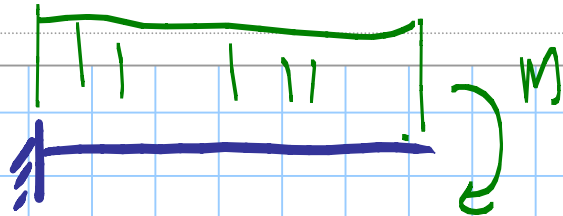
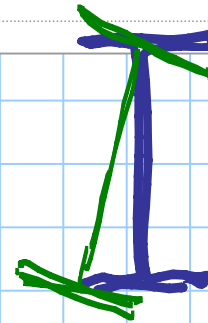
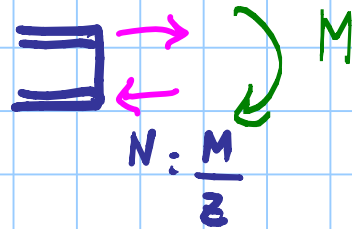


M

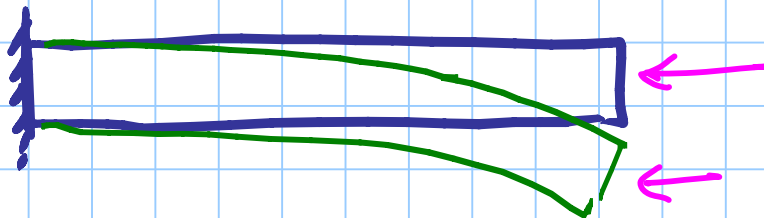


$$z = h - t_f$$

DALL'ALTRA

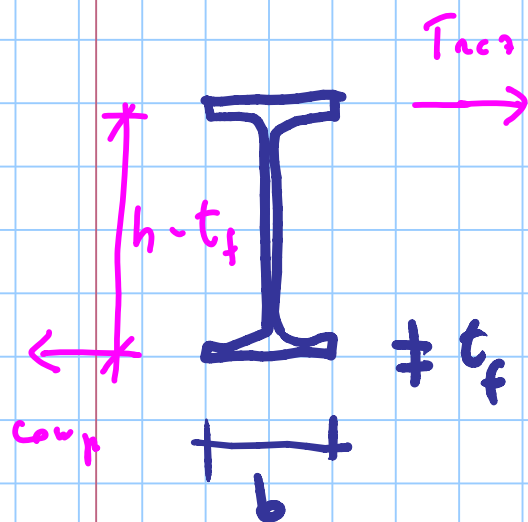


l'ala compressa subisce la
la sezione si Torce



$$N_w = \frac{\pi^2 E I}{l_0^2}$$

$$\sigma_w = \frac{\pi^2 E}{\left(\frac{l_0}{i}\right)^2}$$



$$I_{ala} = \frac{t_f b^3}{12}$$

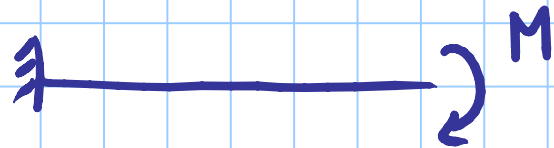
$$A_{ala} = t_f b$$

$$i = \frac{b}{\sqrt{12}} \approx 0.29 b$$

$$N = \frac{M}{h - t_f}$$

$$N_u = \frac{\pi^2 E I}{l^2}$$

$$M_{u,LT} = N_u (h - t_f)$$



2.00 m

$$l_0 = 2l = 4.00 \text{ m}$$

IPE 160

S275

$$b = 82 \text{ mm}$$

$$h = 160 \text{ mm}$$

$$t_f = 7.4 \text{ mm}$$

$$W_{pl} = 123.9 \times 10^3 \text{ mm}^3$$

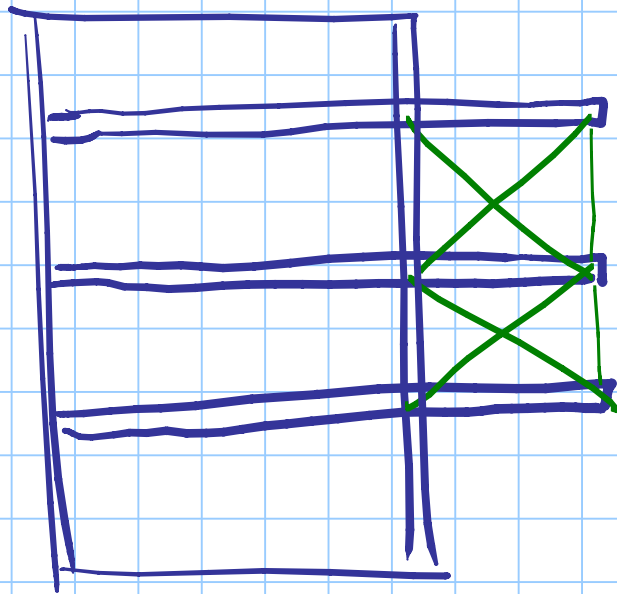
$$i = 23.8 \text{ mm}$$

$$I = 34.0 \times 10^4 \text{ mm}^4$$

