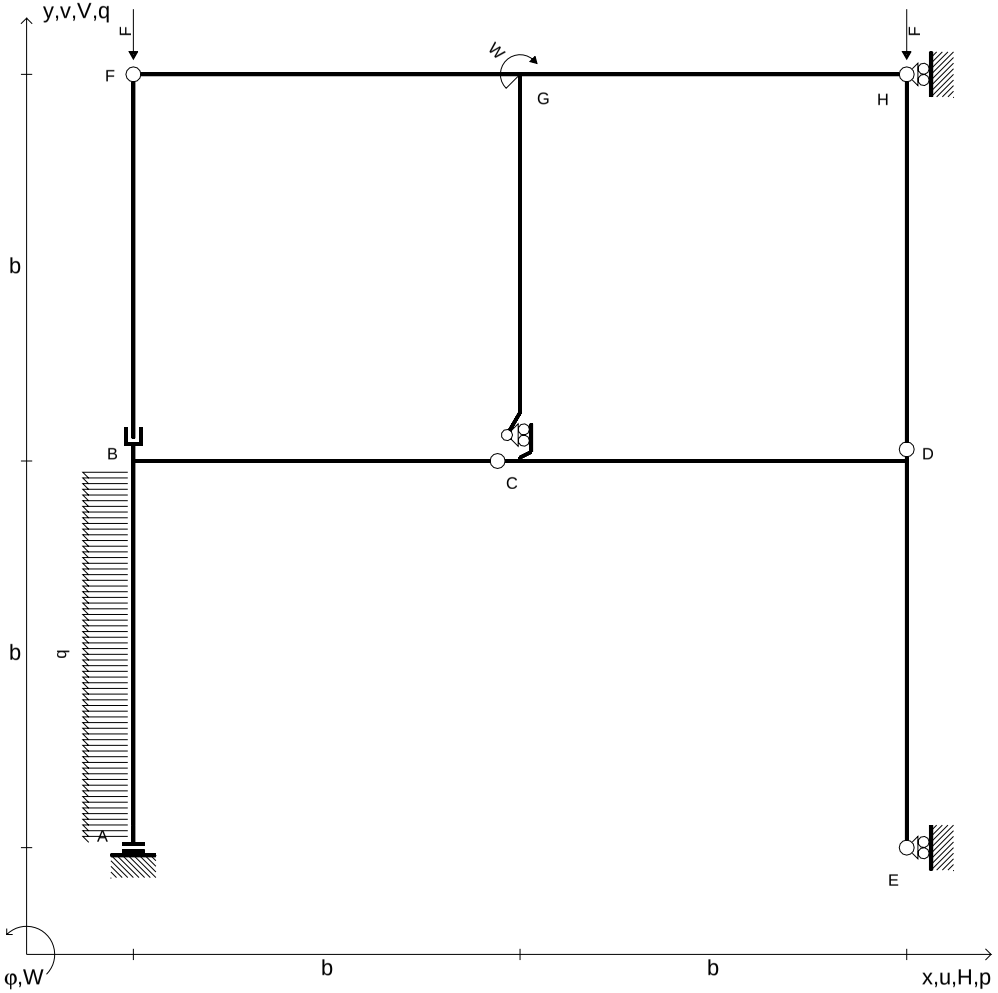
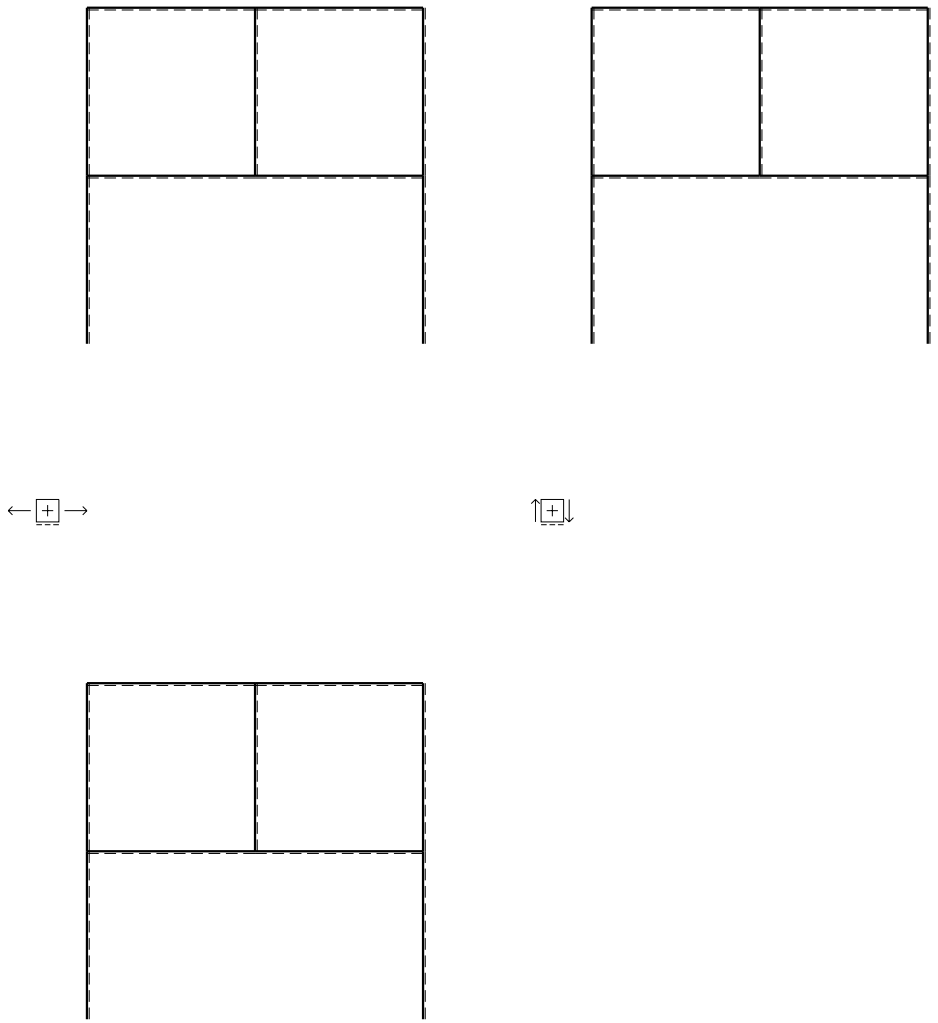


$V_F = -F$ $V_H = -F$ $W_G = -W = -Fb$ $p_{AB} = -q = -F/b$

Svolgere l'analisi cinematica.
Determinare matrice di congruenza e di equilibrio.
Determinare le reazioni vincolari a terra col PLV (Le=0).
Determinare le azioni interne in G (asta GF) col PLV (Le=0).
Carichi e deformazioni date hanno verso efficace in disegno.
Calcolare reazioni vincolari della struttura e delle aste.
Tracciare i diagrammi delle azioni interne nelle aste.



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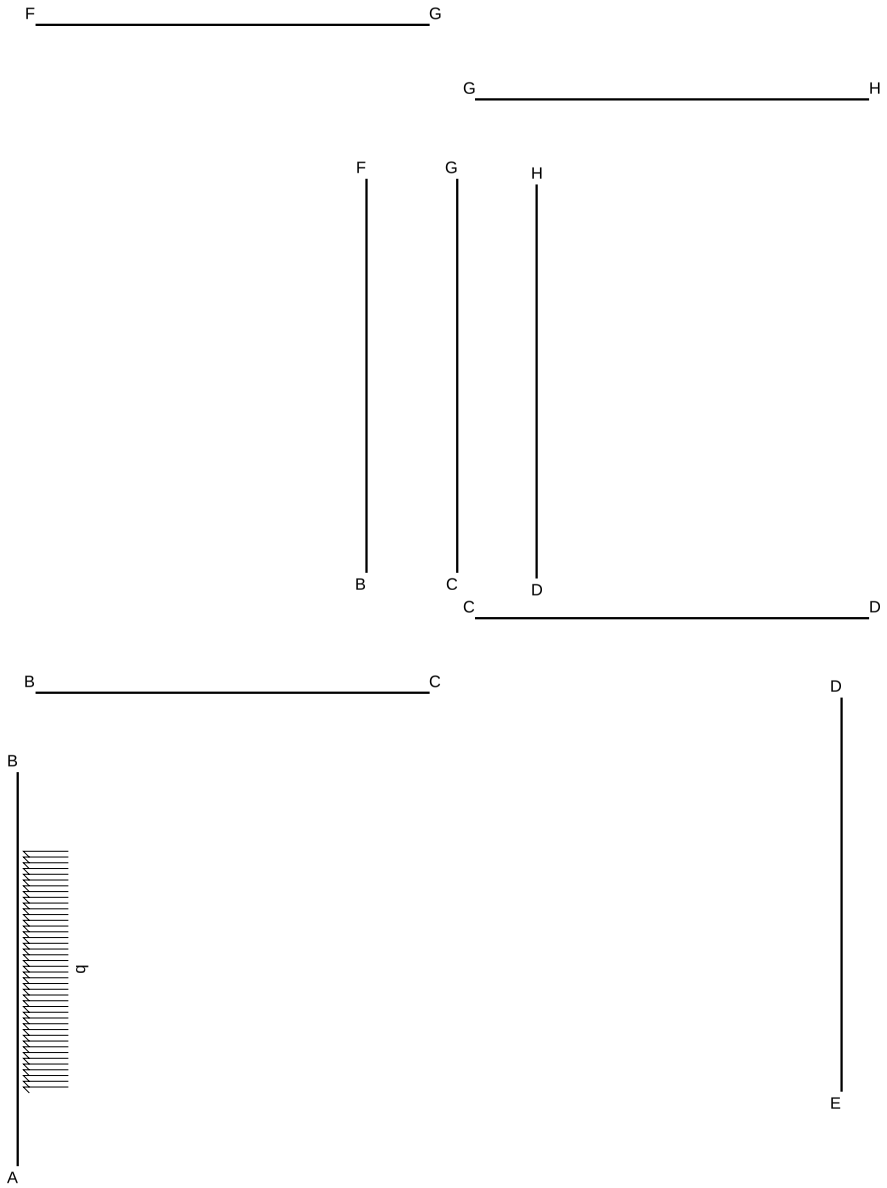
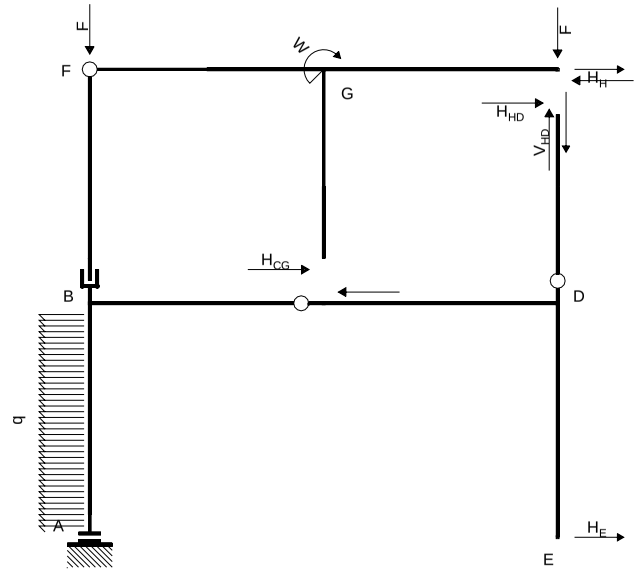




EQUAZIONI DI EQUILIBRIO

Traslazione orizzontale globale

$H_E + H_H = qb$

Rotazione intorno a C: aste CD DE DH

$H_E b - H_{HD} b + V_{HD} b = 0$

Traslazione verticale: aste BF FG GC GH

$-V_{HD} = 2F$

Rotazione intorno a F: aste FG GC GH

$H_{CG} b - 2V_{HD} b = 2Fb + W$

Rotazione intorno a D: aste DH

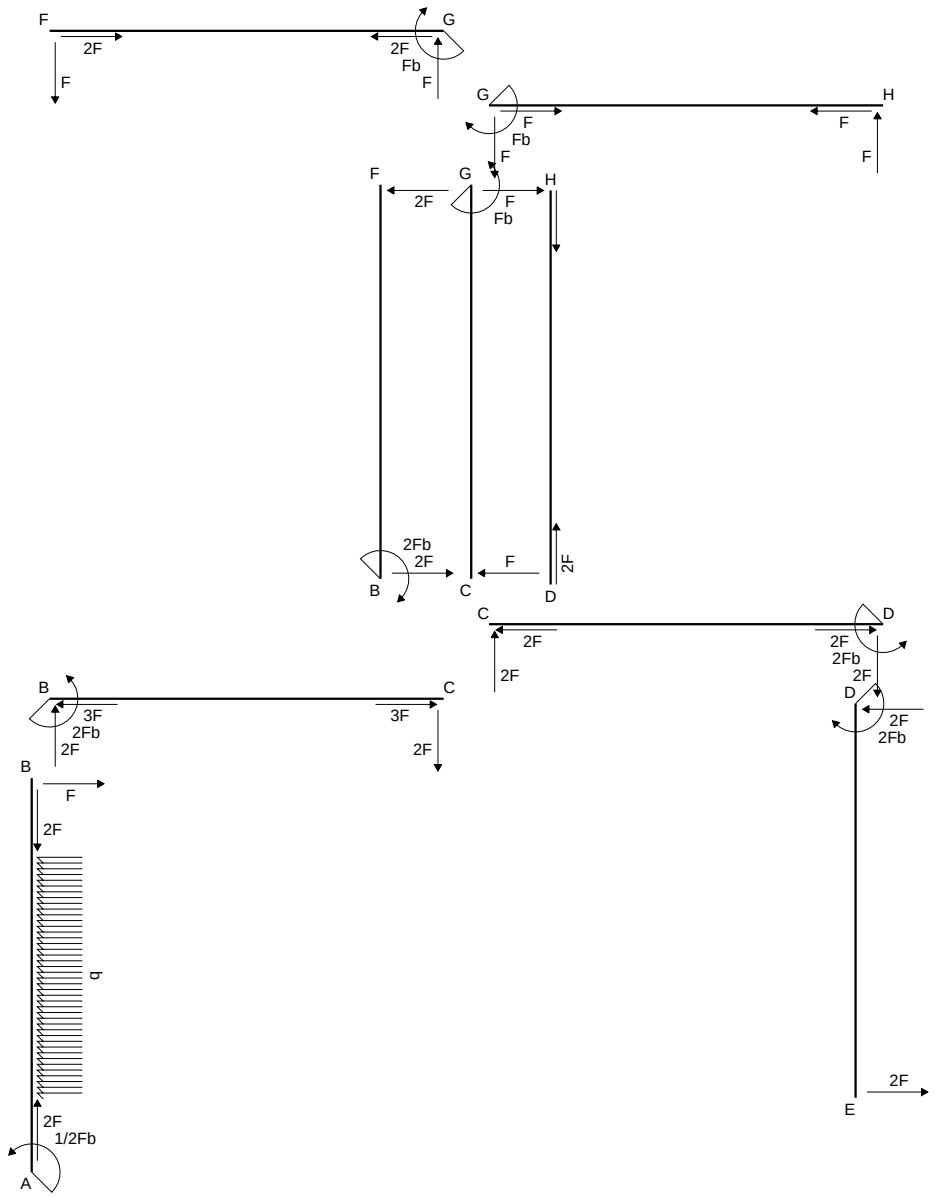
$-H_{HD} b = 0$

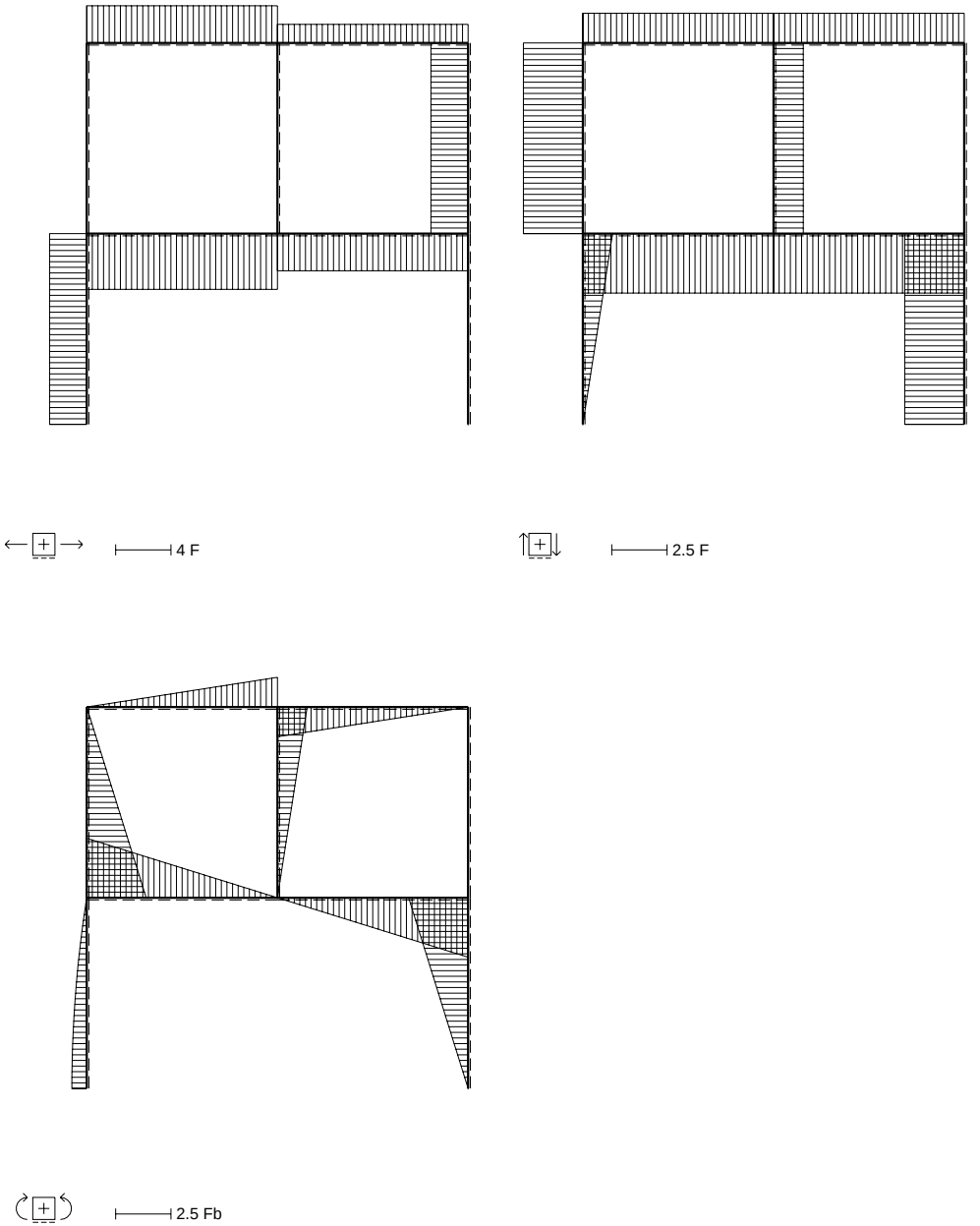
Matrice di equilibrio

$$\begin{array}{c} \\ u_A \\ \varphi_{CB} \\ v_{BF} \\ \varphi_{FB} \\ \varphi_{DH} \end{array} \begin{bmatrix} H_E b & H_H b & H_{CG} b & H_{HD} b & V_{HD} b \\ 1 & 1 & 0 & 0 & 0 \\ 1 & 0 & 0 & -1 & 1 \\ 0 & 0 & 0 & 0 & -1 \\ 0 & 0 & 1 & 0 & -2 \\ 0 & 0 & 0 & -1 & 0 \end{bmatrix} = \begin{bmatrix} Fb & W & qb^2 \\ 0 & 0 & 1 \\ 0 & 0 & 0 \\ 2 & 0 & 0 \\ 2 & 1 & 0 \\ 0 & 0 & 0 \end{bmatrix}$$

Soluzione del sistema

$$\begin{bmatrix} H_E b \\ H_H b \\ V_{HD} b \\ H_{CG} b \\ H_{HD} b \end{bmatrix} = \begin{bmatrix} Fb & W & qb^2 \\ 2 & 0 & 0 \\ -2 & 0 & 1 \\ -2 & 0 & 0 \\ -2 & 1 & 0 \\ 0 & 0 & 0 \end{bmatrix}$$


F
2F
F
G
2F
Fb
F
G
F
Fb
F
H
F
F
F
G
H
2F
F
Fb
2Fb
2F
F
2F
B
C
D
C
D
2F
2F
2F
2Fb
2F
B
3F
2Fb
2F
C
3F
2F
D
2F
2Fb
B
F
2F
q
2F
1/2Fb
A
2F
E


4 F
2.5 F
2.5 Fb

Es.N.001

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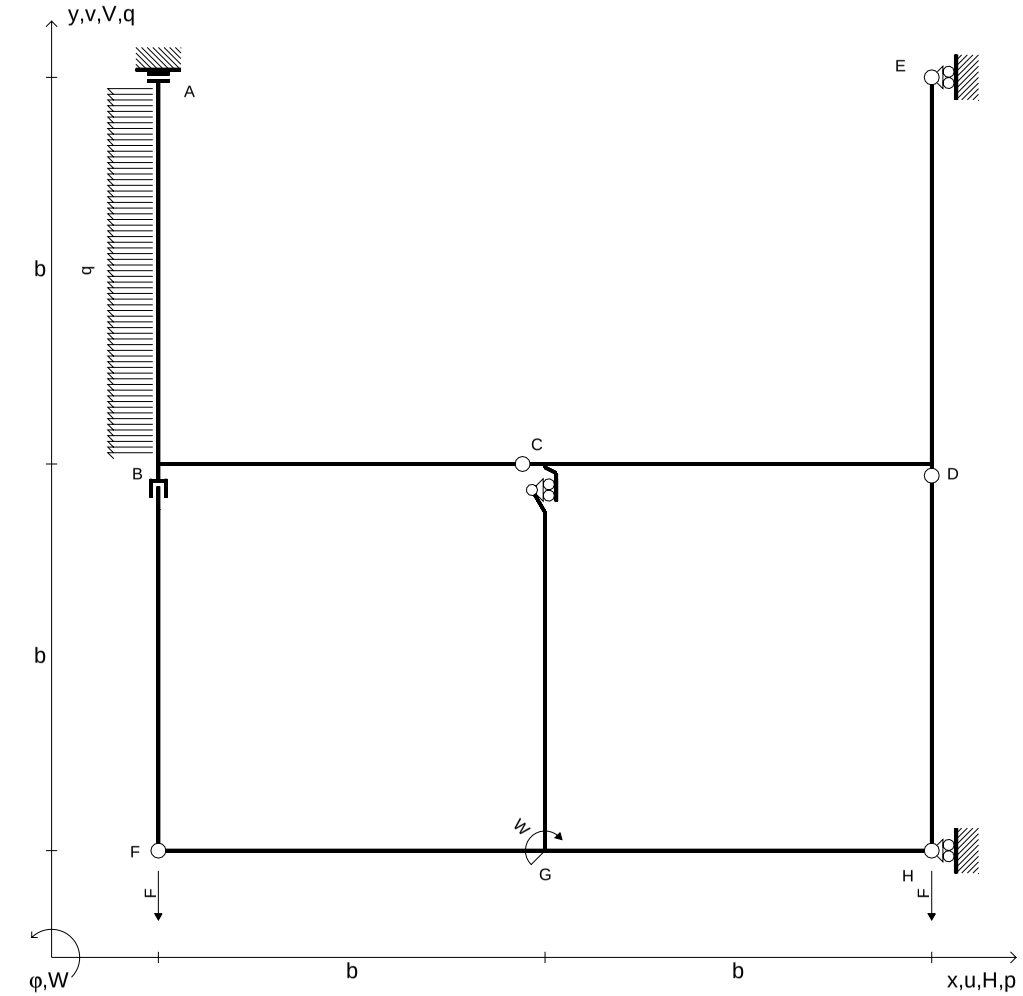
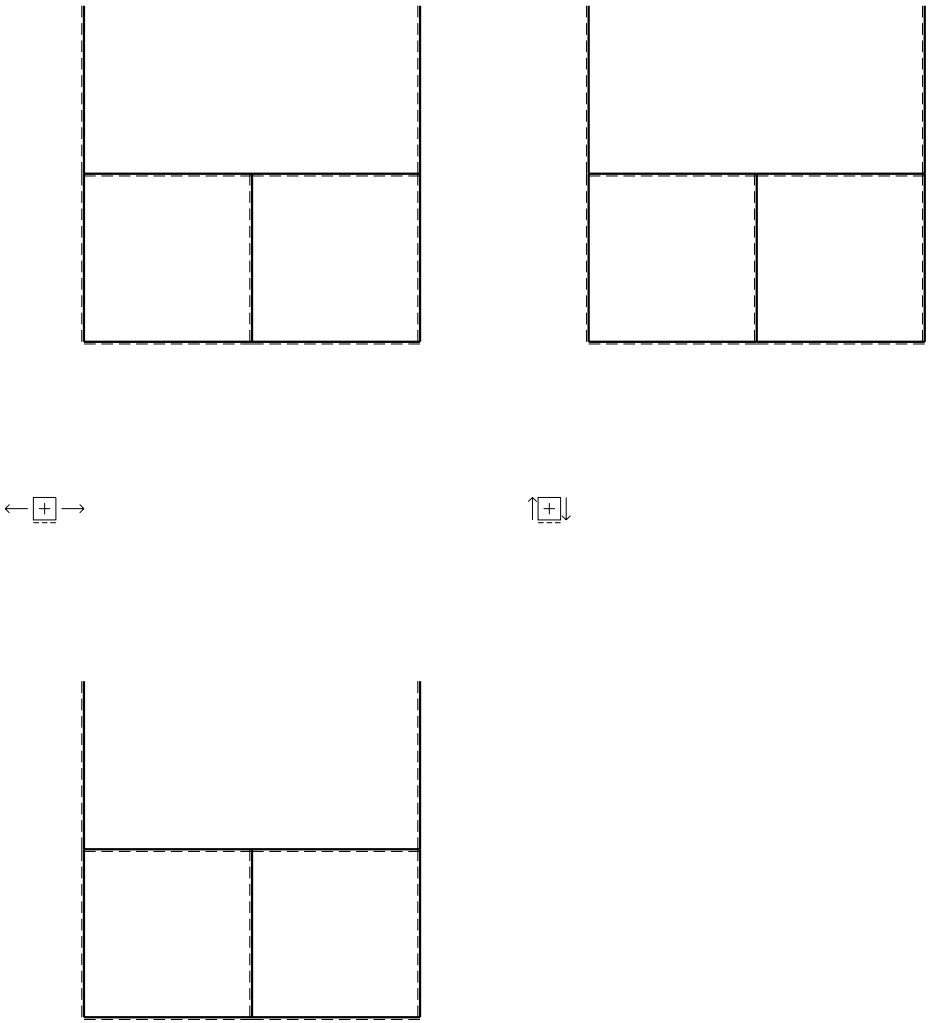


$V_F = -F$ $V_H = -F$ $W_G = -W = -Fb$ $p_{AB} = -q = -F/b$

Svolgere l'analisi cinematica.
Determinare matrice di congruenza e di equilibrio.
Determinare le reazioni vincolari a terra col PLV (Le=0).
Determinare le azioni interne in G (asta GF) col PLV (Le=0).
Carichi e deformazioni date hanno verso efficace in disegno.
Calcolare reazioni vincolari della struttura e delle aste.
Tracciare i diagrammi delle azioni interne nelle aste.



