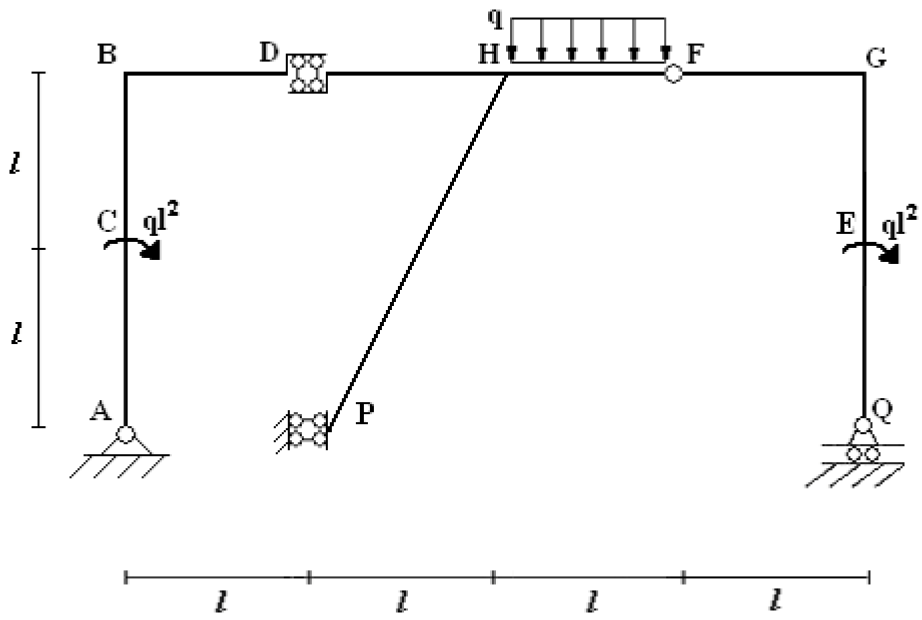
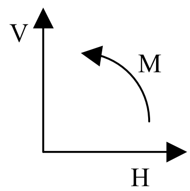
Calcolare le reazioni vincolari e tracciare i diagrammi quotati delle caratteristiche della sollecitazione .

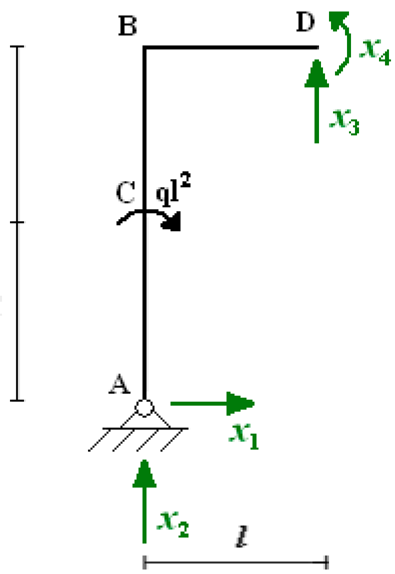




Utilizzando il metodo generale dell'isolamento per tronchi , applicando le equazioni cardinali della statica si ha :

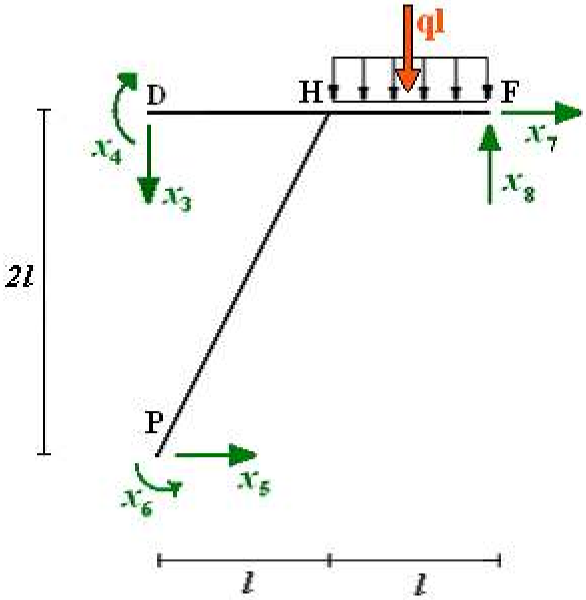
I° Tronco :

$$\begin{cases} \sum_H \quad : \quad x_1 = 0 \\ \sum_V \quad : \quad x_2 + x_3 = 0 \\ \sum_M (A) \quad : x_3 \cdot l + x_4 - ql^2 = 0 \end{cases}$$



