

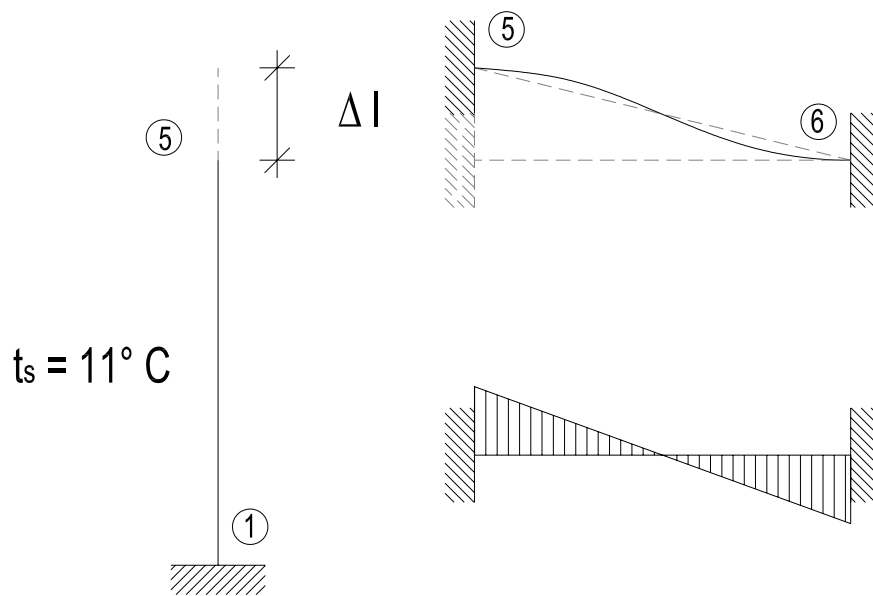
$b/h \text{ (stup)} = 0,3/0,3 \text{ m}$
 $b/h \text{ (greda)} = 0,3/0,6 \text{ m}$
 $E = 3 \cdot 10^7 \text{ kN/m}^2$
 $\alpha_t = 10^{-5} \text{ K}^{-1}$

$k_I = k_{II} = k_{III} = k_{IV} = k_{VIII} = k_{IX} = EI_S / 3,43 = 5903,79 \text{ kNm}$
 $k_V = k_{VI} = k_{VII} = k_X = EI_G / 3,19 = 50\,783,70 \text{ kNm}$

$k_6 = k_7 = 2 \cdot 5903,79 + 2 \cdot 50\,783,70 = 113\,374,98 \text{ kNm}$
 $k_5 = k_8 = k_9 = k_{10} = 5903,79 + 50\,687,49 \text{ kNm},$

$\mu_{51} = 5903,79 / 56\,687,49 = 0,10$
 $\mu_{56} = 50\,783,70 / 56\,687,49 = 0,90$
 $\mu_{65} = 50\,783,70 / 113\,374,98 = 0,45$
 $\mu_{69} = 5903,79 / 113\,374,98 = 0,05$

MOMENTI UPETOSTI:

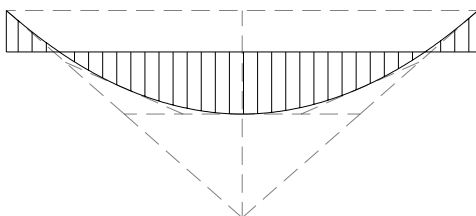
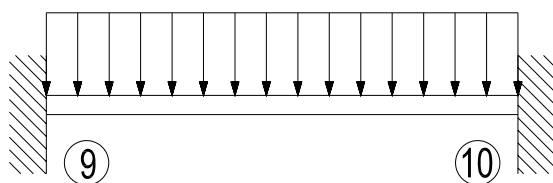


$$\Delta l = \alpha_t \Delta t l = 10^{-5} * 11 * 3,43 = 3,773 * 10^{-4} \text{ m}$$

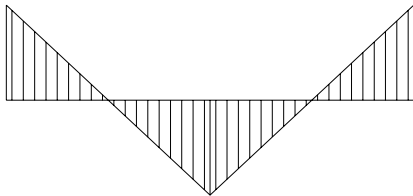
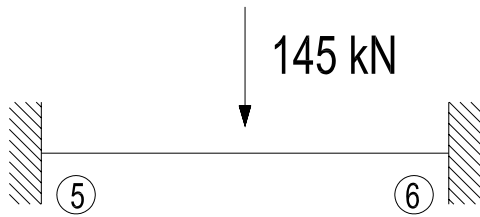
$$\Psi_{56} = -\Psi_{87} = -\frac{0,00037733}{3,19} = -1,183 * 10^{-4} \text{ rad}$$

$$\overline{M}_{56}(\Delta t) = -6 * k_{56} * \Psi_{56} = 6 * 50\,783,70 * 1,183 * 10^{-4} = 36,039 \text{ kNm}$$

