OBTEŽBA S SNEGOM

SIST EN 1991 - 1 - 3 EC 1

KRAJ: Rogatec

nadm. viš. A= 234.00 m

cona A2

TLA:

sk=1.293*[1+(A/728)^2]

sk= 1.43 kN/m2

STREHA 1:

naklon 1: 0.00 °

oblikovni faktor μ1-1: 0.80

s (μ1-1)= 1.14 kN/m2

STREHA 2:

naklon 2: 0.00 °

oblikovni faktor μ1-2: 0.80

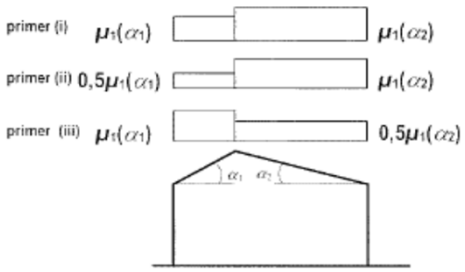
s (μ1-2)= 1.14 kN/m2

VEČLADIJSKA STREHA (1-2):

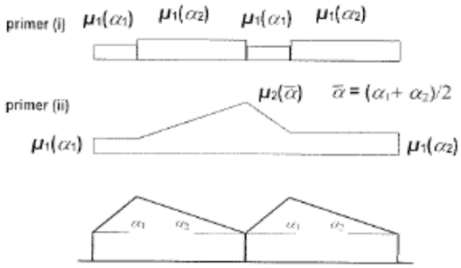
povp. naklon : 0 °

oblikovni faktor μ2: 0.80

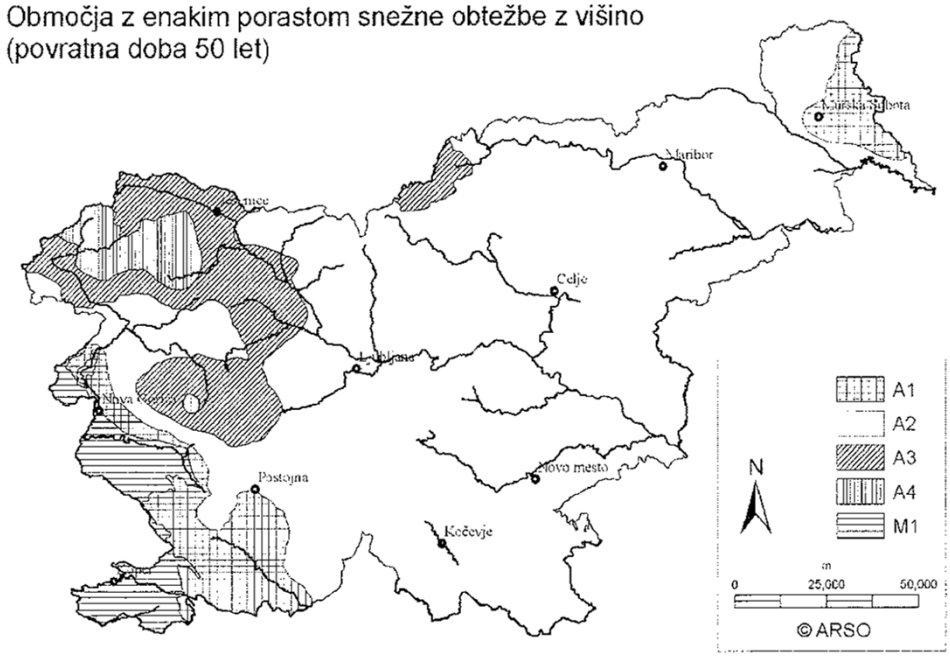
s (μ2)= 1.14 kN/m2



Slika 5.3: Oblikovni koeficient obtežbe snega pri dvokapnici



Slika 5.4: Oblikovna koeficienta obtežbe snega pri večladijskih strehah



OBTEŽBA Z VETROM

SIST EN 1991 - 1 - 4 EC 1
KRAJ: Rogatec
nadm. viš. A= 234.00 m
cona 1

$v_{b,0}$=vb= 20.00 m/s *-osnovna hitr. Vetra (4.1)*
q_b= 0.25 kN/m2 *-osnovni tlak vetra (4.10)*

Kategorije terena in terenski parametri:

	ktg	zo	z min
Morsko ali obalno področje, izpostavljeno proti odprtemu morju	0	0.003	1.000
Jezersko ali ravninsko področje z zanemarljivim rastlinjem in brez ovir	I	0.010	1.000
Področje z nizkim rastlinjem in posameznimi ovirami na razd. najmanj 20 višin	II	0.050	2.000
Področje z ojačanim rastlinjem ali stavbami ali s posameznimi ovirami na razd. največ 20 višin ovir	III	0.300	5.000
Področje, kjer je najmanj 15% površine pokrite s stavbami s povprečno višino več kot 15m	IV	1.000	10.000

kategorija terena: III zo= 0.30 z min= 5.00 kr= 0.22 *(4.5)*
cr(z min)= 0.61 *(4.4)*
Iv(z min)= 0.36 *(4.7)*

Referenčna višina za zunanji tlak "ze" (7.2.2):

h= **10.00** m *-višina objekta*
b=Ly= **15.00** m *-širina objekta v X smeri* za veter X: h<=b
d=Lx= **15.00** m *-širina objekta v Y smeri* za veter Y: h<=d

Veter smer X		**Veter smer Y**	
h/Ly=	0.67	h/Lx=	0.67
ze1=h=	10.00 m	ze1=h=	10.00 m
ze2=Ly(Ly<h)=	0.00 m	ze2=Lx(Lx<h)=	0.00 m

Največji tlak pri sunkih vetra:

Veter smer X		Veter smer Y		
Co(ze1)=	1	Co(ze1)=	1	
Cr(ze1)=	0.76	Cr(ze1)=	0.76	*(4.4)*
vm(ze1)=	15.11	vm(ze1)=	15.11	*(4.3)*
Iv(ze1)=	0.29	Iv(ze1)=	0.29	*(4.7)*
qp(ze1)=	**0.43**	**qp(ze1)=**	**0.43**	*(4.8)*
Veter smer X		Veter smer Y		
Co(ze2)=	*1 infor.*	*Co(ze2)=*	*1 infor.*	
Cr(ze2)=	*0.61 infor.*	*Cr(ze2)=*	*0.61 infor.*	*(4.4)*
vm(ze2)=	*12.12 infor.*	*vm(ze2)=*	*12.12 infor.*	*(4.3)*
Iv(ze2)=	*0.36 infor.*	*Iv(ze2)=*	*0.36 infor.*	*(4.7)*
qp(ze2)=	***0.32 infor.***	***qp(ze2)=***	***0.32 infor.***	*(4.8)*

Koeficienti zunanjih tlakov $c_{pe,10}$

STENE *(7.2.2.(2))*

Veter smer X					Veter smer Y				
h=	10.00	m			h=	10.00	m		
b=Ly=	15.00	m			b=Lx=	15.00	m		
d=Lx=	15.00	m			d=Ly=	15.00	m		
h/d=h/Lx=	0.67				h/b=h/Ly=	0.67			
ex=	15.00	ex=>d			ey=	15.00	ey=>b		
A=	-1.2	A*qp(ze1)=	-0.51		A=	-1.2	A*qp(ze1)=	-0.51	
B=	-0.8	B*qp(ze1)=	-0.34		B=	-0.8	B*qp(ze1)=	-0.34	
C=	-0.5	C*qp(ze1)=	-0.21		C=	-0.5	C*qp(ze1)=	-0.21	
D=	0.8	D*qp(ze1)=	0.34		D=	0.8	D*qp(ze1)=	0.34	
E=	-0.5	E*qp(ze1)=	-0.21		E=	-0.5	E*qp(ze1)=	-0.21	

DVOKAPNICE *(7.2.5)*

Veter smer X - pravokotno na sleme					Veter smer Y - vzporedno s slemenom				
h=	10.00	m			h=	10.00	m		
b=Ly=	15.00	m			b=Ly=	15.00	m		
d=Lx=	15.00	m			d=Lx=	15.00	m		
naklon α =	35.00	stop			naklon α =	35.00	stop		
ex=	15.00	m			ey=	15.00	m		
F=	0.70	F*qp(ze1)=	0.30		F=	-1.10	F*qp(ze1)=	-0.47	
G=	0.70	G*qp(ze1)=	0.30		G=	-1.40	G*qp(ze1)=	-0.60	
H=	0.47	H*qp(ze1)=	0.20		H=	-0.83	H*qp(ze1)=	-0.36	
I=	-0.33	I*qp(ze1)=	-0.14		I=	-0.50	I*qp(ze1)=	-0.21	
J=	-0.43	J*qp(ze1)=	-0.19						

ENOKAPNICE

Veter smer X - pravokotno na sleme - q=0					Veter smer Y - vzporedno s slemenom				
h=	10.00	m			h=	10.00	m		
b=Ly=	15.00	m			b=Ly=	15.00	m		
d=Lx=	15.00	m			d=Lx=	15.00	m		
naklon α =	35.00	stop			naklon α =	35.00	stop		
ex=	15.00	m			ey=	15.00	m		
F=	0.70	F*qp(ze1)=	0.30		Fup=	-1.90	ıp*qp(ze1)=	-0.81	
G=	0.70	G*qp(ze1)=	0.30		Flow=	-1.30	w*qp(ze1)=	-0.56	
H=	0.47	H*qp(ze1)=	0.20		G=	-1.47	G*qp(ze1)=	-0.63	
Veter smer X - pravokotno na sleme - q=180					H=	-1.00	H*qp(ze1)=	-0.43	
F=	-0.93	F*qp(ze1)=	-0.40		I=	-0.83	I*qp(ze1)=	-0.35	
G=	-0.70	G*qp(ze1)=	-0.30						
H=	-0.77	H*qp(ze1)=	-0.33						

Koeficienti notranjih tlakov c_{pi}

	c_{pi}	qp(ze1)	$w_i = c_{pi} * qp(ze1)$	
nadtlak	-0.20	0.43	-0.09	kN/m^2
podtlak	0.30	0.43	0.13	kN/m^2

REZULTIRAJOČI TLAKI (zunanji + notranji) [kN/m2]:

STENE

Veter smer X				Veter smer Y			
površina	zun. tlak	ner. notr. tlak	SKUPAJ	površina	zun. tlak	ner. notr. tlak	SKUPAJ
A=	-0.51	-0.09	-0.60	A=	-0.51	-0.09	-0.60
B=	-0.34	-0.09	-0.43	B=	-0.34	-0.09	-0.43
C=	-0.21	-0.09	-0.30	C=	-0.21	-0.09	-0.30
D=	0.34	0.13	0.47	D=	0.34	0.13	0.47
E=	-0.21	-0.09	-0.30	E=	-0.21	-0.09	-0.30

DVOKAPNICE

Veter smer X - pravokotno na sleme				Veter smer Y - vzporedno s slemenom			
površina	zun. tlak	ner. notr. tlak	SKUPAJ	površina	zun. tlak	ner. notr. tlak	SKUPAJ
F=	0.30	0.13	0.43	F=	-0.47	-0.09	-0.56
G=	0.30	0.13	0.43	G=	-0.60	-0.09	-0.68
H=	0.20	0.13	0.33	H=	-0.36	-0.09	-0.44
I=	-0.14	-0.09	-0.23	I=	-0.21	-0.09	-0.30
J=	-0.19	-0.09	-0.27				

