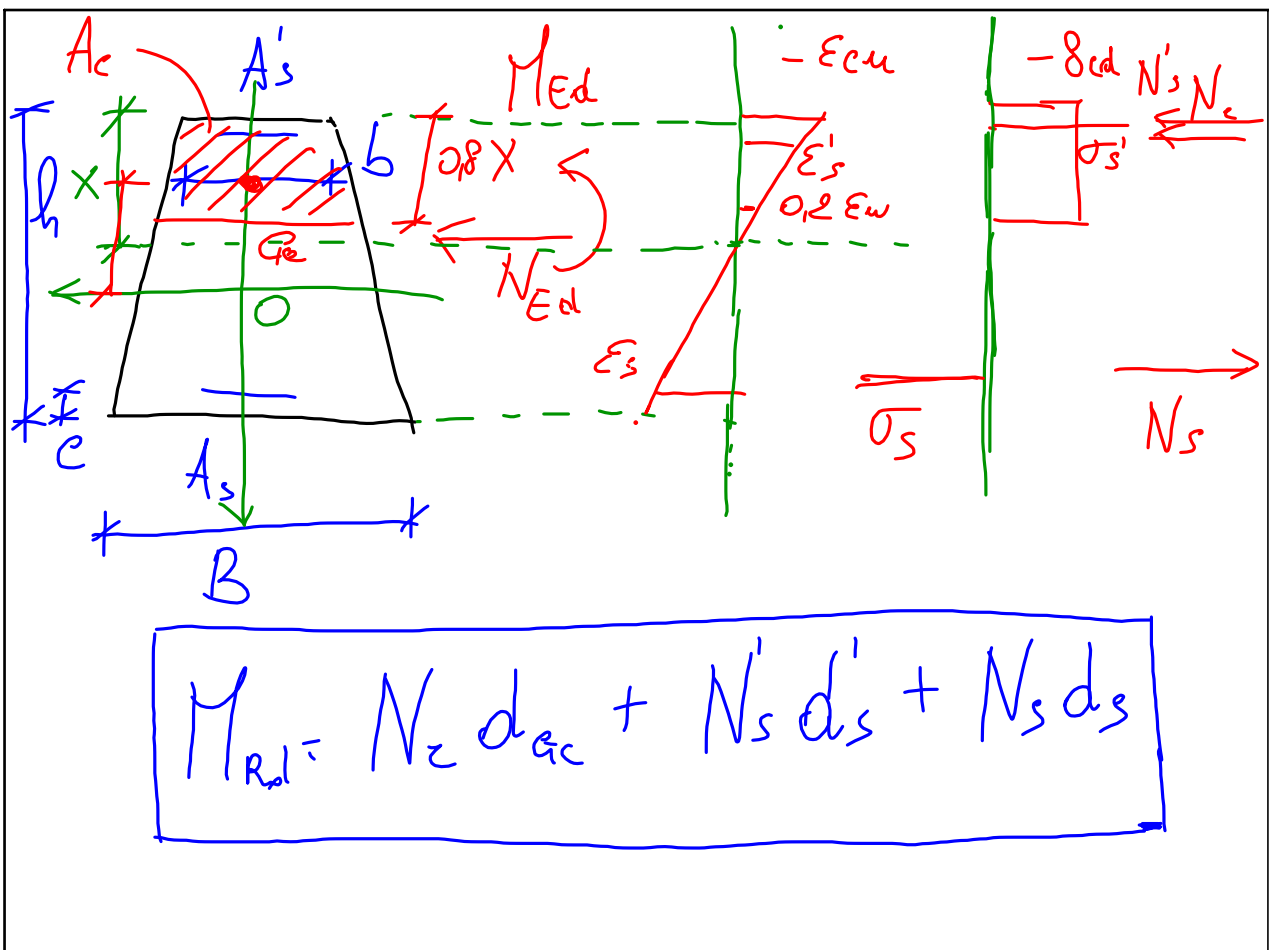
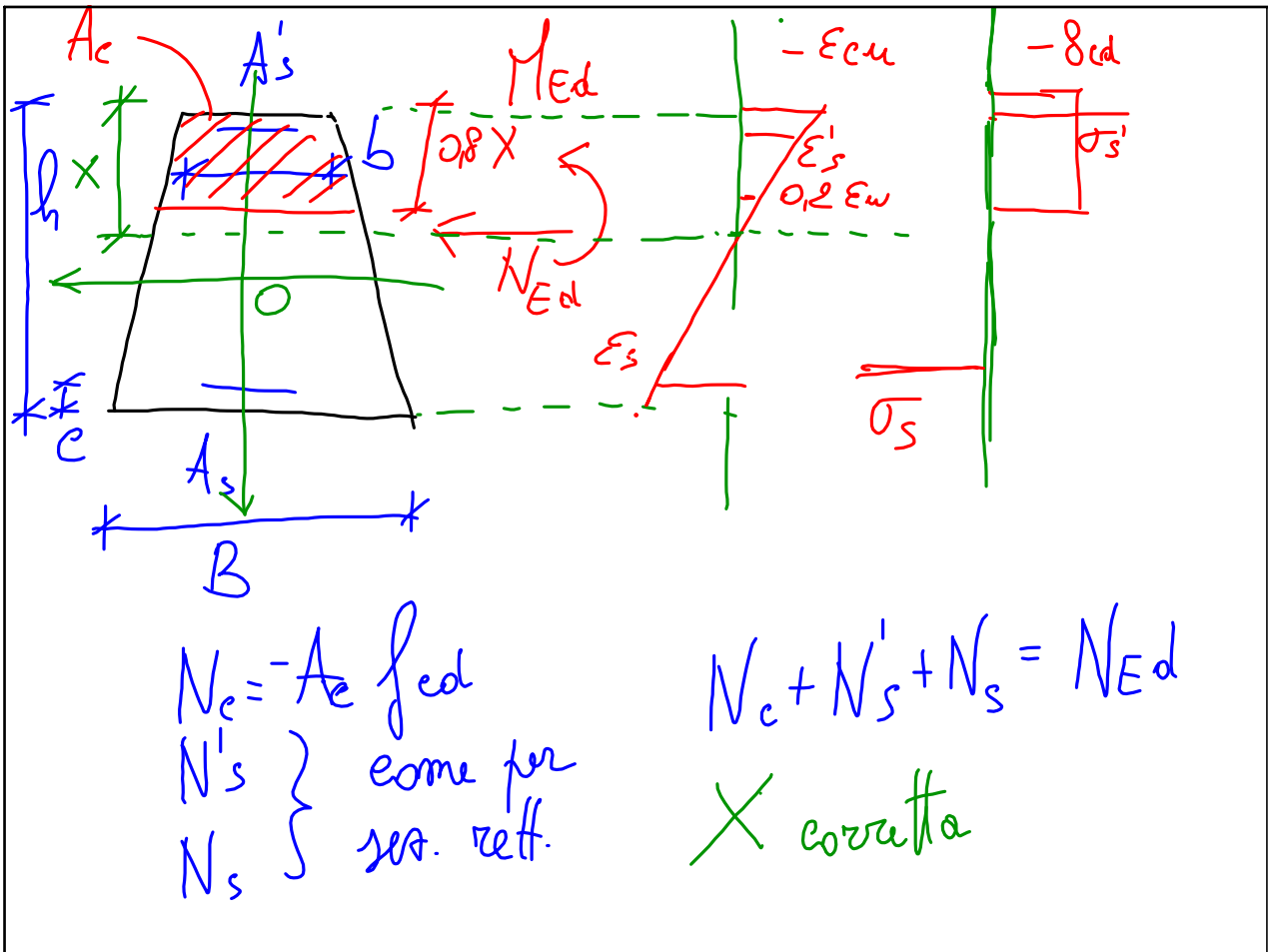


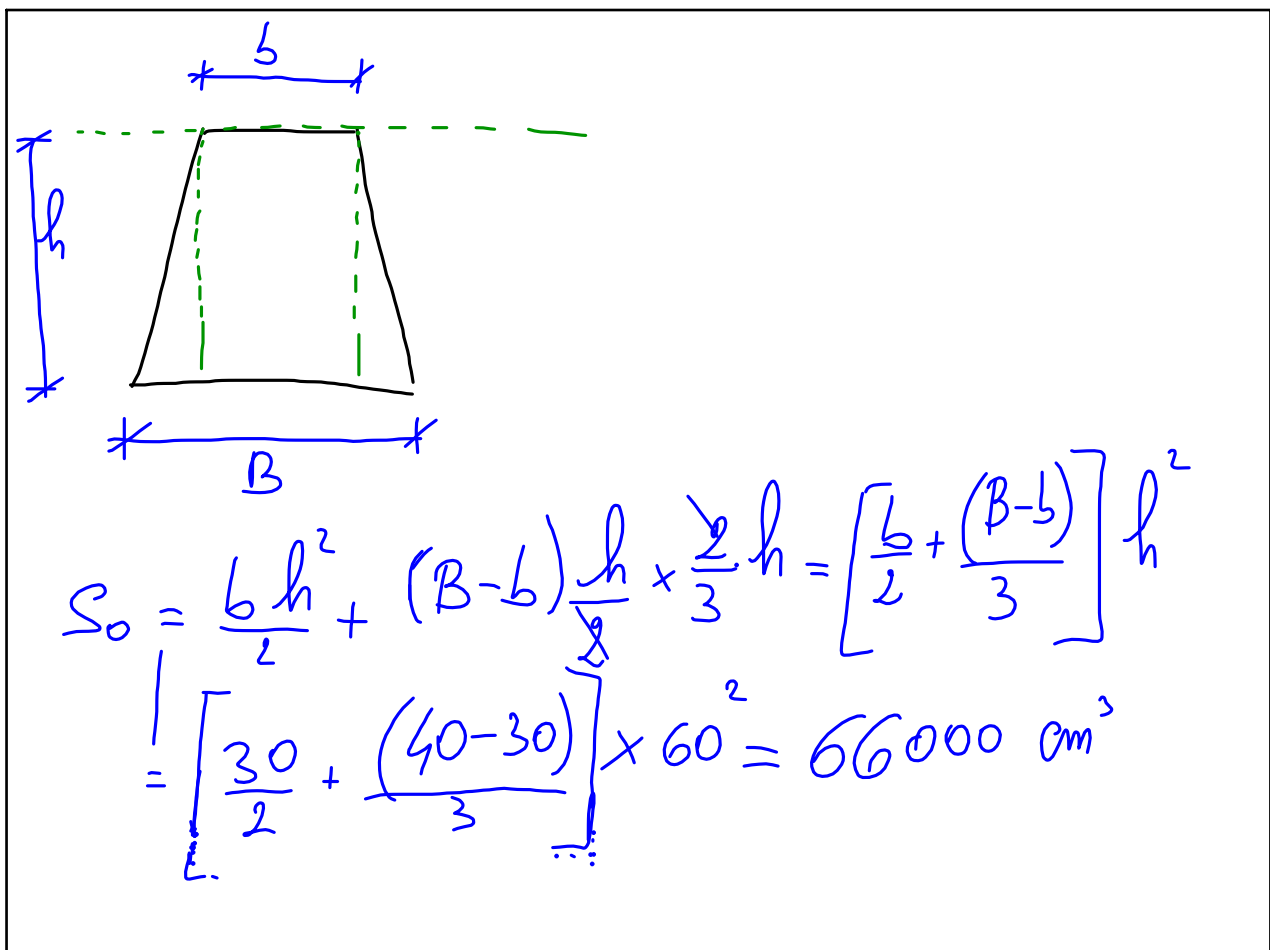
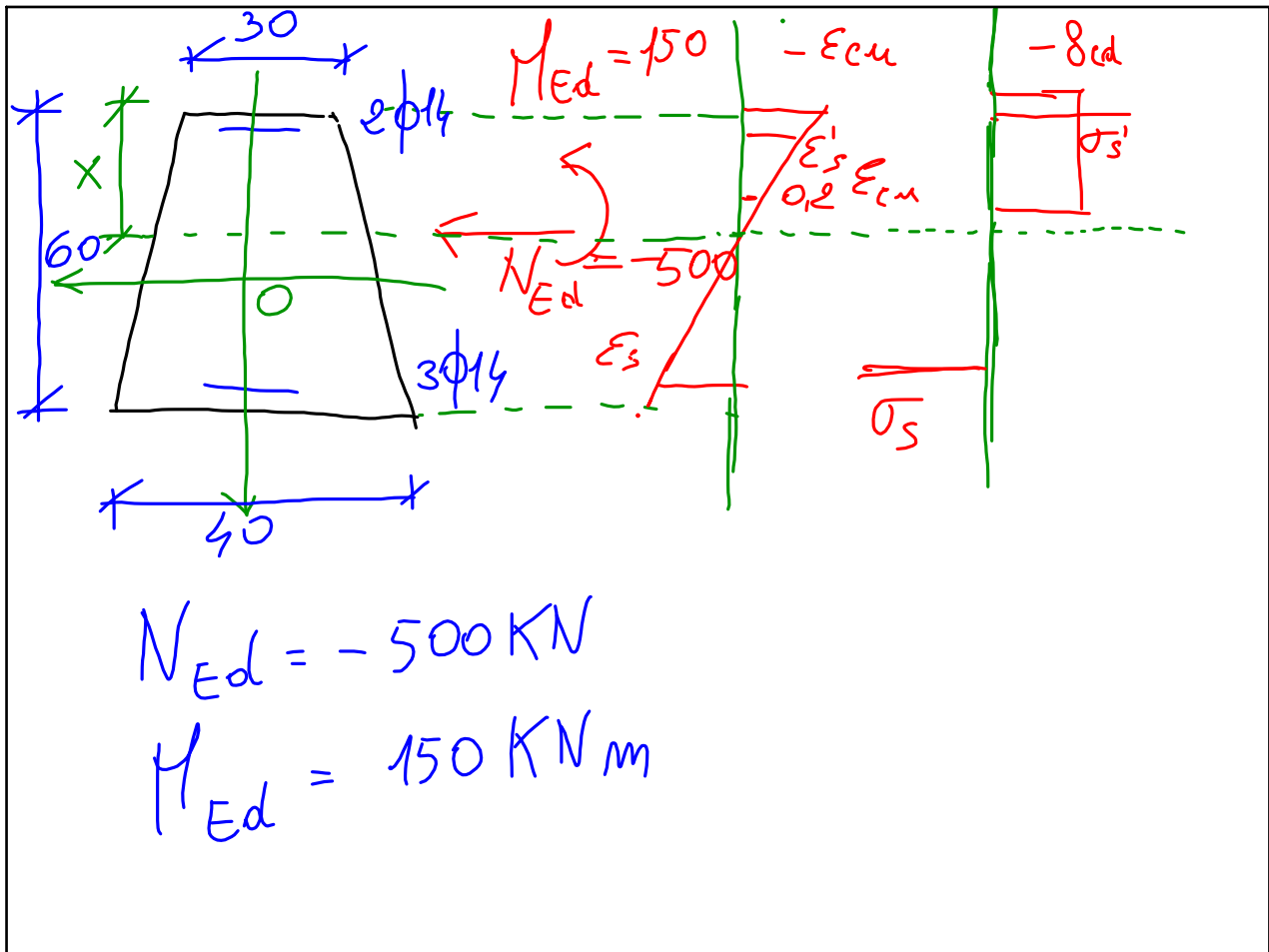
2 φ 14

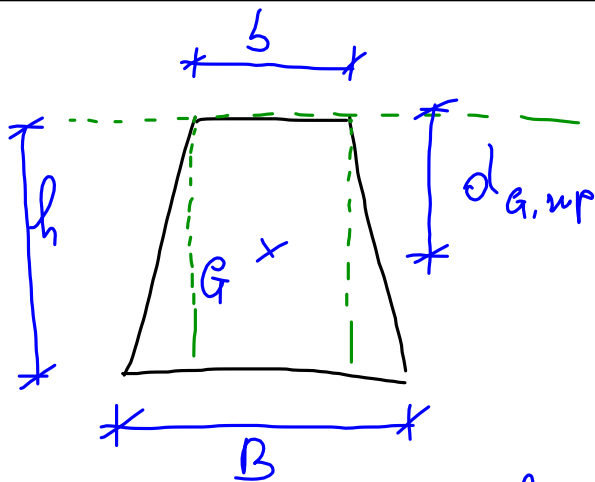
$$M_{Rd} = \frac{0.9 \times 0.45 \times 3.08 \times 391.3}{10} = 48.8 \text{ KNm}$$