17,1 kN/m'



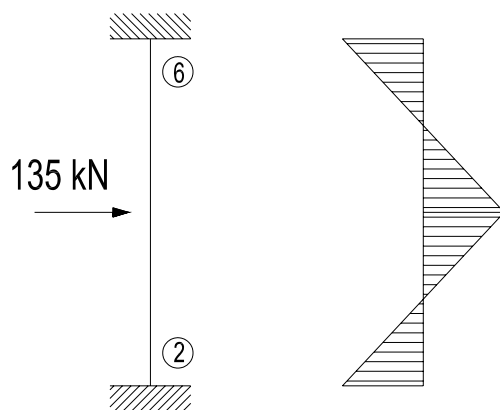
$$\overline{M}_{9,10} = -\overline{M}_{10,9} = \frac{q * l^2}{12} = \frac{17,1 * 3,19^2}{12} = 14,50 \text{ kNm}$$



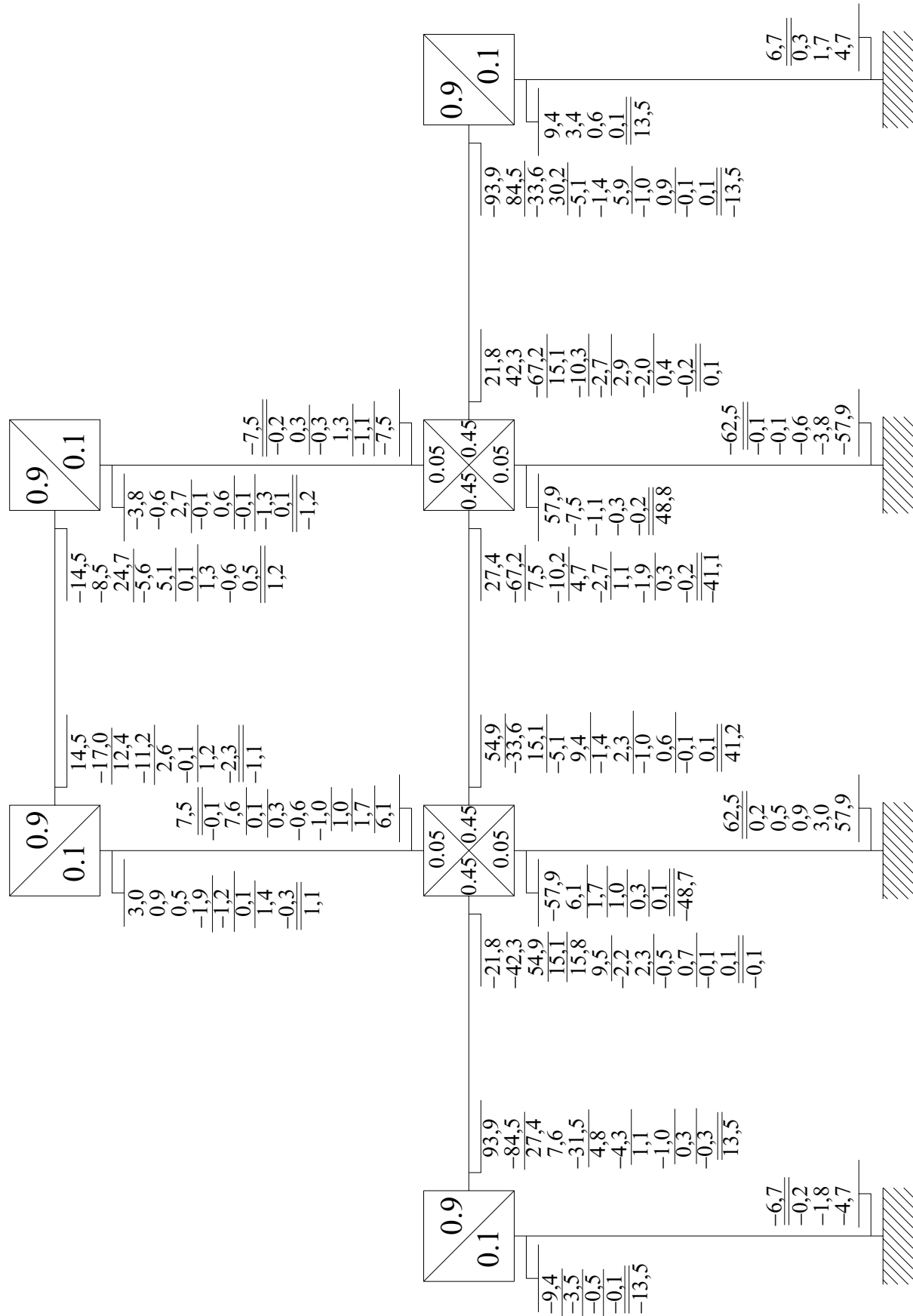
$$\overline{M}_{5,6}(P) = -\overline{M}_{6,5} = \frac{P \cdot l}{8} = \frac{145 \cdot 3,19}{8} = 57,819 \text{ kNm}$$

