Remarks: See §2.2.1, pages 19 till 21
See §2.3, pages 24 till 26
See §2.6, pages 34 onwards

Answers:

a. $N^{(AC)} = -70$ kN

b. $N^{(BC)} = -140$ kN

c. $u_{C;vert} = 5,6$ mm $(\downarrow)$

d. $A_h = 49,5$ kN $(\rightarrow)$ $A_v = 49,5$ kN $(\uparrow)$
$B_h = 0$ $B_v = 140$ kN $(\uparrow)$
$C_h = 49,5$ kN $(\leftarrow)$

Explanation:

a. $N^{(AC)} = \dfrac{(-3,96 \text{ mm})(50\times10^3 \text{ kN})}{2000\sqrt{2} \text{ mm}} = -70$ kN

b. $\sum F_{vert}(\downarrow) = 0 \Rightarrow N^{(BC)} + \frac{1}{2}\sqrt{2}\cdot N^{(AC)} + (189,5 \text{ kN}) = 0$
$N^{(BC)} = -(189,5 \text{ kN}) - \frac{1}{2}\sqrt{2}\cdot(-70 \text{ kN}) = -140$ kN

c. $\Delta\ell^{(BC)} = \dfrac{(-140 \text{ kN})(2000 \text{ mm})}{50\times10^3 \text{ kN}} = -5,6$ mm
$\Rightarrow u_{C;vert} = 5,6$ mm $(\downarrow)$