

$$M_{sd,x} := q_d \cdot l_{ox}^2 \cdot \phi_{1x} \quad M_{sd,x} = 23.854 \text{ kN}\cdot\text{m} \quad M_{sd,px} := \frac{-\chi_1}{12} \cdot q_d \cdot l_{ox}^2 \quad M_{sd,px} = -20.789 \text{ kN}\cdot\text{m}$$

$$M_{sd,y} := q_d \cdot l_{oy}^2 \cdot \phi_{1y} \quad M_{sd,y} = 7.846 \text{ kN}\cdot\text{m} \quad M_{sd,py} := -\frac{1-\chi_1}{12} \cdot q_d \cdot l_{ox}^2 \quad M_{sd,py} = -1.981 \text{ kN}\cdot\text{m}$$

$$s_{bcx} := \frac{M_{sd,x}}{\alpha \cdot b \cdot d^2 \cdot f_{cd}} \quad s_{bcx} = 0.066 \quad \xi := \frac{1 - \sqrt{1 - 2 \cdot s_{bcx}}}{0.8} \quad \xi = 0.085 \quad x := \xi \cdot d \quad x = 1.359 \text{ cm}$$

$$A_{s1x} := \frac{0.8 \cdot x \cdot b \cdot \alpha \cdot f_{cd}}{f_{yd}} \quad A_{s1x} = 3.6746 \text{ cm}^2 \quad - \text{przyjęto } \phi 12 \text{ co } 12 \text{ cm} - A_{s.obl} = 9.42 \text{ cm}^2$$

$$s_{bcy} := \frac{M_{sd,y}}{\alpha \cdot b \cdot d_y^2 \cdot f_{cd}} \quad s_{bcy} = 0.025 \quad \xi := \frac{1 - \sqrt{1 - 2 \cdot s_{bcy}}}{0.8} \quad \xi = 0.032 \quad x := \xi \cdot d \quad x = 0.511 \text{ cm}$$

$$A_{s1y} := \frac{0.8 \cdot x \cdot b \cdot \alpha \cdot f_{cd}}{f_{yd}} \quad A_{s1y} = 1.3822 \text{ cm}^2 \quad - \text{przyjęto } \phi 12 \text{ co } 12 \text{ cm} - A_{s.obl} = 9.42 \text{ cm}^2$$

-płyta P\_15.0

$$q_d := 14.0 \cdot \frac{\text{kN}}{\text{m}} \quad h := 0.18 \cdot \text{m} \quad d := h - 0.02 \text{ m} \quad d = 16 \text{ cm}$$

$$l_{ox} := 3.95 \cdot \text{m} \quad l_{oy} := 4.67 \cdot \text{m} \quad b := 1 \cdot \text{m} \quad d_y := d - 1.20 \cdot \text{cm} \quad d_y = 14.8 \text{ cm}$$

$$\frac{l_{oy}}{l_{ox}} = 1.182 \quad \phi_{1x} := 0.0514 \quad \phi_{1y} := 0.0274 \quad \chi_1 := 0.675 \quad \alpha := 0.85$$

$$M_{sd,x} := q_d \cdot l_{ox}^2 \cdot \phi_{1x} \quad M_{sd,x} = 11.228 \text{ kN}\cdot\text{m} \quad M_{sd,px} := \frac{-\chi_1}{12} \cdot q_d \cdot l_{ox}^2 \quad M_{sd,px} = -12.287 \text{ kN}\cdot\text{m}$$

$$M_{sd,y} := q_d \cdot l_{oy}^2 \cdot \phi_{1y} \quad M_{sd,y} = 8.366 \text{ kN}\cdot\text{m} \quad M_{sd,py} := -\frac{1-\chi_1}{12} \cdot q_d \cdot l_{ox}^2 \quad M_{sd,py} = -5.916 \text{ kN}\cdot\text{m}$$

$$s_{bcx} := \frac{M_{sd,x}}{\alpha \cdot b \cdot d^2 \cdot f_{cd}} \quad s_{bcx} = 0.031 \quad \xi := \frac{1 - \sqrt{1 - 2 \cdot s_{bcx}}}{0.8} \quad \xi = 0.039 \quad x := \xi \cdot d \quad x = 0.628 \text{ cm}$$

$$A_{s1x} := \frac{0.8 \cdot x \cdot b \cdot \alpha \cdot f_{cd}}{f_{yd}} \quad A_{s1x} = 1.6974 \text{ cm}^2 \quad - \text{przyjęto } \phi 12 \text{ co } 12 \text{ cm} - A_{s.obl} = 9.42 \text{ cm}^2$$

$$s_{bcy} := \frac{M_{sd,y}}{\alpha \cdot b \cdot d_y^2 \cdot f_{cd}} \quad s_{bcy} = 0.027 \quad \xi := \frac{1 - \sqrt{1 - 2 \cdot s_{bcy}}}{0.8} \quad \xi = 0.034 \quad x := \xi \cdot d \quad x = 0.546 \text{ cm}$$

$$A_{s1y} := \frac{0.8 \cdot x \cdot b \cdot \alpha \cdot f_{cd}}{f_{yd}} \quad A_{s1y} = 1.4751 \text{ cm}^2 \quad - \text{przyjęto } \phi 8 \text{ co } 12 \text{ cm} - A_{s.obl} = 4.19 \text{ cm}^2$$

-płyta P\_16.0

$$q_d := 16.7 \cdot \frac{\text{kN}}{\text{m}} \quad h := 0.18 \cdot \text{m} \quad d := h - 0.02 \text{ m} \quad d = 16 \text{ cm}$$