$$\overline{M}_{5,6} = \overline{M}_{5,6}(P) + \overline{M}_{56}(\Delta t) = 93,858 \text{ kNm}$$

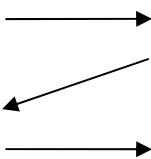
$$\overline{M}_{6,5} = \overline{M}_{6,5}(P) + \overline{M}_{6,5}(\Delta t) = -21,78 \text{ kNm}$$



$$\overline{M}_{2,6}(P) = -\overline{M}_{6,2} = \frac{P \cdot l}{8} = \frac{135 \cdot 3,43}{8} = 57,88 \text{ kNm}$$



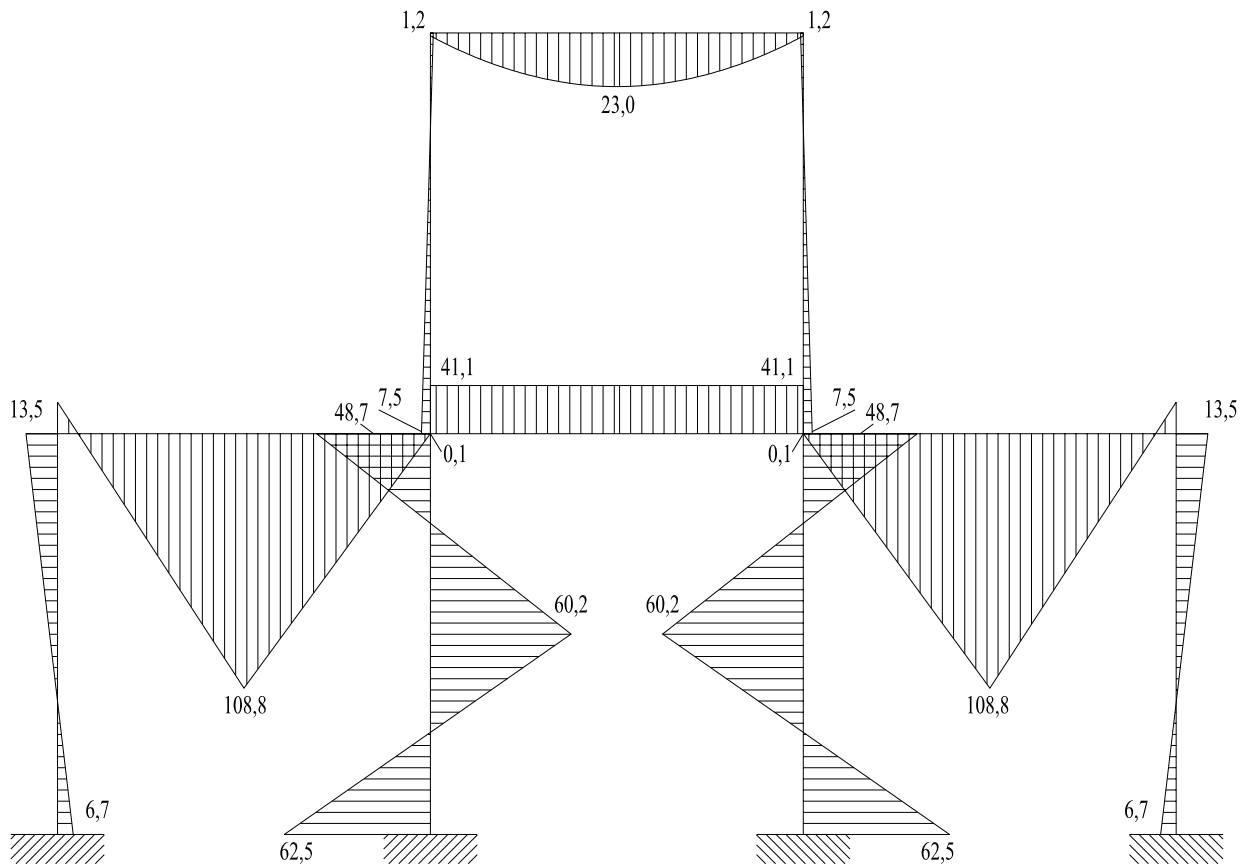
RAZDIOBA MOMENATA;

