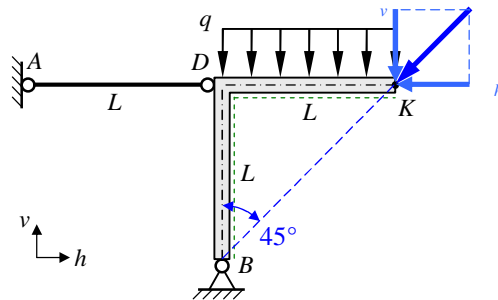


_____ :
 ,
 $I_{y2} = \text{const}$
 $I_{y1} = \text{const.}$
 _____ B K .
 _____ :
 $q; L; A_1; I_{y2}; E.$

1. B K (_____).
2. _____ ,
 $AD = KD = L,$ 45° _____ :

$$\Phi_v = \Phi_h = \Phi \sin 45^\circ = \frac{\sqrt{2}}{2} \Phi.$$

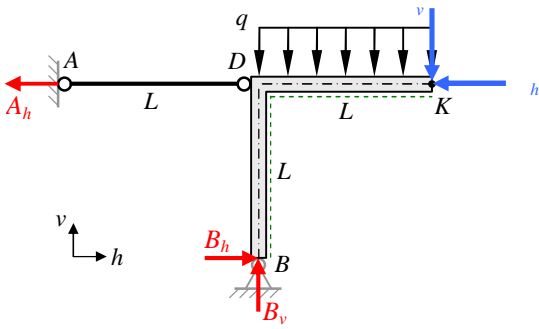


3. _____ , _____ L .
 (AD) _____ N .
 (BD) _____ N, Q_z _____ (KD)
 _____ , _____

$$\delta U_{BK} = \frac{\partial U}{\partial \Phi} = \int_{L_1} \frac{N_1}{EA_1} \frac{\partial N_1}{\partial \Phi} dx + \int_{L_2} \frac{M_{y2}}{EI_{y2}} \frac{\partial M_{y2}}{\partial \Phi} dx + \int_{L_3} \frac{M_{y3}}{EI_{y3}} \frac{\partial M_{y3}}{\partial \Phi} dx. \quad (1)$$

$N, \quad 1, \quad 2$ _____ .

3.



$$M_i = 0: \quad A_h L - \frac{qL^2}{2} - W_v L + W_h L = 0; \quad A_h = \frac{qL}{2}.$$

$$h_i = 0: \quad B_h - A_h - h = 0; \quad B_h = \frac{qL}{2} + \frac{\sqrt{2}}{2} W.$$

$$v_i = 0: \quad B_v - qL - v = 0; \quad B_v = qL + \frac{\sqrt{2}}{2} W.$$

$$M_{ki} = 0: \quad qL^2/2 + B_h L - B_v L = 0; \\ qL^2/2 + qL^2/2 + \frac{\sqrt{2}}{2} W L - qL^2 - \frac{\sqrt{2}}{2} W L = 0 \Rightarrow$$

4.

F

4.1. (AD), $x \in [0; L]$

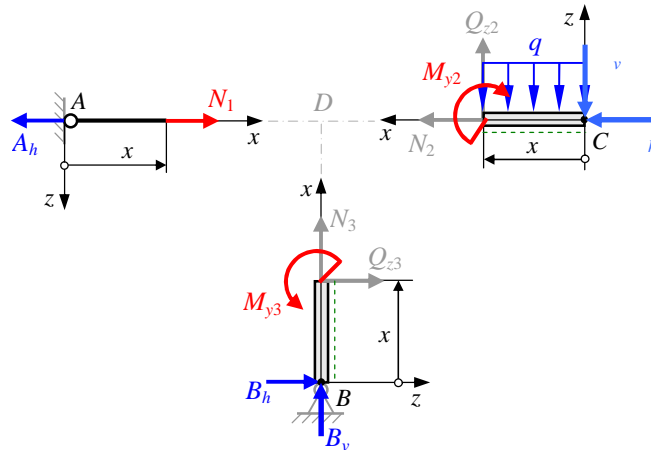
$$x_i = 0: \quad N_1 - A_h = 0; \quad N_1 = \frac{qL}{2}; \quad \frac{\partial N}{\partial W} = 0.$$

4.2. (CD), $x \in [0; L]$

$$M_{y_i} = 0: \quad M_{y_2} + \frac{qx^2}{2} + W_v x = 0; \quad M_{y_2} = -\frac{qx^2}{2} - \frac{\sqrt{2}}{2} W x; \quad \frac{\partial M_{y_2}}{\partial W} = -\frac{\sqrt{2}}{2} x.$$

4.3. (BD), $x \in [0; L]$

$$M_{y_i} = 0: \quad M_{y_3} + B_h x = 0; \quad M_{y_3} = -\frac{qL}{2} x - \frac{\sqrt{2}}{2} W x; \quad \frac{\partial M_{y_3}}{\partial W} = -\frac{\sqrt{2}}{2} x.$$



5.

(1)

= 0.

$$B_K = \frac{1}{EA_1} \int_0^L N_1 \frac{\partial N_1}{\partial \Phi} dx + \frac{1}{EI_{y_2}} \int_0^L M_{y_2} \frac{\partial M_{y_2}}{\partial \Phi} dx + \frac{1}{EI_{y_2}} \int_0^L M_{y_3} \frac{\partial M_{y_3}}{\partial \Phi} dx;$$

$$B_K = \frac{1}{EA_1} \int_0^L \frac{qL}{2} \cdot 0 \cdot dx + \frac{1}{EI_{y_2}} \left[\int_0^L \left(-\frac{qx^2}{2} \right) \left(-\frac{\sqrt{2}}{2} x \right) dx + \int_0^L \left(-\frac{qL}{2} x \right) \left(-\frac{\sqrt{2}}{2} x \right) dx \right];$$

$$B_K = \frac{1}{EI_{y_2}} \left[\int_0^L \frac{\sqrt{2}q}{4} x^3 dx + \int_0^L \frac{\sqrt{2}qL}{4} x^2 dx \right] = \frac{1}{EI_{y_2}} \left[\frac{\sqrt{2}q}{4} \frac{L^4}{4} + \frac{\sqrt{2}qL}{4} \frac{L^3}{3} \right];$$

$$B_K = \frac{7\sqrt{2}}{48} \frac{qL^4}{EI_{y_2}}.$$