$$N_n = \frac{\pi^2 E I}{l_0^2} = \frac{3.14^2 \times 206000 \times 34 \times 10^4}{4^2 \times 10^6} \times 10^{-3} = 43.2 \text{ kN}$$

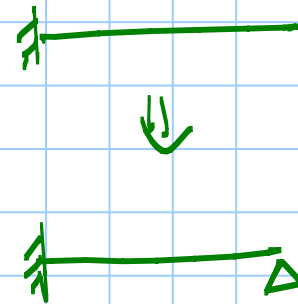
$$M_n = N_n (h - t_f) = 43.2 (160 - 7.4) \times 10^{-3} = 6.6 \text{ kNm}$$

$$M_{ed} = W_{pl} \frac{f_y}{\gamma_{M_0}} = 123.9 \times 10^3 \times \frac{275}{1.05} \times 10^{-6} = 32.5 \text{ kNm}$$



Plano 1

I de inferior



se aversi un HE 120 A

$$b = 120 \text{ mm}$$

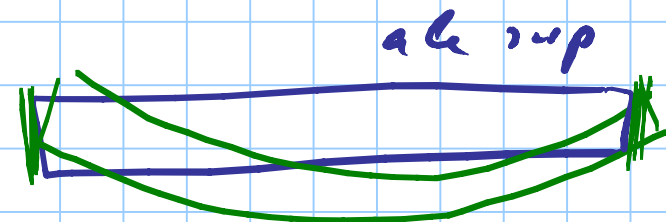
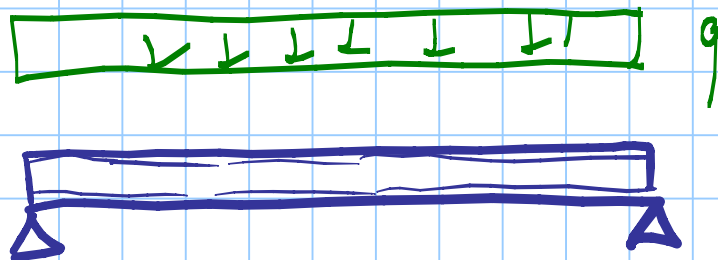
$$h = 114 \text{ mm}$$

$$t_f = 8 \text{ mm}$$

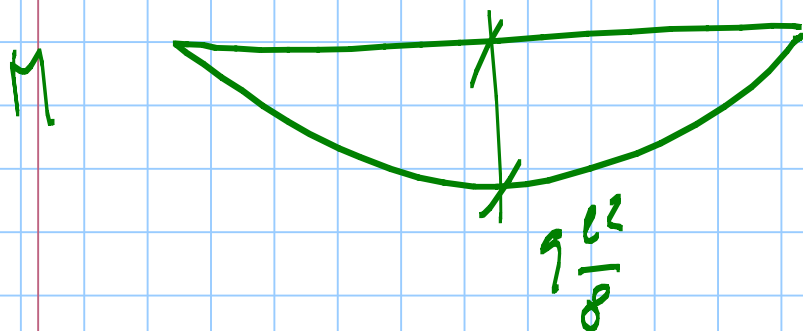
$$W_{pf} = 119.5 \times 10^3 \text{ mm}^3$$

$$N_{cr} = \frac{\pi^2 EI}{l^2} = \frac{3.14^2 \times 206000 \times 115.2 \times 10^3}{4^2 \times 10^6} \times 10^{-3} \quad \left. \begin{array}{l} I = \frac{8 \times 120^3}{12} = 115.2 \times 10^4 \text{ mm}^4 \end{array} \right\}$$
$$= 146.4 \text{ kN}$$