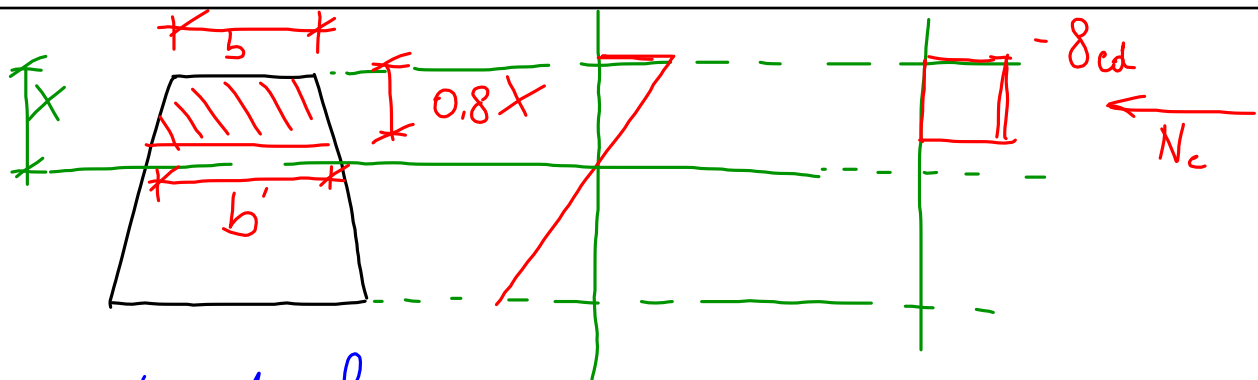






$$A = \frac{(B+b)}{2} h = \frac{40+30}{2} \times 60 = 2100 \text{ cm}^2$$

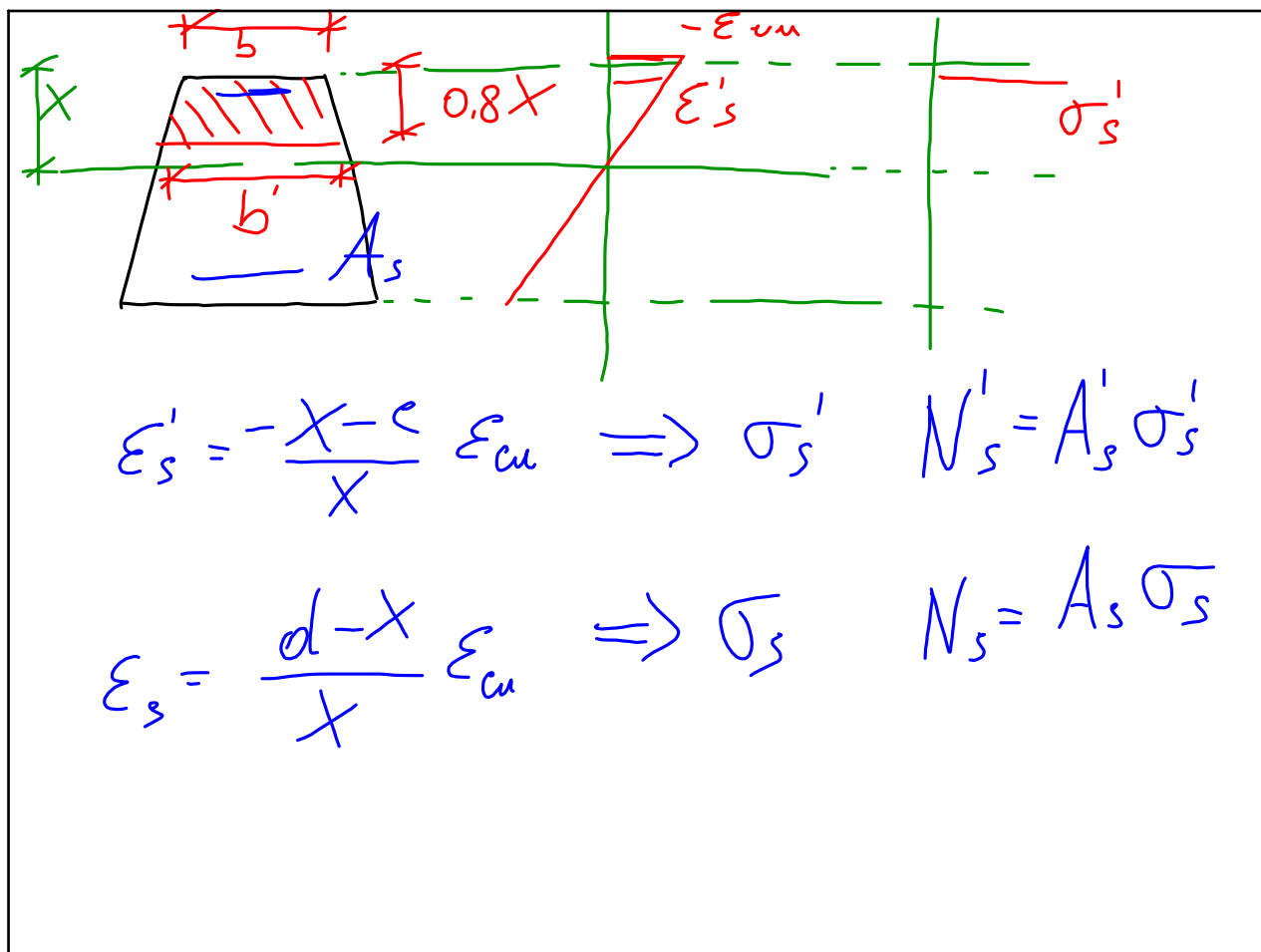
$$d_{G,wp} = \frac{66000}{2100} = 31,4 \text{ cm}$$