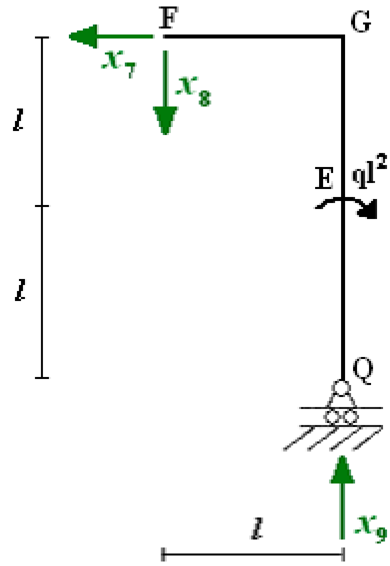
II° Tronco :

$$\begin{cases} \sum_H \; : \; x_5 + x_7 = 0 \\ \sum_V \; : \; -x_3 + x_8 - ql = 0 \\ \sum_M (P) : \; -x_4 + x_6 - ql \cdot \frac{3}{2} l - x_7 \cdot 2l + x_8 \cdot 2l = 0 \end{cases}$$



III° Tronco :

$$\begin{cases} \sum_H \; : \; -x_7 = 0 \;\Rightarrow\; x_7 = 0 \\ \sum_V \; : \; -x_8 + x_9 = 0 \;\Rightarrow\; x_9 = ql \\ \sum_M (Q) \; : \; x_7 \cdot 2l + x_8 \cdot l - ql^2 = 0 \;\Rightarrow\; x_8 = ql \end{cases}$$

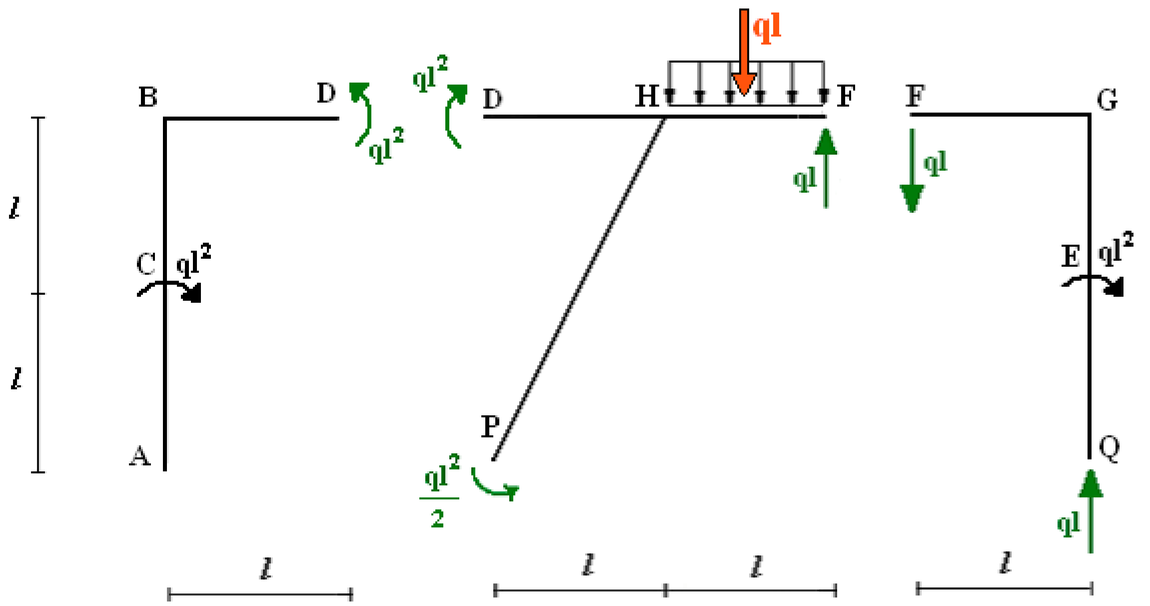


Risolvendo , tramite sostituzione , simultaneamente i due sistemi relativi ai primi due tronchi si ha :