⑤	$-93,9 * 0,9 = -84,5 \text{ kNm}$ $-93,9 * 0,1 = -9,4 \text{ kNm}$		⑥	$122 * 0,45 = 54,9 \text{ kNm}$ $122 * 0,05 = 6,1 \text{ kNm}$
⑧	$93,9 * 0,9 = 84,5 \text{ kNm}$ $93,9 * 0,1 = 9,4 \text{ kNm}$		⑦	$-149,4 * 0,45 = -67,2 \text{ kNm}$ $-149,4 * 0,05 = -7,5 \text{ kNm}$
⑥	$33,6 * 0,45 = 15,1 \text{ kNm}$ $33,6 * 0,05 = 1,7 \text{ kNm}$		⑤	$-35 * 0,9 = -31,5 \text{ kNm}$ $-35 * 0,1 = -3,5 \text{ kNm}$
⑧	$33,6 * 0,9 = 30,2 \text{ kNm}$ $33,6 * 0,1 = 3,4 \text{ kNm}$		⑦	$-22,7 * 0,45 = -10,2 \text{ (-10,3)}$ $-22,7 * 0,05 = -1,1 \text{ kNm}$
⑥	$20,9 * 0,45 = 9,4 \text{ (9,5) kNm}$ $20,9 * 0,05 = 1,0 \text{ kNm}$		⑨	$-18,9 * 0,9 = -17,0 \text{ kNm}$ $-18,9 * 0,1 = -1,9 \text{ kNm}$
⑩	$27,4 * 0,9 = 24,7 \text{ kNm}$ $27,4 * 0,1 = 2,7 \text{ kNm}$		⑨	$-12,4 * 0,9 = -11,2 \text{ kNm}$ $-12,4 * 0,1 = -1,2 \text{ kNm}$
⑦	$-6,0 * 0,45 = -2,7 \text{ kNm}$ $-6,0 * 0,05 = -0,3 \text{ kNm}$		⑧	$6,5 * 0,9 = 5,9 \text{ kNm}$ $6,5 * 0,1 = 0,6 \text{ kNm}$
⑩	$5,7 * 0,9 = 5,1 \text{ kNm}$ $5,7 * 0,1 = 0,6 \text{ kNm}$		⑤	$-4,8 * 0,9 = -4,3 \text{ kNm}$ $-4,8 * 0,1 = -0,5 \text{ kNm}$
⑥	$5,2 * 0,45 = 2,3 \text{ kNm}$ $5,2 * 0,05 = 0,3 \text{ kNm}$		⑦	$-4,3 * 0,45 = -1,9 \text{ (-2,0)}$ $-4,3 * 0,05 = -0,2 \text{ kNm}$
⑤	$-1,1 * 0,9 = -1,0 \text{ kNm}$ $-1,1 * 0,1 = -0,1 \text{ kNm}$		⑥	$1,5 * 0,45 = 0,7 \text{ (0,6) kNm}$ $1,5 * 0,05 = 0,1 \text{ kNm}$
⑧	$1,0 * 0,9 = 0,9 \text{ kNm}$ $1,0 * 0,1 = 0,1 \text{ kNm}$			