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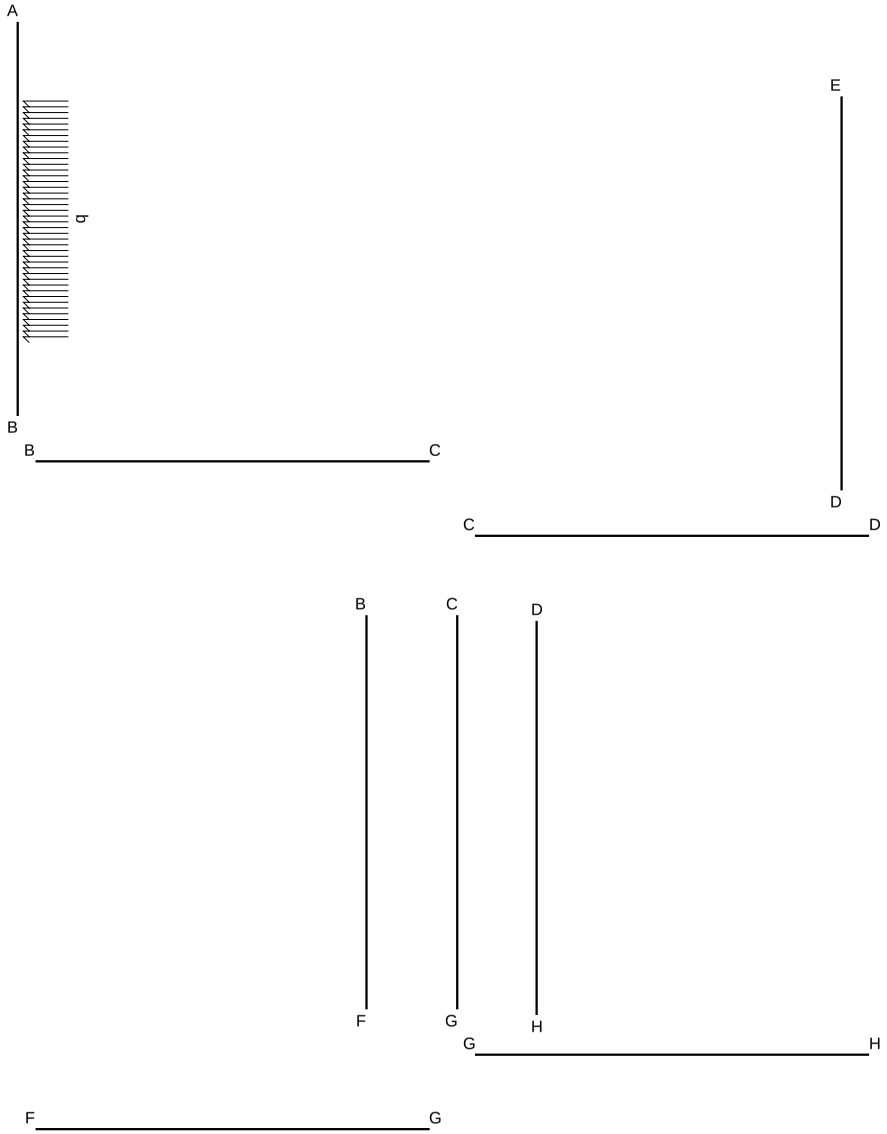
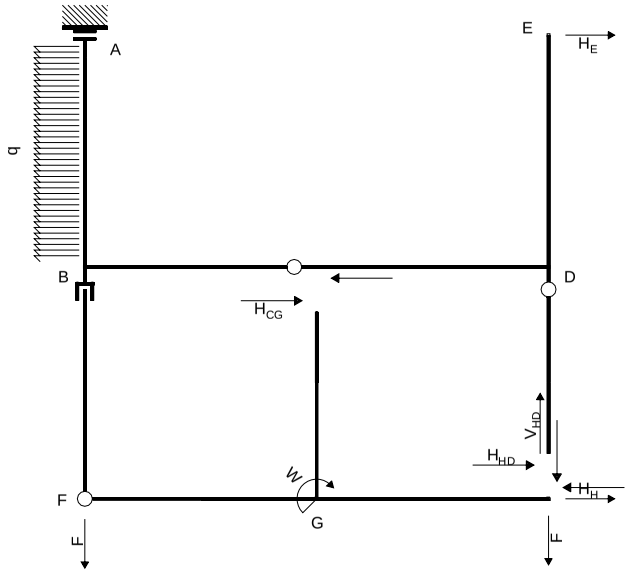




EQUAZIONI DI EQUILIBRIO

Traslazione orizzontale globale

$H_E + H_H = qb$

Rotazione intorno a C: aste CD DE DH

$-H_E b + H_{HD} b + V_{HD} b = 0$

Traslazione verticale: aste BF FG GC GH

$-V_{HD} = 2F$

Rotazione intorno a F: aste FG GC GH

$-H_{CG} b - 2V_{HD} b = 2Fb + W$

Rotazione intorno a D: aste DH

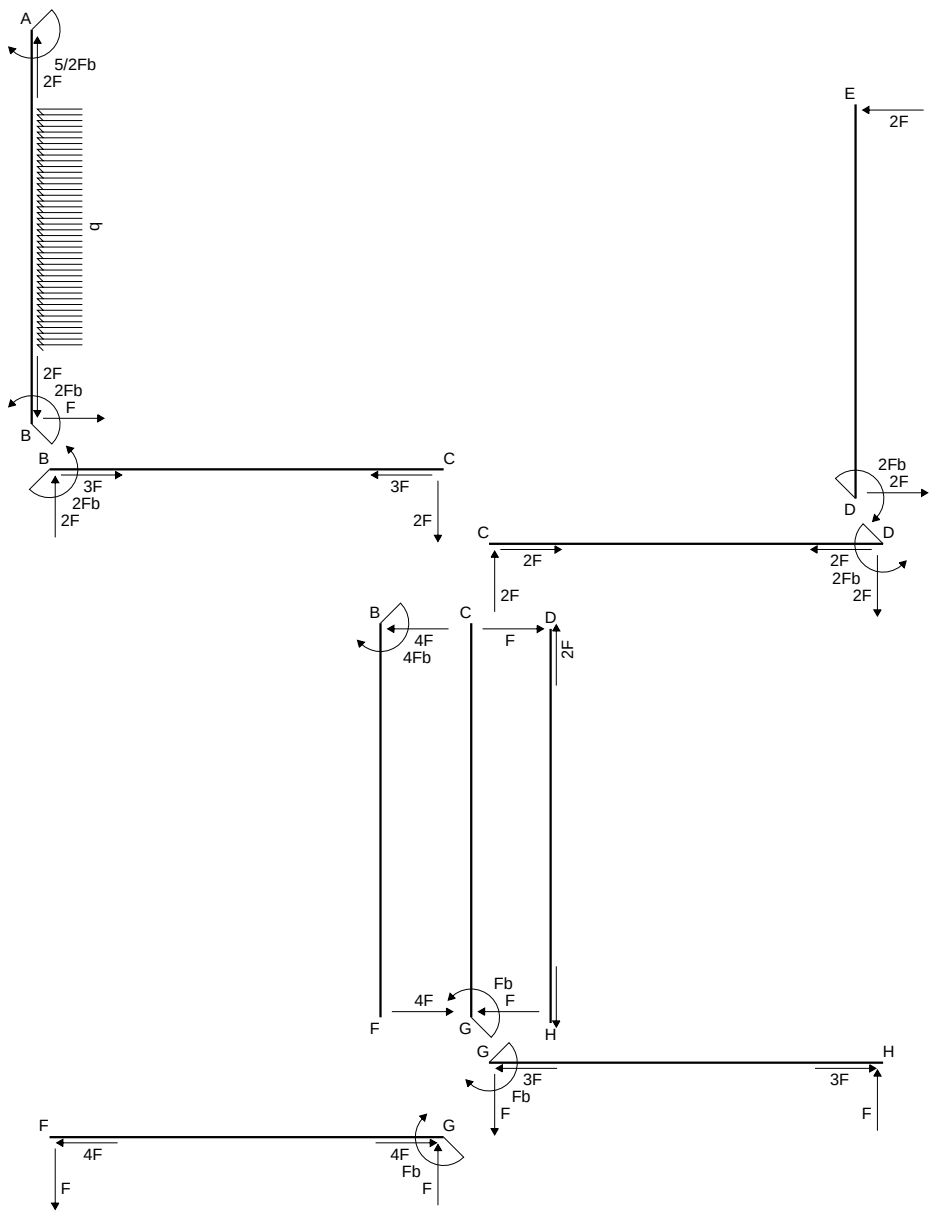
$H_{HD} b = 0$

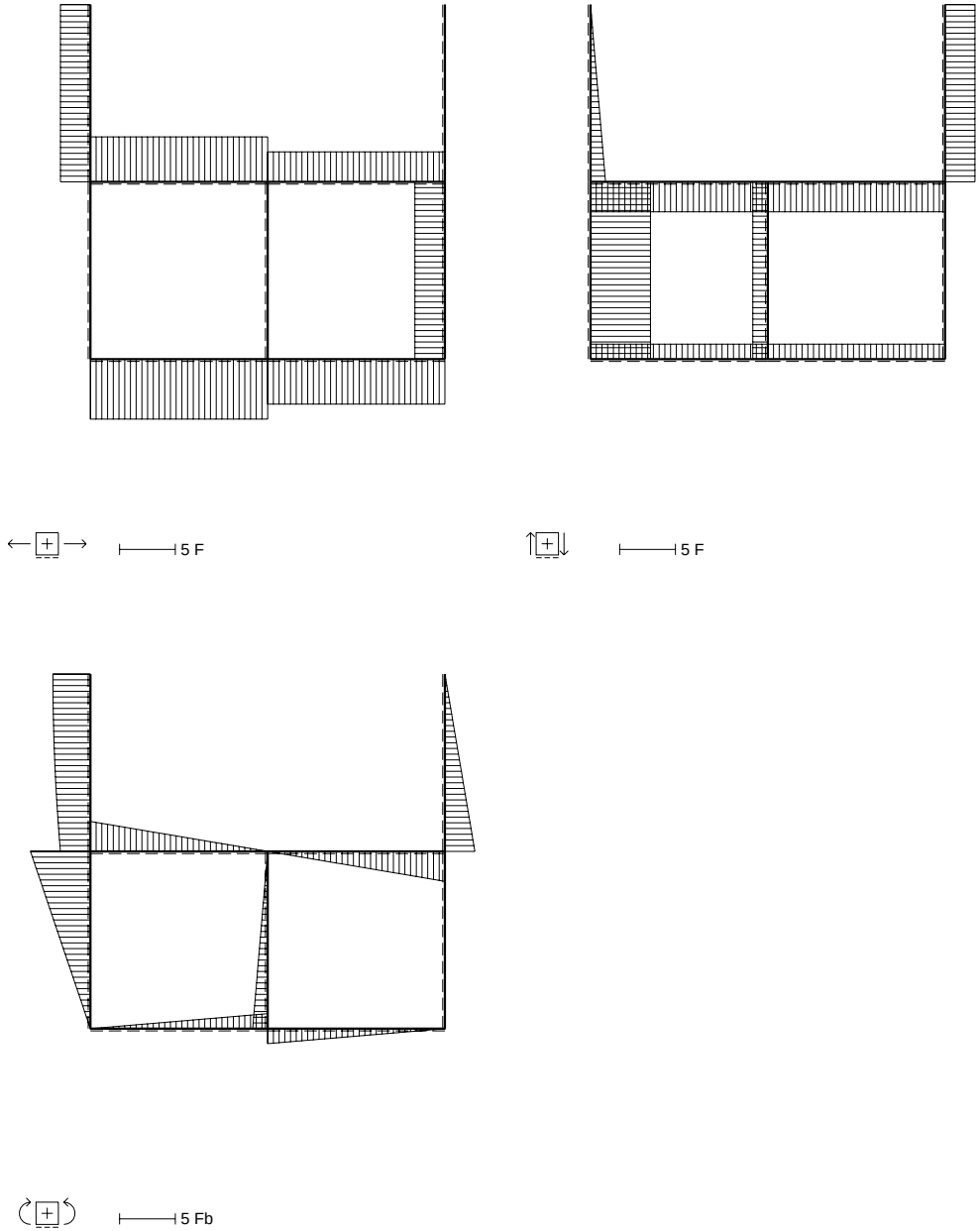
Matrice di equilibrio

$$\begin{array}{c} \\ u_A \\ \varphi_{CB} \\ v_{BF} \\ \varphi_{FB} \\ \varphi_{DH} \end{array} \begin{bmatrix} H_E b & H_H b & H_{CG} b & H_{HD} b & V_{HD} b \\ 1 & 1 & 0 & 0 & 0 \\ -1 & 0 & 0 & 1 & 1 \\ 0 & 0 & 0 & 0 & -1 \\ 0 & 0 & -1 & 0 & -2 \\ 0 & 0 & 0 & 1 & 0 \end{bmatrix} = \begin{bmatrix} Fb & W & qb^2 \\ 0 & 0 & 1 \\ 0 & 0 & 0 \\ 2 & 0 & 0 \\ 2 & 1 & 0 \\ 0 & 0 & 0 \end{bmatrix}$$

Soluzione del sistema

$$\begin{bmatrix} H_E b \\ H_H b \\ V_{HD} b \\ H_{CG} b \\ H_{HD} b \end{bmatrix} = \begin{array}{c} \begin{bmatrix} Fb & W & qb^2 \end{bmatrix} \\ \begin{bmatrix} -2 & 0 & 0 \\ 2 & 0 & 1 \\ -2 & 0 & 0 \\ 2 & -1 & 0 \\ 0 & 0 & 0 \end{bmatrix} \end{array}$$


A
5/2Fb
2F
q
2F
2Fb
F
B
B
C
3F
3F
2Fb
2F
2F
E
2F
D
2Fb
2F
C
D
2F
2F
2Fb
2F
2F
B
C
D
4F
4Fb
F
2F
F
4F
Fb
F
G
H
G
H
3F
3F
Fb
F
F
F
G
4F
4F
Fb
F
F


5 F
5 F
5 Fb

Es.N.002

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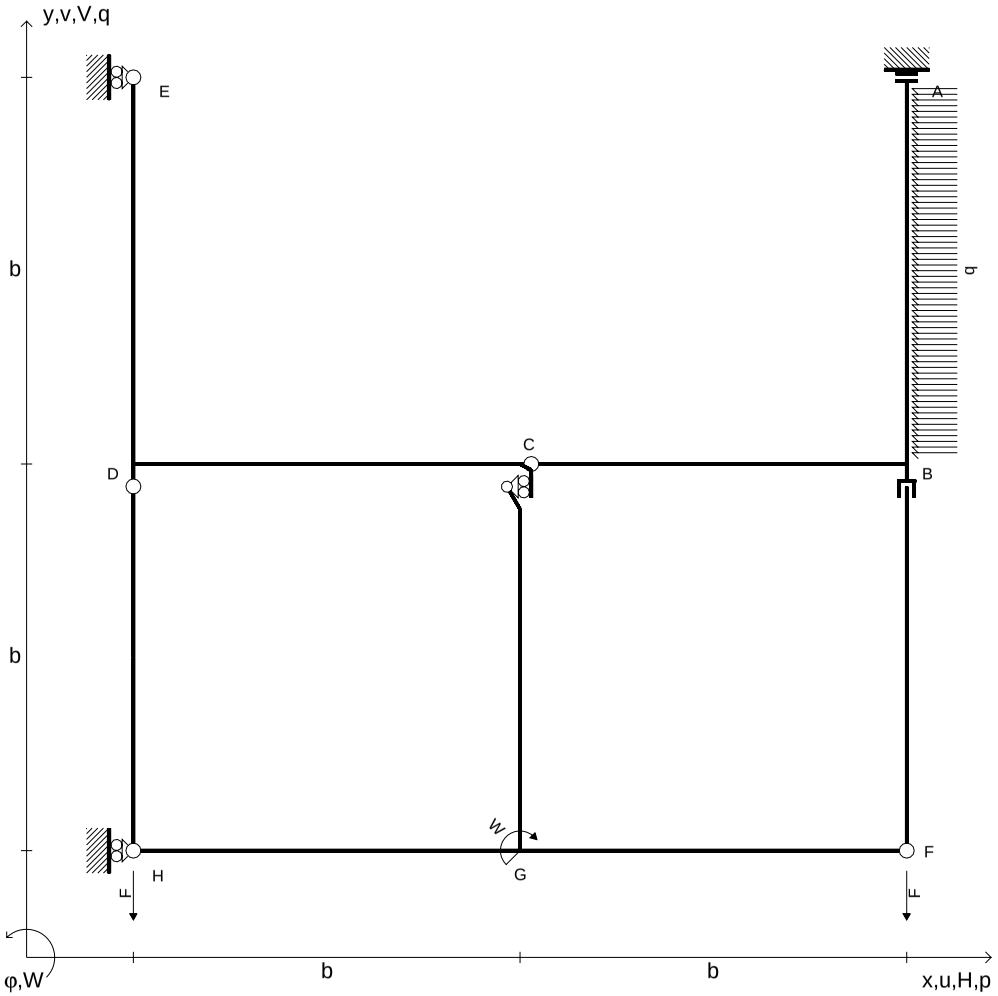
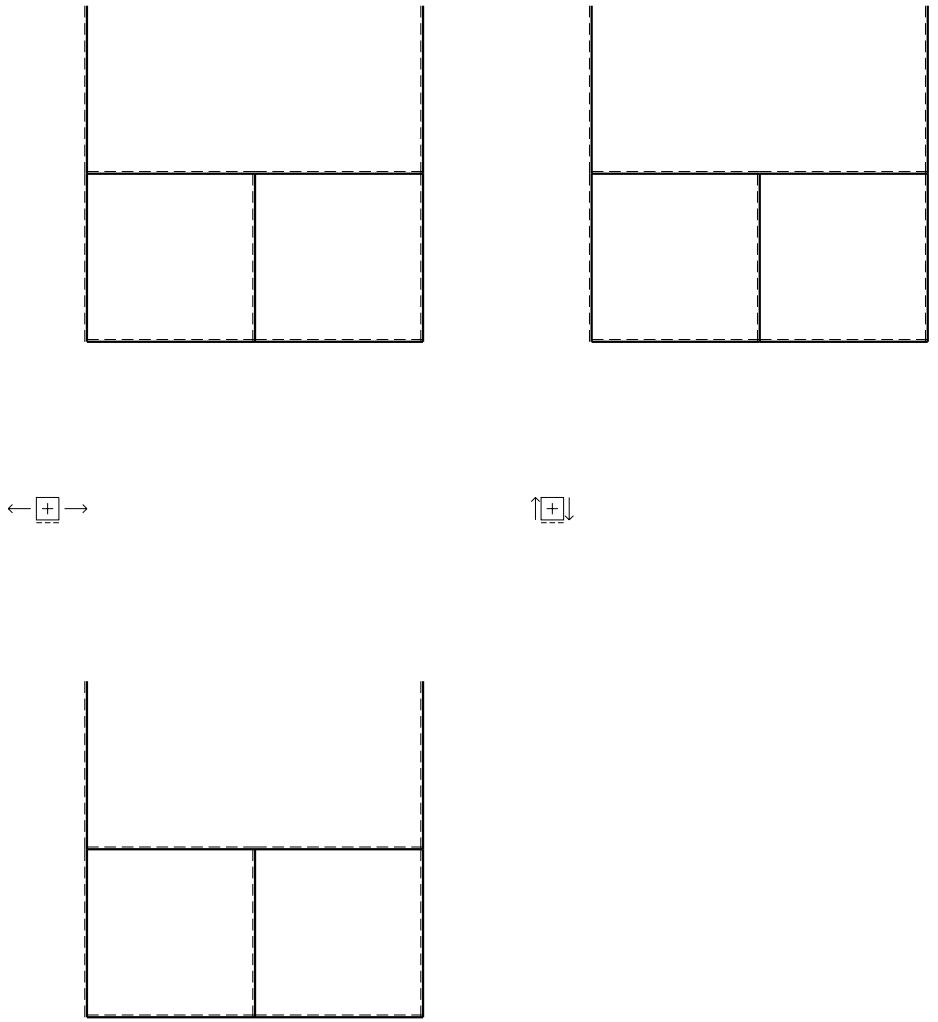


$V_F = -F$ $V_H = -F$ $W_G = -W = -Fb$ $p_{AB} = -q = -F/b$

Svolgere l'analisi cinematica.
Determinare matrice di congruenza e di equilibrio.
Determinare le reazioni vincolari a terra col PLV (Le=0).
Determinare le azioni interne in G (asta GF) col PLV (Le=0).
Carichi e deformazioni date hanno verso efficace in disegno.
Calcolare reazioni vincolari della struttura e delle aste.
Tracciare i diagrammi delle azioni interne nelle aste.