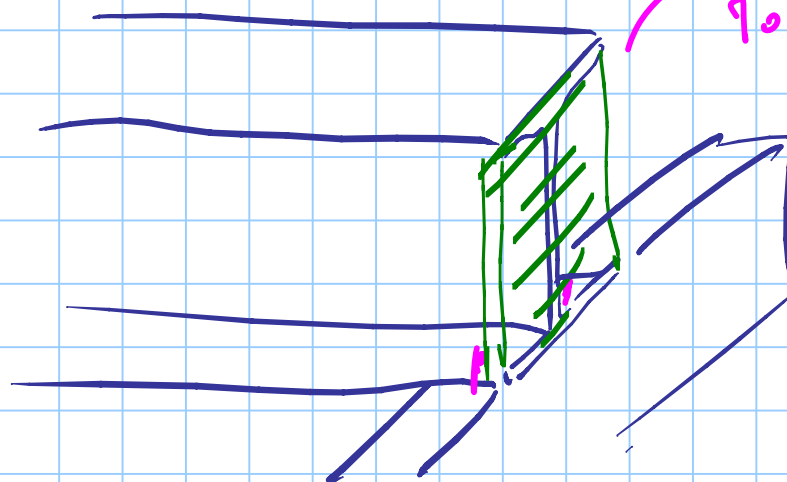
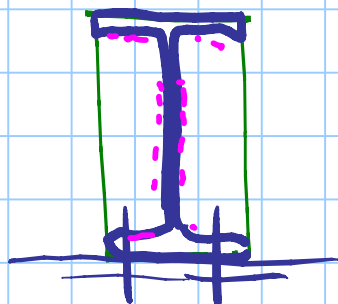
$$M_{u,cr} = N_{cr} (h - t_f) = 146.4 (114 - 8) \times 10^{-3} = 15.5 \text{ kNm}$$



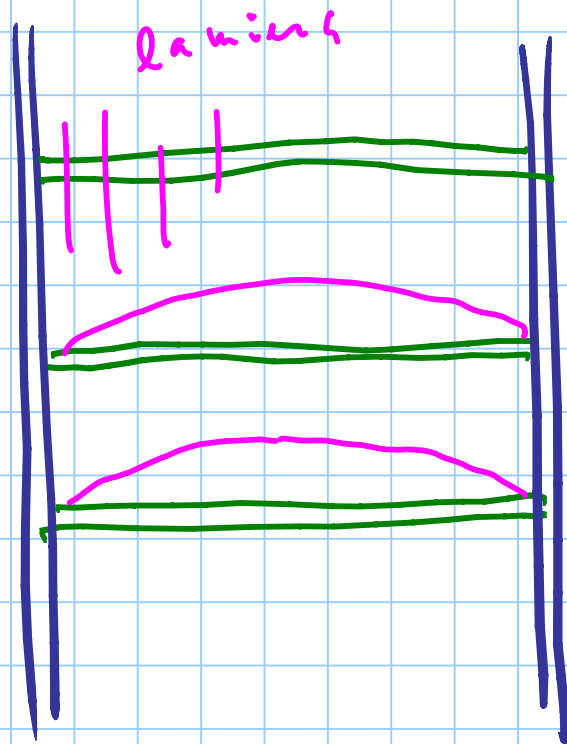
il pñt. impuñt. e po Tam.
non rotazionale