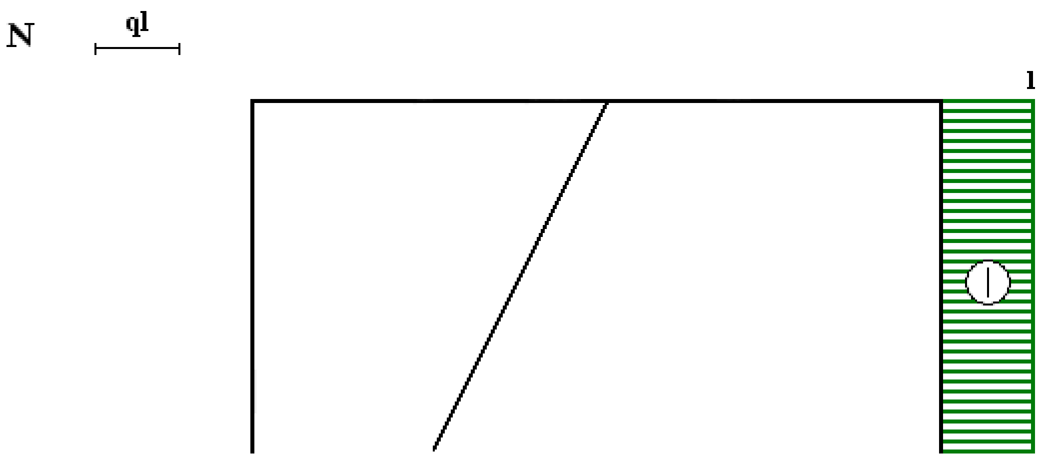
$$\begin{cases} \sum_H \; : \; x_1 = 0 \\ \sum_V \; : \; x_2 + x_3 = 0 \\ \sum_M (A) \; : x_3 \cdot l + x_4 - ql^2 = 0 \end{cases} \quad , \quad \begin{cases} \sum_H \; : \; x_5 + x_7 = 0 \\ \sum_V \; : \; -x_3 + x_8 - ql = 0 \\ \sum_M (P) : \; -x_4 + x_6 - ql \cdot \frac{3}{2} l - x_7 \cdot 2l + x_8 \cdot 2l = 0 \end{cases}$$

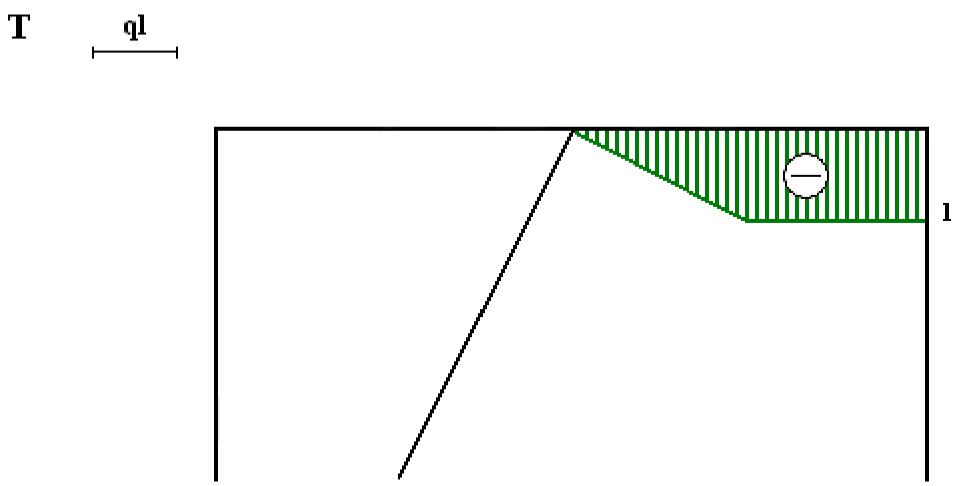
$x_1 = 0$	$x_2 = 0$	$x_3 = 0$	$x_4 = ql^2$
$x_5 = 0$	$x_6 = \frac{ql^2}{2}$		