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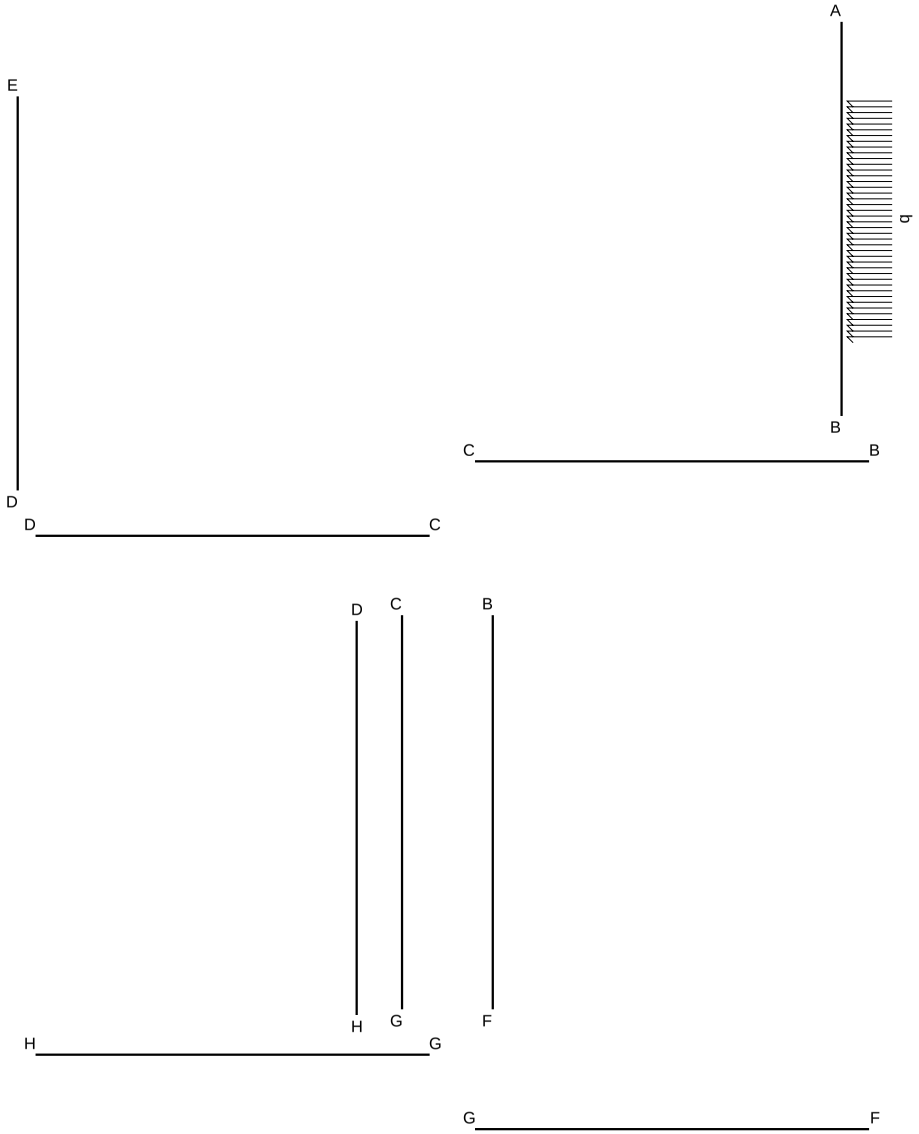

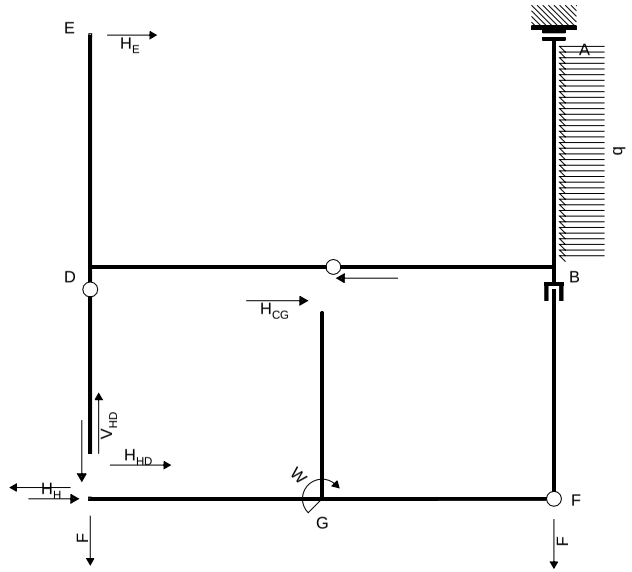

EQUAZIONI DI EQUILIBRIO

Traslazione orizzontale globale

$H_E + H_H = qb$

Rotazione intorno a C: aste CD DE DH

$-H_E b + H_{HD} b - V_{HD} b = 0$

Traslazione verticale: aste BF FG GC GH

$-V_{HD} = 2F$

Rotazione intorno a F: aste FG GC GH

$-H_{CG} b + 2V_{HD} b = -2Fb + W$

Rotazione intorno a D: aste DH

$H_{HD} b = 0$

Matrice di equilibrio

$$\begin{array}{c} \\ u_A \\ \varphi_{CB} \\ v_{BF} \\ \varphi_{FB} \\ \varphi_{DH} \end{array} \begin{bmatrix} H_E b & H_H b & H_{CG} b & H_{HD} b & V_{HD} b \\ 1 & 1 & 0 & 0 & 0 \\ -1 & 0 & 0 & 1 & -1 \\ 0 & 0 & 0 & 0 & -1 \\ 0 & 0 & -1 & 0 & 2 \\ 0 & 0 & 0 & 1 & 0 \end{bmatrix} = \begin{bmatrix} Fb & W & qb^2 \\ 0 & 0 & 1 \\ 0 & 0 & 0 \\ 2 & 0 & 0 \\ -2 & 1 & 0 \\ 0 & 0 & 0 \end{bmatrix}$$

Soluzione del sistema

$$\begin{bmatrix} H_E b \\ H_H b \\ V_{HD} b \\ H_{CG} b \\ H_{HD} b \end{bmatrix} = \begin{bmatrix} Fb & W & qb^2 \\ 2 & 0 & 0 \\ -2 & 0 & 1 \\ -2 & 0 & 0 \\ -2 & -1 & 0 \\ 0 & 0 & 0 \end{bmatrix}$$

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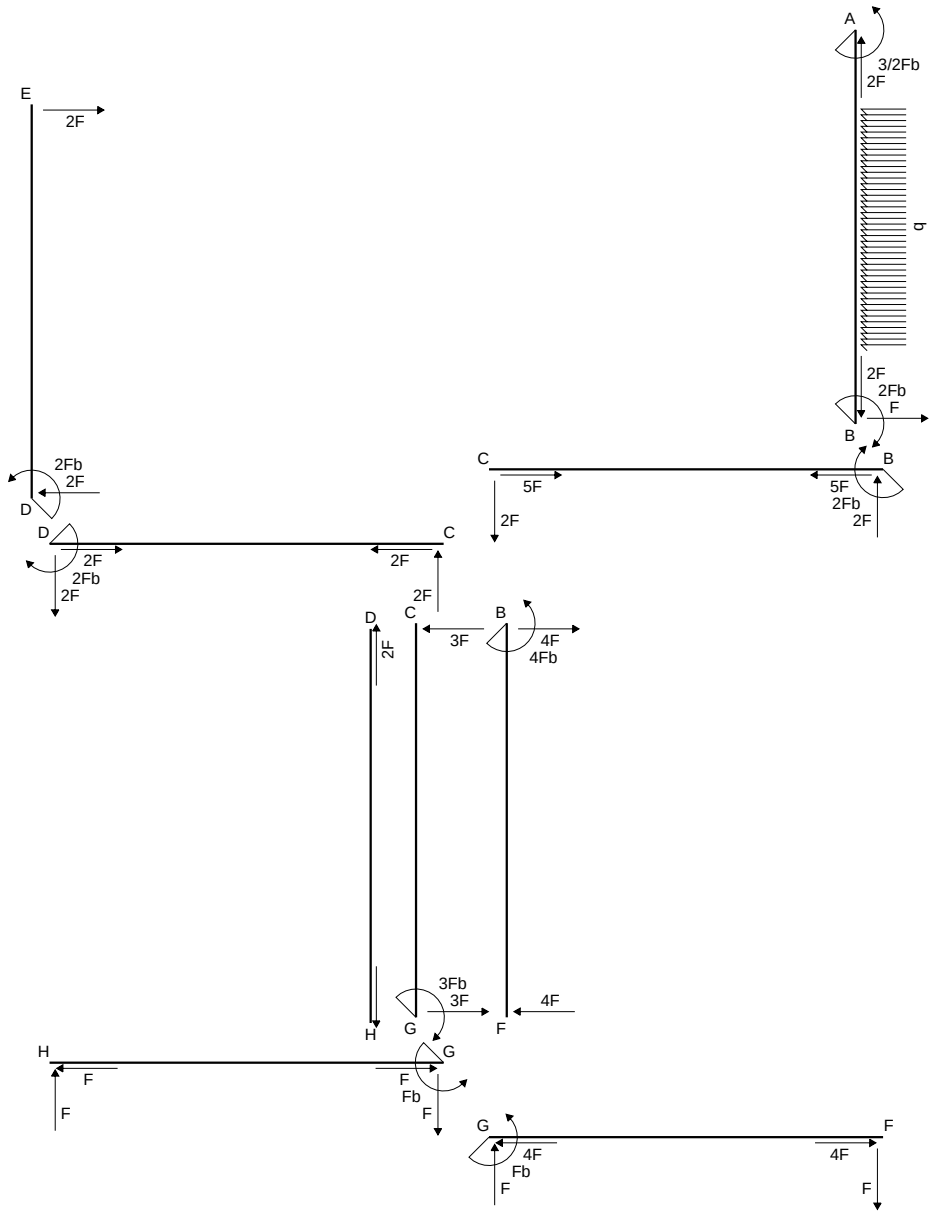
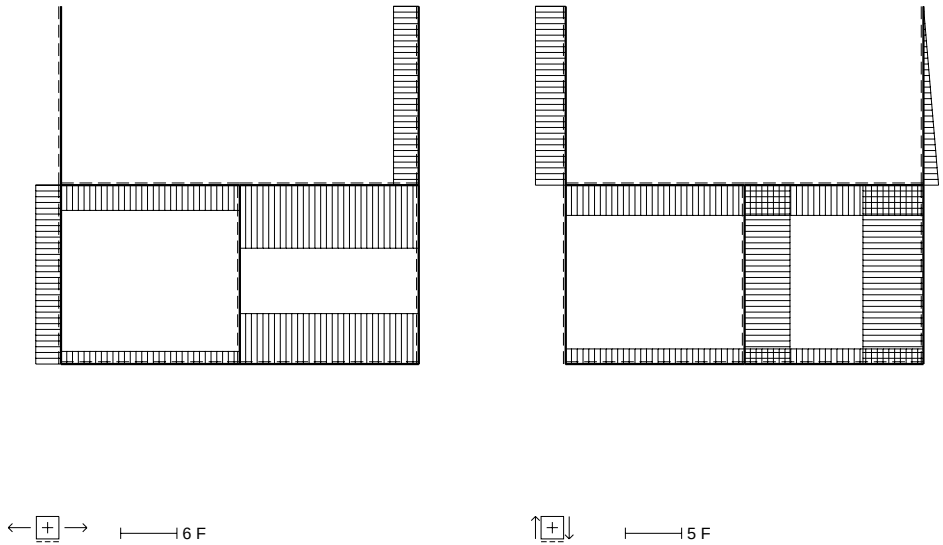
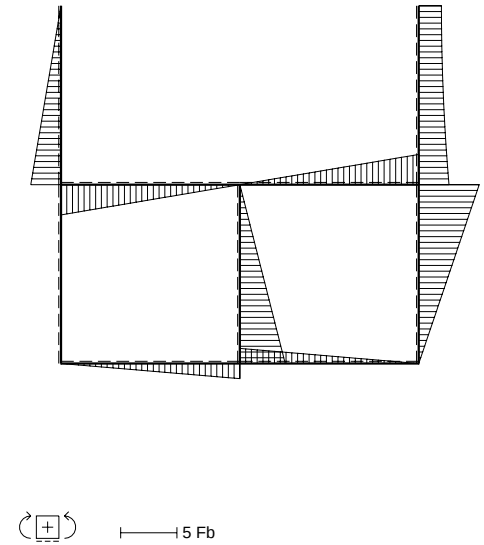

A
3/2Fb
2F
q
E
2F
2F
2Fb
F
B
C
B
5F
5F
2Fb
2F
2Fb
2F
D
D
C
2F
2F
2Fb
2F
2F
D
C
B
2F
3F
4F
4Fb
3Fb
3F
4F
H
G
F
H
G
F
F
Fb
F
F
G
F
4F
4F
Fb
F
F


6 F
5 F


5 Fb

Es.N.003

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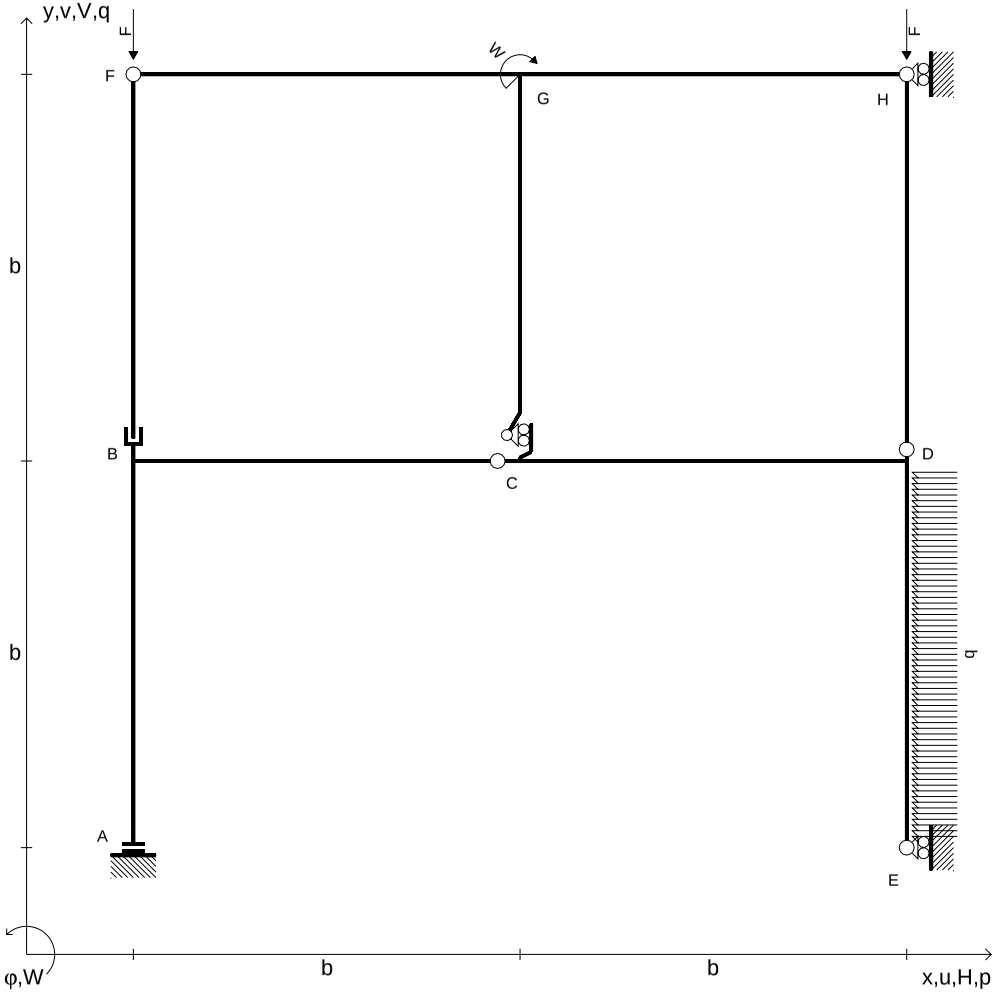
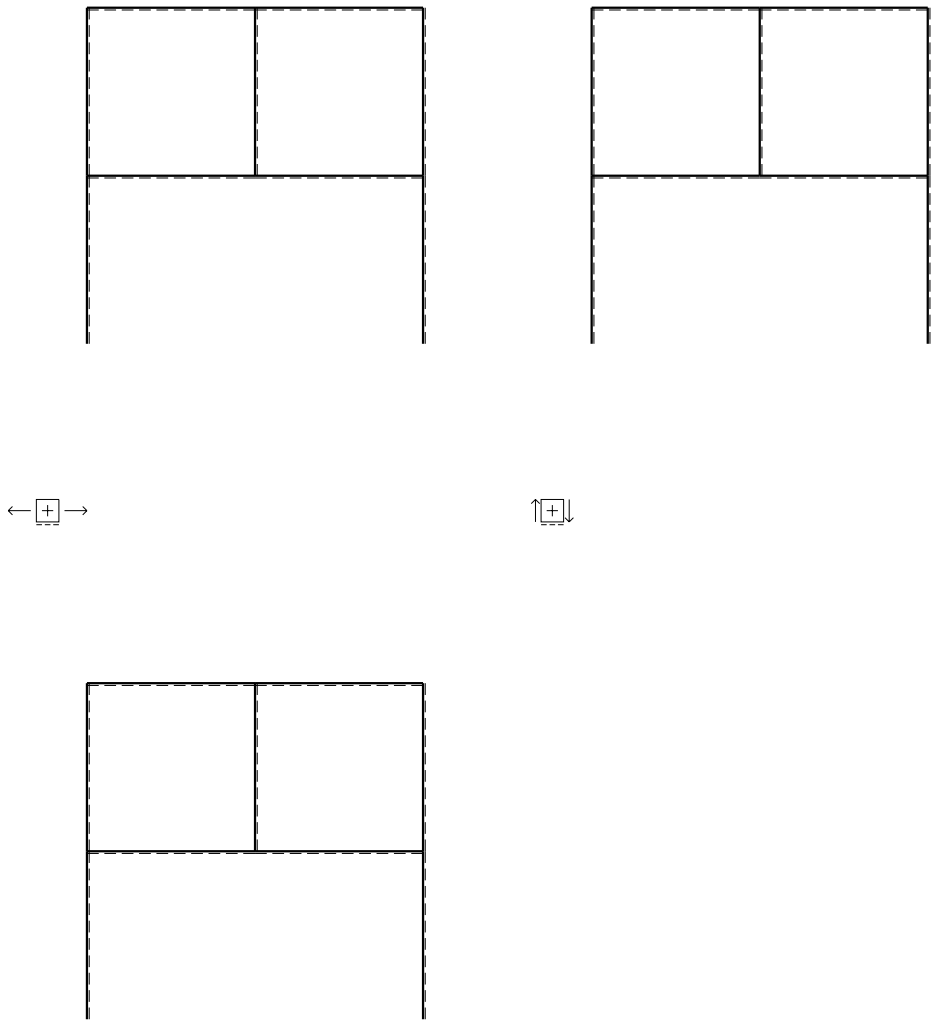


$V_F = -F$ $V_H = -F$ $W_G = -W = -Fb$ $p_{ED} = -q = -F/b$

Svolgere l'analisi cinematica.
Determinare matrice di congruenza e di equilibrio.
Determinare le reazioni vincolari a terra col PLV (Le=0).
Determinare le azioni interne in G (asta GF) col PLV (Le=0).
Carichi e deformazioni date hanno verso efficace in disegno.
Calcolare reazioni vincolari della struttura e delle aste.
Tracciare i diagrammi delle azioni interne nelle aste.



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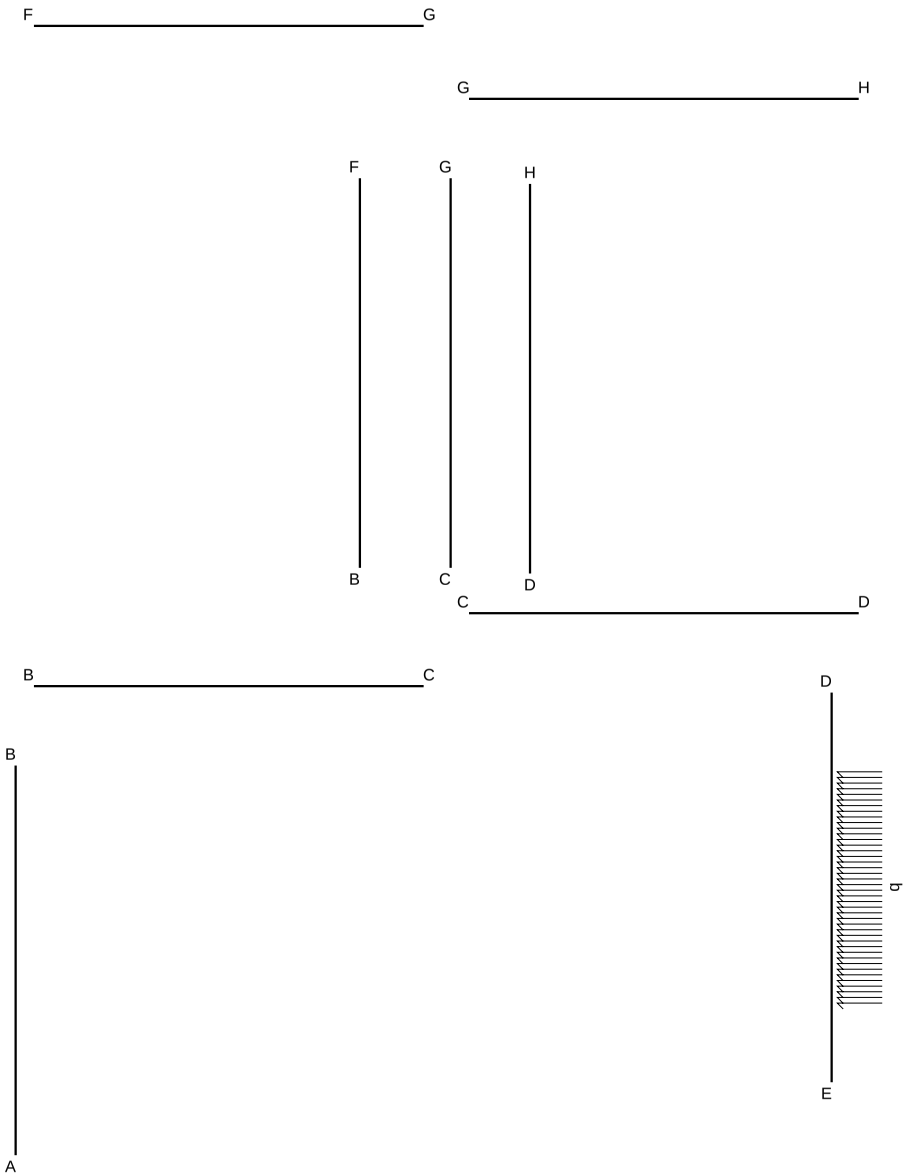

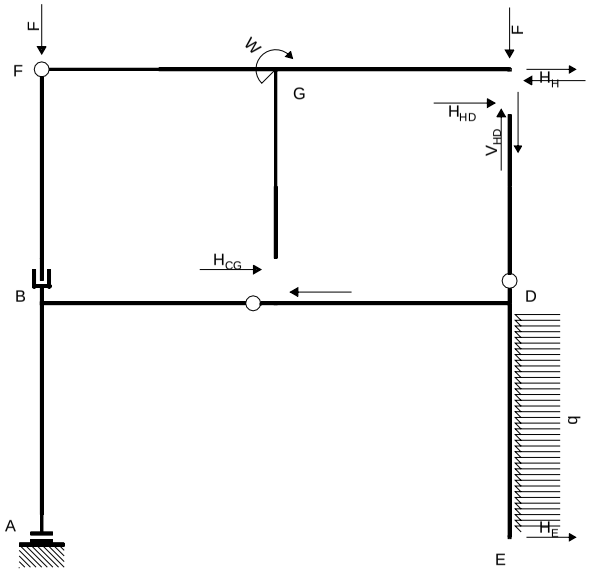

EQUAZIONI DI EQUILIBRIO

Traslazione orizzontale globale

$H_E + H_H = qb$

Rotazione intorno a C: aste CD DE DH

$H_E b - H_{HD} b + V_{HD} b = 1/2 qb^2$

Traslazione verticale: aste BF FG GC GH

$-V_{HD} = 2F$

Rotazione intorno a F: aste FG GC GH

$H_{CG} b - 2V_{HD} b = 2Fb + W$

Rotazione intorno a D: aste DH

$-H_{HD} b = 0$

Matrice di equilibrio

$$\begin{array}{c} \\ u_A \\ \varphi_{CB} \\ v_{BF} \\ \varphi_{FB} \\ \varphi_{DH} \end{array} \begin{bmatrix} H_E b & H_H b & H_{CG} b & H_{HD} b & V_{HD} b \\ 1 & 1 & 0 & 0 & 0 \\ 1 & 0 & 0 & -1 & 1 \\ 0 & 0 & 0 & 0 & -1 \\ 0 & 0 & 1 & 0 & -2 \\ 0 & 0 & 0 & -1 & 0 \end{bmatrix} = \begin{bmatrix} Fb & W & qb^2 \\ 0 & 0 & 1 \\ 0 & 0 & 1/2 \\ 2 & 0 & 0 \\ 2 & 1 & 0 \\ 0 & 0 & 0 \end{bmatrix}$$

Soluzione del sistema

$$\begin{bmatrix} H_E b \\ H_H b \\ V_{HD} b \\ H_{CG} b \\ H_{HD} b \end{bmatrix} = \begin{bmatrix} Fb & W & qb^2 \\ 2 & 0 & 1/2 \\ -2 & 0 & 1/2 \\ -2 & 0 & 0 \\ -2 & 1 & 0 \\ 0 & 0 & 0 \end{bmatrix}$$