$$M_{eq} = \alpha M_{max}$$



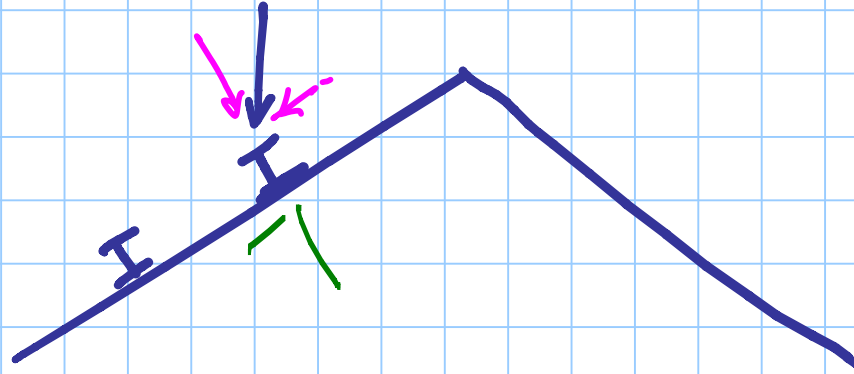
pñt. =
vincol
Torsionale



laminated

Tr.R.

PROGETTO



$$\frac{M_{ED,1}}{M_{R1,1}} + \frac{M_{ED,2}}{M_{R1,2}} \leq 1$$

ante computer

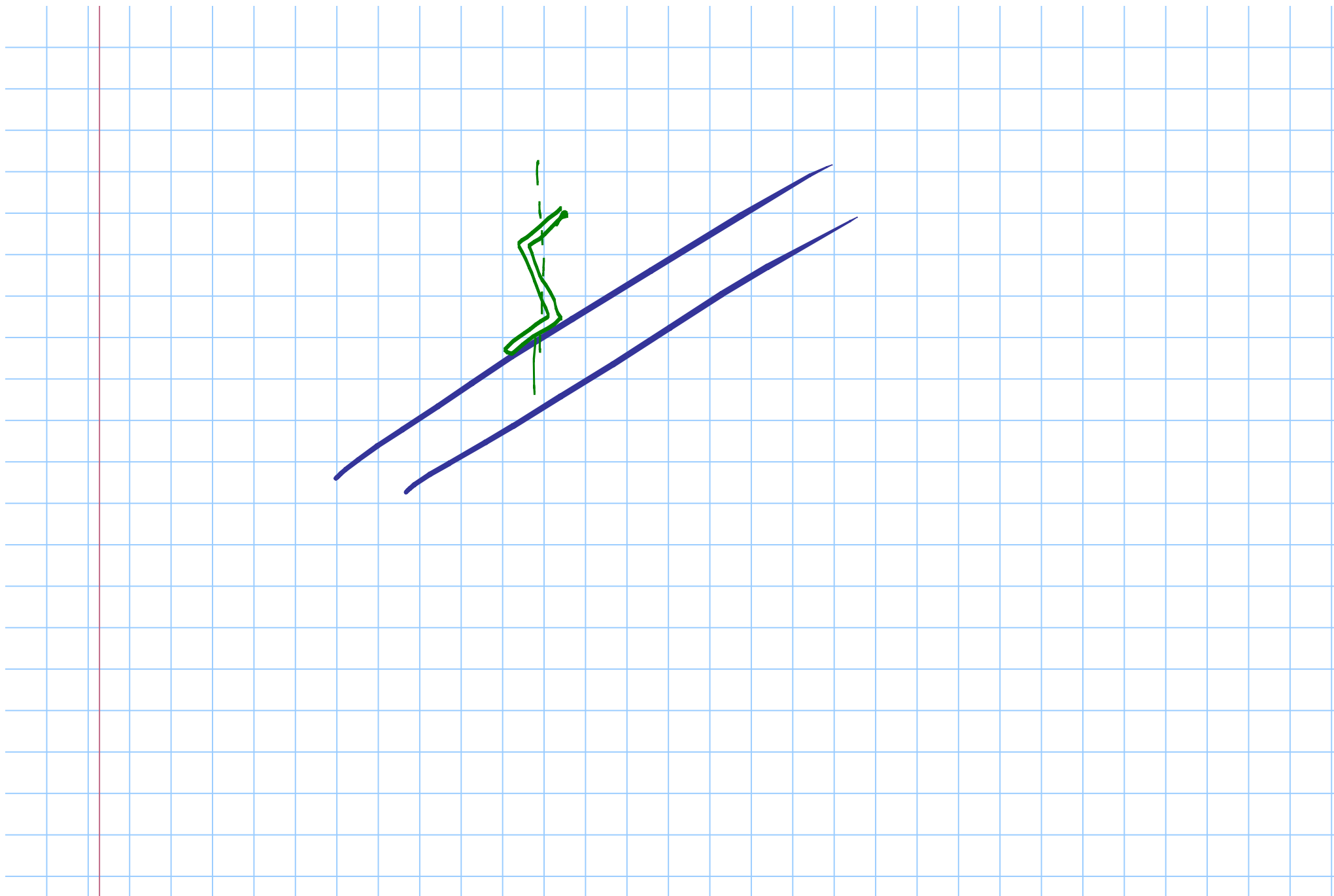


2 L 50x50x6

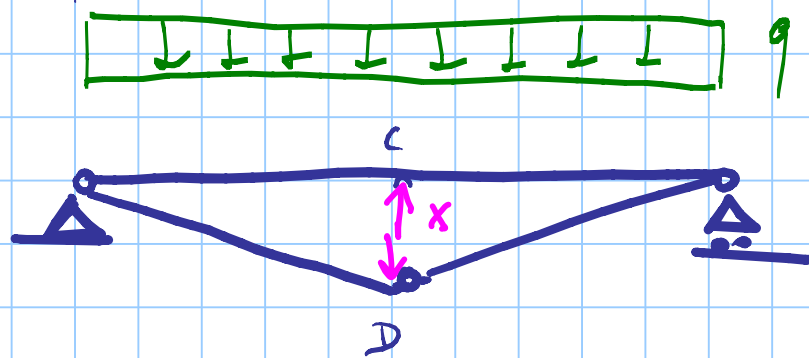
