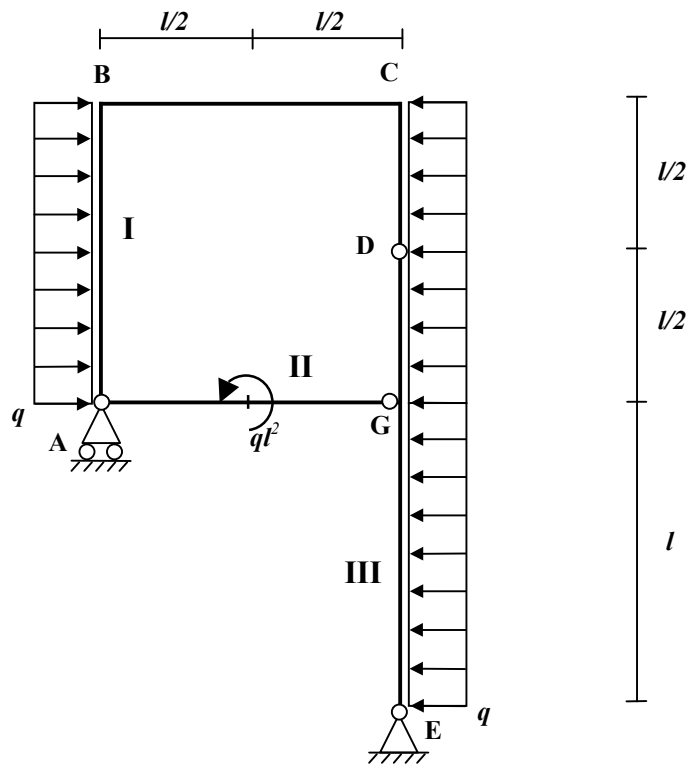
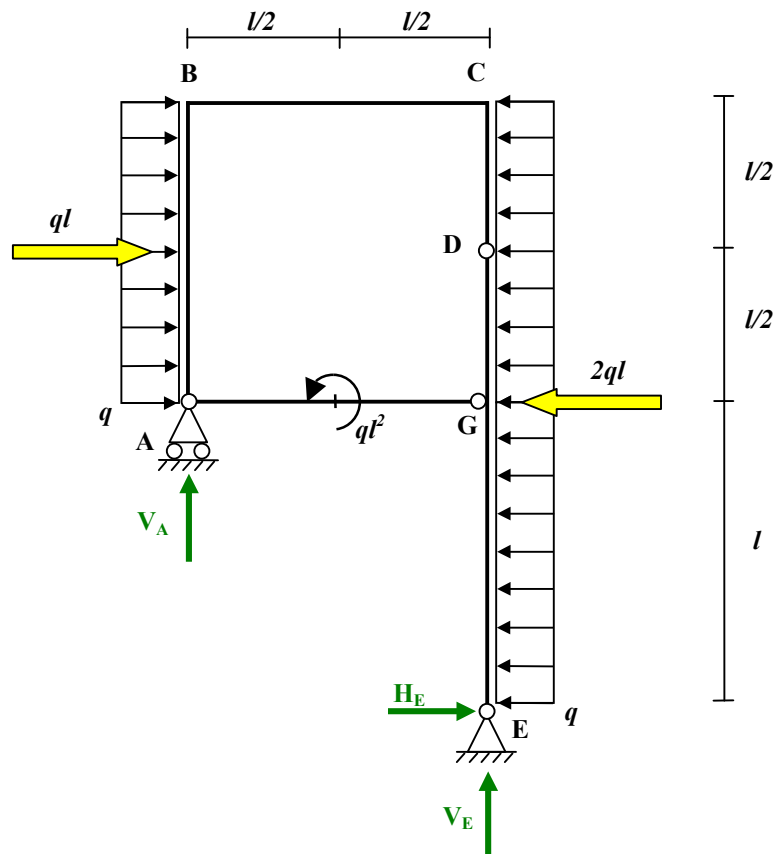


Determinare le reazioni vincolari e tracciare i diagrammi di sollecitazione

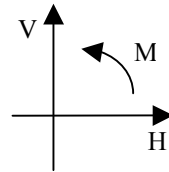


Calcolo delle reazioni vincolari :

Poiché la struttura esternamente è isostatica risolveremo le reazioni vincolari esterne :