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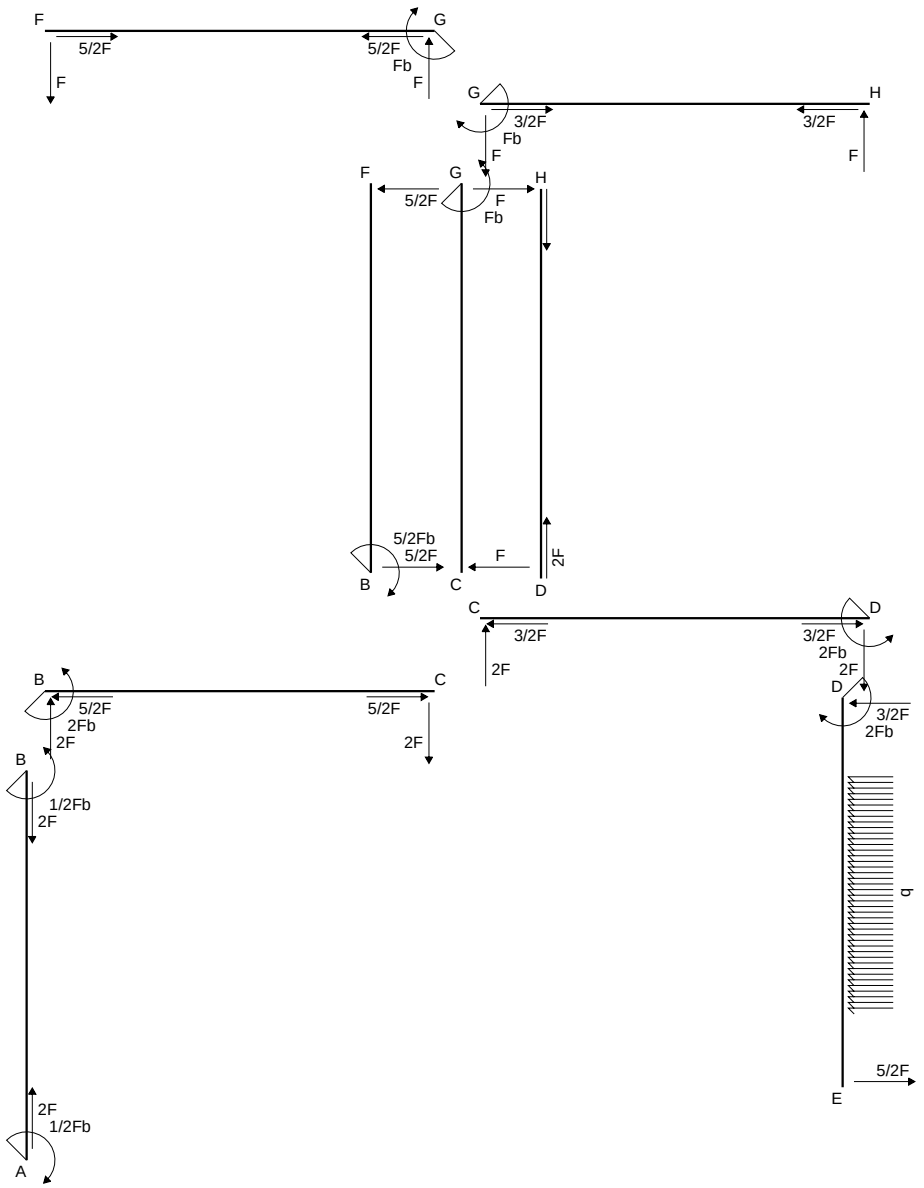
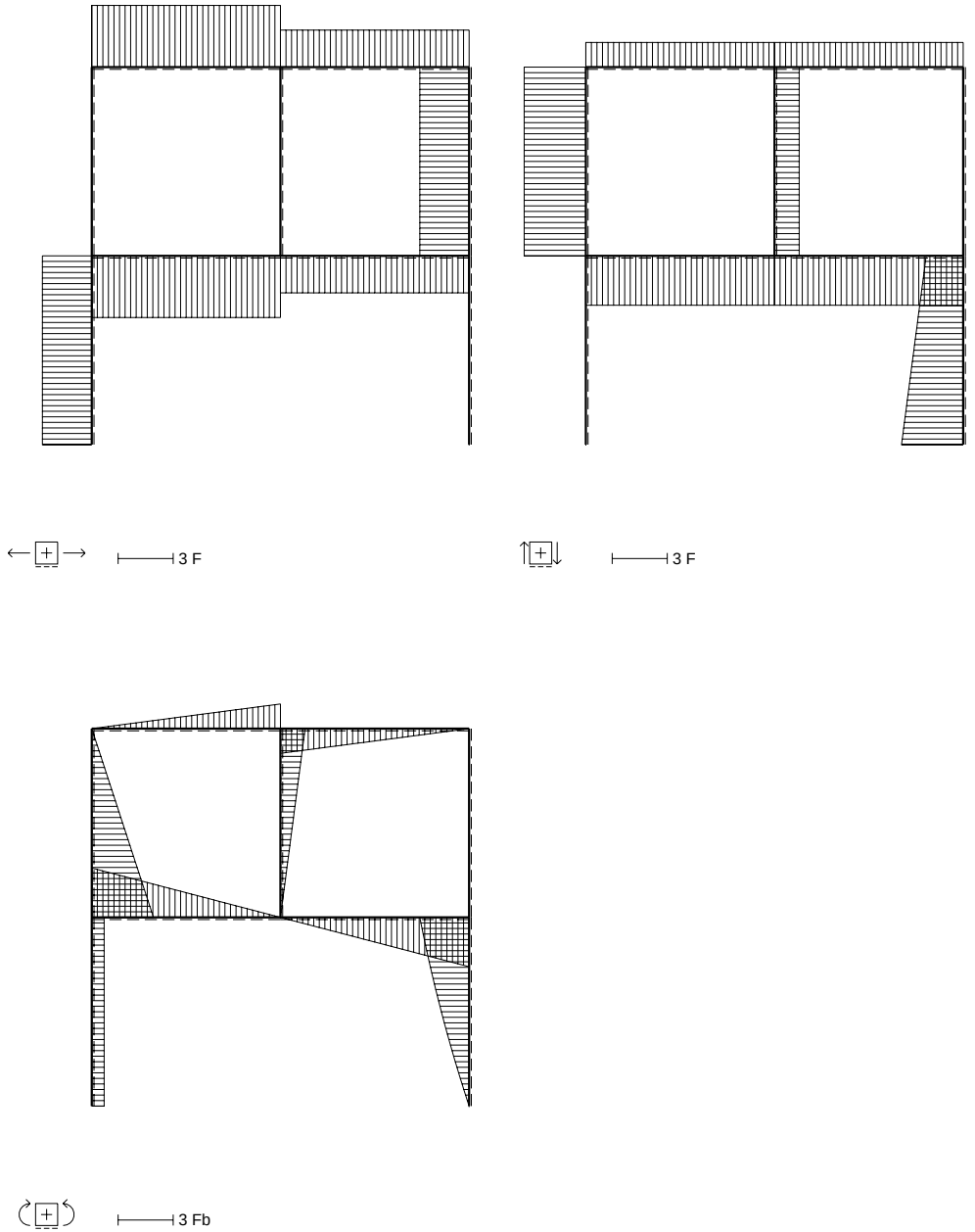

F
5/2F
G
5/2F
Fb
F
F
G
3/2F
H
3/2F
Fb
F
F
F
G
H
5/2F
F
Fb
5/2Fb
5/2F
F
2F
B
C
D
C
3/2F
D
3/2F
2Fb
2F
2F
B
5/2F
2Fb
2F
C
5/2F
2F
D
3/2F
2Fb
B
1/2Fb
2F
q
2F
1/2Fb
A
5/2F
E


3 F
3 F
3 Fb

Es.N.004

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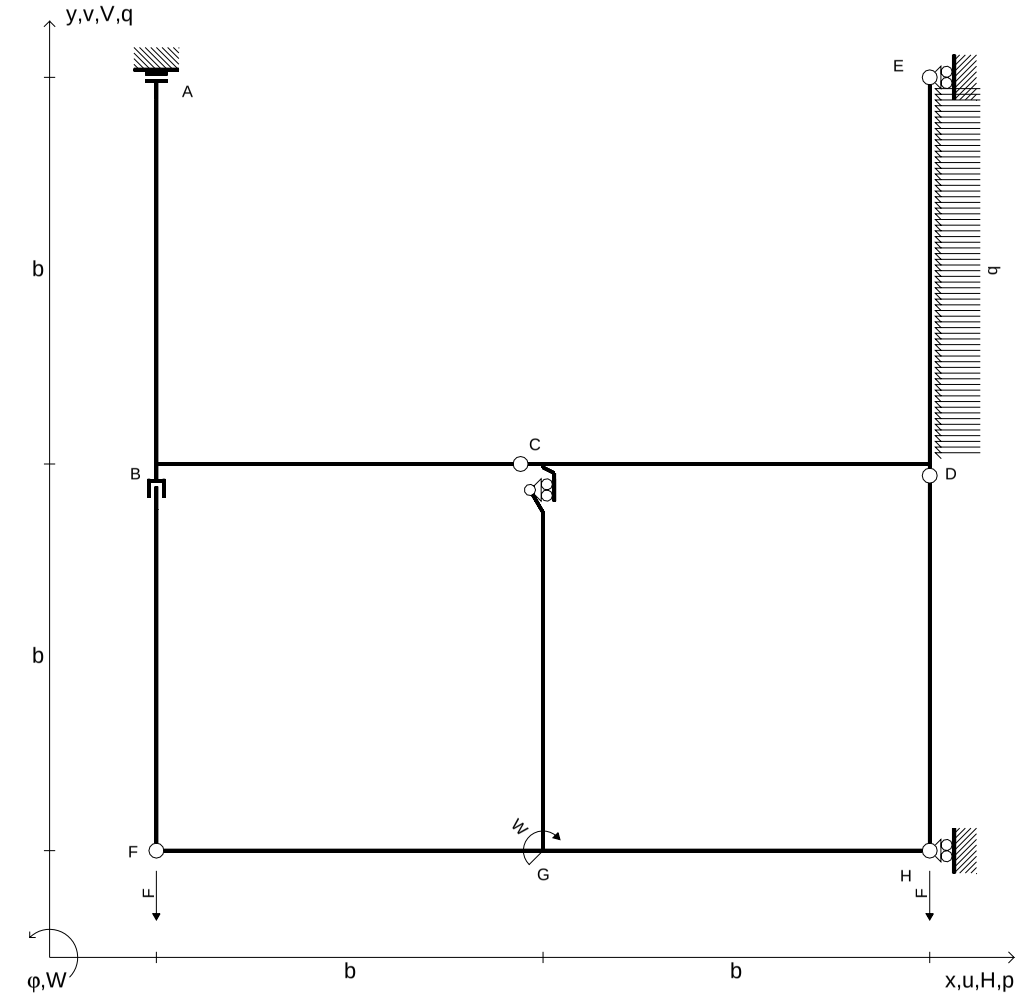

$V_F = -F$ $V_H = -F$ $W_G = -W = -Fb$ $p_{ED} = -q = -F/b$

Svolgere l'analisi cinematica.
Determinare matrice di congruenza e di equilibrio.
Determinare le reazioni vincolari a terra col PLV (Le=0).
Determinare le azioni interne in G (asta GF) col PLV (Le=0).
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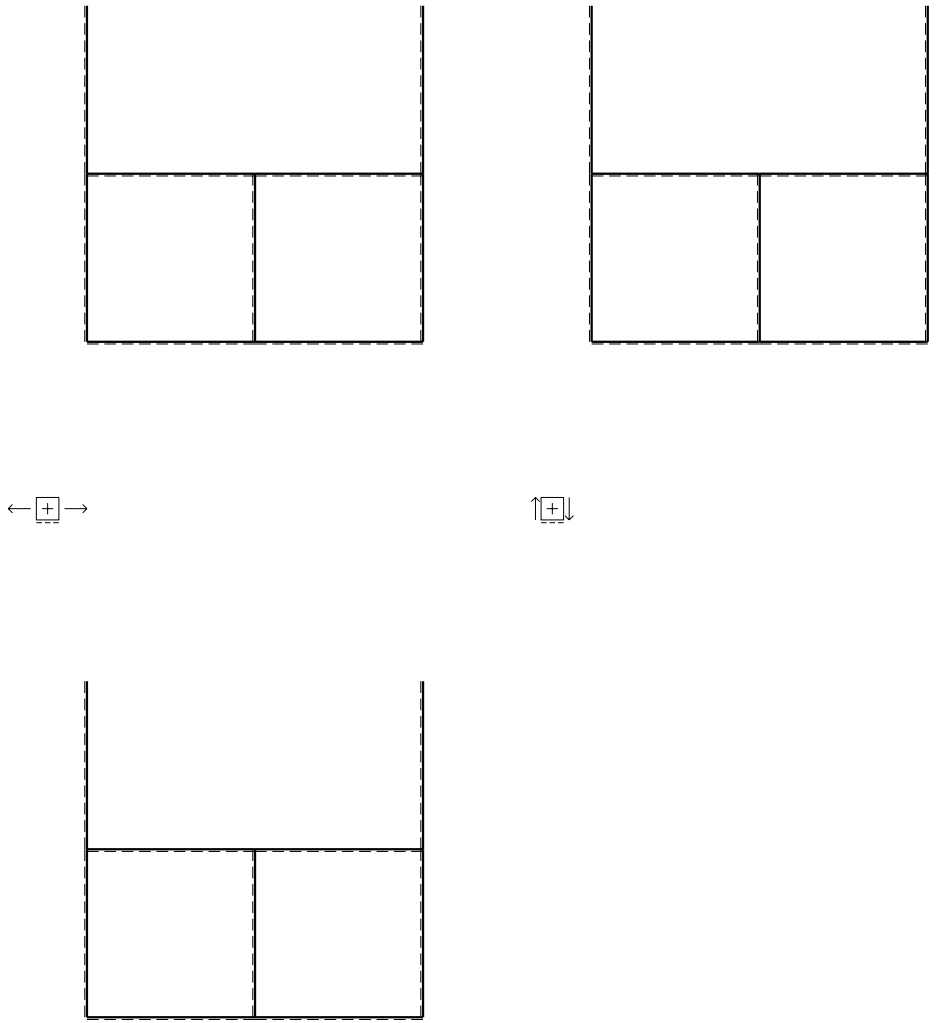
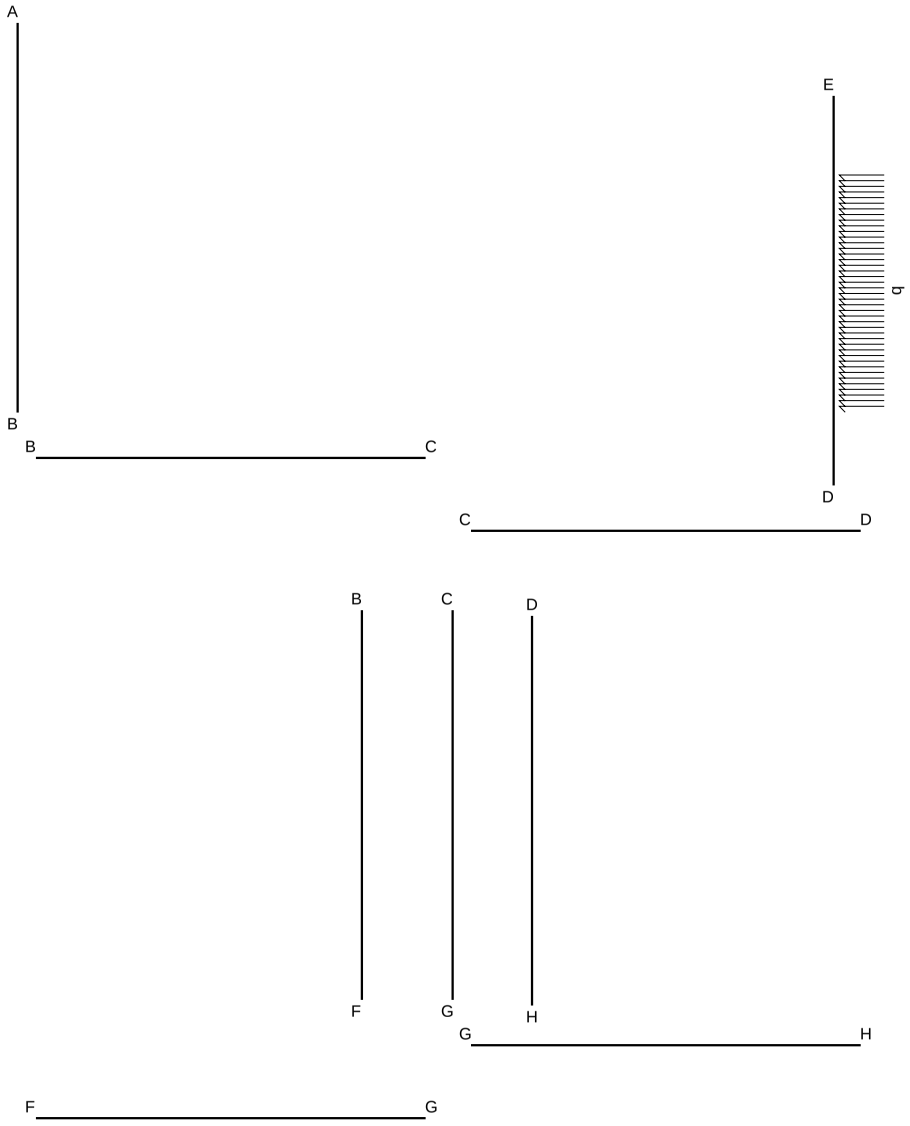
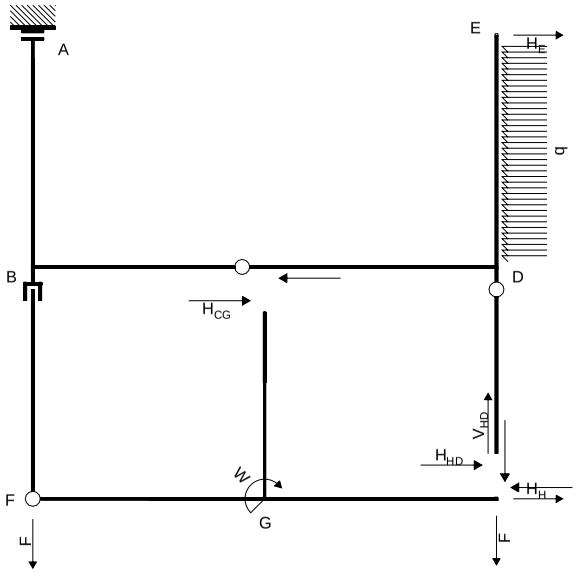
Calcolare reazioni vincolari della struttura e delle aste.
Tracciare i diagrammi delle azioni interne nelle aste.







EQUAZIONI DI EQUILIBRIO

Traslazione orizzontale globale

$H_E + H_H = qb$

Rotazione intorno a C: aste CD DE DH

$-H_E b + H_{HD} b + V_{HD} b = -1/2 qb^2$

Traslazione verticale: aste BF FG GC GH

$-V_{HD} = 2F$

Rotazione intorno a F: aste FG GC GH

$-H_{CG} b - 2V_{HD} b = 2Fb + W$

Rotazione intorno a D: aste DH

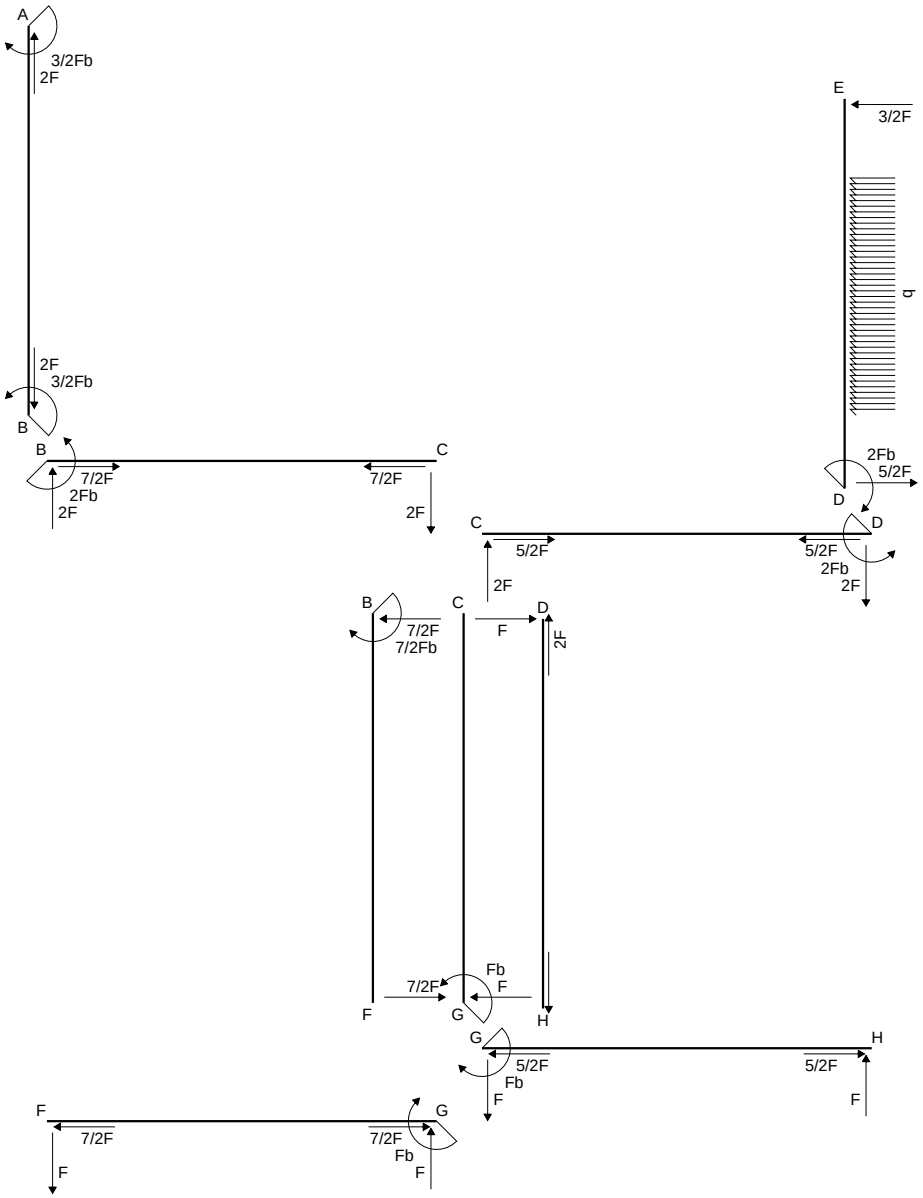
$H_{HD} b = 0$

Matrice di equilibrio

$$\begin{array}{c} \\ u_A \\ \varphi_{CB} \\ v_{BF} \\ \varphi_{FB} \\ \varphi_{DH} \end{array} \begin{bmatrix} H_E b & H_H b & H_{CG} b & H_{HD} b & V_{HD} b \\ 1 & 1 & 0 & 0 & 0 \\ -1 & 0 & 0 & 1 & 1 \\ 0 & 0 & 0 & 0 & -1 \\ 0 & 0 & -1 & 0 & -2 \\ 0 & 0 & 0 & 1 & 0 \end{bmatrix} = \begin{bmatrix} Fb & W & qb^2 \\ 0 & 0 & 1 \\ 0 & 0 & -1/2 \\ 2 & 0 & 0 \\ 2 & 1 & 0 \\ 0 & 0 & 0 \end{bmatrix}$$

Soluzione del sistema

$$\begin{bmatrix} H_E b \\ H_H b \\ V_{HD} b \\ H_{CG} b \\ H_{HD} b \end{bmatrix} = \begin{bmatrix} Fb & W & qb^2 \\ -2 & 0 & 1/2 \\ 2 & 0 & 1/2 \\ -2 & 0 & 0 \\ 2 & -1 & 0 \\ 0 & 0 & 0 \end{bmatrix}$$


A
3/2Fb
2F
E
3/2F
q
2F
3/2Fb
B
B
C
7/2F
7/2F
2Fb
2F
2F
2Fb
5/2F
D
C
D
5/2F
5/2F
2Fb
2F
2F
B
C
D
7/2F
7/2Fb
F
2F
Fb
7/2F
F
F
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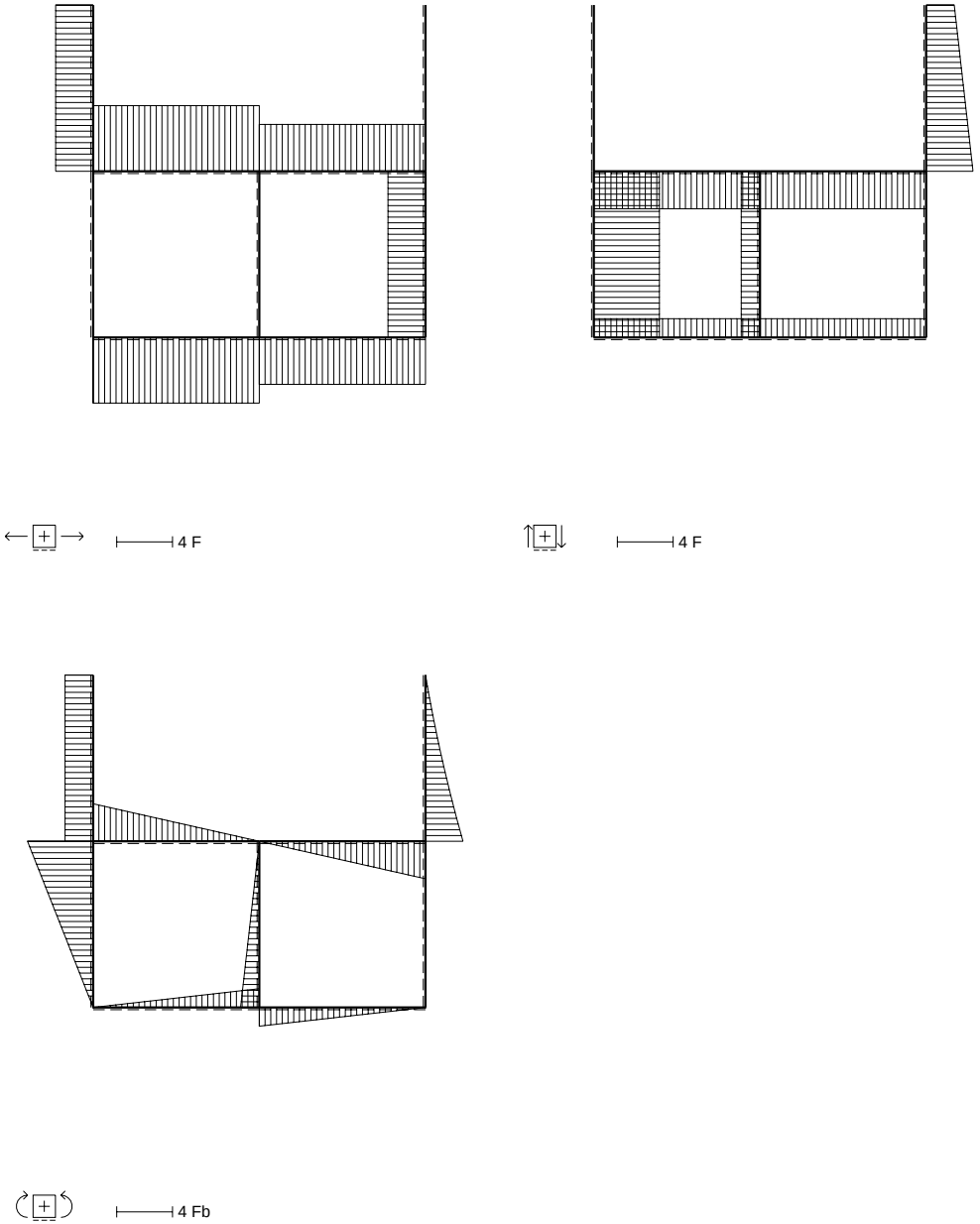
7/2F
7/2F
Fb
F