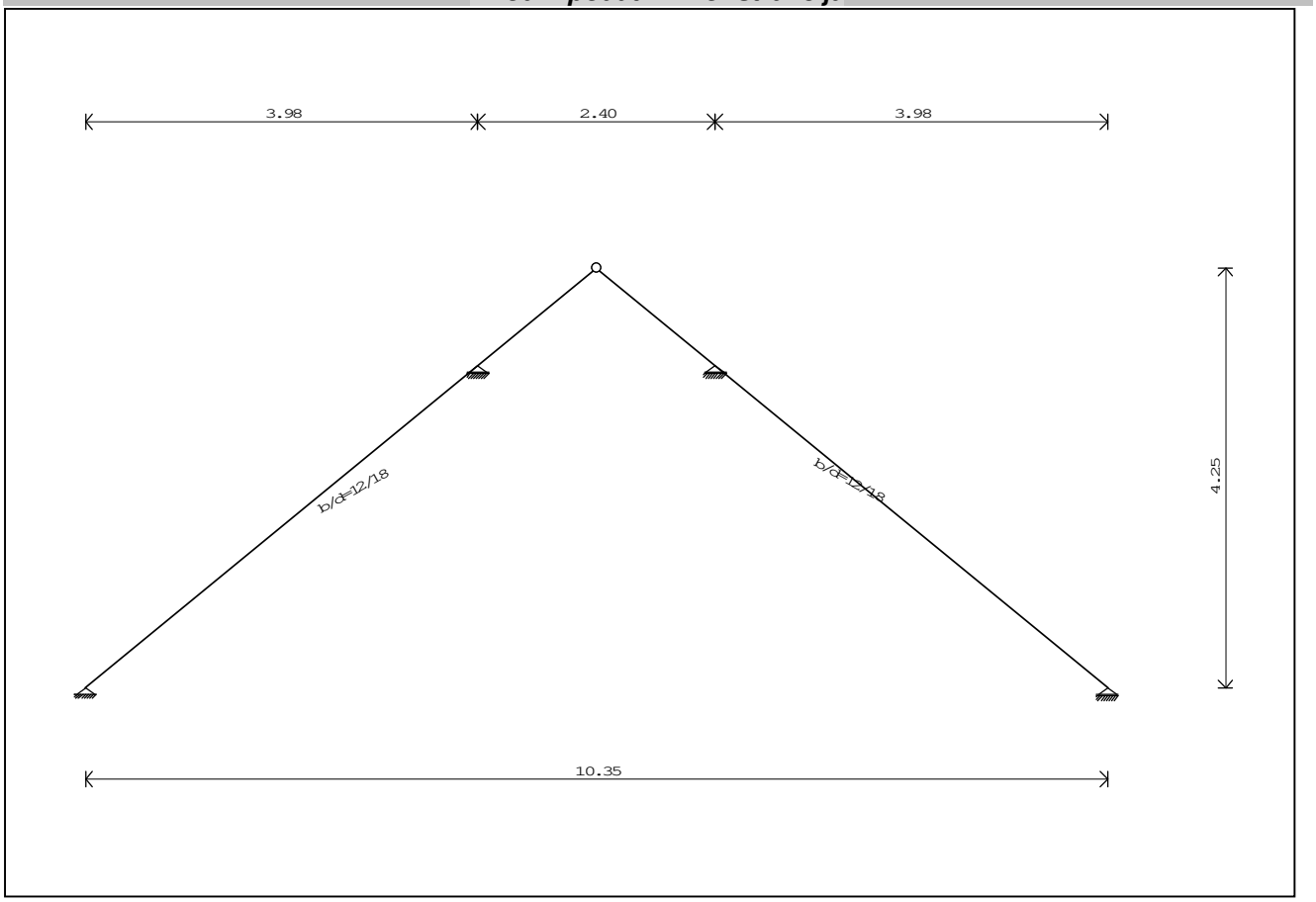
ENOKAPNICE

Veter smer X - pravokotno na sleme - q=0				Veter smer Y - vzporedno s slemenom			
F=	0.30	0.13	0.43	Fup=	-0.81	-0.09	-0.90
G=	0.30	0.13	0.43	Flow=	-0.56	-0.09	-0.64
H=	0.20	0.13	0.33	G=	-0.63	-0.09	-0.71
Veter smer X - pravokotno na sleme - q=180				H=	-0.43	-0.09	-0.51
F=	-0.40	-0.09	-0.48	I=	-0.35	-0.09	-0.44
G=	-0.30	-0.09	-0.38				
H=	-0.33	-0.09	-0.41				

STATIČNI PRERAČUN

1. ŠPIROVEC

Vhodni podatki - Konstrukcija



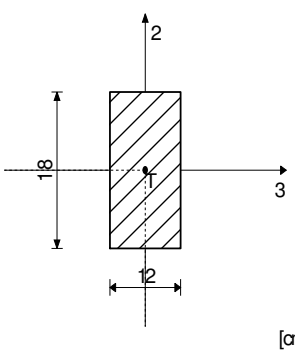
Tabele materialov

No	Naziv materiala	E[kN/m2]	μ	γ[kN/m3]	αt[1/C]	Em[kN/m2]	μm
1	Les-Iglavci-Lamelirani	1.100e+7	0.20	5.00	1.000e-5	1.100e+7	0.20

Seti gred

Set: 1 Prerez: b/d=12/18, Fiktivna ekscentričnost

Mat.	A1	A2	A3	I1	I2	I3
1 - Les-Iglavci-L...	2.160e-2	1.800e-2	1.800e-2	6.085e-5	2.592e-5	5.832e-5



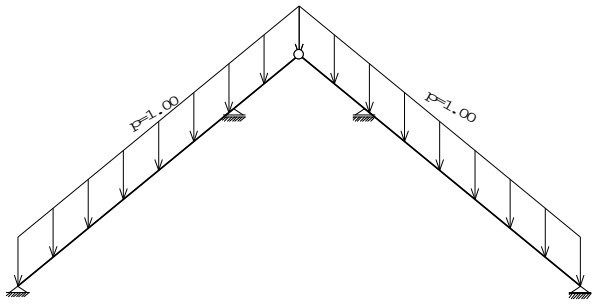
[cm]

Vhodni podatki - Obtežba

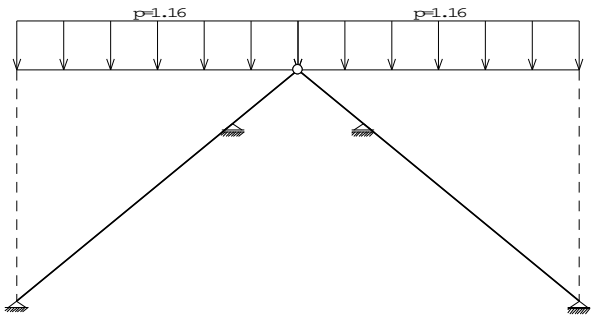
Lista obtežnih primerov

LC	Naziv
1	g (g)
2	s
3	s asim
4	w
5	w asim
6	Komb.: 1.35xI+1.5xIII+0.9xV
7	Komb.: 1.35xI+1.5xIII+0.9xIV
8	Komb.: 1.35xI+1.5xII+0.9xV
9	Komb.: 1.35xI+1.5xII+0.9xIV
10	Komb.: 1.35xI+0.75xIII+1.5xV
11	Komb.: 1.35xI+0.75xIII+1.5xIV
12	Komb.: 1.35xI+0.75xII+1.5xV
13	Komb.: 1.35xI+0.75xII+1.5xIV
14	Komb.: I+1.5xIII+0.9xV
15	Komb.: I+1.5xIII+0.9xIV
16	Komb.: I+1.5xII+0.9xV
17	Komb.: I+1.5xII+0.9xIV
18	Komb.: I+0.75xIII+1.5xV
19	Komb.: I+0.75xIII+1.5xIV
20	Komb.: I+0.75xII+1.5xV
21	Komb.: I+0.75xII+1.5xIV
22	Komb.: 1.35xI+1.5xV
23	Komb.: 1.35xI+1.5xIV
24	Komb.: 1.35xI+1.5xIII
25	Komb.: 1.35xI+1.5xII
26	Komb.: I+1.5xV
27	Komb.: I+1.5xIV
28	Komb.: I+1.5xIII
29	Komb.: I+1.5xII
30	Komb.: 1.35xI
31	Komb.: I+II+IV
32	Komb.: I+III+V

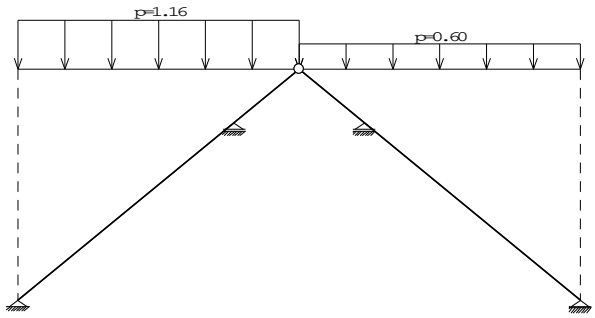
Obt. 1: g (g)



