

$$M_{sd,y} := q_d \cdot l_{oy}^2 \cdot \phi_{ly} \quad M_{sd,y} = 5.967 \text{ kN}\cdot\text{m}$$

$$M_{sd,py} := -\frac{1-\chi_1}{12} \cdot q_d \cdot l_{ox}^2 \quad M_{sd,py} = -1.507 \text{ kN}\cdot\text{m}$$

$$s_{bcx} := \frac{M_{sd,x}}{\alpha \cdot b \cdot d^2 \cdot f_{cd}} \quad s_{bcx} = 0.05 \quad \xi := \frac{1 - \sqrt{1 - 2 \cdot s_{bcx}}}{0.8} \quad \xi = 0.064 \quad x := \xi \cdot d \quad x = 1.025 \text{ cm}$$

$$A_{s1x} := \frac{0.8 \cdot x \cdot b \cdot \alpha \cdot f_{cd}}{f_{yd}} \quad A_{s1x} = 2.7705 \text{ cm}^2 \quad - \text{przyjęto } \phi 12 \text{ co } 12 \text{ cm} - A_{s.obl} = 9.42 \text{ cm}^2$$

$$s_{bcy} := \frac{M_{sd,y}}{\alpha \cdot b \cdot d_y^2 \cdot f_{cd}} \quad s_{bcy} = 0.019 \quad \xi := \frac{1 - \sqrt{1 - 2 \cdot s_{bcy}}}{0.8} \quad \xi = 0.024 \quad x := \xi \cdot d \quad x = 0.388 \text{ cm}$$

$$A_{s1y} := \frac{0.8 \cdot x \cdot b \cdot \alpha \cdot f_{cd}}{f_{yd}} \quad A_{s1y} = 1.0478 \text{ cm}^2 \quad - \text{przyjęto } \phi 12 \text{ co } 12 \text{ cm} - A_{s.obl} = 9.42 \text{ cm}^2$$

- płyta P_13.1

$$q_d := 12.7 \cdot \frac{\text{kN}}{\text{m}} \quad h := 0.18 \text{ m} \quad d := h - 0.02 \text{ m} \quad d = 16 \text{ cm}$$

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

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

$$M_{sd,x} := q_d \cdot l_{ox}^2 \cdot \phi_{1x} \quad M_{sd,x} = 10.185 \text{ kN}\cdot\text{m} \quad M_{sd,px} := -\frac{\chi_1}{12} \cdot q_d \cdot l_{ox}^2 \quad M_{sd,px} = -11.146 \text{ kN}\cdot\text{m}$$

$$M_{sd,y} := q_d \cdot l_{oy}^2 \cdot \phi_{1y} \quad M_{sd,y} = 7.589 \text{ kN}\cdot\text{m} \quad M_{sd,py} := -\frac{1-\chi_1}{12} \cdot q_d \cdot l_{ox}^2 \quad M_{sd,py} = -5.367 \text{ kN}\cdot\text{m}$$

$$s_{bcx} := \frac{M_{sd,x}}{\alpha \cdot b \cdot d^2 \cdot f_{cd}} \quad s_{bcx} = 0.028 \quad \xi := \frac{1 - \sqrt{1 - 2 \cdot s_{bcx}}}{0.8} \quad \xi = 0.036 \quad x := \xi \cdot d \quad x = 0.569 \text{ cm}$$

$$A_{s1x} := \frac{0.8 \cdot x \cdot b \cdot \alpha \cdot f_{cd}}{f_{yd}} \quad A_{s1x} = 1.5375 \text{ cm}^2 \quad - \text{przyjęto } \phi 12 \text{ co } 12 \text{ cm} - A_{s.obl} = 9.42 \text{ cm}^2$$

$$s_{bcy} := \frac{M_{sd,y}}{\alpha \cdot b \cdot d_y^2 \cdot f_{cd}} \quad s_{bcy} = 0.024 \quad \xi := \frac{1 - \sqrt{1 - 2 \cdot s_{bcy}}}{0.8} \quad \xi = 0.031 \quad x := \xi \cdot d \quad x = 0.494 \text{ cm}$$

$$A_{s1y} := \frac{0.8 \cdot x \cdot b \cdot \alpha \cdot f_{cd}}{f_{yd}} \quad A_{s1y} = 1.3364 \text{ cm}^2 \quad - \text{przyjęto } \phi 8 \text{ co } 12 \text{ cm} - A_{s.obl} = 4.19 \text{ cm}^2$$

- płyta P_14-1

$$q_d := 12.7 \cdot \frac{\text{kN}}{\text{m}} \quad l_o := 1.95 \text{ m} \quad h := 0.18 \text{ m} \quad d := h - 0.02 \text{ m} \quad d = 16 \text{ cm} \quad b := 1 \text{ m}$$

$$M_{sd} := \frac{q_d \cdot l_o^2}{8} \quad M_{sd} = 6.036 \text{ kN}\cdot\text{m} \quad \alpha := 0.85$$

$$s_{bc} := \frac{M_{sd}}{\alpha \cdot b \cdot d^2 \cdot f_{cd}} \quad s_{bc} = 0.017 \quad \xi := \frac{1 - \sqrt{1 - 2 \cdot s_{bc}}}{0.8} \quad \xi = 0.021 \quad x := \xi \cdot d \quad x = 0.335 \text{ cm}$$

$$A_{s1} := \frac{0.8 \cdot x \cdot b \cdot \alpha \cdot f_{cd}}{f_{yd}} \quad A_{s1} = 0.9059 \text{ cm}^2 \quad - \text{przyjęto } \phi 8 \text{ co } 12 \text{ cm} - A_{s.obl} = 4.19 \text{ cm}^2$$