4 F
4 F
4 Fb

Es.N.005

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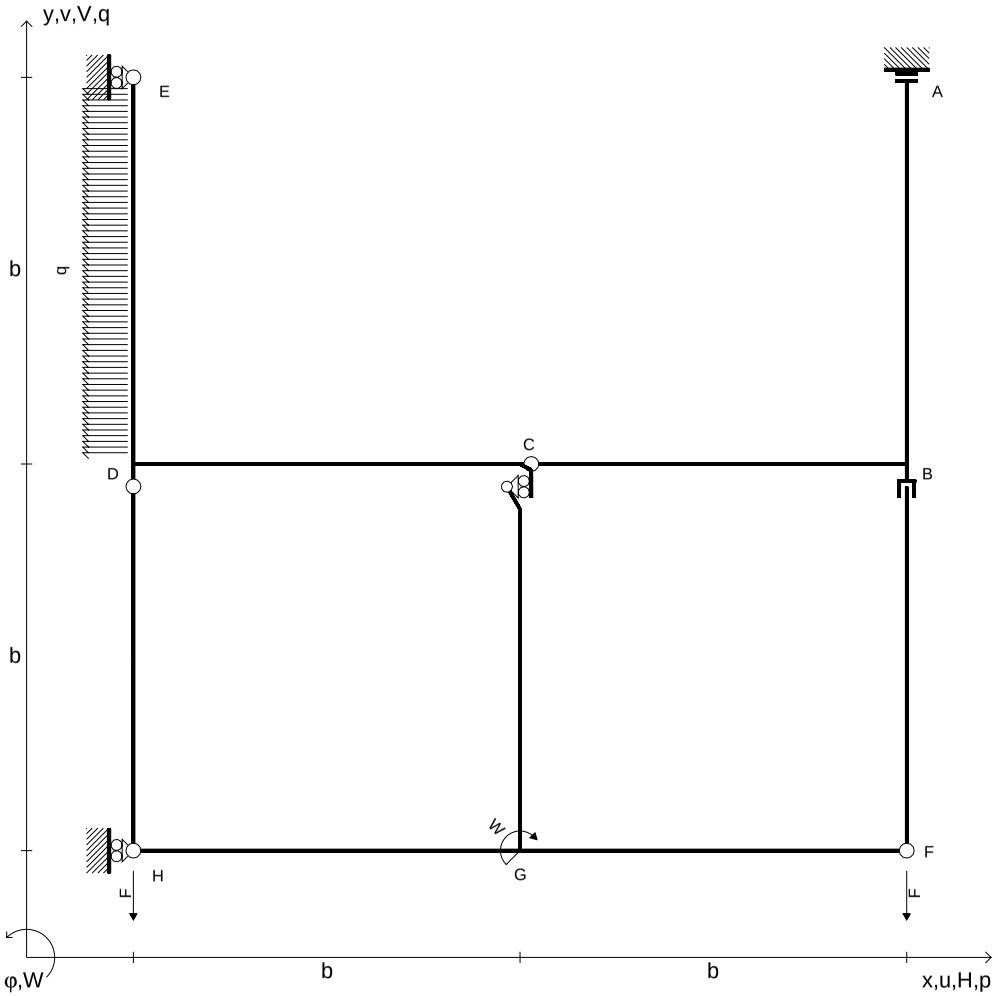

$V_F = -F$ $V_H = -F$ $W_G = -W = -Fb$ $p_{ED} = -q = -F/b$

Svolgere l'analisi cinematica.
Determinare matrice di congruenza e di equilibrio.
Determinare le reazioni vincolari a terra col PLV (Le=0).
Determinare le azioni interne in G (asta GF) col PLV (Le=0).
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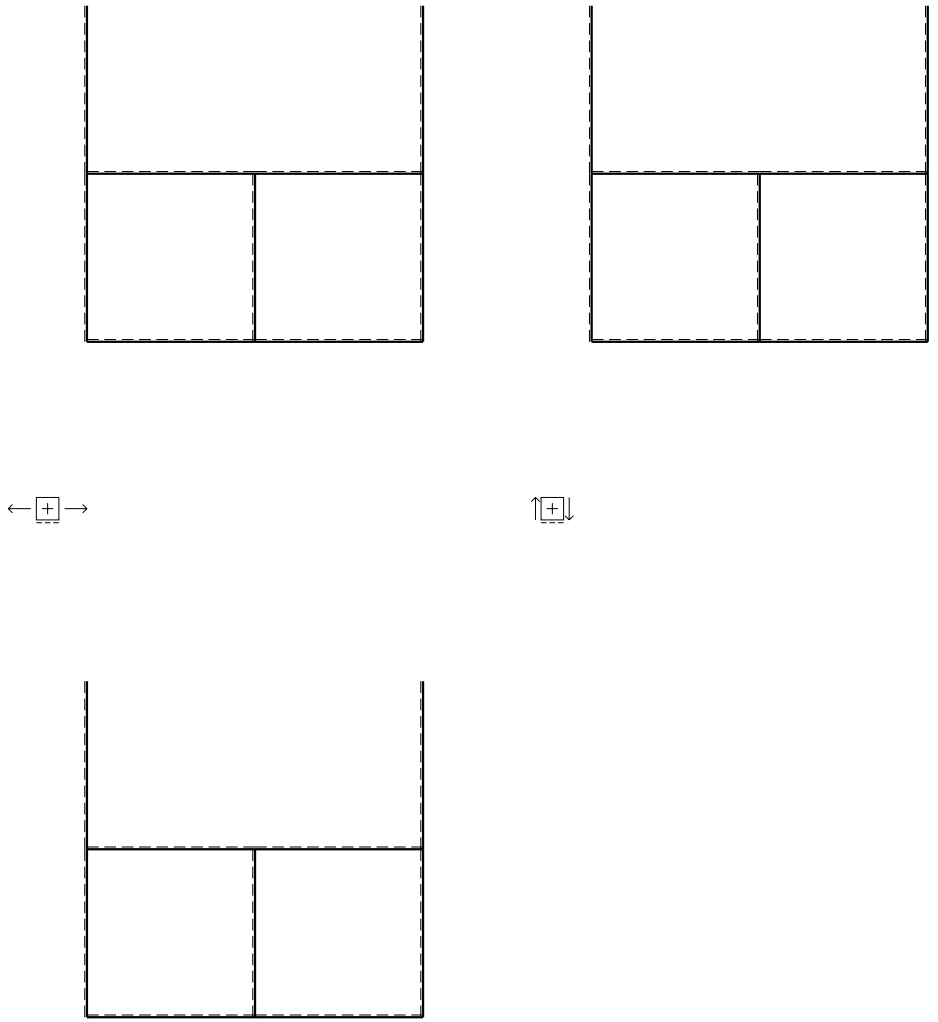
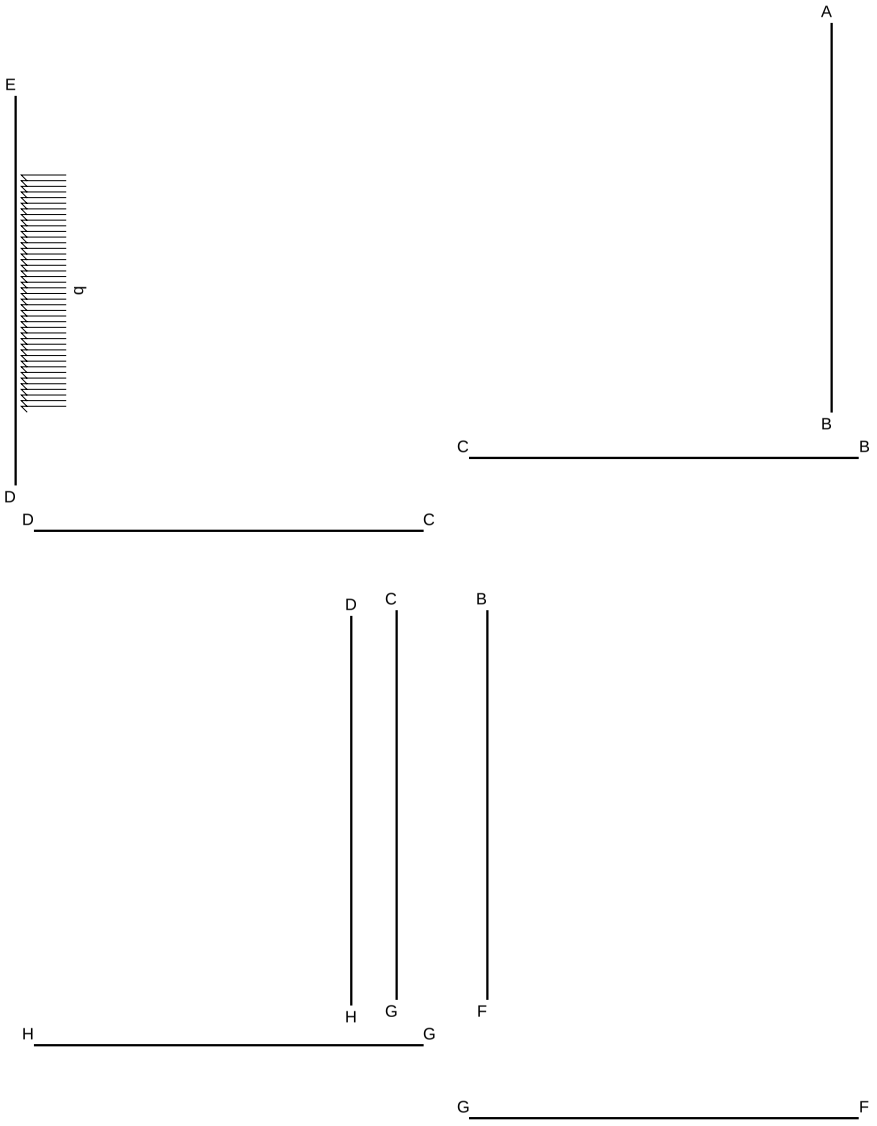
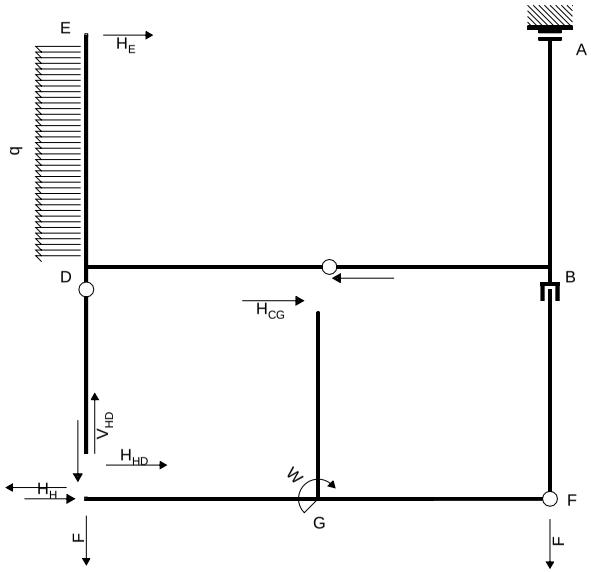
Calcolare reazioni vincolari della struttura e delle aste.
Tracciare i diagrammi delle azioni interne nelle aste.







EQUAZIONI DI EQUILIBRIO

Traslazione orizzontale globale

$H_E + H_H = qb$

Rotazione intorno a C: aste CD DE DH

$-H_E b + H_{HD} b - V_{HD} b = -1/2 qb^2$

Traslazione verticale: aste BF FG GC GH

$-V_{HD} = 2F$

Rotazione intorno a F: aste FG GC GH

$-H_{CG} b + 2V_{HD} b = -2Fb + W$

Rotazione intorno a D: aste DH

$H_{HD} b = 0$

Matrice di equilibrio

$$\begin{array}{c} \\ u_A \\ \varphi_{CB} \\ v_{BF} \\ \varphi_{FB} \\ \varphi_{DH} \end{array} \begin{bmatrix} H_E b & H_H b & H_{CG} b & H_{HD} b & V_{HD} b \\ 1 & 1 & 0 & 0 & 0 \\ -1 & 0 & 0 & 1 & -1 \\ 0 & 0 & 0 & 0 & -1 \\ 0 & 0 & -1 & 0 & 2 \\ 0 & 0 & 0 & 1 & 0 \end{bmatrix} = \begin{bmatrix} Fb & W & qb^2 \\ 0 & 0 & 1 \\ 0 & 0 & -1/2 \\ 2 & 0 & 0 \\ -2 & 1 & 0 \\ 0 & 0 & 0 \end{bmatrix}$$

Soluzione del sistema

$$\begin{bmatrix} H_E b \\ H_H b \\ V_{HD} b \\ H_{CG} b \\ H_{HD} b \end{bmatrix} = \begin{bmatrix} Fb & W & qb^2 \\ 2 & 0 & 1/2 \\ -2 & 0 & 1/2 \\ -2 & 0 & 0 \\ -2 & -1 & 0 \\ 0 & 0 & 0 \end{bmatrix}$$

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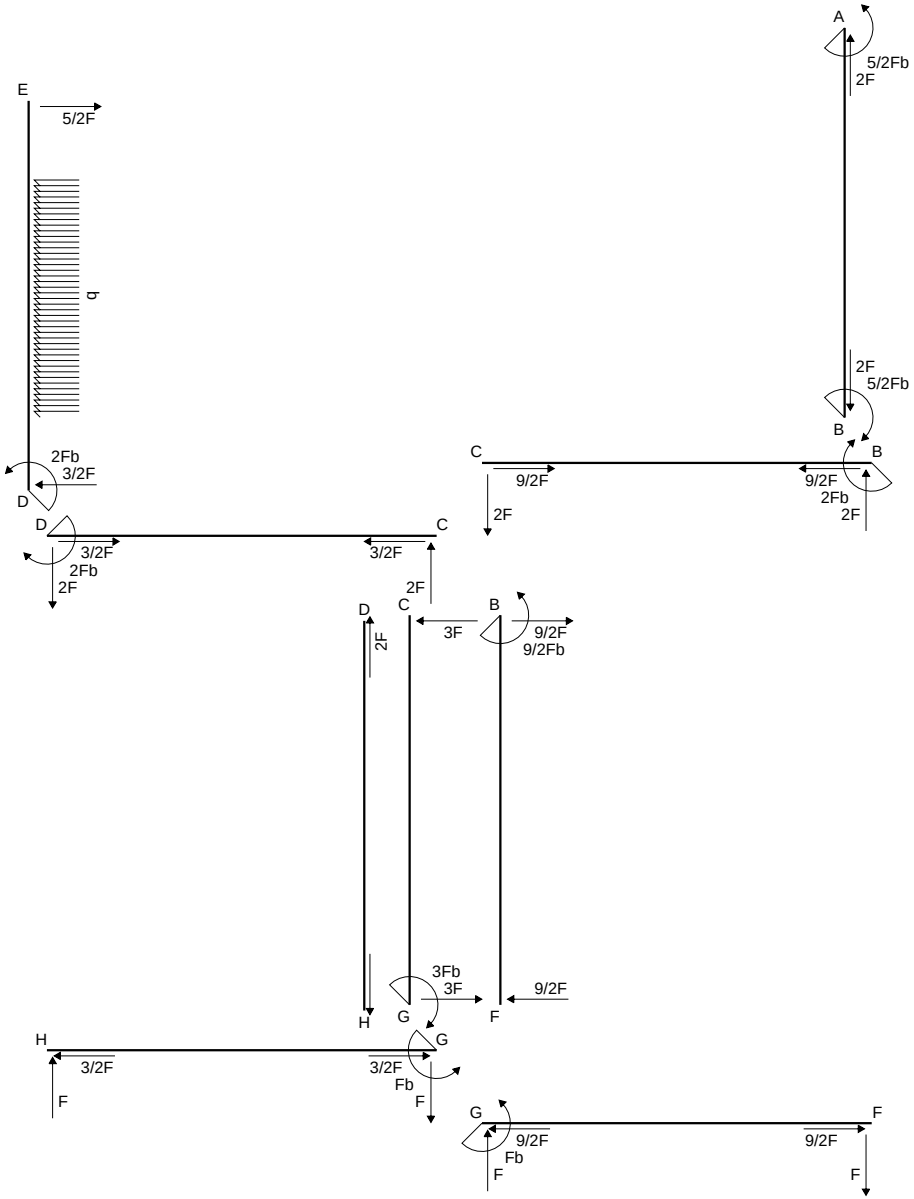
A
5/2Fb
2F
E
5/2F
q
2F
5/2Fb
B
C
B
9/2F
9/2F
2Fb
2F
2Fb
3/2F
D
D
C
3/2F
3/2F
2Fb
2F
2F
D
C
B
2F
3F
9/2F
9/2Fb
3Fb
3F
9/2F
H
G
F
H
G
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3/2F
Fb
F
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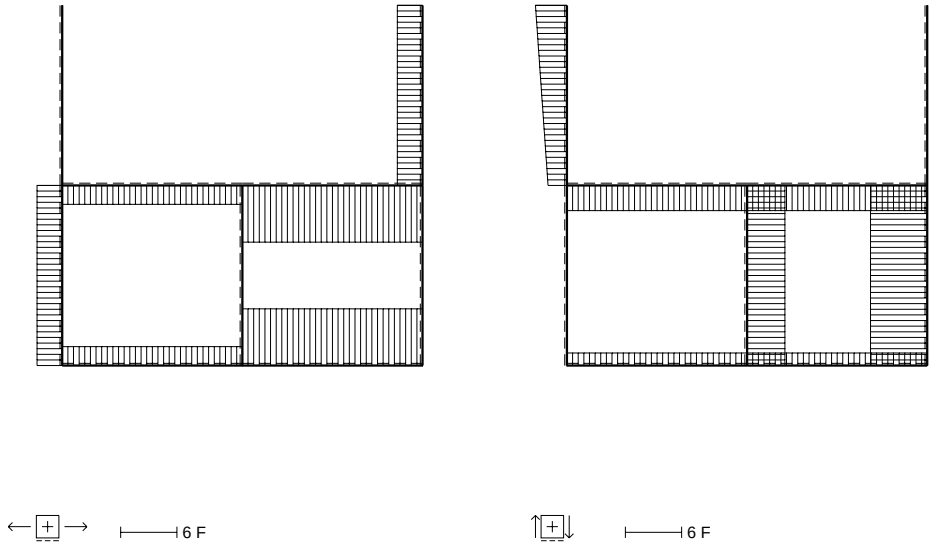
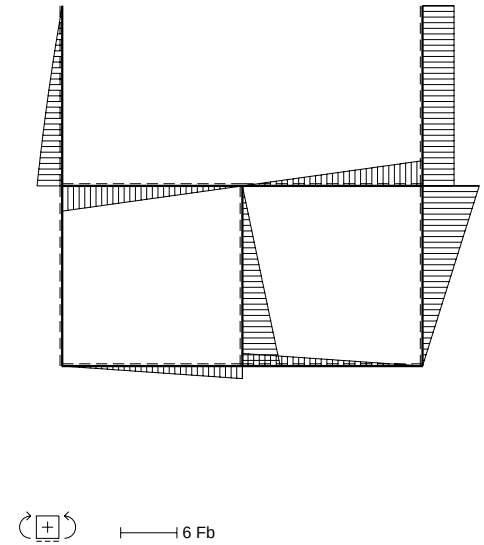
F
9/2F
9/2F
Fb
F
F


6 F
6 F


6 Fb

Es.N.006

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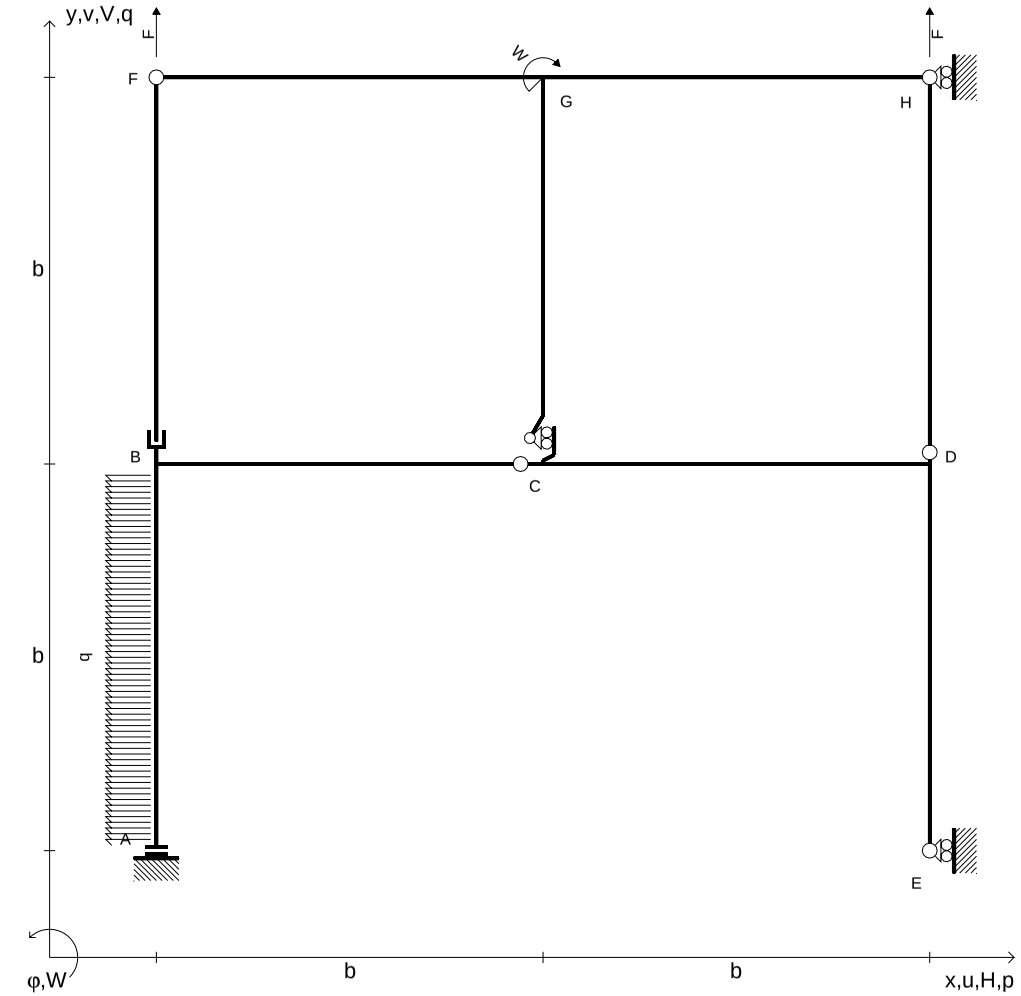

$V_F = F$ $V_H = F$ $W_G = -W = -Fb$ $p_{AB} = -q = -F/b$

Svolgere l'analisi cinematica.
Determinare matrice di congruenza e di equilibrio.
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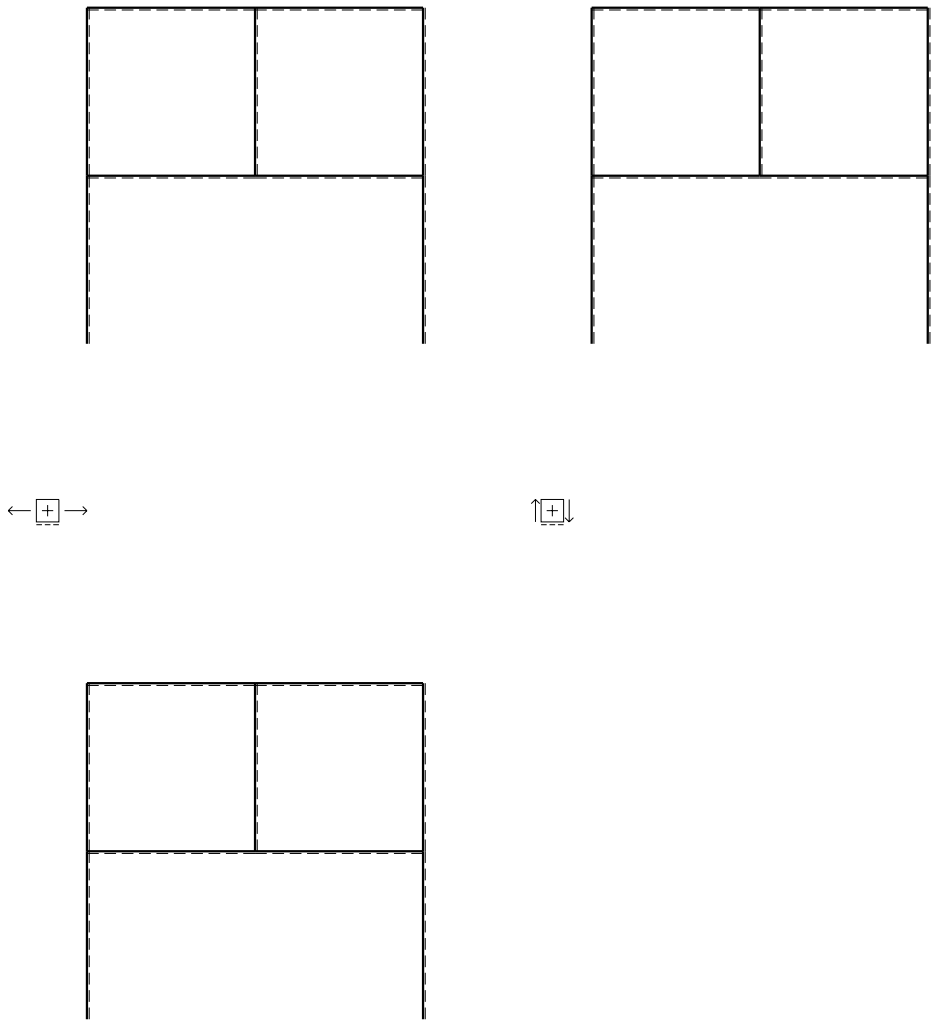
Tracciare i diagrammi delle azioni interne nelle aste.



