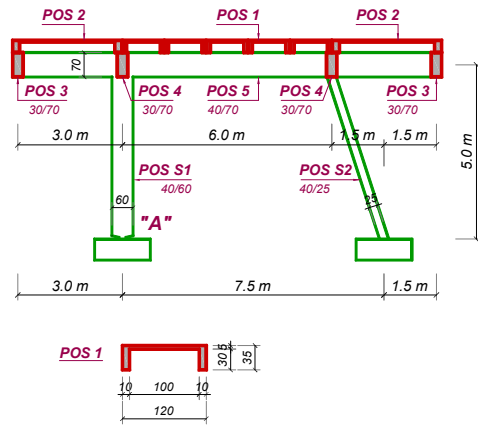
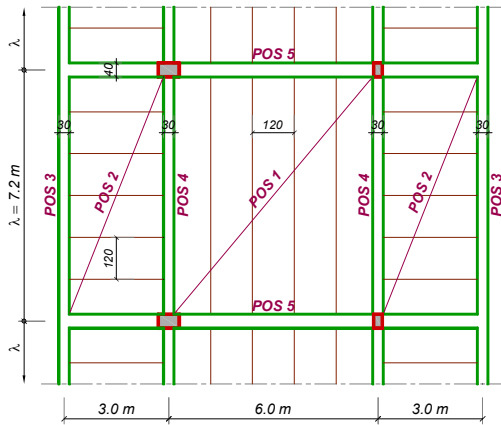