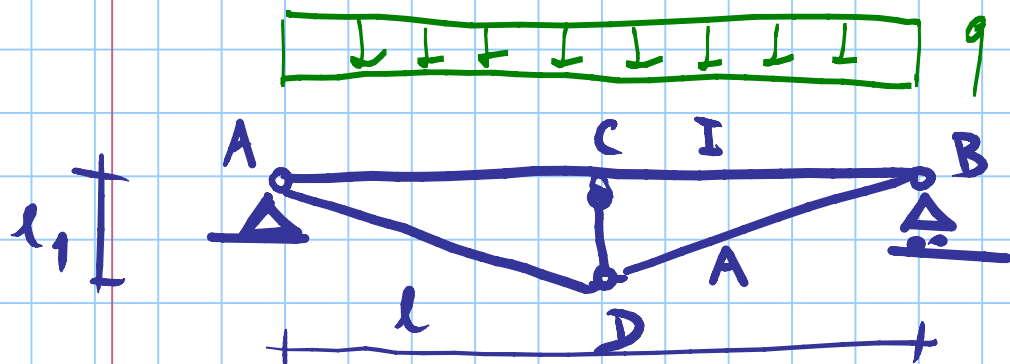


coppie con $b = l$

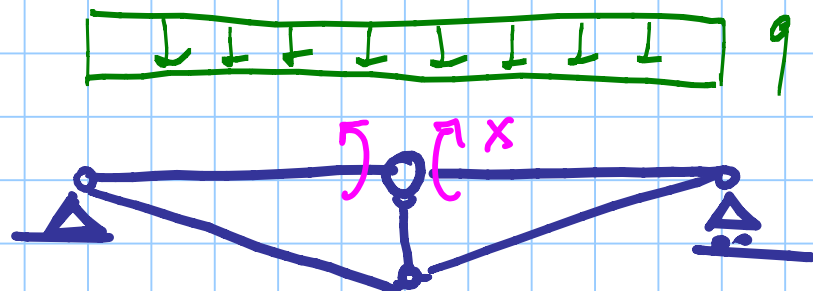
$$b = \frac{l}{3}$$



TRAVE FINK



$$v_c = v_D$$



$$\varphi_{cA} = \varphi_{cB}$$

NO HE, COFH, MAFR

SCHEMA ISOST. SECT.

SOLU2 X = - - -

SVOLGIMENTO

- -
-

UNA FINK

PER UNA NOTTE