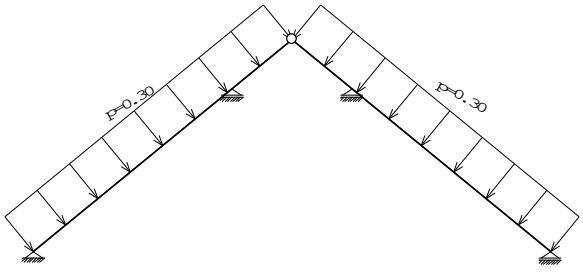
Obt. 2: s



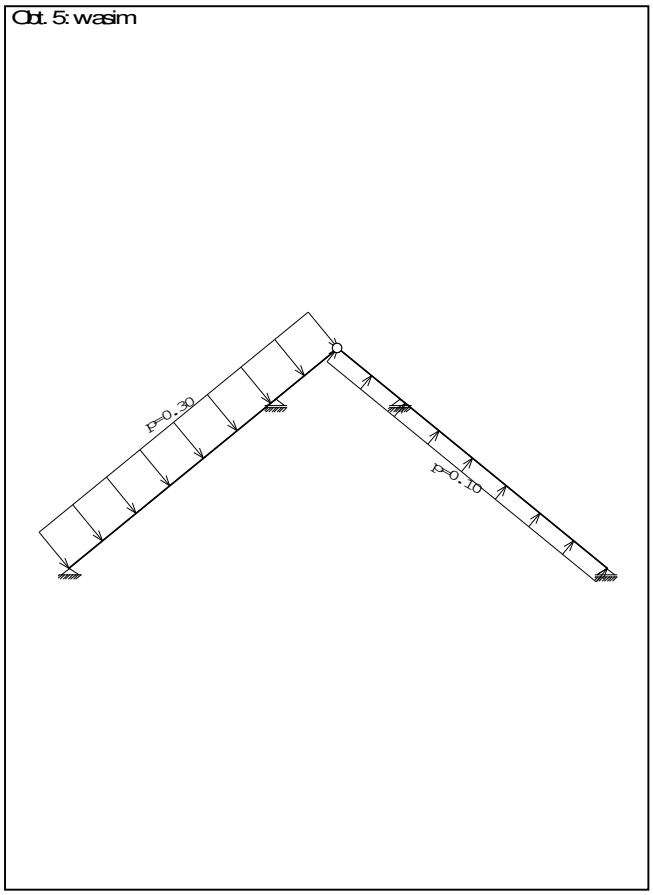
Obt. 3: s asim



Obt. 4: w

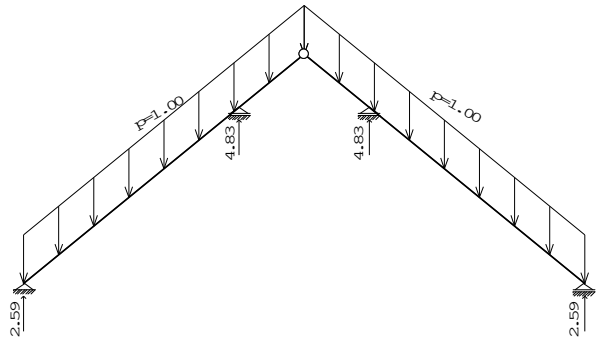


Obt. 5: wasim



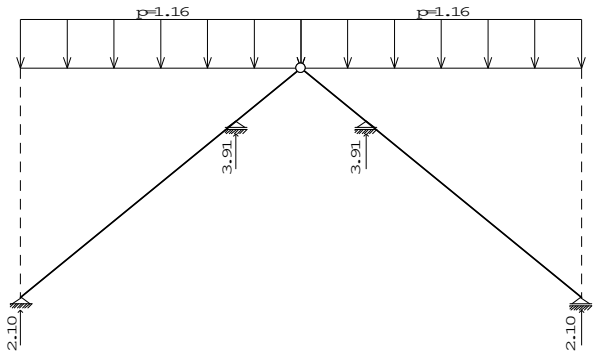
Statični preračun

Obt. 1: g (g)



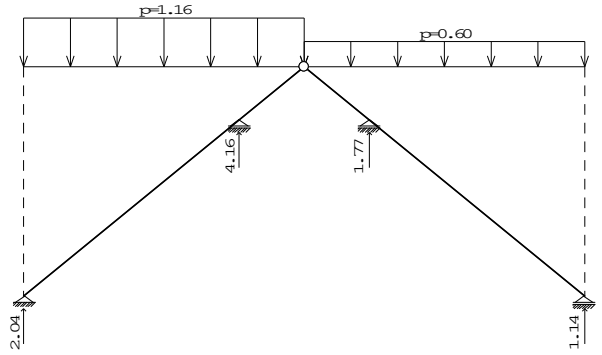
Reakcije podpor

Obt. 2: s



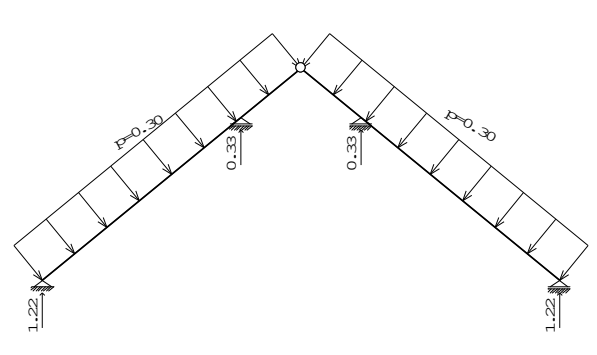
Reakcije podpor

Obt. 3: s asim



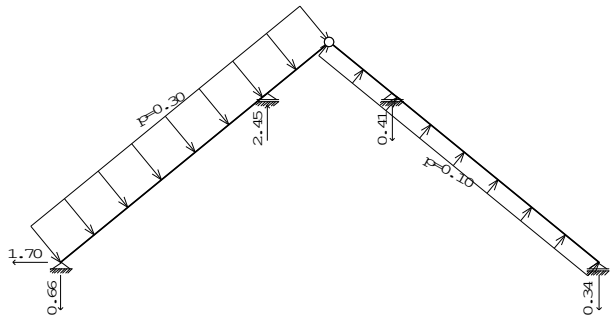
Reakcije podpor

Obt. 4: w



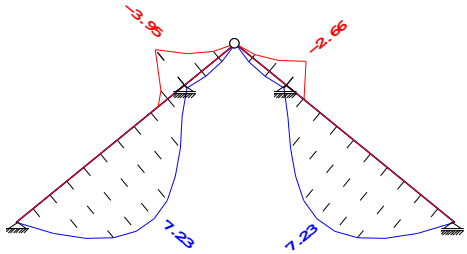
Reakcije podpor

Obt. 5: wasim



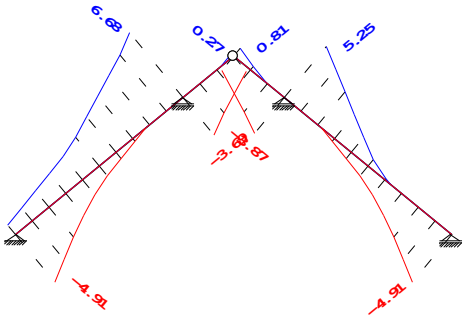
Reakcije podpor

Obt. 33: [msn] 6-30



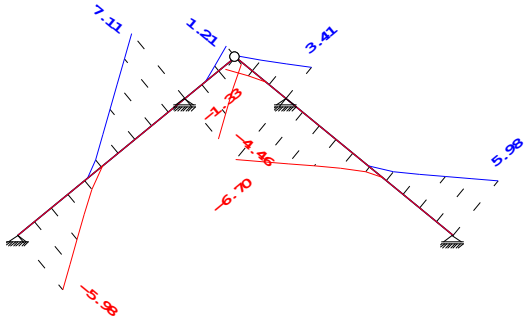
Vplivi v gredi: max MB= 7.23 / min MB= -3.95 kNm

Obt. 33: [msn] 6-30



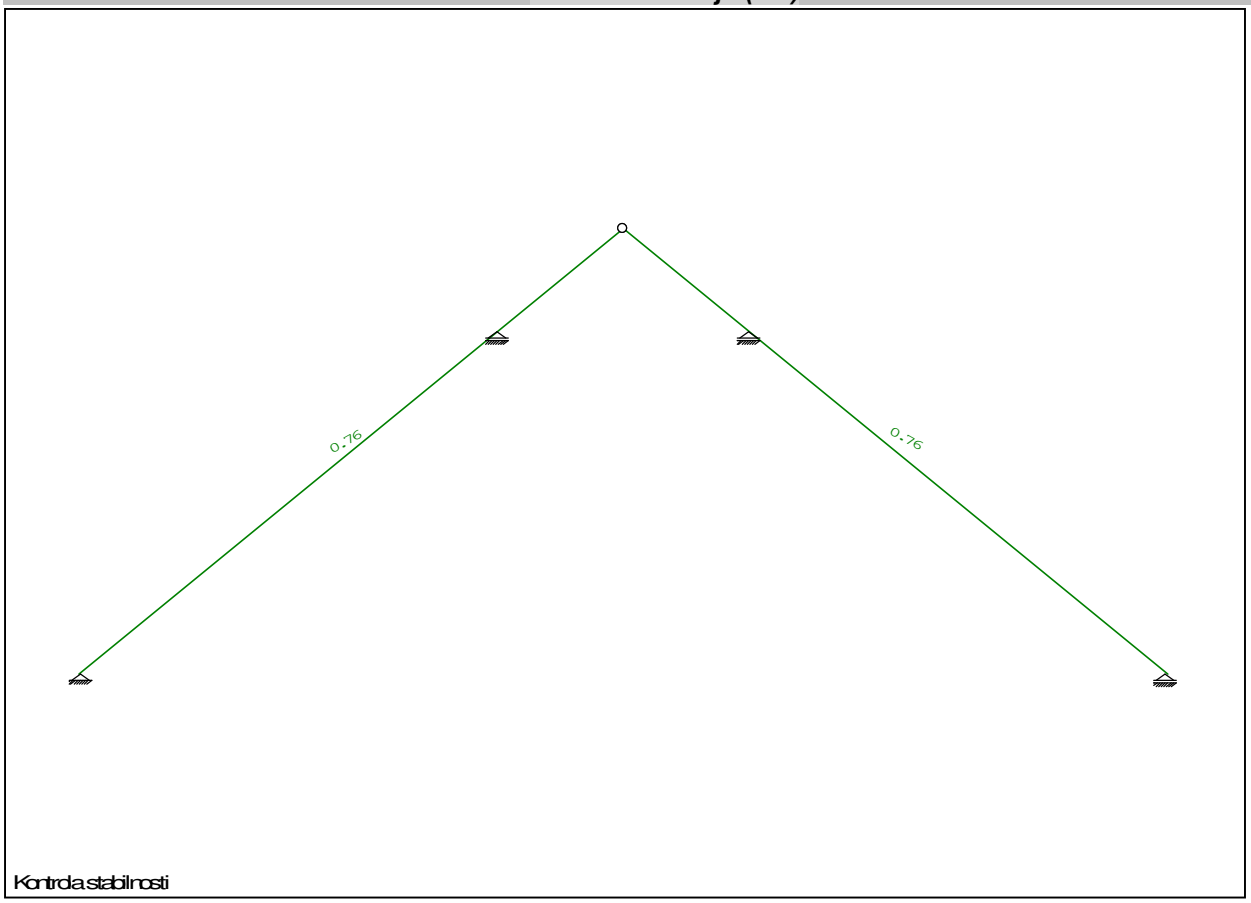
Vplivi v gredi: max N1= 6.68 / min N1= -4.91 kN

Obt. 33: [msn] 6-30

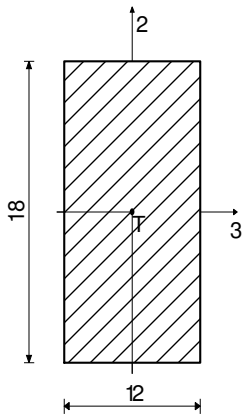


Vplivi v gredi: max T2= 7.11 / min T2= -6.70 kN

Dimenzioniranje (les)



PALICA 1-3
Monoliten les - iglavci in mehki listavci - C24
Eksploatacijski razred 2
EUROCODE



[cm]

FAKTORJI IZKORIŠČENOSTI PO KOMBINACIJAH OBTEŽB

9. γ=0.76	7. γ=0.75	13. γ=0.71
11. γ=0.70	17. γ=0.68	8. γ=0.67
15. γ=0.66	6. γ=0.66	21. γ=0.63
25. γ=0.62	19. γ=0.62	24. γ=0.61
31. γ=0.60	16. γ=0.59	14. γ=0.57
23. γ=0.57	12. γ=0.56	10. γ=0.56
29. γ=0.54	28. γ=0.52	32. γ=0.49
27. γ=0.49	20. γ=0.48	18. γ=0.47
22. γ=0.42	26. γ=0.33	30. γ=0.33

KONTROLA NORMALNIH NAPETOSTI
(obtežni primer 9, na 217.6 cm od začetka palice)

Računska osna sila	N =	-0.990	kN
Prečna sila v smeri osi 2	T2 =	-0.617	kN
Upogibni moment okoli osi 3	M3 =	-7.123	kNm