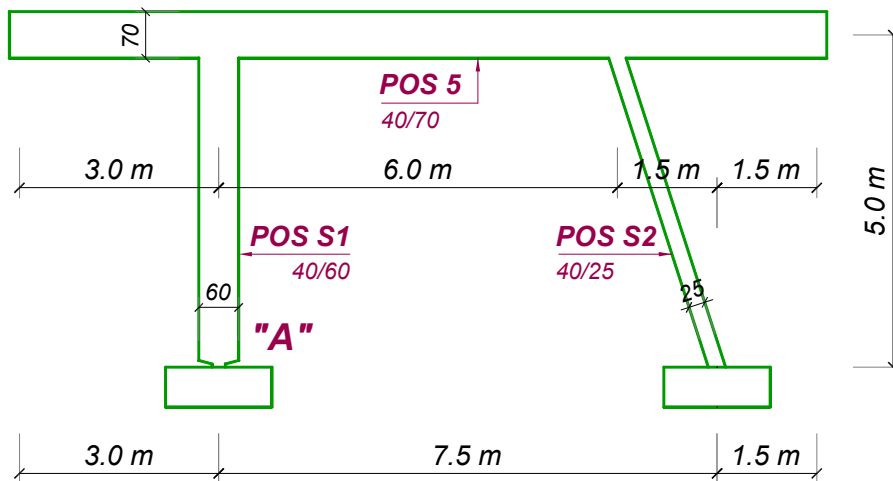
PGBK-1

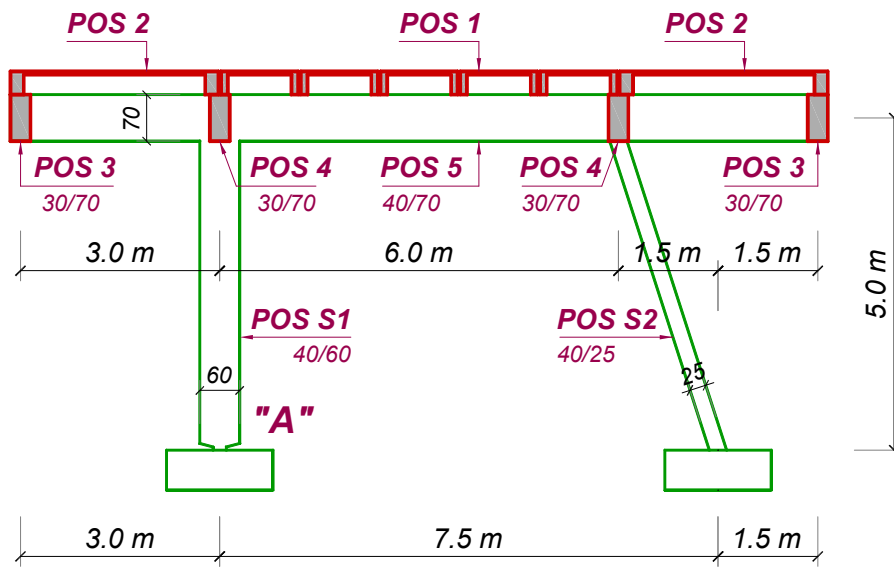
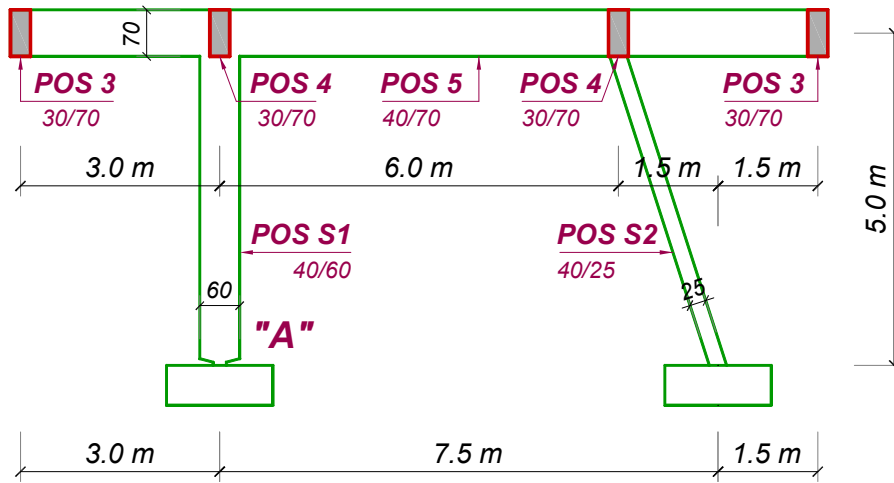
31.08.2004.

1



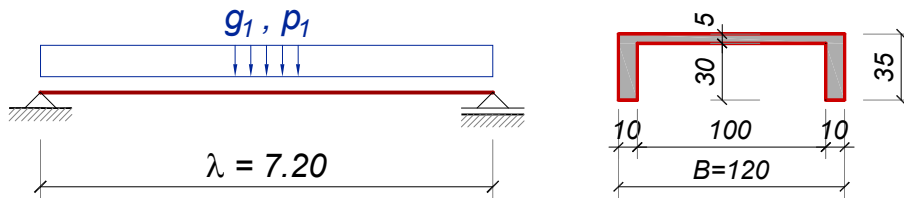
2





POS 1 – montažna AB koruba

5



Analiza opterećenja

$$A_b = 120 \times 35 - 100 \times 30 = 1200 \text{ cm}^2$$

$$g_1 = 1200 \times 10^{-4} \times 25.0 = 3.0 \text{ kN/m}^1$$

$$p_1 = p \times B = 5.0 \times 1.2 = 6.0 \text{ kN/m}^1$$

Statički uticaji

$$M_g = 3.0 \times 7.2^2 / 8 = 19.44 \text{ kNm}$$

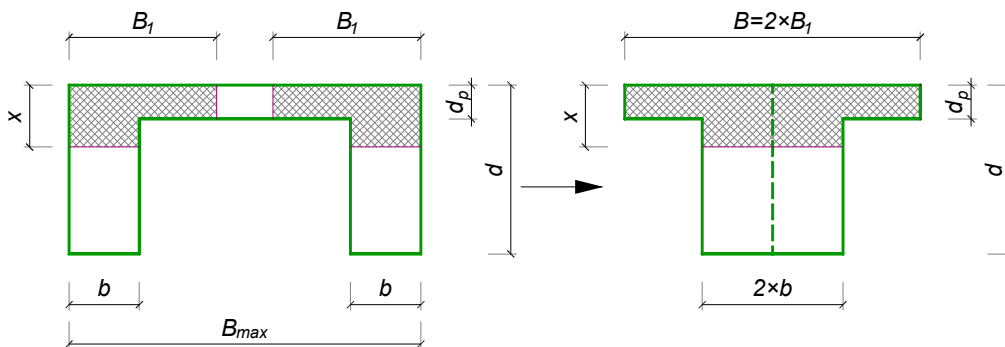
$$R_g = 3.0 \times 7.2 / 2 = 10.8 \text{ kN}$$