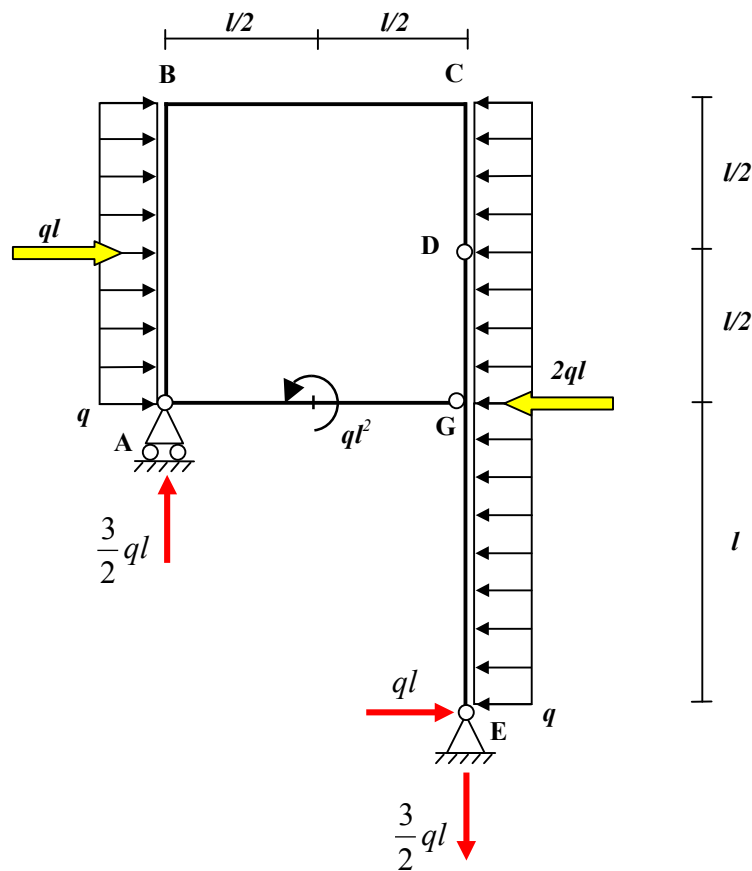


applicando le equazioni cardinali della statica si ha :

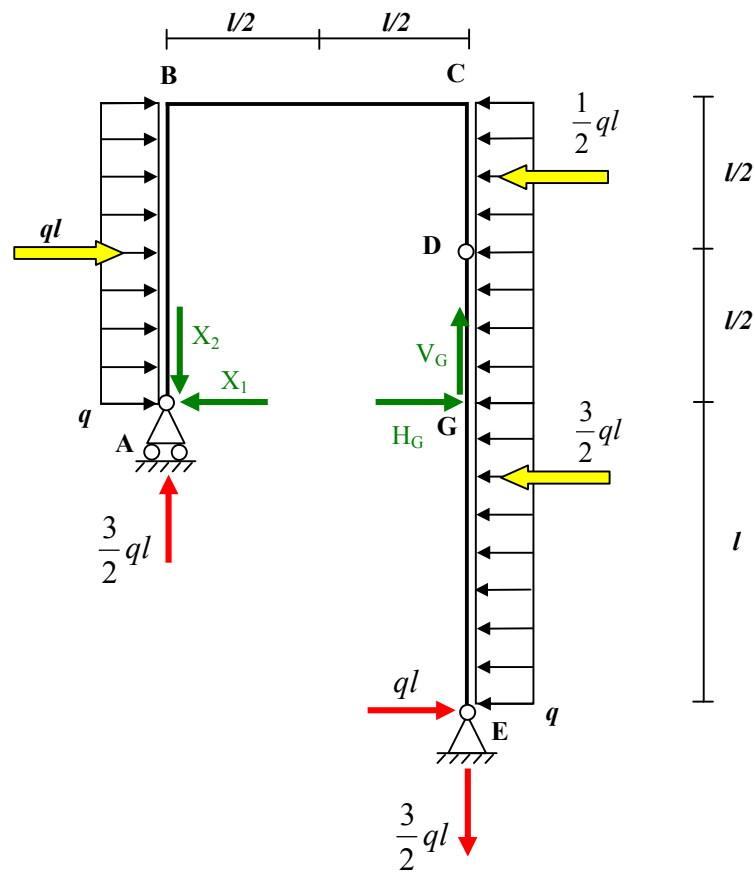


$$\left\{ \begin{array}{l} \sum_H : H_E + ql - 2ql = 0 \\ \sum_V : V_A + V_E = 0 \\ \sum_M (E) : -V_A \cdot l + ql^2 + 2ql \cdot l - ql \cdot \frac{3}{2}l = 0 \end{array} \right. \Rightarrow \left\{ \begin{array}{l} \sum_H : H_E = +ql \\ \sum_V : V_E = -\frac{3}{2}ql \\ \sum_M (E) : V_A = +\frac{3}{2}ql \end{array} \right.$$