KONTROLA NAPETOSTI - TLAK IN UPOGIB
Vrsta obtežbe: @1@osnovno - srednjetrajno

Korekcijski koeficient	Kmod =	0.800	
Parcialni koef. za karakteristike materiala	γm =	1.300	
Dodatek za elemente z malimi dimenzijami - os 2	Kh_2 =	1.046	
Dodatek za elemente z malimi dimenzijami - os 3	Kh_3 =	1.000	
Faktor oblik (za pravokotni prerez)	km =	0.700	
Karakteristična tlačna trdnost	fc,0,k =	21.000	MPa
Računska tlačna trdnost	fc,0,d =	12.923	MPa
Karakteristična upogibna trdnost	fm,k =	24.000	MPa
Računska upogibna trdnost - os 2	fm,2,d =	15.443	MPa
Računska upogibna trdnost - os 3	fm,3,d =	14.769	MPa
Relativna vitkost	λrel,2 =	3.278	
Relativna vitkost	λrel,3 =	3.278	
Normalne tlačne napetosti	σc,0,d =	0.046	MPa
Odpornostni moment	W3 =	648.00	cm3
Normalna upogibna napetost okoli osi 3	σm3,d =	10.992	MPa

σm3,d <= fm,3,d (10.992 <= 14.769)
Izkoriščenost prereza je 74.4%

TLAK IN UPOGIB - VELIKA VITKOST

Začetna imperfekcija	βc =	0.200
Koeficient	k3 =	3.076
Koeficient	k2 =	6.170
Koeficient	kc,3 =	0.191
Koeficient	kc,2 =	0.088

(σc,0,d / (kc_2 x fc,0,d)) + km x (σm3,d / fm,3,d) +
+ σm2,d / fm,2,d <= 1 (0.561 <= 1)
Izkoriščenost prereza je 56.1%

(σc,0,d / (kc_3 x fc,0,d)) + σm3,d / fm,3,d +
+ km x (σm2,d / fm,2,d) <= 1 (0.763 <= 1)
Izkoriščenost prereza je 76.3%

KONTROLA STRIŽNIH NAPETOSTI
(obtežni primer 6, na 514.4 cm od začetka palice)

Prečna sila v smeri osi 2	T2 =	7.108	kN

KONTROLA NAPETOSTI - STRIG
Vrsta obtežbe: @1@osnovno - srednjetrajno

Korekcijski koeficient	Kmod =	0.800	
Parcialni koef. za karakteristike materiala	γm =	1.300	
Karakteristična strižna napetost	fv,k =	2.500	MPa
Računska strižna trdnost	fv,d =	1.538	MPa
Površina prečnega prereza	A =	216.00	cm2
Dejanska strižna napetost(os 2)	τ2,d =	0.494	MPa

τ2,d <= fv,d (0.494 <= 1.538)

Izkoriščenost prereza je 32.1%

DOKAZ STABILNOSTI ELEMENTA
(obtežni primer 9, na 257.2 cm od začetka palice)

Računska osna sila	N =	-0.276	kN
Prečna sila v smeri osi 2	T2 =	0.358	kN
Upogibni moment okoli osi 3	M3 =	-7.232	kNm

DOKAZ BOČNE STABILNOSTI
Vrsta obtežbe: @1@osnovno - srednjetrajno

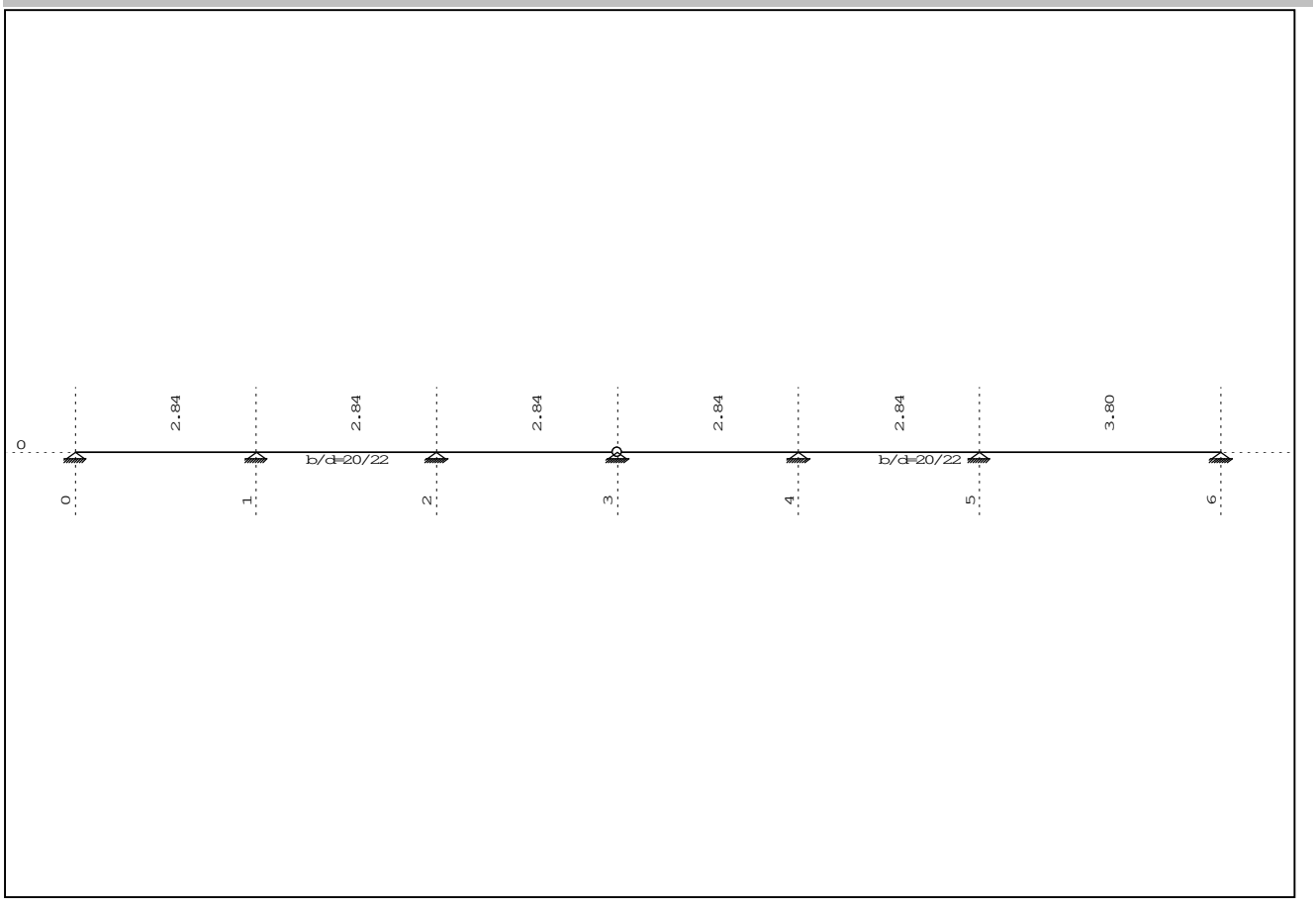
Korekcijski koeficient	Kmod =	0.800	
Parcialni koef. za karakteristike materiala	γm =	1.300	
Razmak pridržanih točk pravokotno na smer osi 2	lef =	669.65	cm
5% fraktil modula E paralelno z vlakni	E0.05 =	7400.0	MPa
5% fraktil strižnega modula G	G0.05 =	460.00	MPa
Torzijski vztrajnostni moment	Itor =	6033.1	cm4
Vztrajnostni moment	I2 =	2592.0	cm4
Odpornostni moment	W3 =	648.00	cm3
Kritična napetost uklona	σm,crit =	52.821	MPa
Relativna vitkost za uklon	λrel =	0.674	
Koeficient	k_krit =	1.000	
Normalna upogibna napetost okoli osi 3	σm3,d =	11.160	MPa

σm,3,d <= k_krit x fm,3,d (11.160 <= 14.769)

Izkoriščenost prereza je 75.6%

2. VMESNA LEGA

Vhodni podatki - Konstrukcija



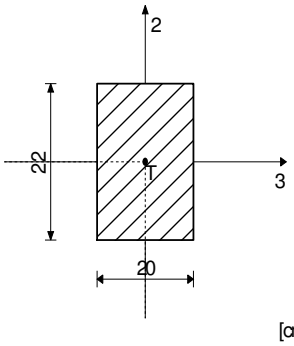
Tabele materialov

No	Naziv materiala	E[kN/m2]	μ	γ[kN/m3]	αt[1/C]	Em[kN/m2]	μm
1	Drvo	1.000e+7	0.20	5.00	1.000e-5	1.000e+7	0.20

Seti gred

Set: 1 Prerez: b/d=20/22, Fiktivna ekscentričnost

Mat.	A1	A2	A3	I1	I2	I3
1 - Drvo	4.400e-2	3.667e-2	3.667e-2	2.698e-4	1.467e-4	1.775e-4



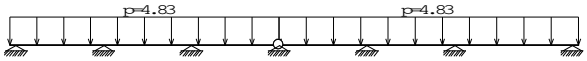
[cm]

Vhodni podatki - Obtežba

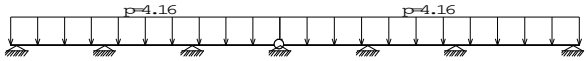
Lista obtežnih primerov

LC	Naziv
1	g (g)
2	s
3	w
4	Komb.: 1.35xI+1.5xII+0.9xIII
5	Komb.: 1.35xI+0.75xII+1.5xIII
6	Komb.: I+1.5xII+0.9xIII
7	Komb.: I+0.75xII+1.5xIII
8	Komb.: 1.35xI+1.5xIII
9	Komb.: 1.35xI+1.5xII
10	Komb.: I+1.5xIII
11	Komb.: I+1.5xII
12	Komb.: 1.35xI
13	Komb.: I+II+III

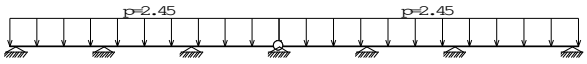
Obt. 1: g (g)



Obt. 2: s

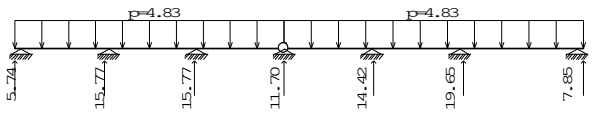


Obt. 3: w



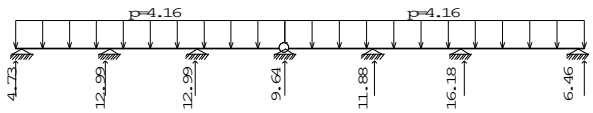
Statični preračun

Obt. 1: g (g)