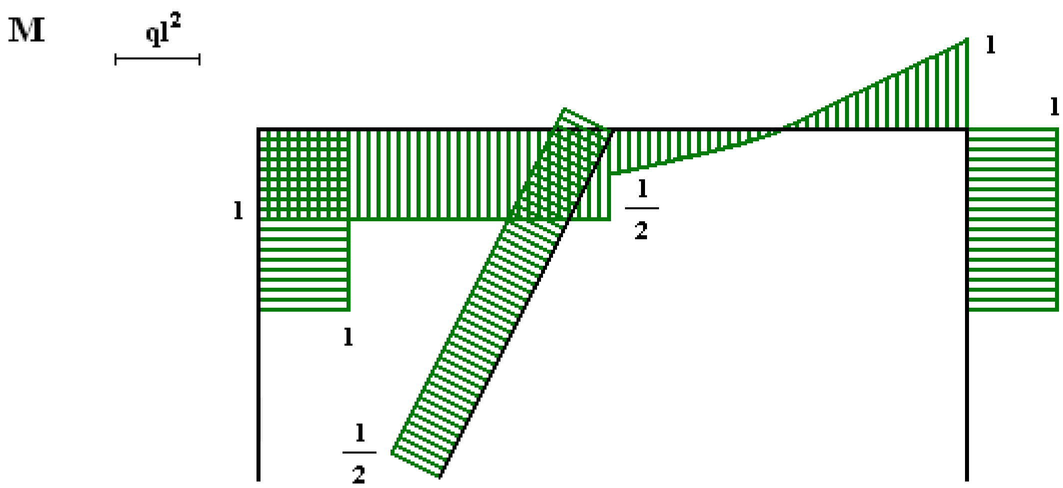
Riassumendo :



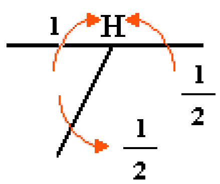
Diagrammi :