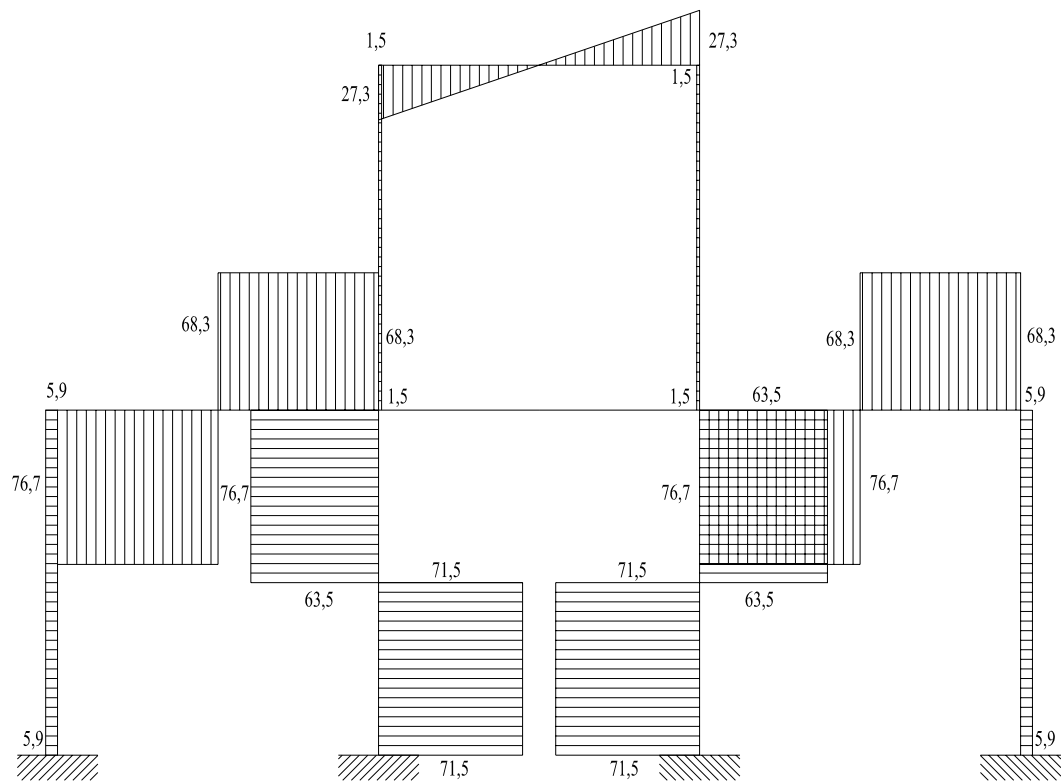
Uravnoteženje čvora ⑨

⑨	$-2,6 * 0,9 = -2,3 \text{ kNm}$ $-2,6 * 0,1 = -0,3 \text{ kNm}$	⑩	$0,6 * 0,9 = 0,5 \text{ kNm}$ $0,6 * 0,1 = 0,1 \text{ kNm}$
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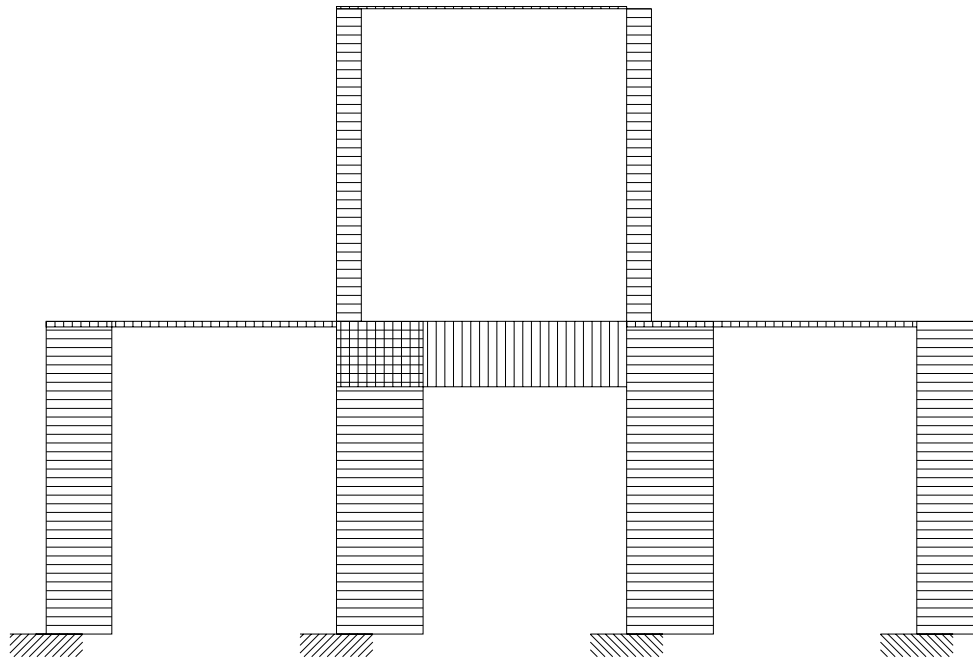
M - DIJAGRAM