$$M_p = 6.0 \times 7.2^2 / 8 = 38.88 \text{ kNm}$$

$$R_p = 6.0 \times 7.2 / 2 = 21.6 \text{ kN}$$

"T" | "Γ" PRESECI

6



$$B_1 = \min. \left\{ \begin{array}{l} b_1 + b + \frac{L_0}{12} = 0 + 10 + \frac{720}{12} = 70 \\ b_1 + b + 8 \times d_p = 0 + 10 + 8 \times 5 = 50 \\ B_{max} / 2 = 120 / 2 = 60 \end{array} \right\} = 50 \text{ cm}$$

$$B = 2 \times B_1 = 2 \times 50 = 100 \text{ cm}$$

Dimenzionisanje POS 1

7

$$\text{pretp. } a_1 = 6 \text{ cm} \Rightarrow h = 35 - 6 = 29 \text{ cm}$$

$$M_u = 1.6 \times 19.44 + 1.8 \times 38.88 = 101.1 \text{ kNm}$$

$$\text{pretp. } x \leq d_p = 5 \text{ cm} \Rightarrow \text{prav.pres. } B=100 \text{ cm}$$

$$k = \frac{29}{\sqrt{\frac{101.1 \times 10^2}{100 \times 0.9 \times 2.05}}} = 3.918 \xrightarrow{\text{TABL.}} \begin{array}{l} s = 0.125 \\ \bar{\mu} = 6.822\% \end{array} \quad \begin{array}{l} \varepsilon_b / \varepsilon_a = 1.431 / 10\text{‰} \\ \end{array}$$

$$x = 0.125 \times 29 = 3.63 \text{ cm} < d_p = 5 \text{ cm} \quad \text{OK!}$$

$$A_a = 6.121 \times \frac{100 \times 29}{100} \times \frac{0.9 \times 2.05}{40} = 9.13 \text{ cm}^2$$

usvojeno: **2×2RØ19** (11.34 cm²)

Kontrola glavnih napona zatezanja

8

$$T_u = 1.6 \times 10.8 + 1.8 \times 21.6 = 56.2 \text{ kN}$$

$$\tau_n = \frac{56.2}{2 \times 10 \times 0.9 \times 29} = 0.108 \frac{\text{kN}}{\text{cm}^2} < \tau_r = 0.11 \frac{\text{kN}}{\text{cm}^2}$$

usvojeno: **2×UØ6/15**

Dimenzionisanje ploče

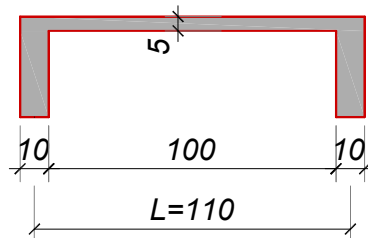
Analiza opterećenja

$$g = 0.05 \times 25 = 1.25 \text{ kN/m}^2$$

$$p = 5.00 \text{ kN/m}^2$$

$$q_u = 1.6 \times 1.25 + 1.8 \times 5.0 = 11 \text{ kN/m}^2$$

$$M_u = 11 \times 1.10^2 / 8 = 1.7 \text{ kNm/m}$$



$$\text{pretp. } a_1 = 2 \text{ cm} \Rightarrow h = 5 - 2 = 3 \text{ cm}$$

$$k = \frac{3.0}{\sqrt{\frac{1.7 \times 10^2}{100 \times 0.9 \times 2.05}}} = 3.159 \xrightarrow{\text{TABL.}} \frac{\varepsilon_b / \varepsilon_a = 1.94 / 10\text{‰}}{\mu = 10.666\%}$$

$$A_a = 10.666 \times 3.0 \times \frac{0.9 \times 2.05}{40} = 1.48 \frac{\text{cm}^2}{\text{m}}$$

za usvojeno MA 500/560:

$$A_a = A_a^{RA} \times \frac{\sigma_v^{RA}}{\sigma_v^{MA}} = 1.48 \times \frac{40}{50} = 1.18 \frac{\text{cm}^2}{\text{m}}$$