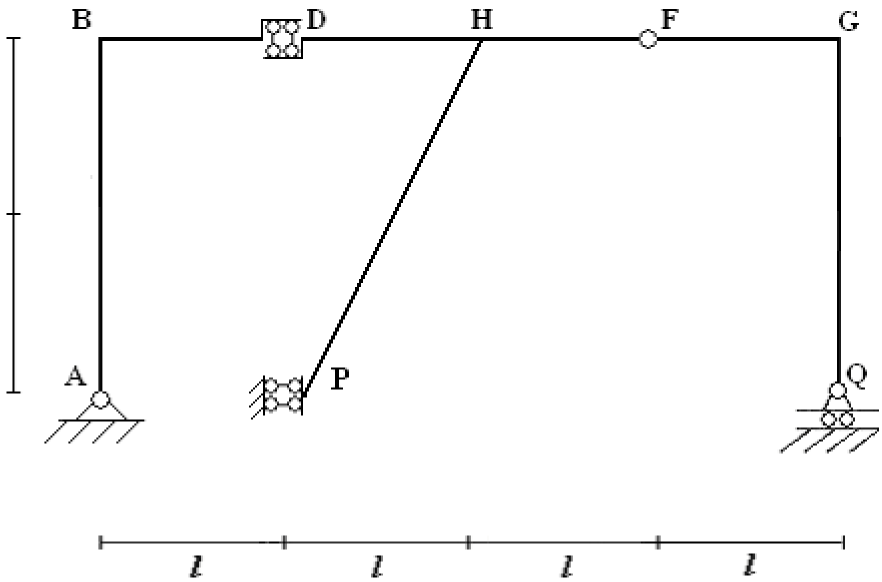




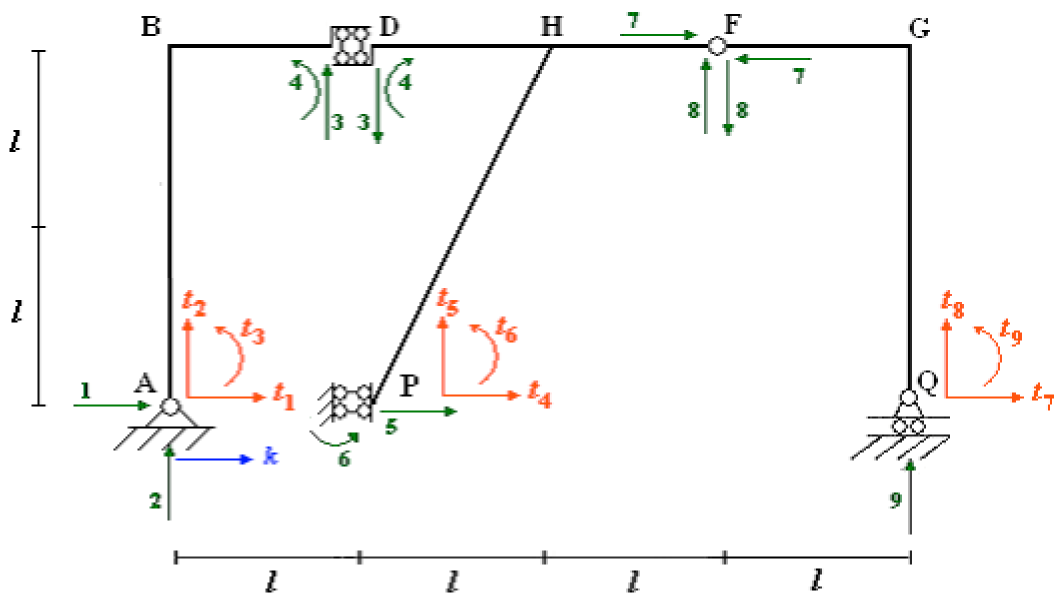
Verifica dell'equilibrio nel punto H



Della struttura sotto definita determinare i diagrammi dello spostamento corrispondenti ad un cedimento vincolare orizzontale , di valore prefissato *k* , in A .



Impostando il sistema lineare sulla struttura :



$$
\begin{cases}
dA_1 = k \\
dA_2 = 0 \\
dD_3^{\,I} - dD_3^{\,II} = 0 \\
dD_4^{\,I} - dD_4^{\,II} = 0 \\
dP_5 = 0 \\
dP_6 = 0 \\
dF_7^{\,II} - dF_7^{\,III} = 0 \\
dF_8^{\,II} - dF_8^{\,III} = 0 \\
dQ_9 = 0
\end{cases}
\Rightarrow
\begin{cases}
t_1 = k \\
t_2 = 0 \\
(t_2 + t_3 \cdot l) - (t_5 + t_6 \cdot 0) = 0 \\
t_3 - t_6 = 0 \\
t_4 = 0 \\
t_6 = 0 \\
(t_4 - t_6 \cdot 2l) - (t_7 - t_9 \cdot (2l)) = 0 \\
(t_5 + t_6 \cdot 2l) - (t_8 + t_9 \cdot (-l)) = 0 \\
t_8 = 0
\end{cases}
\Rightarrow
\begin{cases}
t_1 = k \\
t_2 = 0 \\
t_3 = 0 \\
t_6 = 0 \\
t_4 = 0 \\
t_5 = 0 \\
t_7 = 0 \\
t_9 = 0 \\
t_8 = 0
\end{cases}
$$

Si arriva quindi a :