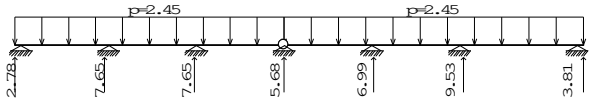
Reakcije podpor

Obt. 2: s



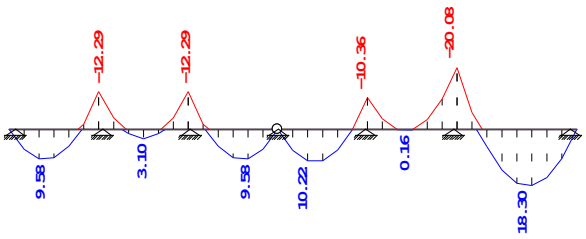
Reakcije podpor

Obt. 3: w

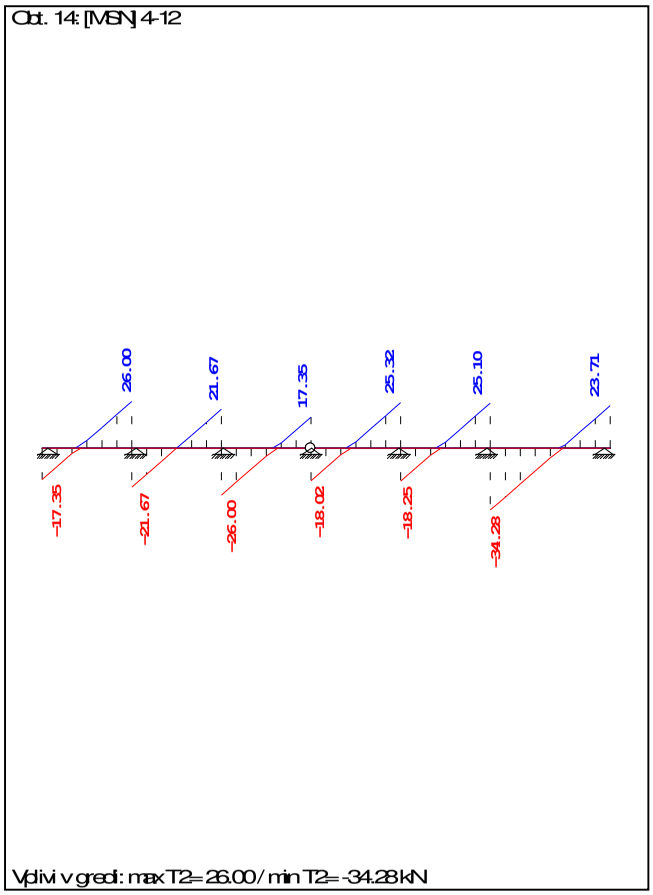


Reakcije podpor

Obt. 14: [MSN] 4-12



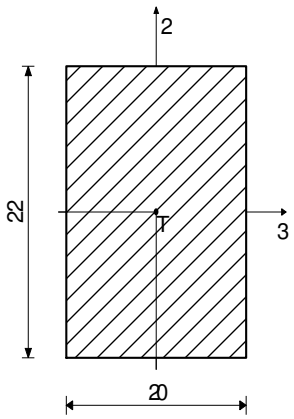
Vplivi v gredi: max MB= 18.30 / min MB= -20.08 kNm


Obt. 14: [MSN] 4-12
26.00
21.67
17.35
25.32
25.10
23.71
-17.35
-21.67
-26.00
-18.02
-18.25
-34.28
Vplivi v gredi: max T2= 26.00 / min T2= -34.28 kN

Dimenzioniranje (les)

Kontrola stabilnosti

PALICA 4-7
Monoliten les - iglavci in mehki listavci - C24
Eksploatacijski razred 2
EUROCODE



[cm]

FAKTORJI IZKORIŠČENOSTI PO KOMBINACIJAH OBTEŽB

4. γ=0.84	5. γ=0.75	6. γ=0.75
9. γ=0.72	7. γ=0.65	13. γ=0.64
11. γ=0.62	8. γ=0.58	10. γ=0.48
12. γ=0.38		

KONTROLA NORMALNIH NAPETOSTI
(obtežni primer 4, na 568.0 cm od začetka palice)

Prečna sila v smeri osi 2	T2 =	25.095	kN
Upogibni moment okoli osi 3	M3 =	20.084	kNm

KONTROLA NAPETOSTI - UPOGIB

Vrsta obtežbe: @1@osnovno - srednjetrajno			
Korekcijski koeficient	Kmod =	0.800	
Parcialni koef. za karakteristike materiala	γm =	1.300	
Dodatek za elemente z malimi dimenzijami - os 2	Kh_2 =	1.000	
Dodatek za elemente z malimi dimenzijami - os 3	Kh_3 =	1.000	
Faktor oblik (za pravokotni prerez)	km =	0.700	
Karakteristična upogibna trdnost	fm,k =	24.000	MPa
Računska upogibna trdnost	fm,d =	14.769	MPa
Odpornostni moment	W3 =	1613.3	cm3
Normalna upogibna napetost okoli osi 3	σm3,d =	12.449	MPa

σm3,d <= fm,d (12.449 <= 14.769)
Izkoriščenost prereza je 84.3%

DOKAZ BOČNE STABILNOSTI

Vrsta obtežbe: @1@osnovno - srednjetrajno			
Korekcijski koeficient	Kmod =	0.800	
Parcialni koef. za karakteristike materiala	γm =	1.300	
Razmak pridržanih točk pravokotno na smer osi 2	lef =	948.00	cm
5% fraktil modula E paralelno z vlakni	E0.05 =	7400.0	MPa
5% fraktil strižnega modula G	G0.05 =	460.00	MPa
Torzijski vztrajnostni moment	Itor =	27025	cm4
Vztrajnostni moment	I2 =	14667	cm4
Odpornostni moment	W3 =	1613.3	cm3
Kritična napetost uklona	σm,crit =	75.451	MPa
Relativna vitkost za uklon	λrel =	0.564	
Koeficient	k_krit =	1.000	
Normalna upogibna napetost okoli osi 3	σm3,d =	12.449	MPa

σm,3,d <= k_krit x fm,3,d (12.449 <= 14.769)
Izkoriščenost prereza je 84.3%

KONTROLA STRIŽNIH NAPETOSTI
(obtežni primer 4, na 568.0 cm od začetka palice)

Prečna sila v smeri osi 2	T2 =	-34.284	kN

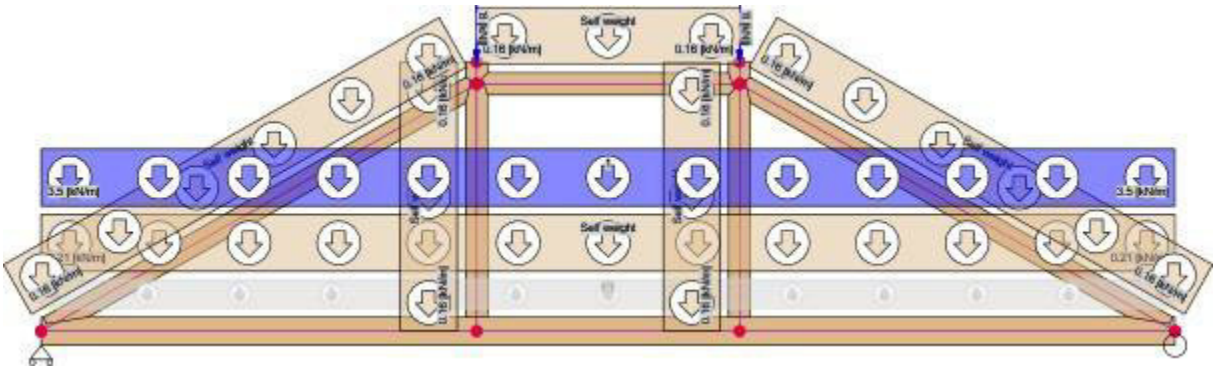
KONTROLA NAPETOSTI - STRIG

Vrsta obtežbe: @1@osnovno - srednjetrajno			
Korekcijski koeficient	Kmod =	0.800	
Parcialni koef. za karakteristike materiala	γm =	1.300	
Karakteristična strižna napetost	fv,k =	2.500	MPa
Računska strižna trdnost	fv,d =	1.538	MPa
Površina prečnega prereza	A =	440.00	cm2
Dejanska strižna napetost(os 2)	τ2,d =	1.169	MPa

τ2,d <= fv,d (1.169 <= 1.538)

Izkoriščenost prereza je 76.0%

3. TRAPEZNO VEŠALO



Design Variables

Service Class: Class 2

Partial safety factors for actions (ULS)

Name	$\gamma_{G,j,unfav}$	$\gamma_{G,j,fav}$	$\gamma_{Q,i,unfav}$	$\gamma_{Q,i,fav}$	$\gamma_{P,unfav}$	$\gamma_{P,fav}$
ULS, STR & GEO, A1	1.35	1.00	1.50	0.00	1.20	1.00

Combination factors for actions (ULS, SLS)

Name	ψ_0	ψ_1	ψ_2
Snow < 1000 m	0.50	0.20	0.00
Wind	0.60	0.20	0.00

Partial safety factors

Name	γ_M
Solid Timber	1.30

Factors for duration of load - k_{mod}

Solid Timber					
Service Class	**Permanent**	**Long Term**	**Medium Term**	**Short Term**	**Instantaneous**
Class 2	0.60	0.70	0.80	0.90	1.10

Factors for duration of load - k_{def}

Name	Class 1	Class 2	Class 3
Solid Timber	0.60	0.80	2.00

Limiting values for deflection

Structure	w_{inst}	$w_{net,fin}$	w_{fin}
Beam on two supports	1/300.0	1/250.0	1/150.0
Cantilevering beams	1/150.0	1/125.0	1/75.0

For the fire situation, $k_{mod,fi}$= 1.00.

Values of k_{fi}, for fire

	k_{fi}
Solid Timber	1.25

Partial safety factors, for fire

Name	γ_M
Timber in fire	1.00

Structure

Truss material:

Name: C24

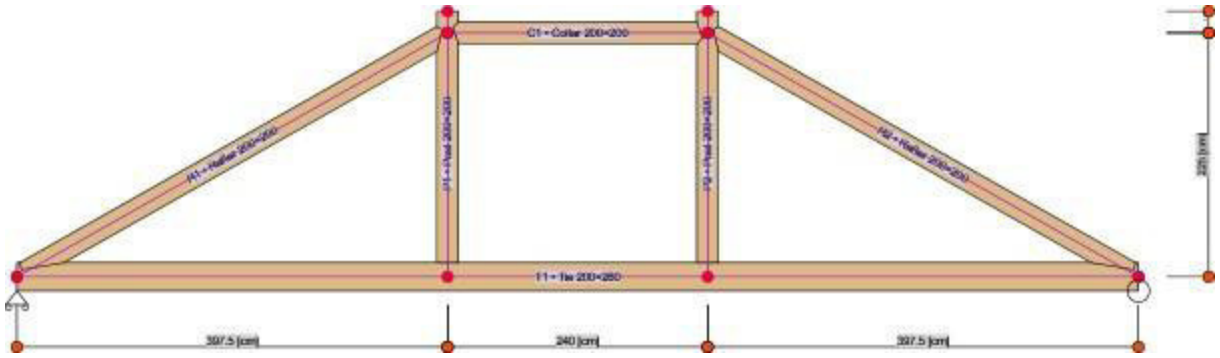
Softwood
Solid Timber
EN 338:2009
C24

$f_{m,k}$	24 [MPa]	$f_{v,k}$	4 [MPa]
$f_{t,0,k}$	14 [MPa]	$f_{t,90,k}$	0.4 [MPa]
$f_{c,0,k}$	21 [MPa]	$f_{c,90,k}$	2.5 [MPa]
$E_{0,mean}$	11000 [MPa]	$E_{0,0.05}$	7400 [MPa]
G_{mean}	690 [MPa]	$G_{0.05}$	464.2 [MPa]
ρ_{mean}	420 [kg/m3]	ρ_k	350 [kg/m3]

Truss charring rate:

Name: Default

β_0	0.65 [mm/min]	β_n	0.70 [mm/min]



Truss members

Name	W[mm]	H[mm]	Material	Ch. rate
T1 • Tie	200	260	C24	Default
P1 • Post	200	200	C24	Default
P2 • Post	200	200	C24	Default
R1 • Rafter	200	200	C24	Default
R2 • Rafter	200	200	C24	Default
C1 • Collar	200	200	C24	Default

Left end bearing: Horizontal roller.
Right end bearing: Pin.