Si ha quindi per il sistema equilibrato :



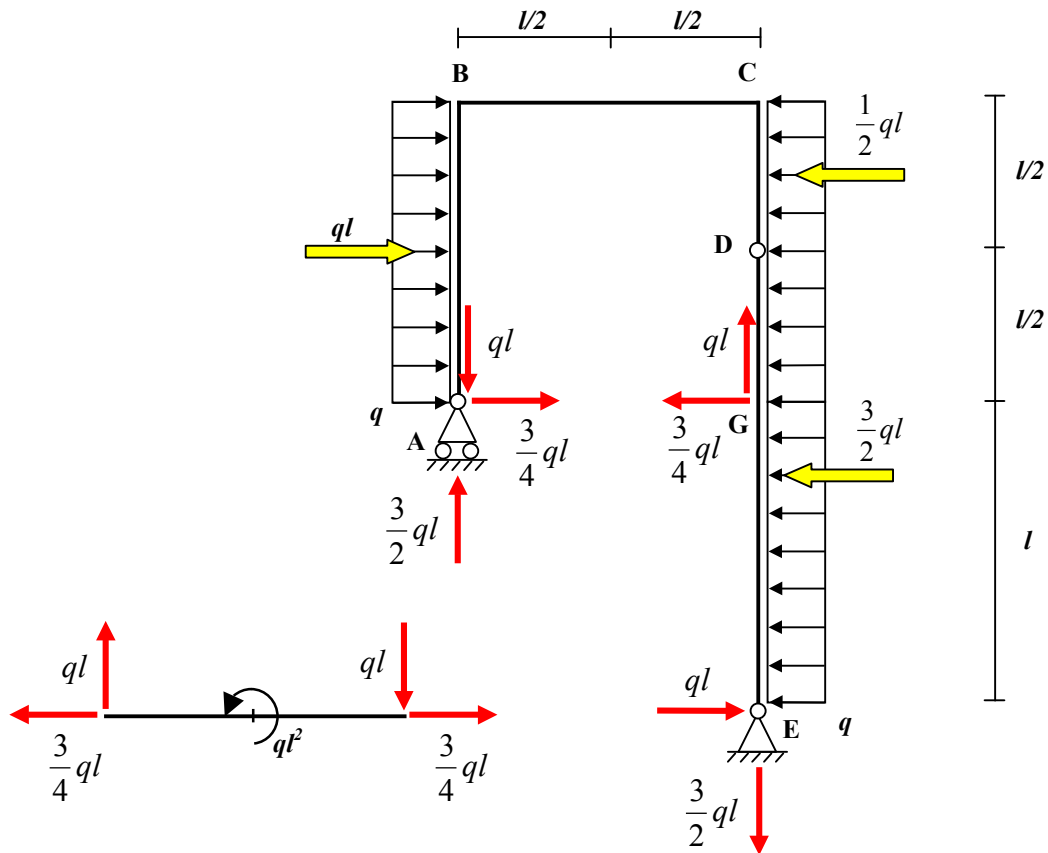
Calcoleremo ora la sottostruttura costituita dal I e dal III tronco, isolando il II tronco.



Applicandole tre equazioni cardinali della statica unitamente ad una equazione ausiliaria in D relativa al III tronco, si ha :

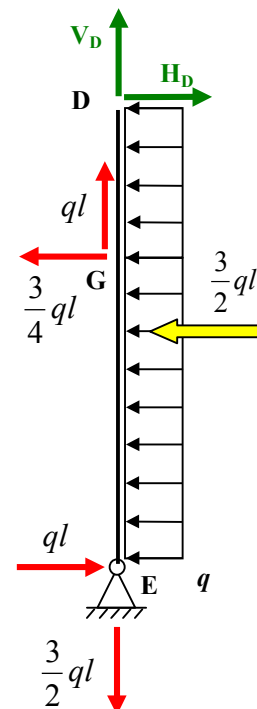
$$\left\{ \begin{array}{l} \sum_H : H_G - X_1 + ql - 2ql + ql = 0 \\ \sum_V : +X_2 - V_G - \frac{3}{2}ql + \frac{3}{2}ql = 0 \\ \sum_M (A) : -ql \cdot \frac{1}{2}l + V_G \cdot l + ql \cdot l - \frac{3}{2}ql \cdot l = 0 \\ \sum_M (D)_{III} : H_G \cdot \frac{l}{2} - \frac{3}{2}ql \cdot \frac{3}{4}l + ql \cdot \frac{3}{2}l = 0 \end{array} \right. \Rightarrow \left\{ \begin{array}{l} \sum_H : X_1 = -\frac{3}{4}ql \\ \sum_V : X_2 = +ql \\ \sum_M (A) : V_G = +ql \\ \sum_M (D)_{III} : H_G = -\frac{3}{4}ql \end{array} \right.$$