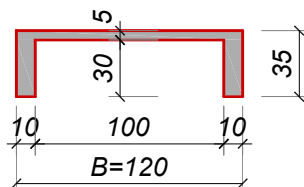
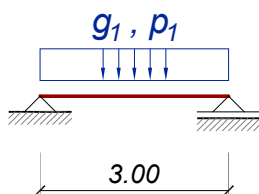
usvojeno: **Q 131** (1.31 cm²/m)

Reakcije POS 1 – opterećenje za POS 5

$$g = R_g / B = 10.8 / 1.2 = 9.0 \text{ kN/m}^1$$

$$p = R_p / B = 21.6 / 1.2 = 18.0 \text{ kN/m}^1$$

Reakcije POS 2 – opterećenje za POS 3, POS 4



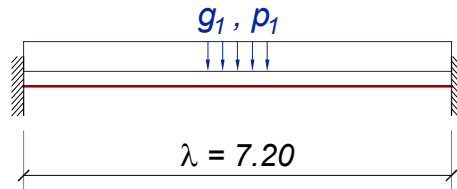
Opterećenje:
kao za POS 1
 $g_1 = 3.0 \text{ kN/m}^1$
 $p_1 = 6.0 \text{ kN/m}^1$

$$R_g = 3.0 \times 3.0 / 2 = 4.5 \text{ kN} \quad \Rightarrow \quad g = 4.5 / 1.2 = 3.75 \text{ kN/m}^1$$

$$R_p = 6.0 \times 3.0 / 2 = 9.0 \text{ kN} \quad \Rightarrow \quad p = 9.0 / 1.2 = 7.50 \text{ kN/m}^1$$

POS 3, POS 4 – AB kontinualne grede

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Analiza opterećenja

a. stalno opterećenje

- s.t.	$0.3 \times 0.7 \times 25$	$= 5.25 \text{ kN/m}^1$
- od POS 2	R_g	$= 3.75 \text{ kN/m}^1$
ukupno	g	$= 9.00 \text{ kN/m}^1$

b. povremeno opterećenje

- od POS 2	R_p	$= 7.50 \text{ kN/m}^1$
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POS 3, POS 4 – AB kontinualne grede

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Statički uticaji

$$M_{g,o} = 9.0 \times 7.2^2 / 12 = 38.8 \text{ kNm}$$

$$M_{g,p} = 9.0 \times 7.2^2 / 24 = 19.4 \text{ kNm}$$

$$T_g = 9.0 \times 7.2 / 2 = 32.4 \text{ kN}$$

$$M_{p,o} = 7.5 \times 7.2^2 / 12 = 32.4 \text{ kNm}$$

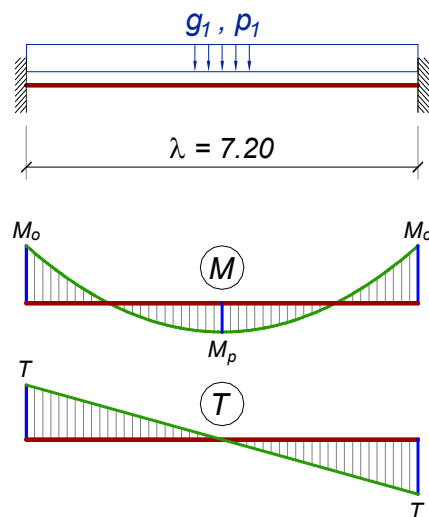
$$M_{p,p} = 7.5 \times 7.2^2 / 24 = 16.2 \text{ kNm}$$