Loads

Actions

Load Groups

Name	Class	Category (Q)	Load Duration	Coefficient	ψ_0	ψ_1	ψ_2
Stalna	G	Self-weight of structures	Permanent	1.00	-	-	-
Sneg	Q	Snow < 1000 m	Medium Term	1.00	-	-	-
Veter	Q	Wind	Short Term	1.00	-	-	-

Self weight Loads

Name	Q[kN/m]	Element	Load Group
Self weight	0.21	T1 • Tie	Stalna
Self weight	0.16	P1 • Post	Stalna
Self weight	0.16	P2 • Post	Stalna
Self weight	0.16	R1 • Rafter	Stalna
Self weight	0.16	R2 • Rafter	Stalna
Self weight	0.16	C1 • Collar	Stalna

Concentrated Loads

Name	Fx[kN]	Fy[kN]	Mz[kN×m]	Offset[cm]	Element	Load Group
1	0	-16	0	245	P1 • Post	Stalna
2	0	-16	0	245	P2 • Post	Stalna
3	0	-13	0	245	P1 • Post	Sneg
4	0	-13	0	245	P2 • Post	Sneg
6	0	-8	0	245	P1 • Post	Veter
7	0	-8	0	245	P2 • Post	Veter

Distribuited Loads

Name	Q0[kN/m]	Q1[kN/m]	Start Offset[cm]	End Offset[cm]	Element	Load Group
1	-3.5	-3.5	0	0	T1 • Tie	Stalna

Thermal Actions

Fire exposures

Name	Start Offset[cm]	End Offset[cm]	Sides	Protection	Element
F1	0	0	Left, Right, Bottom	-	T1 • Tie

Effective charring depth

Name	β_n [mm/min]	R30,d_{ef}[mm]	R60,d_{ef}[mm]
F1 • Default	0.70	28	28

Reduced cross-section method: effective cross-section

Element	Exposure	β_n [mm/min]	R30,A_{ef}[mm]×[mm]	R60,A_{ef}[mm]×[mm]
T1 • Tie	F1	0.70	144×232	102×211

Design situations

Design situations

Name	Partial factors	Limit state	Conditions	Fire exp. time [min]	Combination
ULS Fundamental	ULS, STR & GEO, A1	ULS STR	Normal use	-	Name | | γ | ψ Stalna | + | 1.35 | 1.00

ULS Fundamental • Snow < 1000 m	ULS, STR & GEO, A1	ULS STR	Normal use	-	**Name** | | **γ** | **ψ** Stalna | + | 1.35 | 1.00 Sneg | + | 1.50 | 1.00 Veter | + | 1.50 | 0.60
ULS Fundamental • Wind	ULS, STR & GEO, A1	ULS STR	Normal use	-	**Name** | | **γ** | **ψ** Stalna | + | 1.35 | 1.00 Veter | + | 1.50 | 1.00 Sneg | + | 1.50 | 0.50
ULS Accidental, Fire R30	ULS Accidental	ULS STR	Fire	30	**Name** | | **γ** | **ψ** Stalna | + | 1.00 | 1.00
ULS Accidental, Fire R60	ULS Accidental	ULS STR	Fire	60	**Name** | | **γ** | **ψ** Stalna | + | 1.00 | 1.00
SLS Characteristic	SLS Characteristic	SLS Deformations	Normal use	-	**Name** | | **γ** | **ψ** Stalna | + | 1.00 | 1.00
SLS Characteristic • Snow < 1000 m	SLS Characteristic	SLS Deformations	Normal use	-	**Name** | | **γ** | **ψ** Stalna | + | 1.00 | 1.00 Sneg | + | 1.00 | 1.00 Veter | + | 1.00 | 0.60
SLS Characteristic • Wind	SLS Characteristic	SLS Deformations	Normal use	-	**Name** | | **γ** | **ψ** Stalna | + | 1.00 | 1.00 Veter | + | 1.00 | 1.00 Sneg | + | 1.00 | 0.50
SLS Quasi-permanent	SLS Quasi-permanent	SLS Deformations	Normal use	-	**Name** | | **γ** | **ψ** Stalna | + | 1.00 | 1.00

Wood Truss • WT ÷ Resistance

Parallel tension	0.23
Parallel compression	0.23
Bending	0.49

Shear	0.25

Wood Truss • WT ÷ Stability

Buckling	0.52
Lateral torsional stability	0.43

Wood Truss • WT ÷ Deflection

Instantaneous deflection	0.76
Final deflection	0.42

T1 • Tie ÷ Resistance

Parallel tension	0.23
Parallel compression	0
Bending	0.49
Shear	0.25

T1 • Tie ÷ Stability

Buckling	0
Lateral torsional stability	0.28

T1 • Tie ÷ Deflection

Instantaneous deflection	0.47
Final deflection	0.27

P1 • Post ÷ Resistance

Parallel tension	0.06
Parallel compression	0.08
Bending	0
Shear	0

P1 • Post ÷ Stability

Buckling	0.08
Lateral torsional stability	0

P1 • Post ÷ Deflection

Instantaneous deflection	0.39
Final deflection	0.22

P2 • Post ÷ Resistance

Parallel tension	0.06
Parallel compression	0.08
Bending	0
Shear	0

P2 • Post ÷ Stability

Buckling	0.08
Lateral torsional stability	0

P2 • Post ÷ Deflection

Instantaneous deflection	0.76
Final deflection	0.42

R1 • Rafter ÷ Resistance

Parallel tension	0
Parallel compression	0.23
Bending	0.08
Shear	0.01

R1 • Rafter ÷ Stability

Buckling	0.52
Lateral torsional stability	0.43

R1 • Rafter ÷ Deflection

Instantaneous deflection	0.2
Final deflection	0.11

R2 • Rafter ÷ Resistance

Parallel tension	0
Parallel compression	0.23
Bending	0.08
Shear	0.01

R2 • Rafter ÷ Stability

Buckling	0.52
Lateral torsional stability	0.43

R2 • Rafter ÷ Deflection

Instantaneous deflection	0.24
Final deflection	0.14

C1 • Collar ÷ Resistance

Parallel tension	0
Parallel compression	0.2
Bending	0.05
Shear	0.01

C1 • Collar ÷ Stability

Buckling	0.24
Lateral torsional stability	0.22

C1 • Collar ÷ Deflection

Instantaneous deflection	0.47
Final deflection	0.27

4. SPOJ POVEZNIK OPIRAČA

Members

Main timber member • poveznik:200×260[mm],Solid TimberC30;$f_{m,k}$=30 [MPa];$f_{v,k}$=4 [MPa];$f_{c,0,k}$=23 [MPa];$f_{c,90,k}$=2.7 [MPa].
Secondary timber member • opora:200×200[mm],Glued Laminated TimberGL24h;$f_{m,k}$=24 [MPa];$f_{v,k}$=3.5 [MPa];$f_{c,0,k}$=24 [MPa];$f_{c,90,k}$=2.5 [MPa].

Materials

MaterialChord • poveznik:Solid TimberC30;$f_{m,k}$=30 [MPa];$f_{v,k}$=4 [MPa];$f_{c,0,k}$=23 [MPa];$f_{c,90,k}$=2.7 [MPa].
MaterialStrut • opora:Glued Laminated TimberGL24h;$f_{m,k}$=24 [MPa];$f_{v,k}$=3.5 [MPa];$f_{c,0,k}$=24 [MPa];$f_{c,90,k}$=2.5 [MPa].

Joint capacity check

Cross section strength ÷ Chord • poveznik (pre node)

Chord • poveznik÷Design situation 1 • S1, Long Term ÷ Parallel tension
Ref. [EN 1995-1-1: 6.1.2]

	N[kN]	A[cm2]	$\sigma_{t,0,d}$[MPa]	$f_{t,0,d}$[MPa]	Check
A1	0	350	0	9.69	-

Chord • poveznik÷Design situation 1 • S1, Long Term ÷ Parallel compression
Ref. [EN 1995-1-1: 6.1.4]

	N[kN]	A[cm2]	$\sigma_{c,0,d}$[MPa]	$f_{c,0,d}$[MPa]	Check
A1	0	350	0	12.38	-

Chord • poveznik÷Design situation 1 • S1, Long Term ÷ Bending
Ref. [EN 1995-1-1: 6.1.6]

	N[kN]	M[kN×m]	$W_{el,y}$[cm3]	$\sigma_{m,y,d}$[MPa]	$f_{m,y,d}$[MPa]	Check
A1	0	0	1021	0	16.15	-

Chord • poveznik÷Design situation 1 • S1, Long Term ÷ Shear
Ref. [EN 1995-1-1: 6.1.7]

	V[kN]	A_v[cm2]	τ_d[MPa]	$f_{v,d}$[MPa]	Check
A1	0	156.3	0	2.15	-

Cross section strength ÷ Chord • poveznik (post node)

Chord • poveznik÷Design situation 1 • S1, Long Term ÷ Parallel tension
Ref. [EN 1995-1-1: 6.1.2]

	N[kN]	A[cm2]	$\sigma_{t,0,d}$[MPa]	$f_{t,0,d}$[MPa]	Check
A1	0	350	0	9.69	-

Chord • poveznik÷Design situation 1 • S1, Long Term ÷ Parallel compression
Ref. [EN 1995-1-1: 6.1.4]

	N[kN]	A[cm2]	$\sigma_{c,0,d}$[MPa]	$f_{c,0,d}$[MPa]	Check

A1	0	350	0	12.38	-

Chord • poveznik÷Design situation 1 • S1, Long Term ÷ Bending
Ref. [EN 1995-1-1: 6.1.6]

	N[kN]	M[kN×m]	$W_{el,y}$[cm3]	$\sigma_{m,y,d}$[MPa]	$f_{m,y,d}$[MPa]	Check
A1	0	0	1021	0	16.15	-

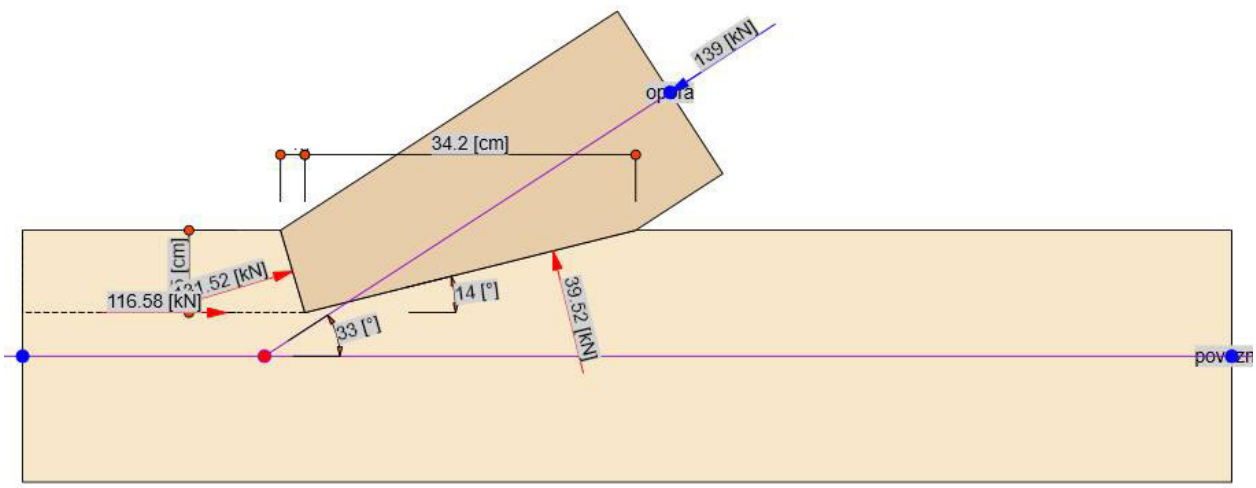
Chord • poveznik÷Design situation 1 • S1, Long Term ÷ Shear
Ref. [EN 1995-1-1: 6.1.7]