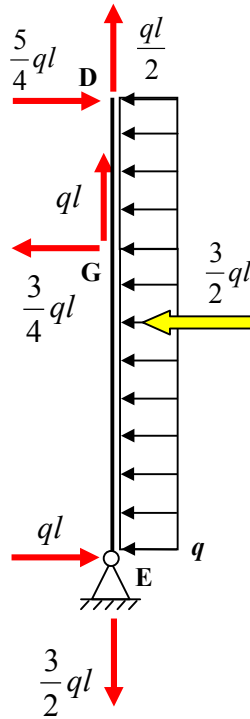
Si ha quindi per il sistema equilibrato :



Con 2 equazioni cardinali si calcolano sul III tronco le reazioni vincolari della cerniera in D:

$$\left\{ \begin{array}{l} \sum_H : H_D - \frac{3}{4}ql - \frac{3}{2}ql + ql = 0 \\ \sum_V : V_D + ql - \frac{3}{2}ql = 0 \end{array} \right. \Rightarrow \left\{ \begin{array}{l} \sum_H : H_D = +\frac{5}{4}ql \\ \sum_V : V_D = \frac{1}{2}ql \end{array} \right.$$





Diagrammi delle caratteristiche di sollecitazione . Applicando il metodo grafico :

Diagramma Sforzo Normale

N \overline{ql}

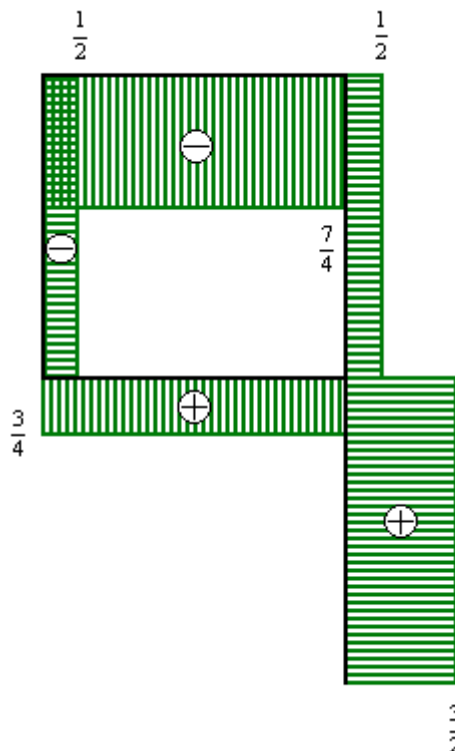


Diagramma Taglio

T ql

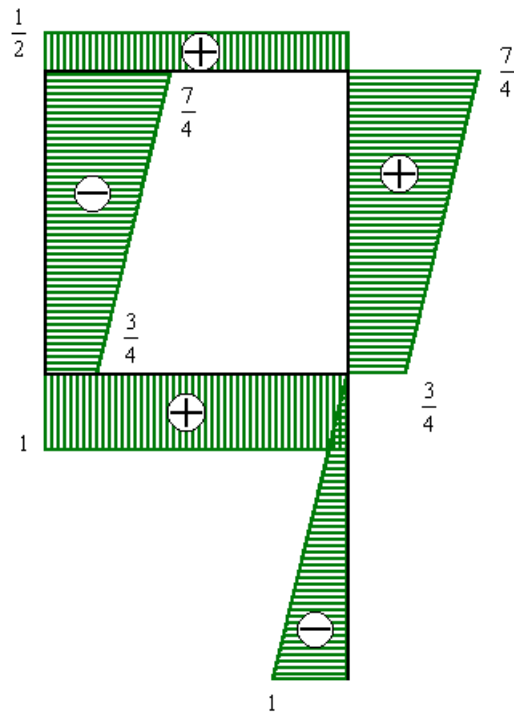


Diagramma Momento

M ql^2