$$N_c = -A_c f_{cd}$$

$$b' = b + (B-b) \frac{0.8x}{h}$$

$$A_c = \frac{b + b'}{2} \times 0.8x$$



Flessione composta: Verifica sezione trapezia allo SLU sezione parzializzata

023	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1	b	30	cm				fcd	14.1	Mpa							
2	B	40	cm				fyd	391.3	Mpa							
3	h	60	cm				Es	200000	MPa							
4	c	5	cm				EpsYd	0.00196								
5	d	55	cm				EpsCu	0.0035								
6	AsP	3.08	cmq													
7	As	4.62	cmq													
8	dGSup	31.4	cm													
9	dGInf	28.6	cm													
10							NEd	-500	kN							
11							Med	150	kNm							
12	X	15.99	cm													
13	0.8 X	12.7905	cm													
14	Bp	32.1317	cm													
15	Ac	397.348	cmq													
16	EpsSp	-0.00241	SigmaSp	-391.3	Mpa		Nc	-560.26	kN	-24.9602	cm	139.842				
17	EpsS	0.00854	sigmaS	391.3	MPa		NsP	-120.52	kN	-26.4286	cm	31.8518				
18							Ns	180.781	kN	23.5714	cm	42.6126				
19	Area CLS compresso fino a 0.8X						Totale	-500	kN		MRd =	214.3	kNm			
20	So	2570.2	cm3													
21	A	397.348	cm2													
22	dgC	6.46838	cm													
23																