T - DIJAGRAM

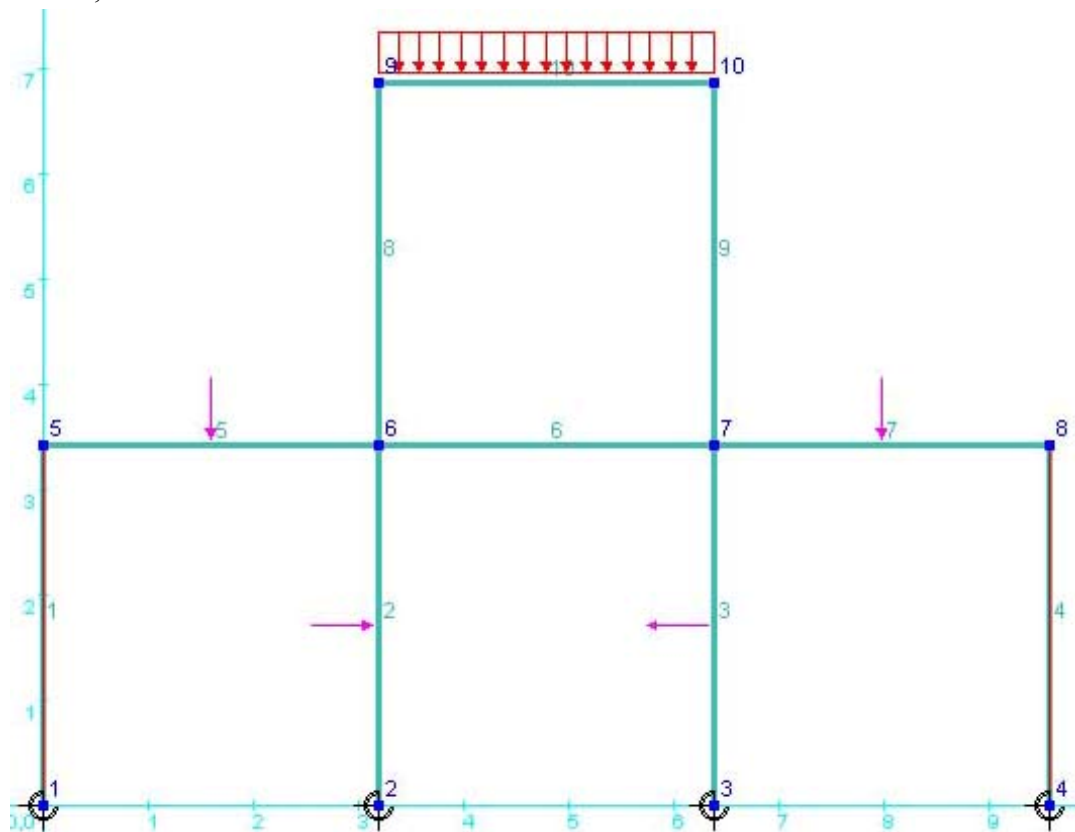


N – DIJAGRAM



PROVJERA REZULTATA U DiM-u :

Sistem;



Analiza;

Degrees of Freedom: 18

Nodal displacements:

nd	u_i	v_i	phi_i
1:	0	0	0
2:	0	0	0
3:	0	0	0
4:	0	0	0
5:	2.47909e-05	0.000279522	-0.000603765
6:	2.11957e-05	-0.000121074	0.000399387
7:	-2.11957e-05	-0.000121074	-0.000399387
8:	-2.47909e-05	0.000279522	0.000603765
9:	-7.16561e-07	-0.000155723	-0.000151702
10:	7.16561e-07	-0.000155723	0.000151702