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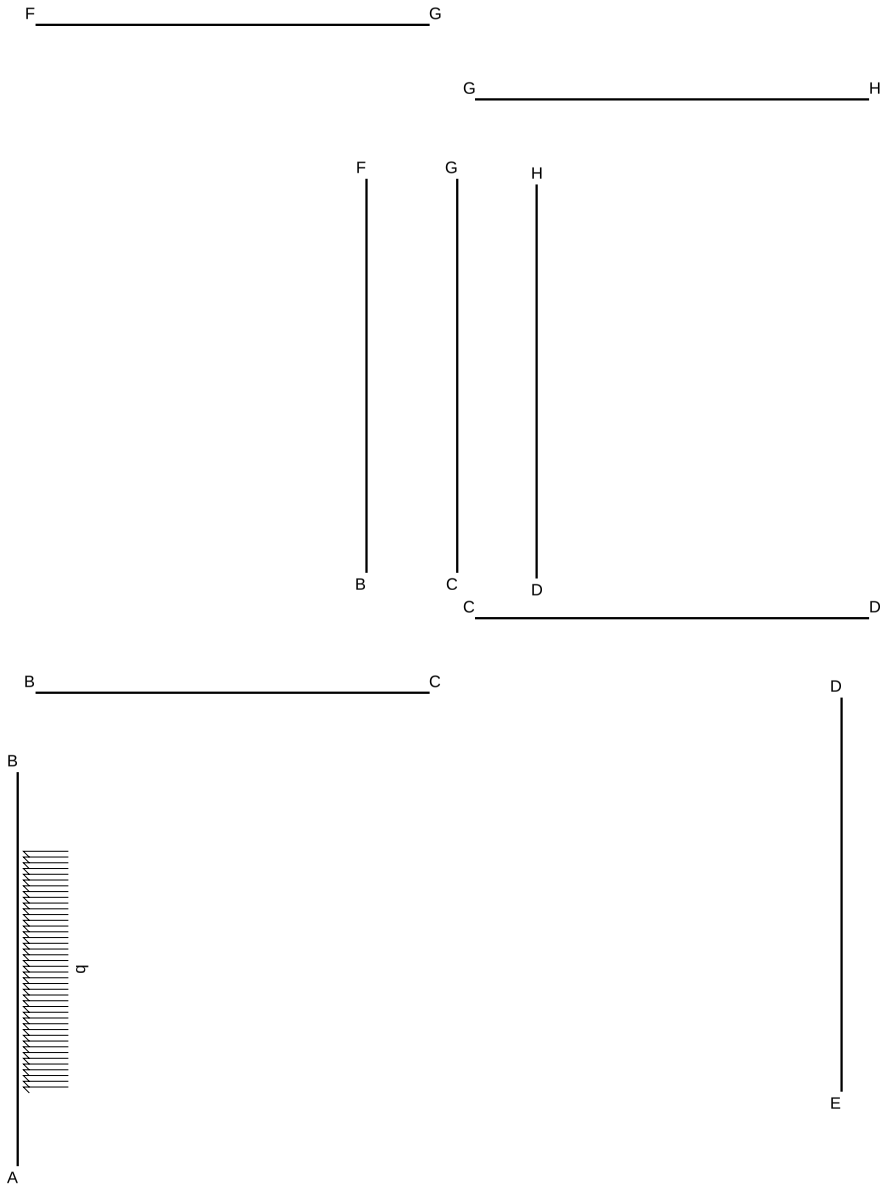
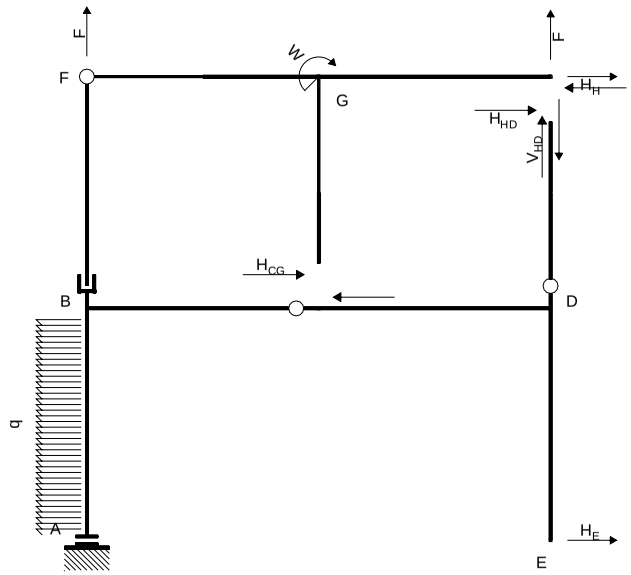




EQUAZIONI DI EQUILIBRIO

Traslazione orizzontale globale

$H_E + H_H = qb$

Rotazione intorno a C: aste CD DE DH

$H_E b - H_{HD} b + V_{HD} b = 0$

Traslazione verticale: aste BF FG GC GH

$-V_{HD} = -2F$

Rotazione intorno a F: aste FG GC GH

$H_{CG} b - 2V_{HD} b = -2Fb + W$

Rotazione intorno a D: aste DH

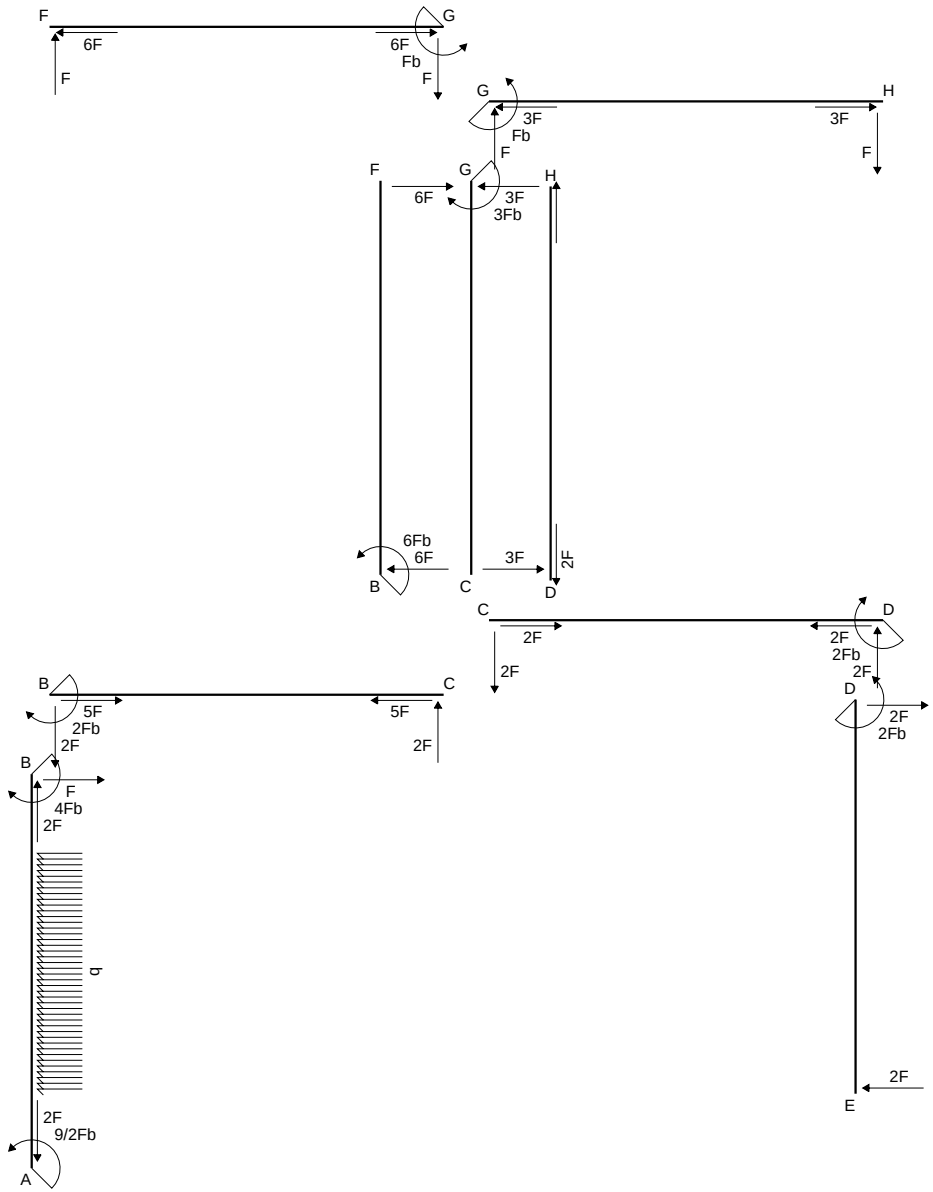
$-H_{HD} b = 0$

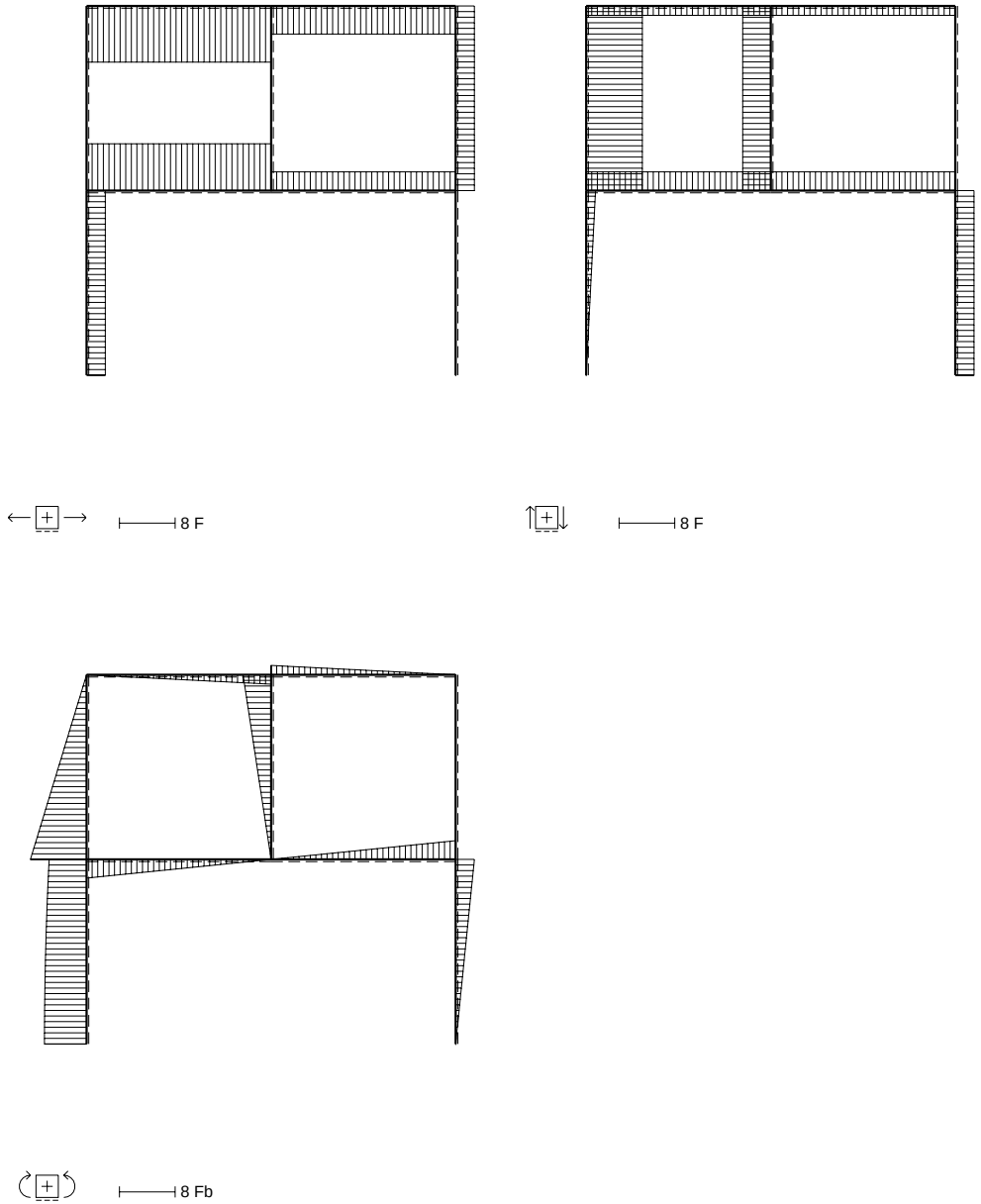
Matrice di equilibrio

$$\begin{array}{c} \\ u_A \\ \varphi_{CB} \\ v_{BF} \\ \varphi_{FB} \\ \varphi_{DH} \end{array} \begin{bmatrix} H_E b & H_H b & H_{CG} b & H_{HD} b & V_{HD} b \\ 1 & 1 & 0 & 0 & 0 \\ 1 & 0 & 0 & -1 & 1 \\ 0 & 0 & 0 & 0 & -1 \\ 0 & 0 & 1 & 0 & -2 \\ 0 & 0 & 0 & -1 & 0 \end{bmatrix} = \begin{bmatrix} Fb & W & qb^2 \\ 0 & 0 & 1 \\ 0 & 0 & 0 \\ -2 & 0 & 0 \\ -2 & 1 & 0 \\ 0 & 0 & 0 \end{bmatrix}$$

Soluzione del sistema

$$\begin{bmatrix} H_E b \\ H_H b \\ V_{HD} b \\ H_{CG} b \\ H_{HD} b \end{bmatrix} = \begin{bmatrix} Fb & W & qb^2 \\ -2 & 0 & 0 \\ 2 & 0 & 1 \\ 2 & 0 & 0 \\ 2 & 1 & 0 \\ 0 & 0 & 0 \end{bmatrix}$$


F
G
6F
6F
Fb
F
F
G
H
3F
3F
Fb
F
F
F
G
H
6F
3F
3Fb
6Fb
6F
B
C
3F
2F
D
C
D
2F
2F
2Fb
2F
B
C
D
5F
5F
2Fb
2F
2F
2F
2Fb
B
F
4Fb
2F
q
2F
9/2Fb
A
2F
E


8 F
8 F
8 Fb

Es.N.007

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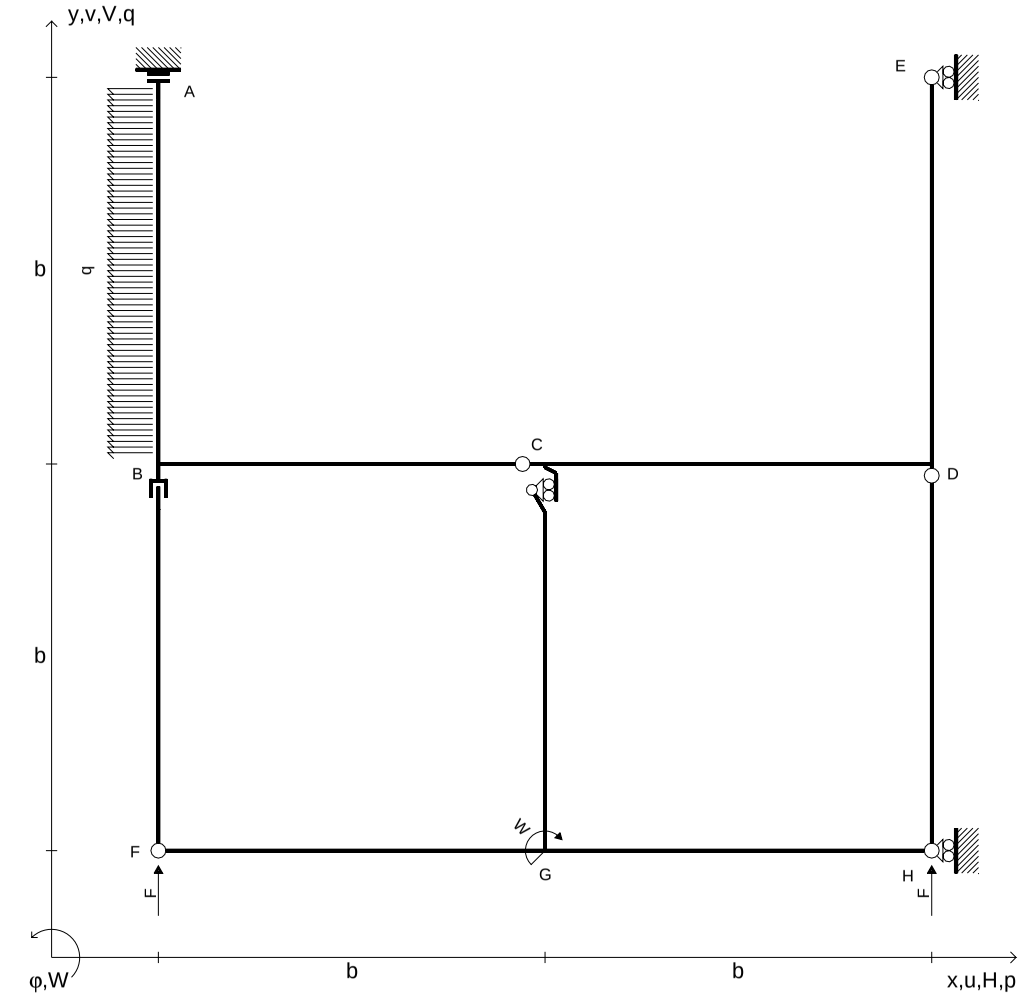

$V_F = F$ $V_H = F$ $W_G = -W = -Fb$ $p_{AB} = -q = -F/b$

Svolgere l'analisi cinematica.
Determinare matrice di congruenza e di equilibrio.
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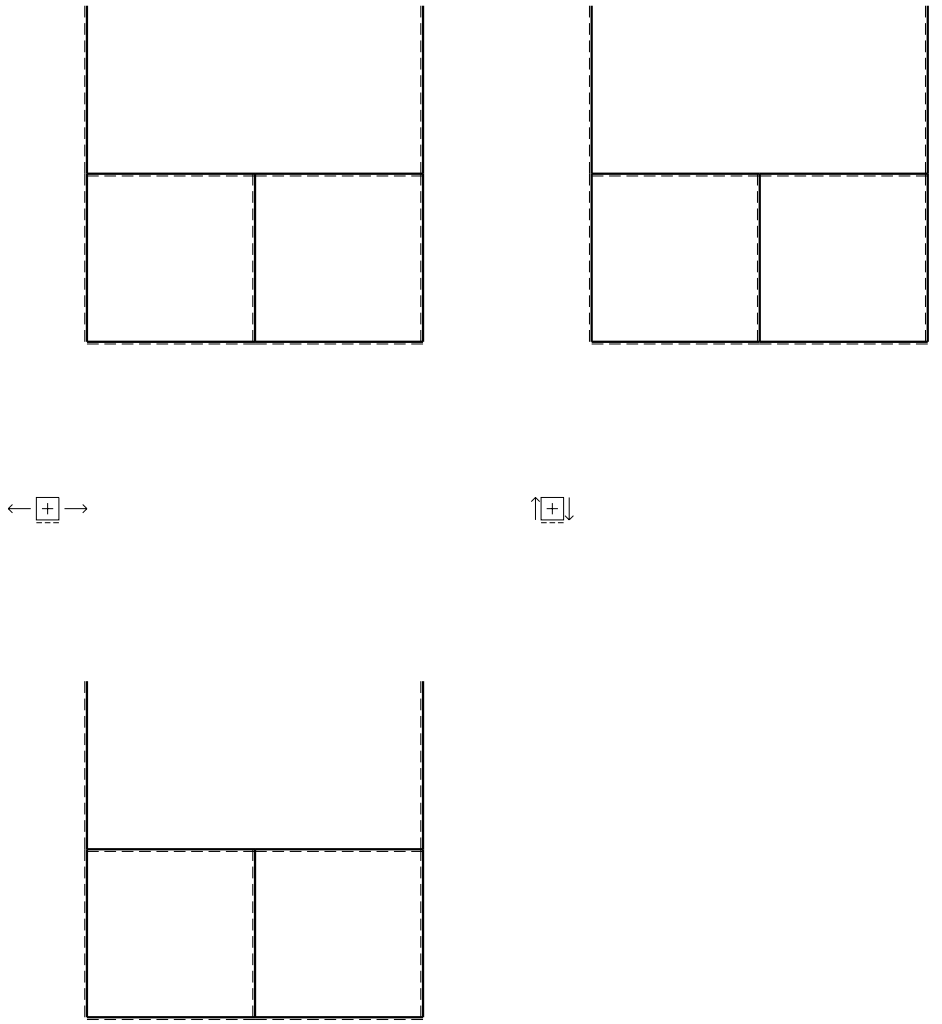

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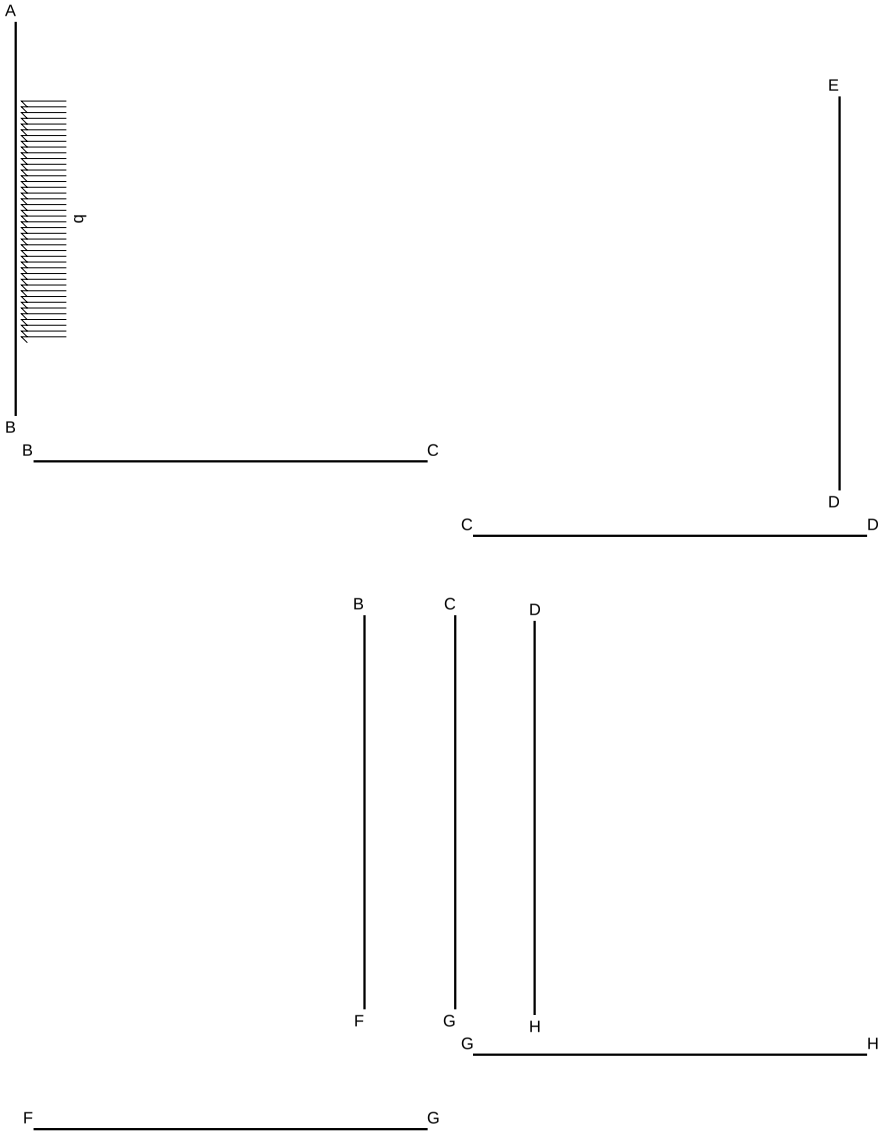