$$T_p = 7.5 \times 7.2 / 2 = 27.0 \text{ kN}$$

$$M_{u,o} = 120.5 \text{ kNm}$$

$$M_{u,p} = 60.2 \text{ kNm}$$

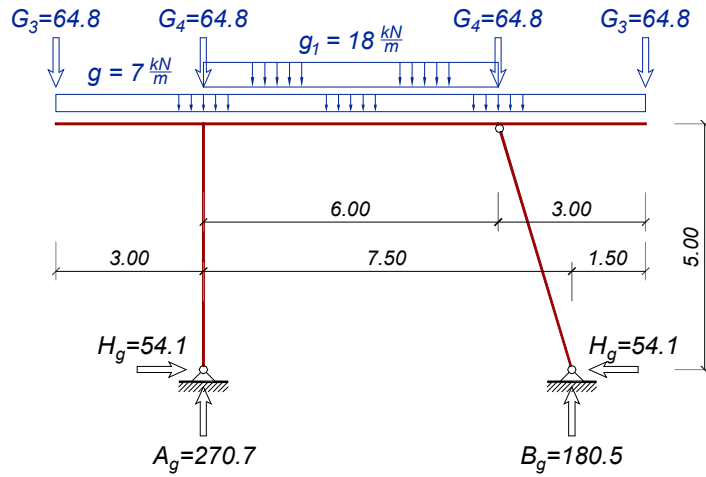
$$T_u = 100.4 \text{ kN}$$



POS 5, POS S1, POS S2 – stalno opterećenje

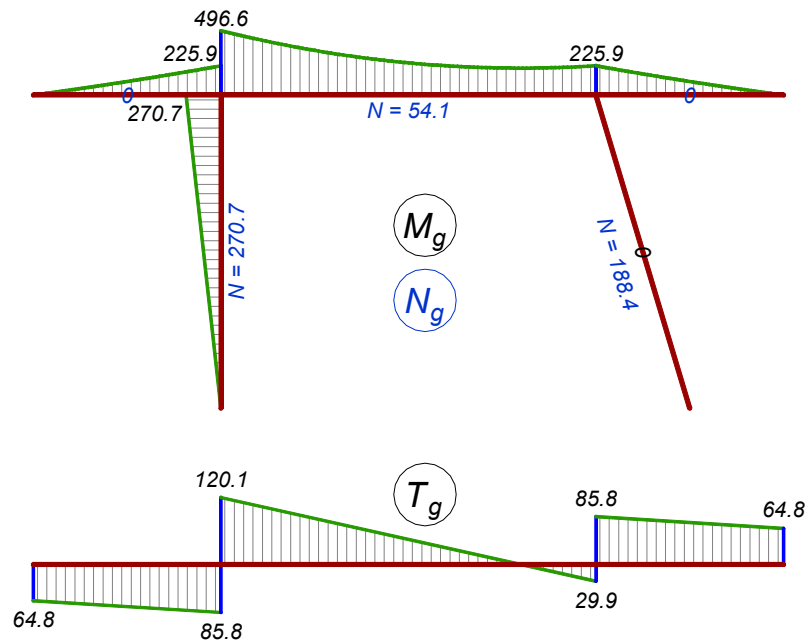
13

- sopstvena težina $g = 0.4 \times 0.7 \times 25 = 7.0 \text{ kN/m}^1$
- od POS 1 $g_1 = 2 \times 9.0 = 18.0 \text{ kN/m}^1$
- od POS 3, 4 $G_3 = G_4 = 2 \times 32.4 = 62.8 \text{ kN}$



POS 5, POS S1, POS S2 – stalno opterećenje

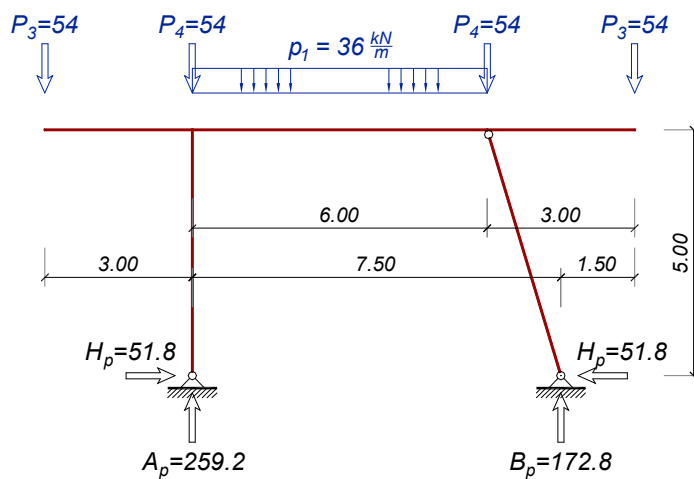
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POS 5, POS S1, POS S2 – povremeno opterećenje

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- od POS 1 $p_1 = 2 \times 18.0 = 36.0 \text{ kN/m}^1$
- od POS 3, 4 $P_3 = P_4 = 2 \times 27.0 = 54.0 \text{ kN}$



POS 5, POS S1, POS S2 – povremeno opterećenje

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