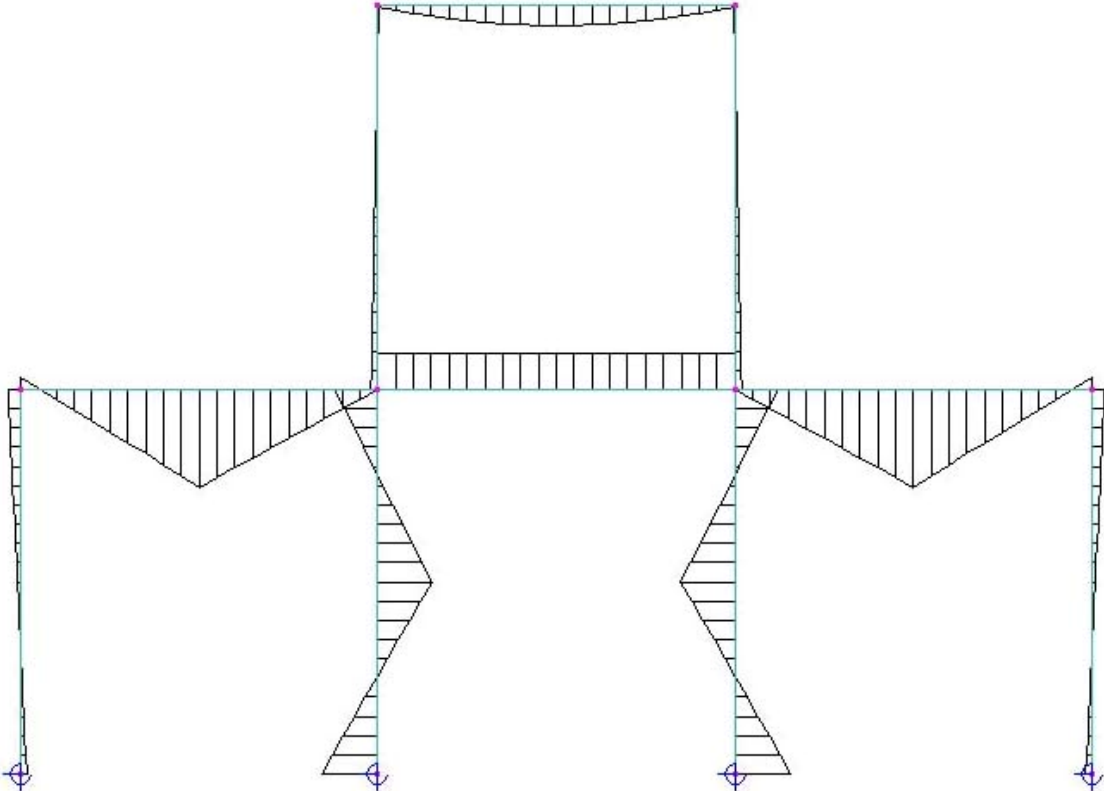
Element end forces:

el	N_ij	T_ij	M_ij	N_ji	T_ji	M_ji
1:	76.9683	-6.08599	-6.87297	-76.9683	6.08599	-14.002
2:	95.3062	71.7522	62.8159	-95.3062	63.2478	-48.2308
3:	95.3062	-71.7522	-62.8159	-95.3062	-63.2478	48.2308
4:	76.9683	6.08599	6.87297	-76.9683	-6.08599	14.002
5:	6.08599	76.9683	14.002	-6.08599	68.0317	0.251981
6:	71.7597	0	40.5647	-71.7597	0	-40.5647
7:	6.08599	68.0317	-0.251981	-6.08599	76.9683	-14.002
8:	27.2745	2.42598	7.41406	-27.2745	-2.42598	0.907034
9:	27.2745	-2.42598	-7.41406	-27.2745	2.42598	-0.907034
10:	-2.42598	27.2745	-0.907034	2.42598	27.2745	0.907034

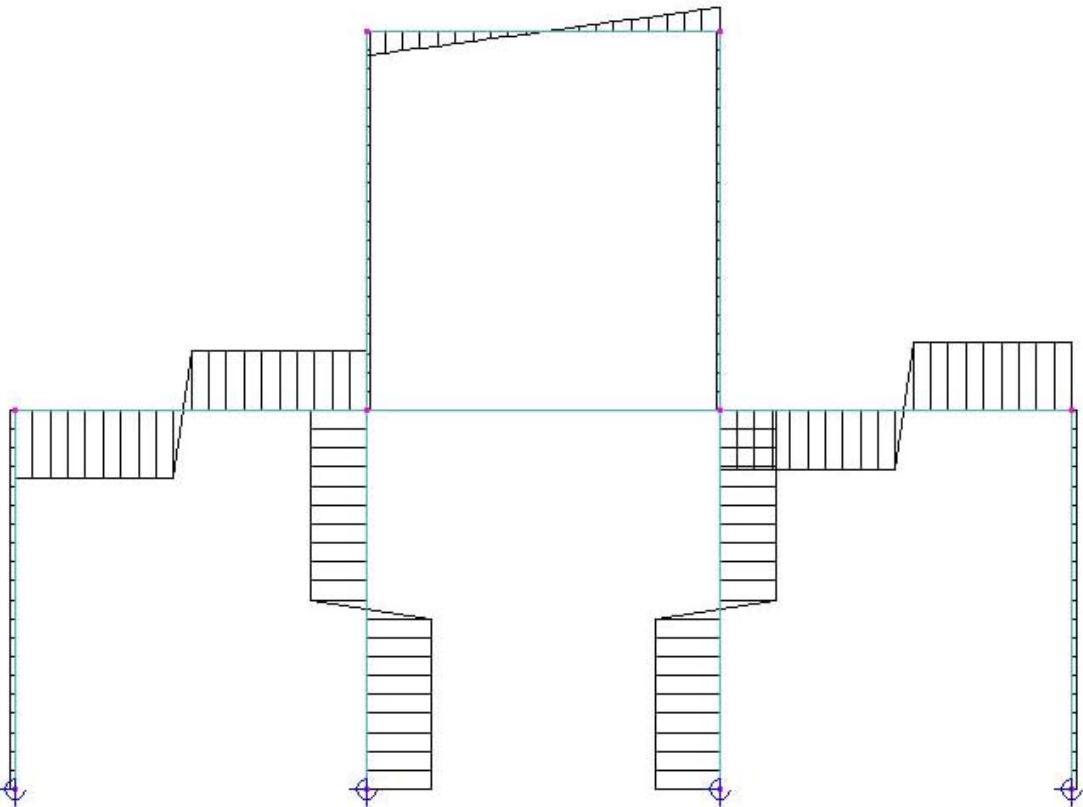
Reactions:

nd	R_x	R_y	M
1:	6.08599	76.9683	-6.87297
2:	-71.7522	95.3062	62.8159
3:	71.7522	95.3062	-62.8159
4:	-6.08599	76.9683	6.87297

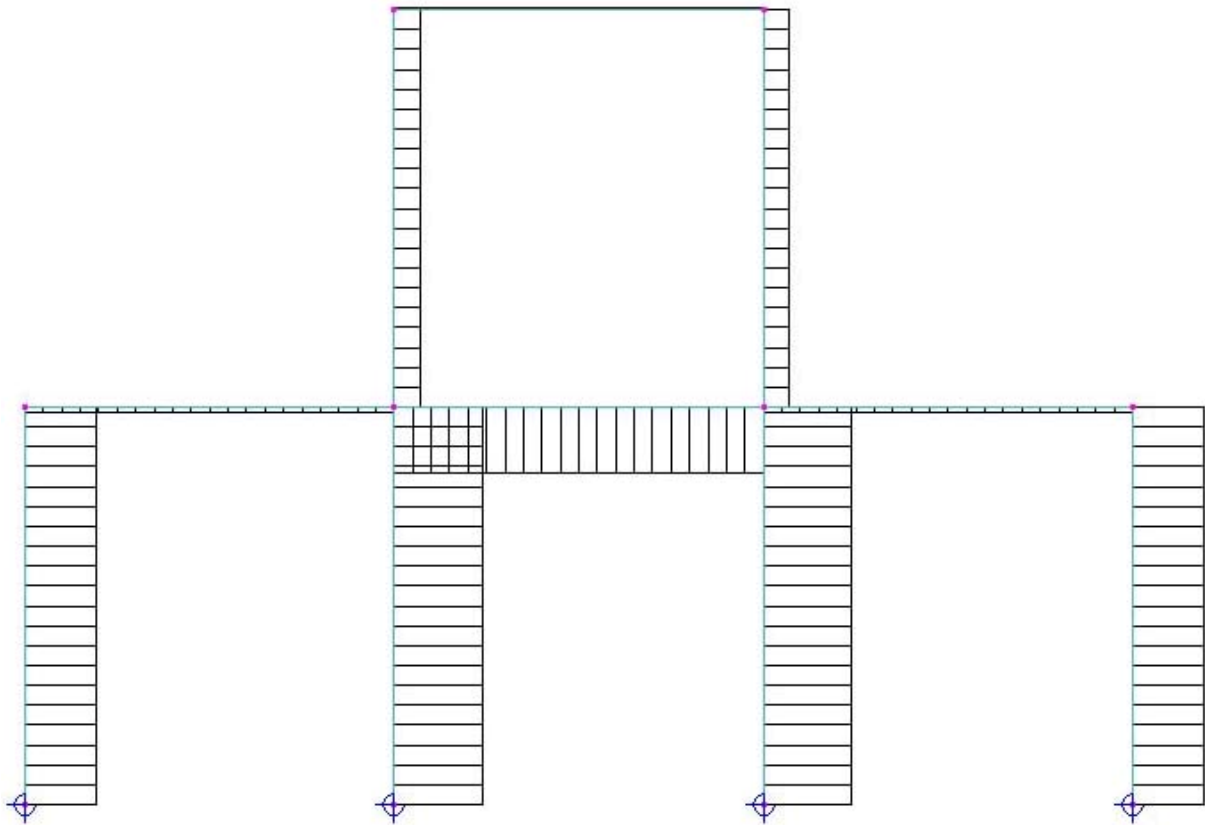
M-dijagram;



T-dijagram;



N-dijagram;



Pomaci;