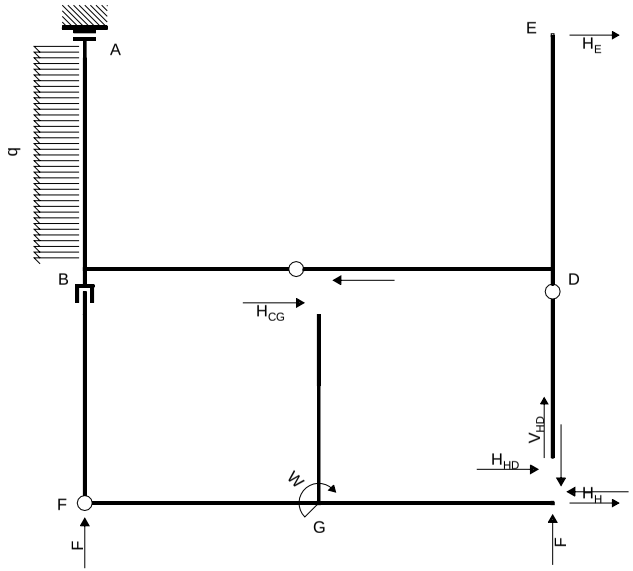

EQUAZIONI DI EQUILIBRIO

Traslazione orizzontale globale

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$-V_{HD} = -2F$

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$-H_{CG} b - 2V_{HD} b = -2Fb + W$

Rotazione intorno a D: aste DH

$H_{HD} b = 0$

Matrice di equilibrio

$$\begin{array}{c} \\ u_A \\ \varphi_{CB} \\ v_{BF} \\ \varphi_{FB} \\ \varphi_{DH} \end{array} \begin{bmatrix} H_E b & H_H b & H_{CG} b & H_{HD} b & V_{HD} b \\ 1 & 1 & 0 & 0 & 0 \\ -1 & 0 & 0 & 1 & 1 \\ 0 & 0 & 0 & 0 & -1 \\ 0 & 0 & -1 & 0 & -2 \\ 0 & 0 & 0 & 1 & 0 \end{bmatrix} = \begin{bmatrix} Fb & W & qb^2 \\ 0 & 0 & 1 \\ 0 & 0 & 0 \\ -2 & 0 & 0 \\ -2 & 1 & 0 \\ 0 & 0 & 0 \end{bmatrix}$$

Soluzione del sistema

$$\begin{bmatrix} H_E b \\ H_H b \\ V_{HD} b \\ H_{CG} b \\ H_{HD} b \end{bmatrix} = \begin{bmatrix} Fb & W & qb^2 \\ 2 & 0 & 0 \\ -2 & 0 & 1 \\ 2 & 0 & 0 \\ -2 & -1 & 0 \\ 0 & 0 & 0 \end{bmatrix}$$

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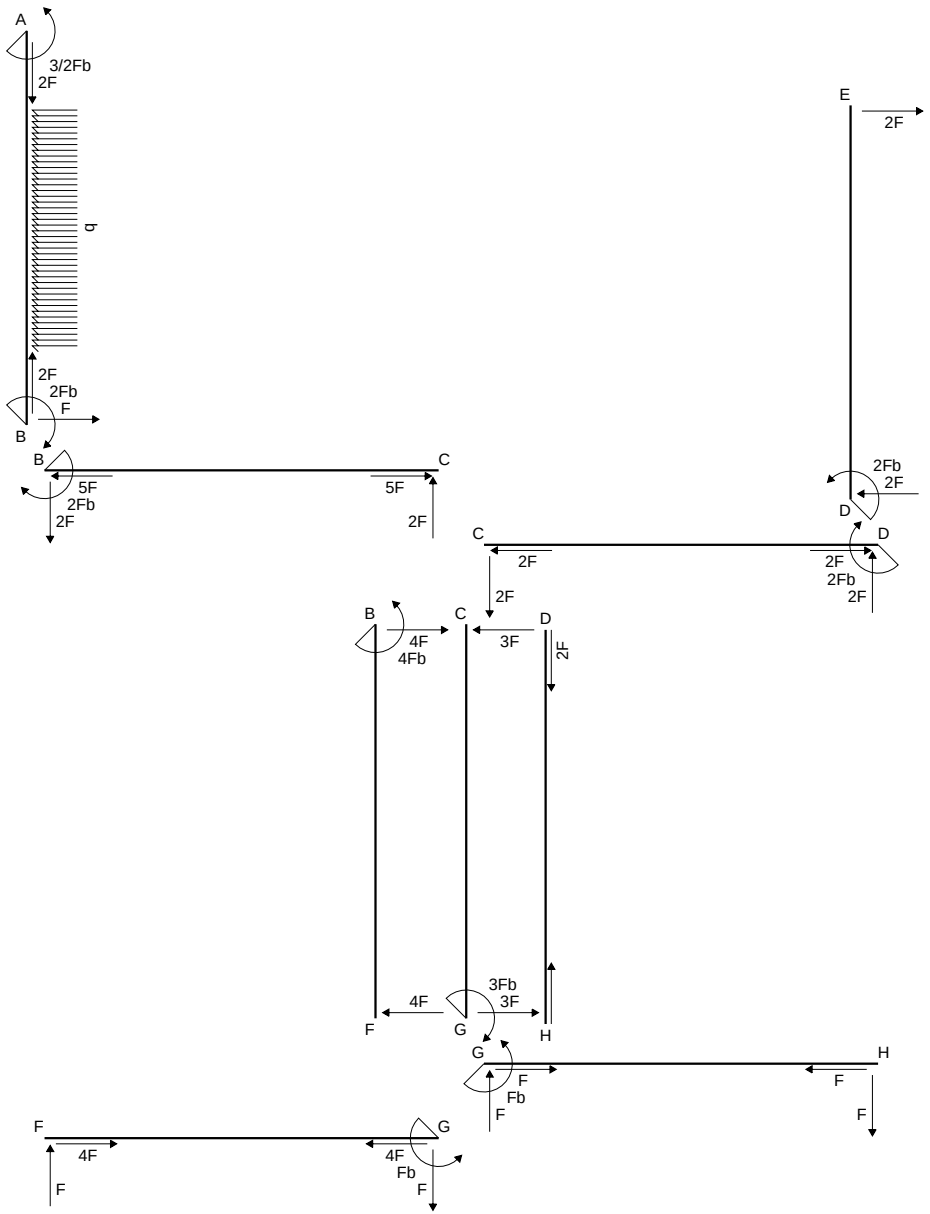
A
3/2Fb
2F
q
2F
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F
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C
5F
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2Fb
2F
E
2F
2Fb
2F
D
C
2F
D
2F
2Fb
2F
B
C
D
4F
4Fb
3F
2F
4F
3Fb
3F
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F
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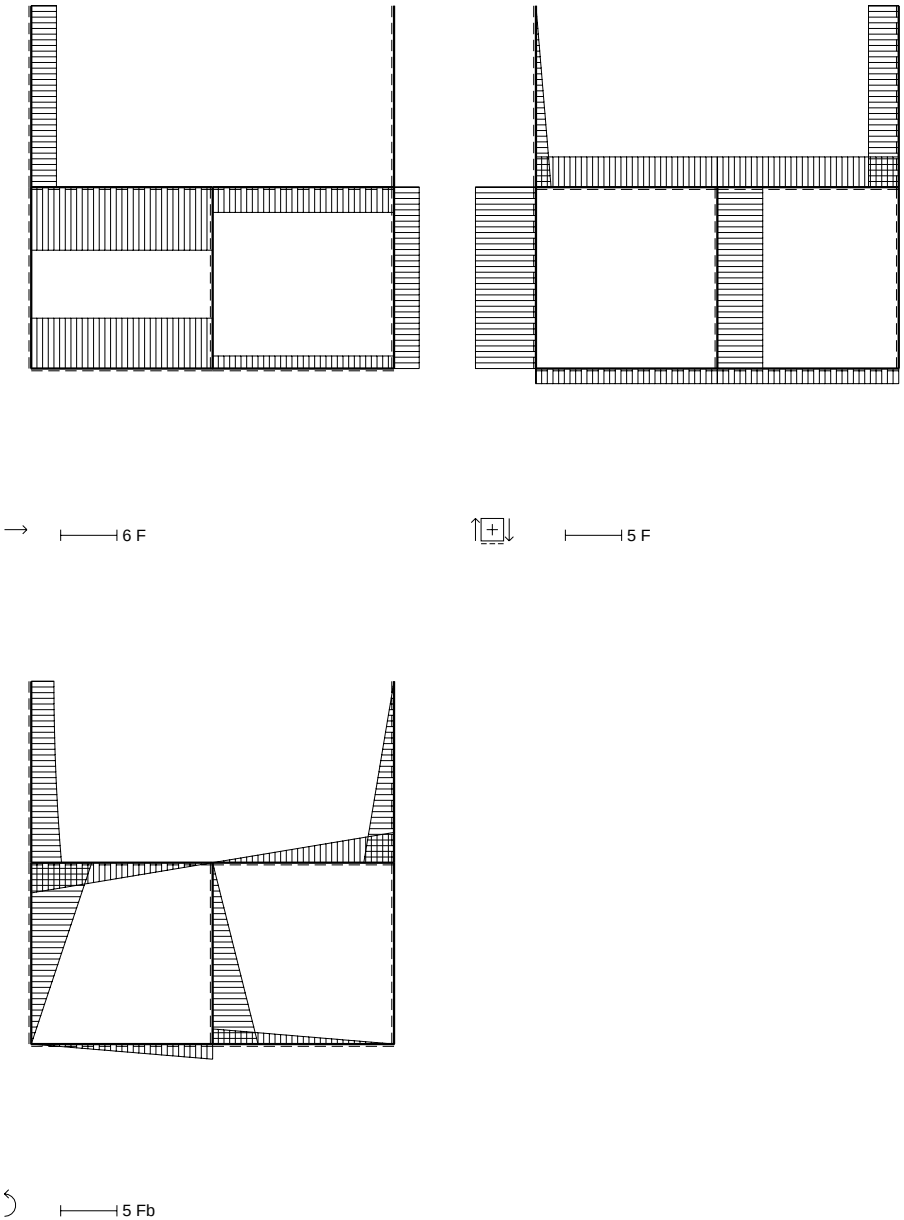
F


6 F
5 F
5 Fb

Es.N.008

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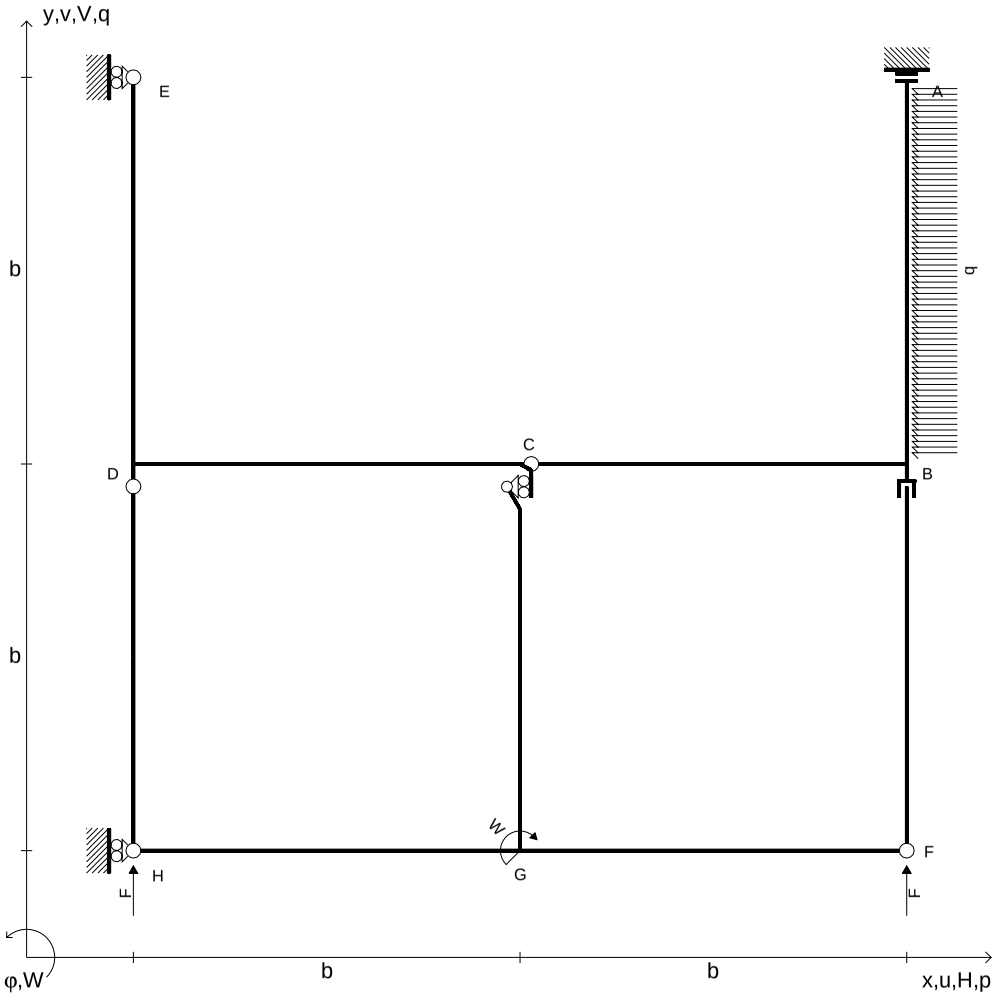

$V_F = F$ $V_H = F$ $W_G = -W = -Fb$ $p_{AB} = -q = -F/b$

Svolgere l'analisi cinematica.
Determinare matrice di congruenza e di equilibrio.
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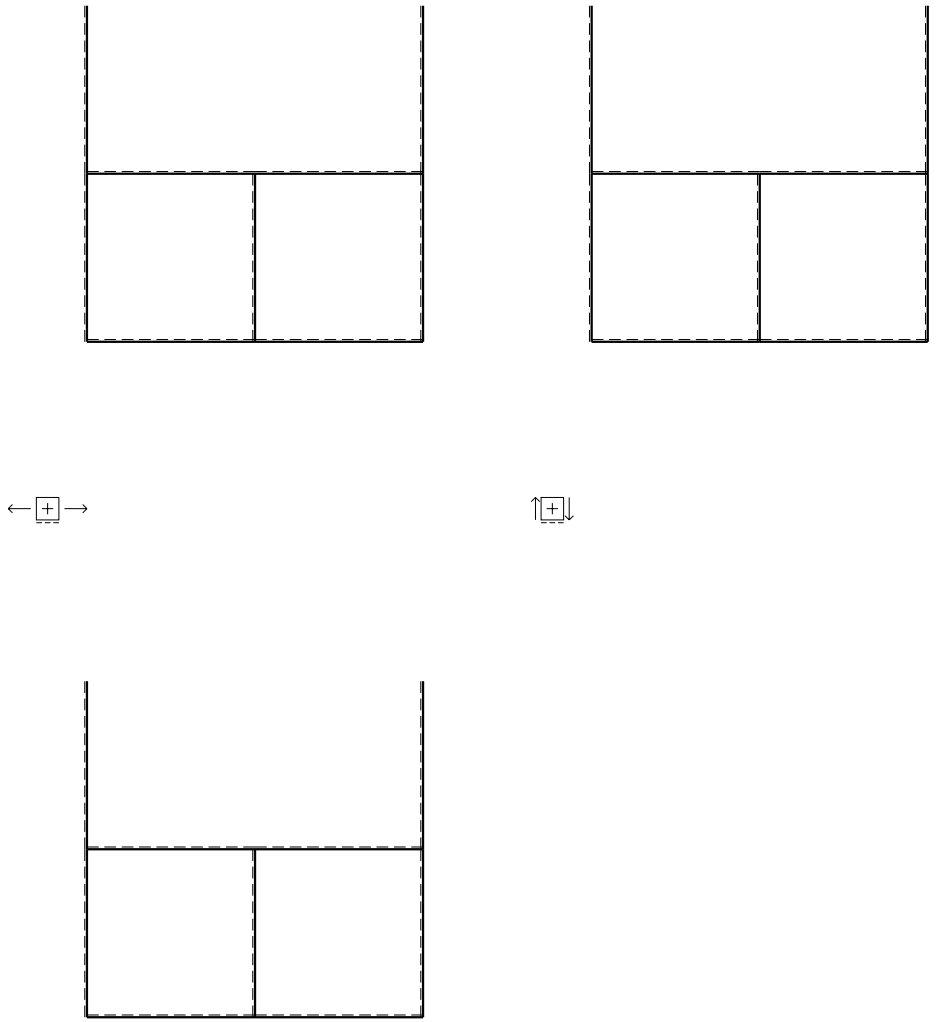

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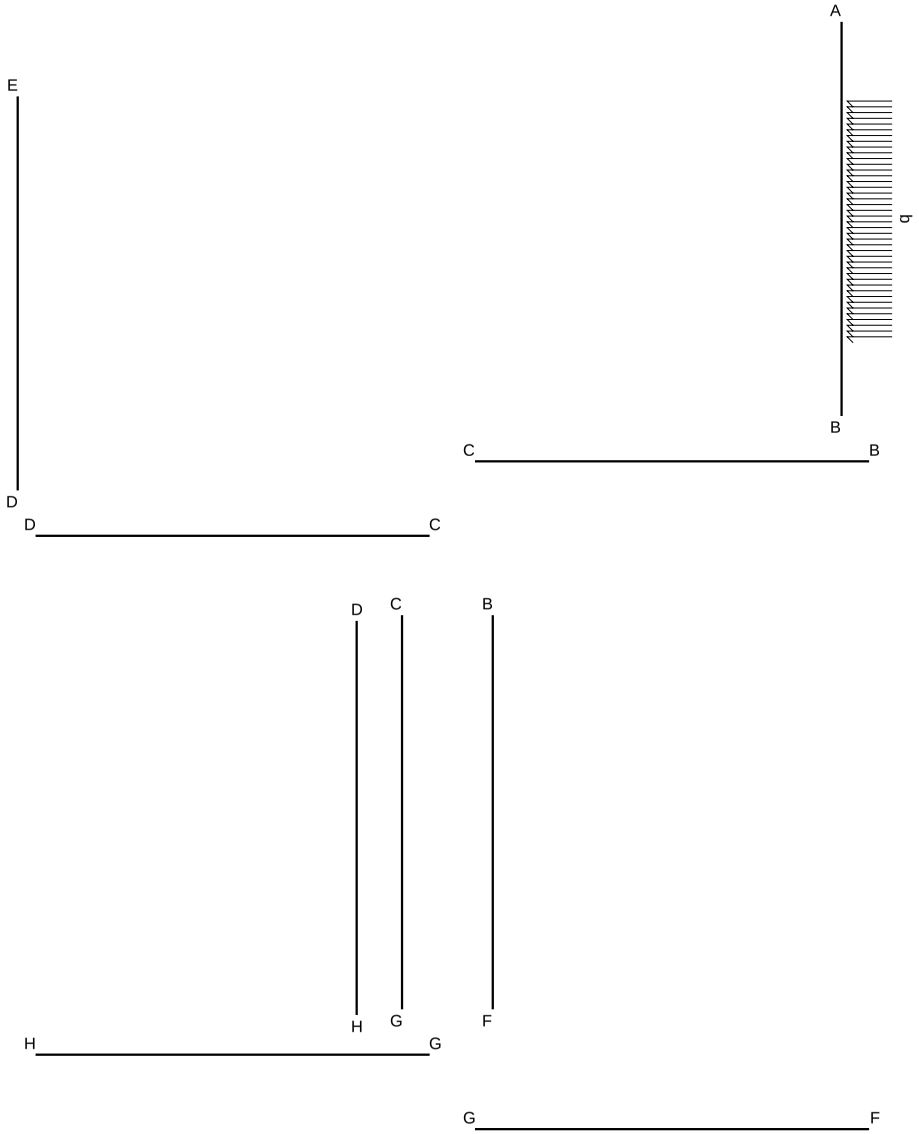

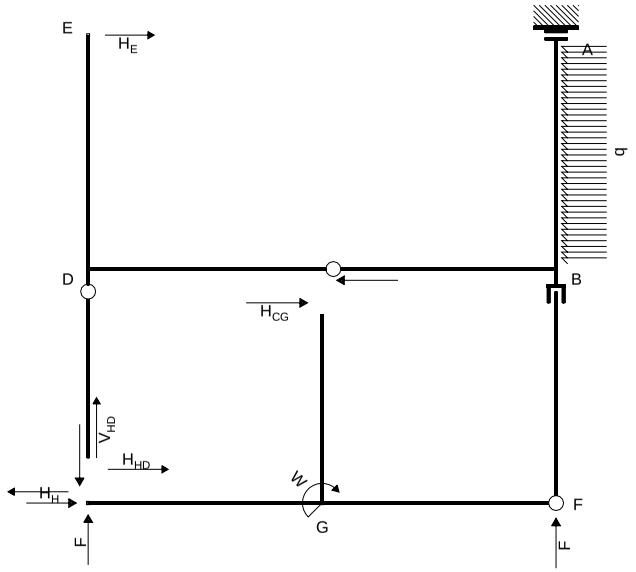

EQUAZIONI DI EQUILIBRIO

Traslazione orizzontale globale

$H_E + H_H = qb$

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$-H_{CG} b + 2V_{HD} b = 2Fb + W$

Rotazione intorno a D: aste DH

$H_{HD} b = 0$

Matrice di equilibrio

$$\begin{array}{c} \\ u_A \\ \varphi_{CB} \\ v_{BF} \\ \varphi_{FB} \\ \varphi_{DH} \end{array} \begin{bmatrix} H_E b & H_H b & H_{CG} b & H_{HD} b & V_{HD} b \\ 1 & 1 & 0 & 0 & 0 \\ -1 & 0 & 0 & 1 & -1 \\ 0 & 0 & 0 & 0 & -1 \\ 0 & 0 & -1 & 0 & 2 \\ 0 & 0 & 0 & 1 & 0 \end{bmatrix} = \begin{bmatrix} Fb & W & qb^2 \\ 0 & 0 & 1 \\ 0 & 0 & 0 \\ -2 & 0 & 0 \\ 2 & 1 & 0 \\ 0 & 0 & 0 \end{bmatrix}$$

Soluzione del sistema

$$\begin{bmatrix} H_E b \\ H_H b \\ V_{HD} b \\ H_{CG} b \\ H_{HD} b \end{bmatrix} = \begin{array}{c} \begin{bmatrix} Fb & W & qb^2 \end{bmatrix} \\ \begin{bmatrix} -2 & 0 & 0 \\ 2 & 0 & 1 \\ 2 & 0 & 0 \\ 2 & -1 & 0 \\ 0 & 0 & 0 \end{bmatrix} \end{array}$$

