

Upper beam:

Reaction force: $R_x = 3.1 \text{ N} \cdot \vec{x}_o, R_y = -11.2 \text{ N} \cdot \vec{y}_o \rightarrow R_{y_\alpha} = -11.62 \text{ N} \cdot \vec{y}_\alpha$

Max. Normal force: $N_f = 0 \text{ N} \cdot \vec{x}_\alpha$

Max. Shear force: $\tau = 11.62 \text{ N} \cdot \vec{y}_\alpha$ on ground support

Max. Bending moment: $M_b = 72.26 \text{ N cm} \cdot \vec{z}_{0,1,\alpha}$ on node 1

Highest stress: $\sigma = 67.74 \text{ MPa}$ on node 1

Rest of the wing rib:

Sum of Reaction forces:

$R_x = -3.1 \text{ N} \cdot \vec{x}_o, R_y = 11.2 \text{ N} \cdot \vec{y}_o \rightarrow R_{y_\alpha} = 11.62 \text{ N} \cdot \vec{y}_\alpha$

Max. displacement (free end): $\delta_x = 0.012 \text{ cm} \cdot \vec{x}_o, \delta_y = 0.256 \text{ cm} \cdot \vec{y}_o$

Max. Normal force: $N_f = 11.85 \text{ N} \cdot \vec{x}_o$

Max. Shear force (rightmost ground support): $\tau = 3.23 \text{ N}$

Max. Bending moment (rightmost ground support): $M_b = 21.67 \text{ N cm}$

Highest stress (rightmost ground support): $\sigma = 20.36 \text{ MPa}$