	V[kN]	A_v[cm2]	τ_d[MPa]	$f_{v,d}$[MPa]	Check
A1	0	156.3	0	2.15	-

Joint capacity ÷ Strut • opora

Strut • opora÷Design situation 1 • S1, Long Term ÷ Joint Capacity
Ref. [EN 1995-1-1: 6.1.7][EN 1995-1-1: 6.2.2]

	Front: poveznik - opora[MPa]			Rear: poveznik - opora[MPa]			Heel: poveznik[MPa]		[-]
	$\sigma_{c,\alpha,d}$	$f_{c,\alpha,d}$	$f_{c,\alpha,d}$	$\sigma_{c,\alpha,d}$	$f_{c,\alpha,d}$	$f_{c,\alpha,d}$	τ_d	$f_{v,d}$	Check
A1	7.42	16.5	16.5	1.12	76	71	2	2.15	0.97



5. SPOJ STEBER – OPIRAČA - RAZPIRAČA

Members

Main timber member • Steber:200×200[mm],Solid TimberC30;$f_{m,k}$=30 [MPa];$f_{v,k}$=4 [MPa];$f_{c,0,k}$=23 [MPa];$f_{c,90,k}$=2.7 [MPa].
Secondary timber member • Razpiraca:200×200[mm],Glued Laminated TimberGL24h;$f_{m,k}$=24 [MPa];$f_{v,k}$=3.5 [MPa];$f_{c,0,k}$=24 [MPa];$f_{c,90,k}$=2.5 [MPa].
Secondary timber member • Opiraca:200×200[mm],Glued Laminated TimberGL24h;$f_{m,k}$=24 [MPa];$f_{v,k}$=3.5 [MPa];$f_{c,0,k}$=24 [MPa];$f_{c,90,k}$=2.5 [MPa].

Materials

MaterialChord • Steber:Solid TimberC30;$f_{m,k}$=30 [MPa];$f_{v,k}$=4 [MPa];$f_{c,0,k}$=23 [MPa];$f_{c,90,k}$=2.7 [MPa].
MaterialStrut • Razpiraca:Glued Laminated TimberGL24h;$f_{m,k}$=24 [MPa];$f_{v,k}$=3.5 [MPa];$f_{c,0,k}$=24 [MPa];$f_{c,90,k}$=2.5 [MPa].
MaterialStrut • Opiraca:Glued Laminated TimberGL24h;$f_{m,k}$=24 [MPa];$f_{v,k}$=3.5 [MPa];$f_{c,0,k}$=24 [MPa];$f_{c,90,k}$=2.5 [MPa].

Joint capacity check

Cross section strength ÷ Chord • Steber (pre node)

Chord • Steber÷Design situation 1 • S1, Long Term ÷ Parallel tension
Ref. [EN 1995-1-1: 6.1.2]

	N[kN]	A[cm2]	$\sigma_{t,0,d}$[MPa]	$f_{t,0,d}$[MPa]	Check
A1	-70	200	0	9.69	-

Chord • Steber÷Design situation 1 • S1, Long Term ÷ Parallel compression
Ref. [EN 1995-1-1: 6.1.4]

	N[kN]	A[cm2]	$\sigma_{c,0,d}$[MPa]	$f_{c,0,d}$[MPa]	Check
A1	-70	200	3.5	12.38	0.28

Chord • Steber÷Design situation 1 • S1, Long Term ÷ Bending
Ref. [EN 1995-1-1: 6.1.6]

	N[kN]	M[kN×m]	$W_{el,y}$[cm3]	$\sigma_{m,y,d}$[MPa]	$f_{m,y,d}$[MPa]	Check
A1	-70	0	333	0	17.52	-

Chord • Steber÷Design situation 1 • S1, Long Term ÷ Shear
Ref. [EN 1995-1-1: 6.1.7]

	V[kN]	A_v[cm2]	τ_d[MPa]	$f_{v,d}$[MPa]	Check
A1	0	89.3	0	2.15	-

Cross section strength ÷ Chord • Steber (post node)

Chord • Steber÷Design situation 1 • S1, Long Term ÷ Parallel tension
Ref. [EN 1995-1-1: 6.1.2]

	N[kN]	A[cm2]	$\sigma_{t,0,d}$[MPa]	$f_{t,0,d}$[MPa]	Check
A1	0	200	0	9.69	-

Chord • Steber÷Design situation 1 • S1, Long Term ÷ Parallel compression
Ref. [EN 1995-1-1: 6.1.4]

	N[kN]	A[cm2]	$\sigma_{c,0,d}$[MPa]	$f_{c,0,d}$[MPa]	Check
A1	0	200	0	12.38	-

Chord • Steber÷Design situation 1 • S1, Long Term ÷ Bending
Ref. [EN 1995-1-1: 6.1.6]

	N[kN]	M[kN×m]	$W_{el,y}$[cm3]	$\sigma_{m,y,d}$[MPa]	$f_{m,y,d}$[MPa]	Check
A1	0	0	333	0	17.52	-

Chord • Steber÷Design situation 1 • S1, Long Term ÷ Shear
Ref. [EN 1995-1-1: 6.1.7]

	V[kN]	A_v[cm2]	τ_d[MPa]	$f_{v,d}$[MPa]	Check
A1	0	89.3	0	2.15	-

Joint capacity ÷ Strut • Razpiraca

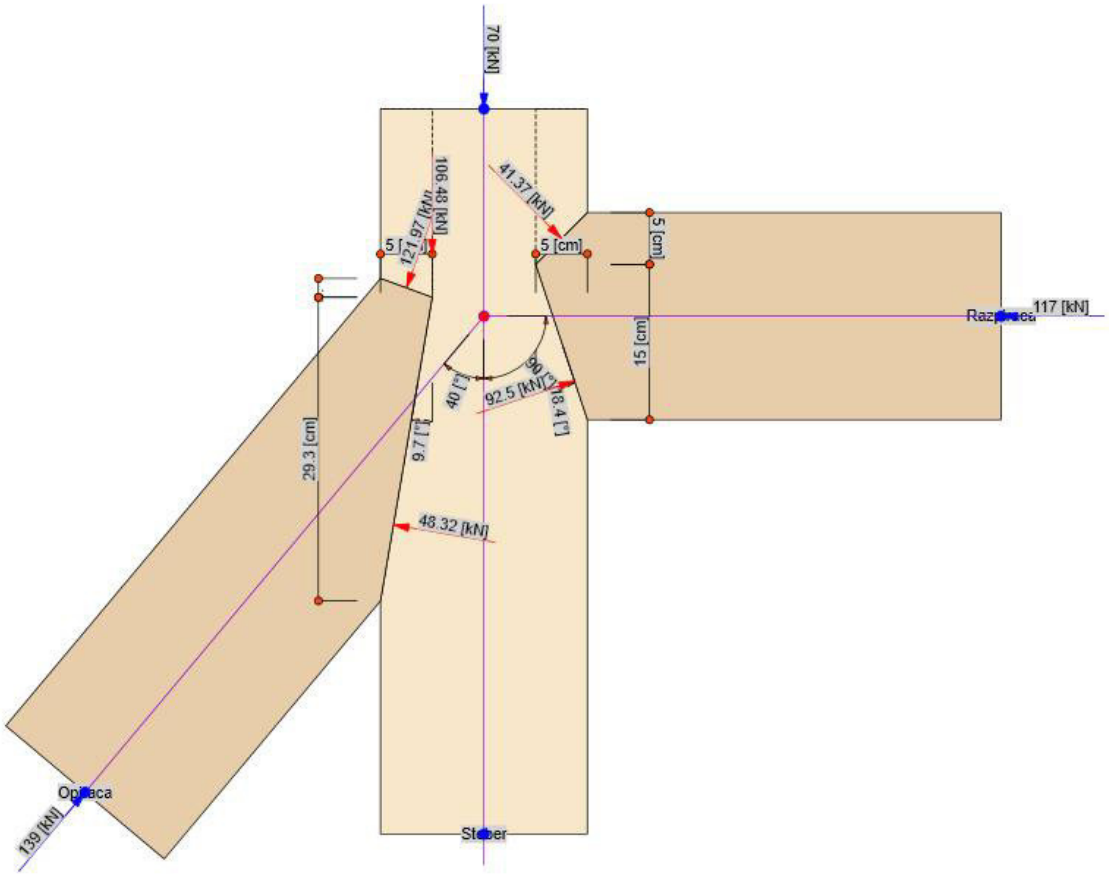
Strut • Razpiraca÷Design situation 1 • S1, Long Term ÷ Joint Capacity
Ref. [EN 1995-1-1: 6.1.7][EN 1995-1-1: 6.2.2]

	Front: Steber - Razpiraca[MPa]			Rear: Steber - Razpiraca[MPa]			Heel: Steber[MPa]		[-]
	$\sigma_{c,\alpha,d}$	$f_{c,\alpha,d}$	$f_{c,\alpha,d}$	$\sigma_{c,\alpha,d}$	$f_{c,\alpha,d}$	$f_{c,\alpha,d}$	τ_d	$f_{v,d}$	Check
A1	2.93	45	45	5.85	71.6	18.4	0	2.15	0.31