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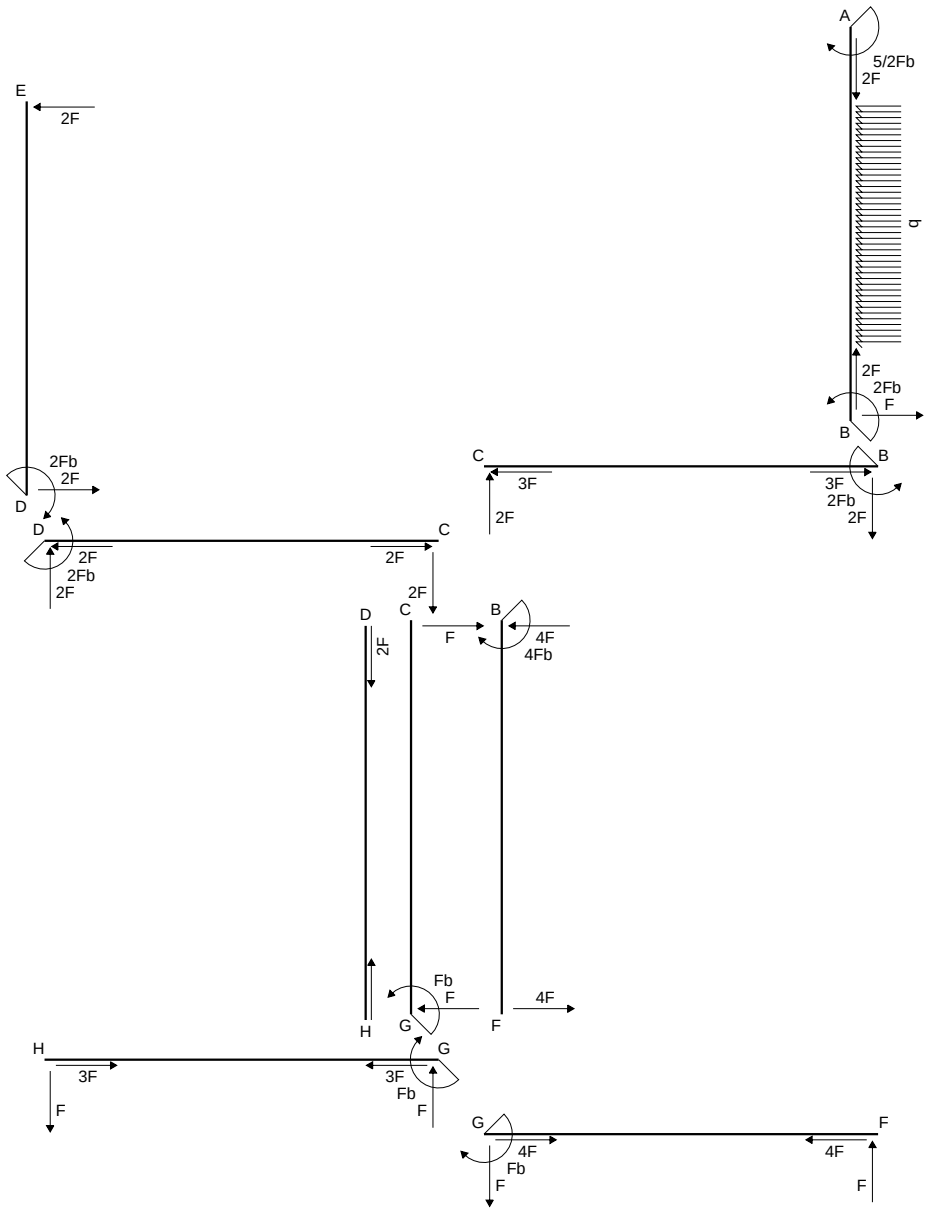
A
5/2Fb
2F
q
2F
2Fb
F
B
E
2F
2Fb
2F
D
C
3F
2F
B
3F
3F
2Fb
2F
D
2F
2Fb
2F
C
2F
2F
D
C
B
2F
F
4F
4Fb
Fb
F
4F
H
G
F
H
3F
3F
Fb
F
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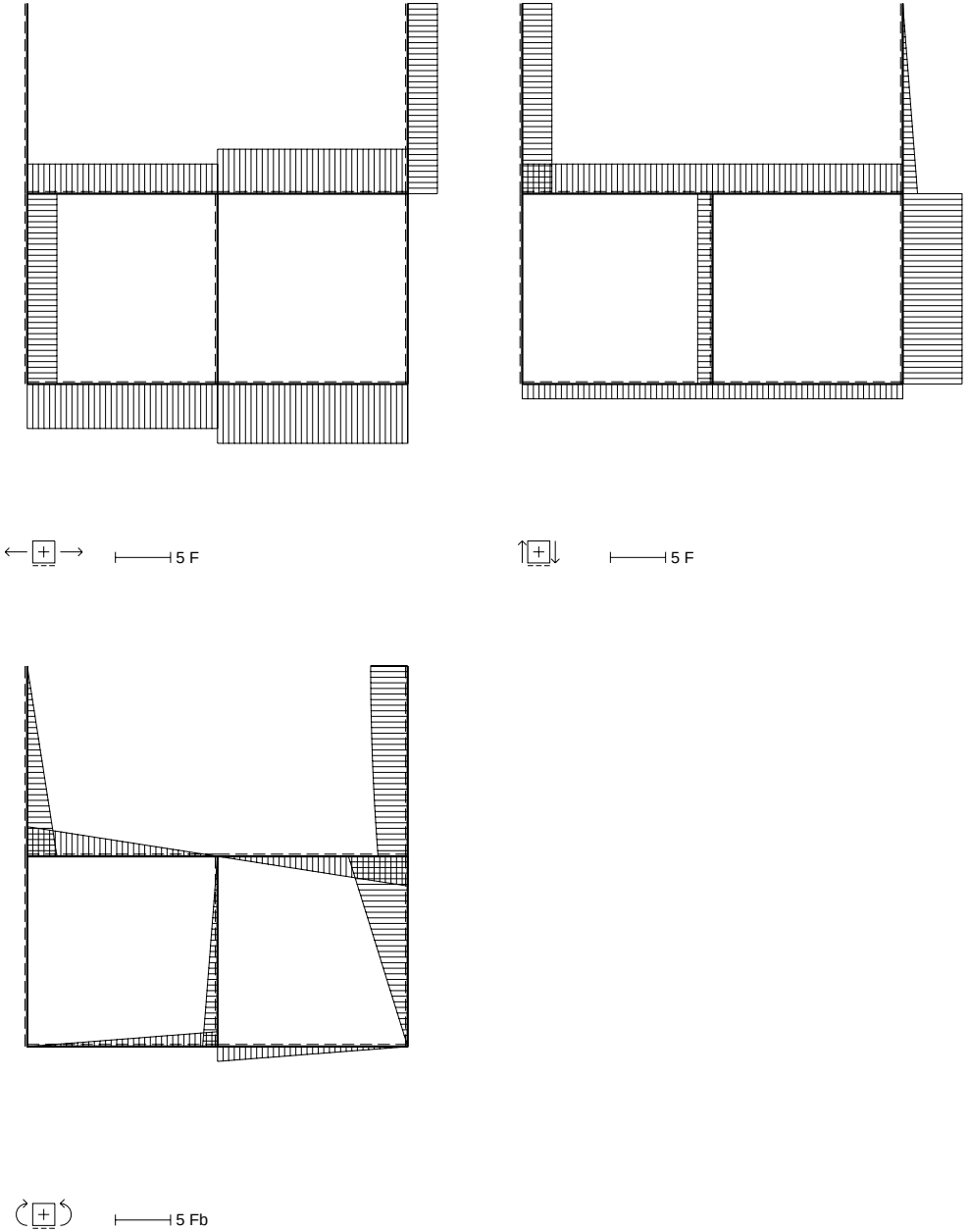
G
F
4F
4F
Fb
F
F


5 F
5 F
5 Fb

Es.N.009

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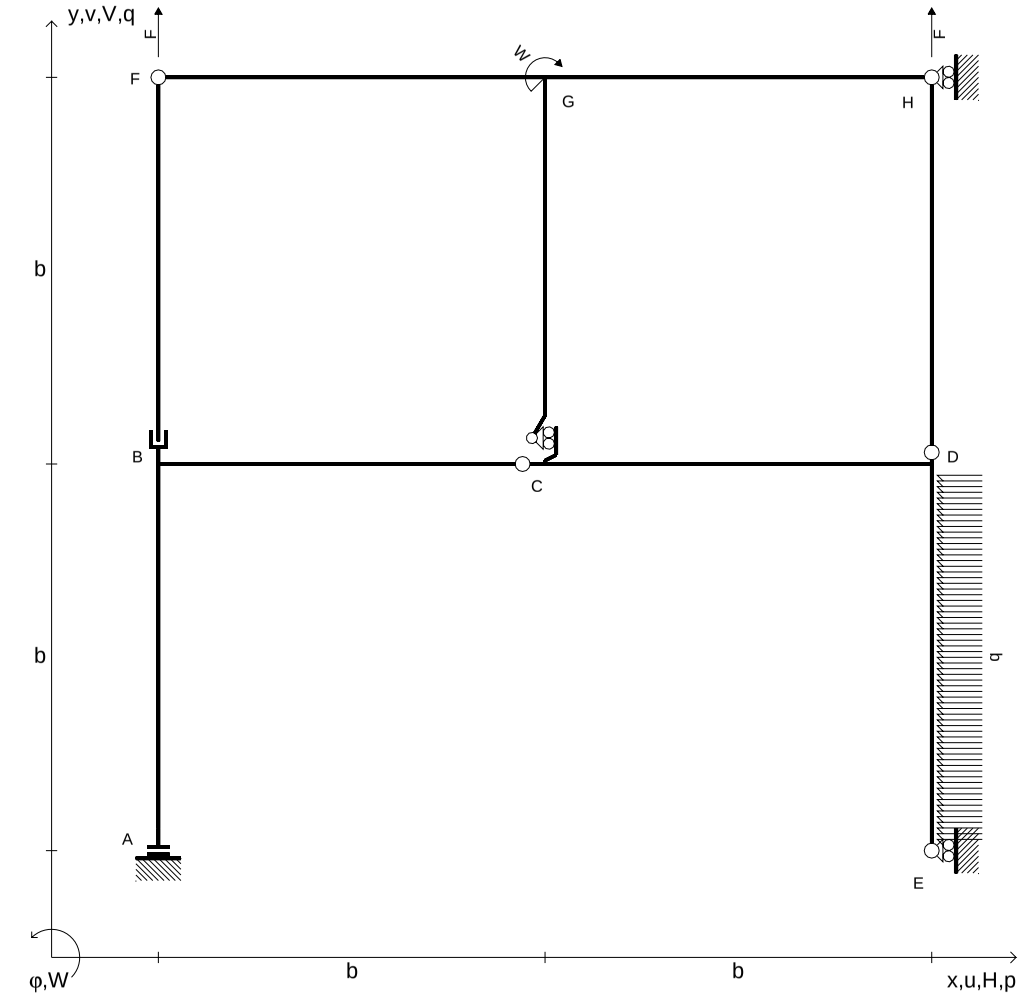

$V_F = F$ $V_H = F$ $W_G = -W = -Fb$ $p_{ED} = -q = -F/b$

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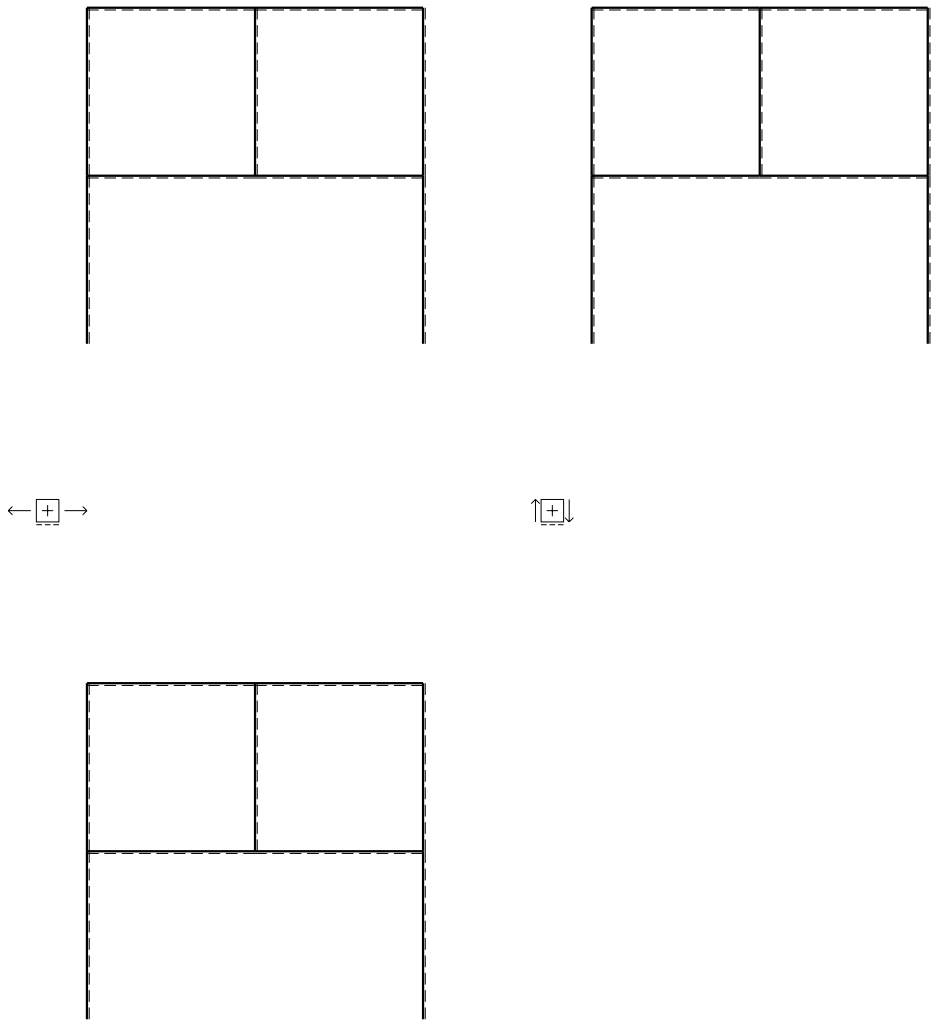

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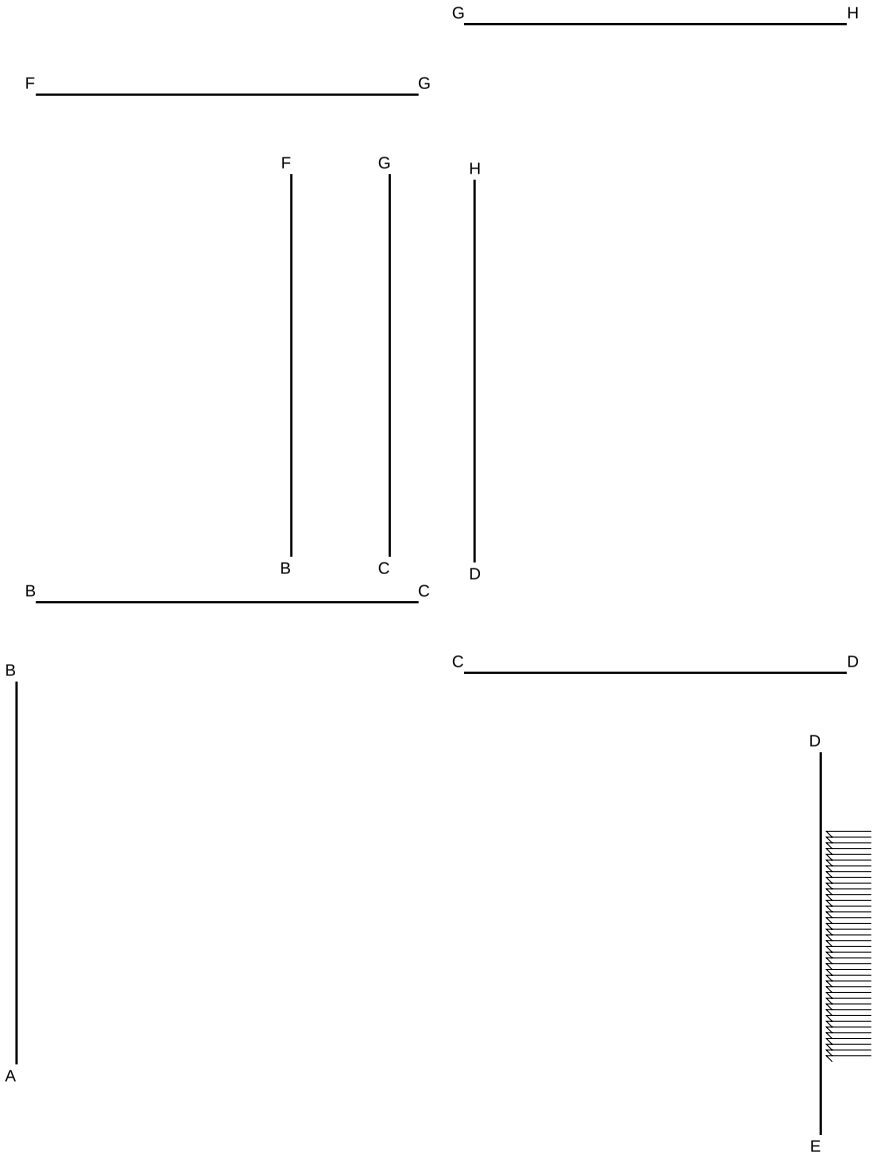
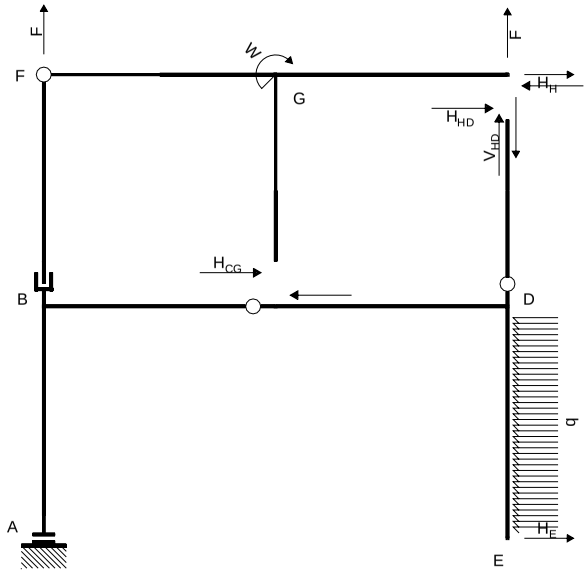




EQUAZIONI DI EQUILIBRIO

Traslazione orizzontale globale

$H_E + H_H = qb$

Rotazione intorno a C: aste CD DE DH

$H_E b - H_{HD} b + V_{HD} b = 1/2 qb^2$

Traslazione verticale: aste BF FG GC GH

$-V_{HD} = -2F$

Rotazione intorno a F: aste FG GC GH

$H_{CG} b - 2V_{HD} b = -2Fb + W$

Rotazione intorno a D: aste DH

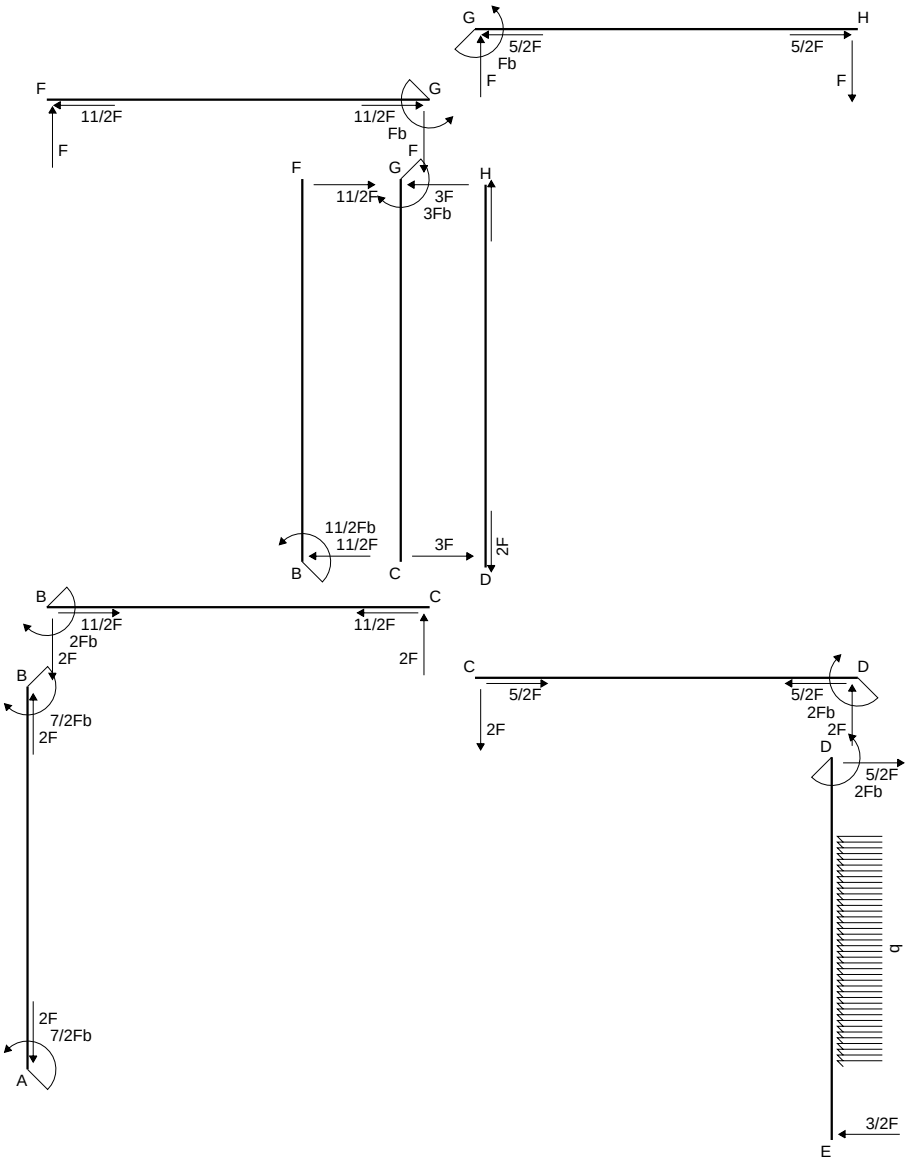
$-H_{HD} b = 0$

Matrice di equilibrio

$$\begin{array}{c} \\ u_A \\ \varphi_{CB} \\ v_{BF} \\ \varphi_{FB} \\ \varphi_{DH} \end{array} \begin{bmatrix} H_E b & H_H b & H_{CG} b & H_{HD} b & V_{HD} b \\ 1 & 1 & 0 & 0 & 0 \\ 1 & 0 & 0 & -1 & 1 \\ 0 & 0 & 0 & 0 & -1 \\ 0 & 0 & 1 & 0 & -2 \\ 0 & 0 & 0 & -1 & 0 \end{bmatrix} = \begin{bmatrix} Fb & W & qb^2 \\ 0 & 0 & 1 \\ 0 & 0 & 1/2 \\ -2 & 0 & 0 \\ -2 & 1 & 0 \\ 0 & 0 & 0 \end{bmatrix}$$

Soluzione del sistema

$$\begin{bmatrix} H_E b \\ H_H b \\ V_{HD} b \\ H_{CG} b \\ H_{HD} b \end{bmatrix} = \begin{bmatrix} Fb & W & qb^2 \\ -2 & 0 & 1/2 \\ 2 & 0 & 1/2 \\ 2 & 0 & 0 \\ 2 & 1 & 0 \\ 0 & 0 & 0 \end{bmatrix}$$


G
H
5/2F
Fb
F
5/2F
F
F
11/2F
G
11/2F
Fb
F
F
F
G
H
11/2F
3F
3Fb
11/2Fb
11/2F
3F
2F
B
C
D
B
11/2F
C
11/2F
2Fb
2F
2F
B
7/2Fb
2F
C
D
5/2F
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2F
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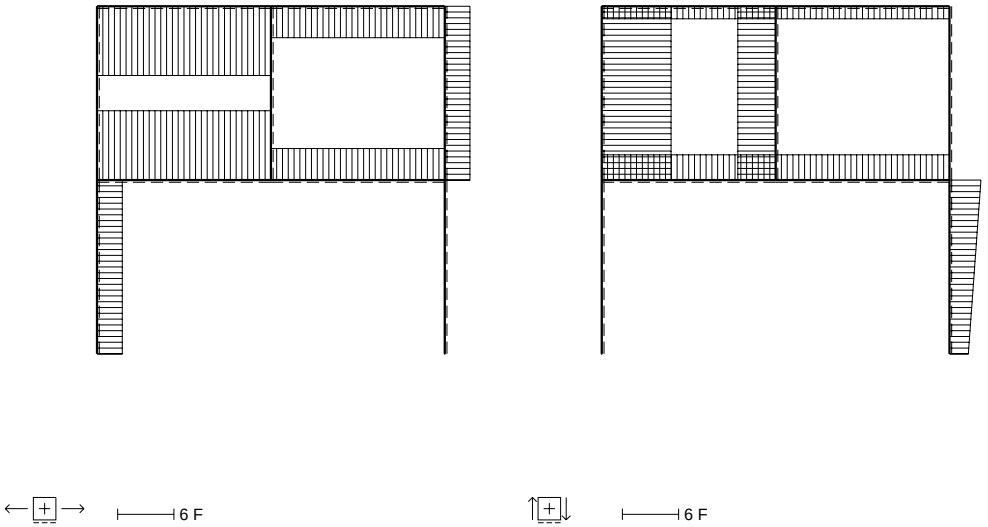
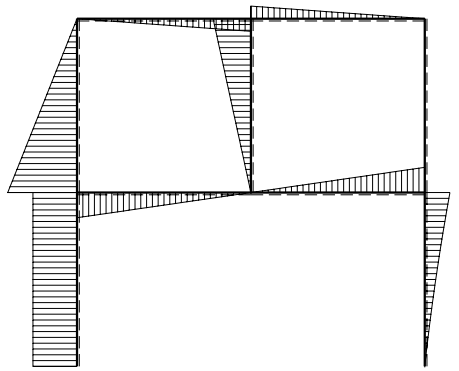
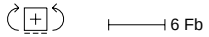
D
5/2F
2Fb
q
2F
7/2Fb
A
3/2F
E


6 F
6 F




6 Fb

Es.N.010

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