Joint capacity ÷ Strut • Opiraca

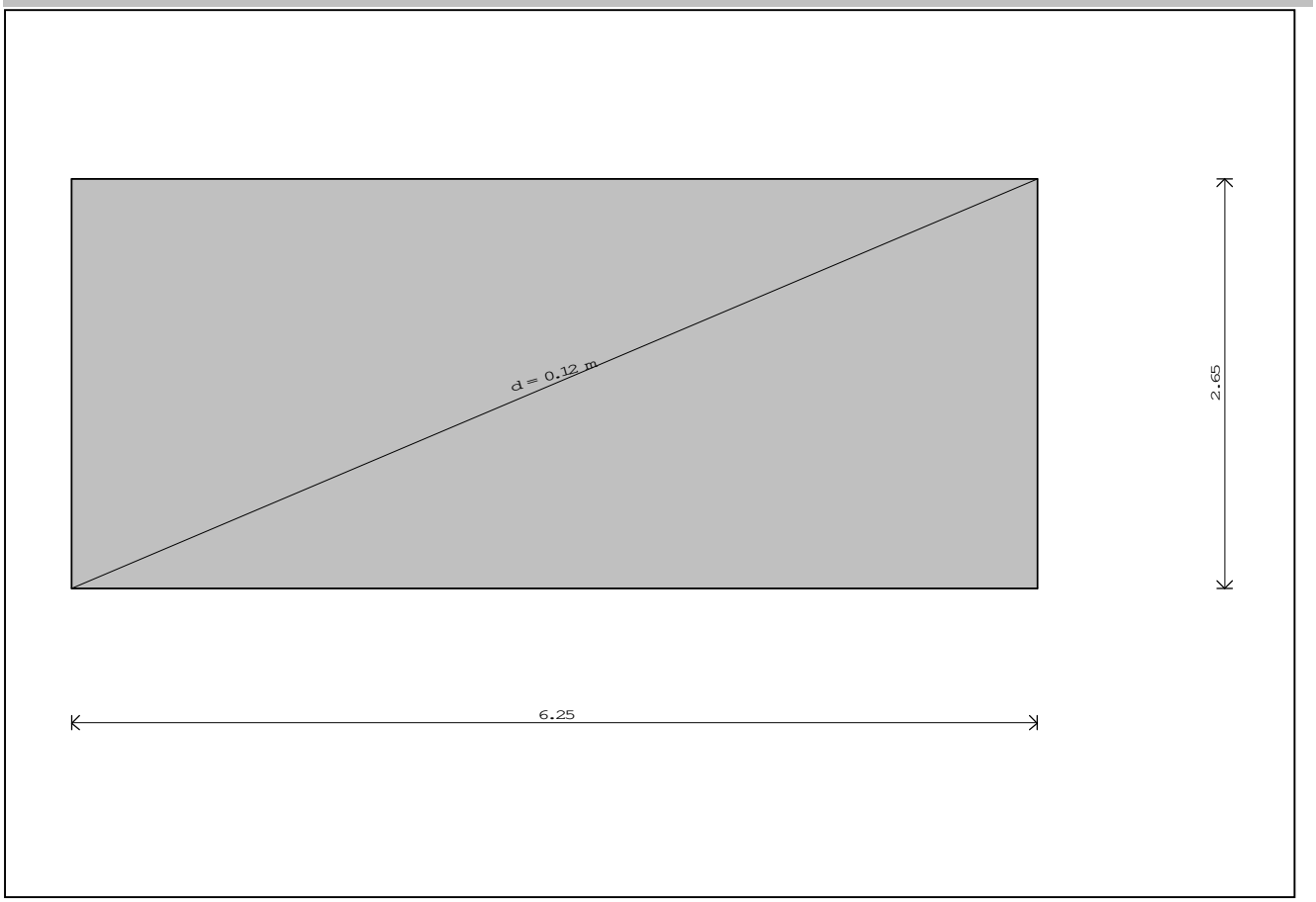
Strut • Opiraca÷Design situation 1 • S1, Long Term ÷ Joint Capacity
Ref. [EN 1995-1-1: 6.1.7][EN 1995-1-1: 6.2.2]

	Front: Steber - Opiraca[MPa]			Rear: Steber - Opiraca[MPa]			Heel: Steber[MPa]		[-]
	$\sigma_{c,\alpha,d}$	$f_{c,\alpha,d}$	$f_{c,\alpha,d}$	$\sigma_{c,\alpha,d}$	$f_{c,\alpha,d}$	$f_{c,\alpha,d}$	τ_d	$f_{v,d}$	Check
			20						
A1	11.46	20		1.63	80.3	59.7	1.03	2.15	0.57



6. STREŠNA PLOŠČA

vhodni podatki - Konstrukcija



Tabele materialov

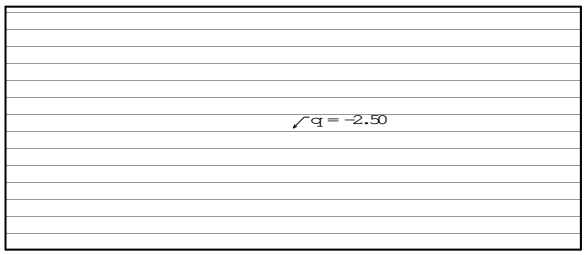
No	Naziv materiala	E[kN/m2]	μ	γ[kN/m3]	αt[1/C]	Em[kN/m2]	μm
1	C 25/30	3.100e+7	0.20	25.00	1.000e-5	3.100e+7	0.20

Vhodni podatki - Obtežba

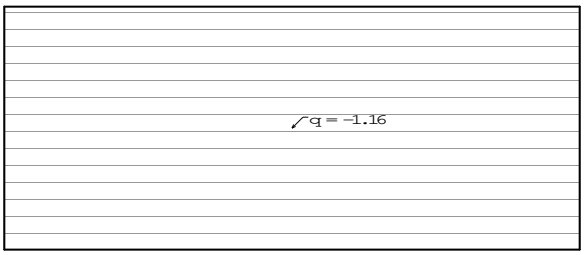
Lista obtežnih primerov

LC	Naziv
1	g (g)
2	s
3	Komb.: 1.35xI+1.5xII
4	Komb.: I+1.5xII
5	Komb.: 1.35xI
6	Komb.: I+II

Obt. 1: g (g)

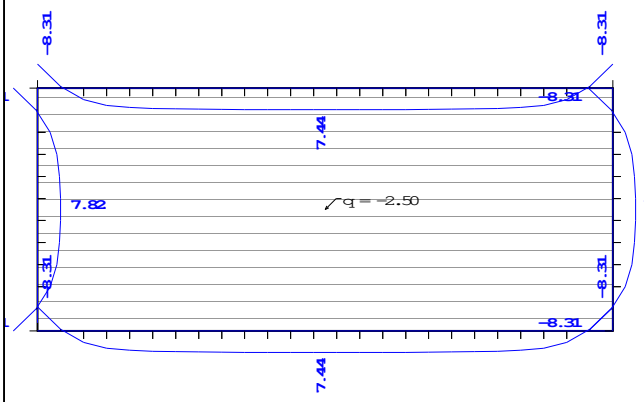


Obt. 2: s



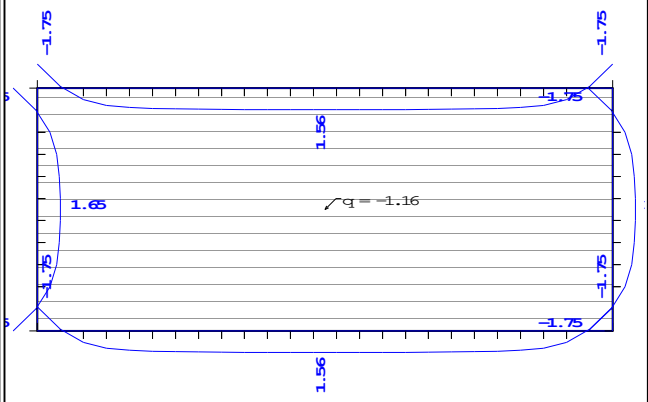
Statični preračun

Obt. 1: g (g)



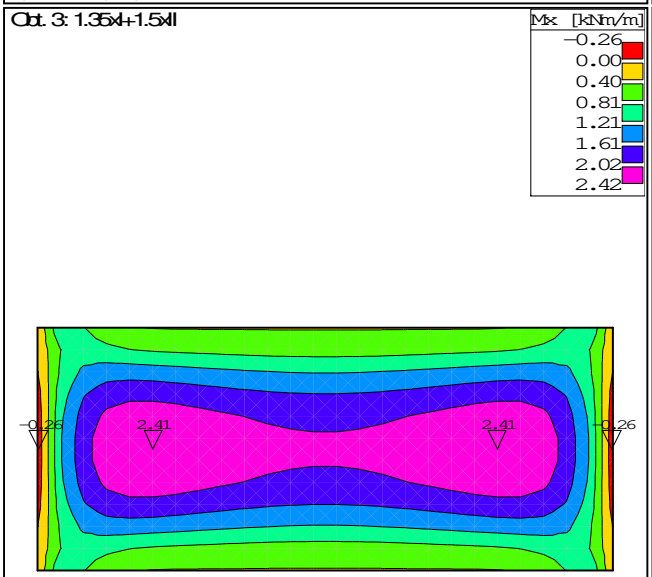
Vplivi v lin. podpori: max r2= 7.82 / min r2= -8.31 kN/m

Obt. 2: s



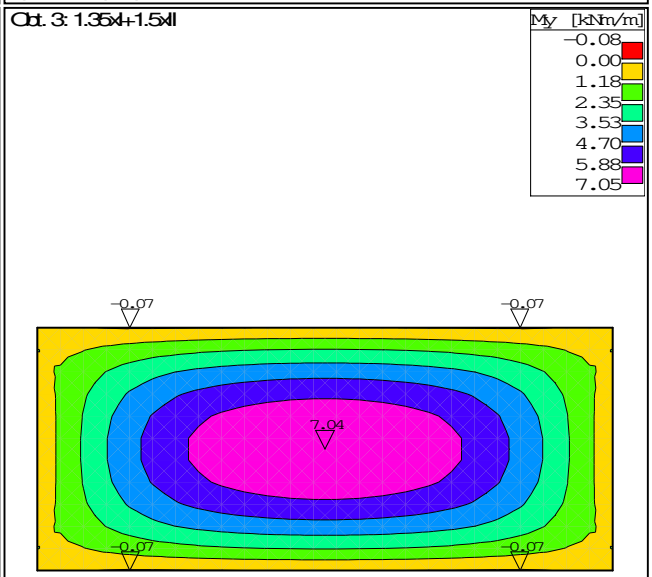
Vplivi v lin. podpori: max r2= 1.65 / min r2= -1.75 kN/m

Obt. 3: 1.35x4+1.5xII



Vplivi v plošči: max Mx= 2.41 / min Mx= -0.26 kNm/m

Obt. 3: 1.35x4+1.5xII

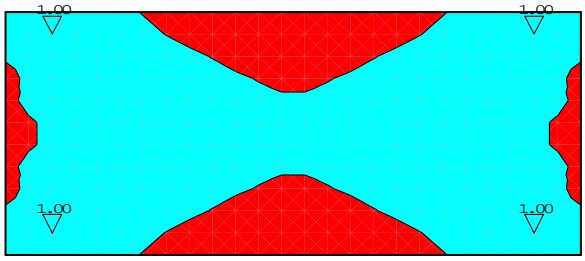


Vplivi v plošči: max My= 7.04 / min My= -0.07 kNm/m

Dimenzioniranje (beton)

Merodajna obtežba: Kompletna shema
EC 2 (EN 1992-1-1:2004), C25, S500N, a=3.50 cm

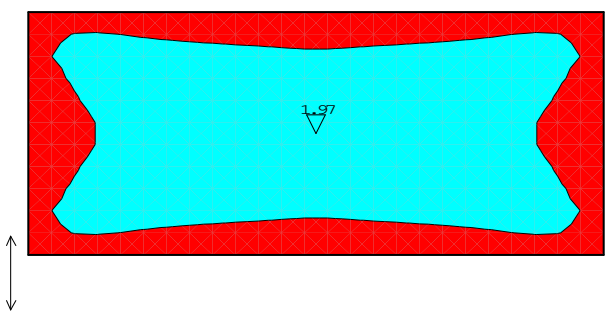
Aa - sp.cona - Smer 1 [cm²/m]
0.00
0.51
1.01



Aa - sp.cona - Smer 1 - max Aa1,s= 1.00 cm²/m

Merodajna obtežba: Kompletna shema
EC 2 (EN 1992-1-1:2004), C25, S500N, a=3.50 cm

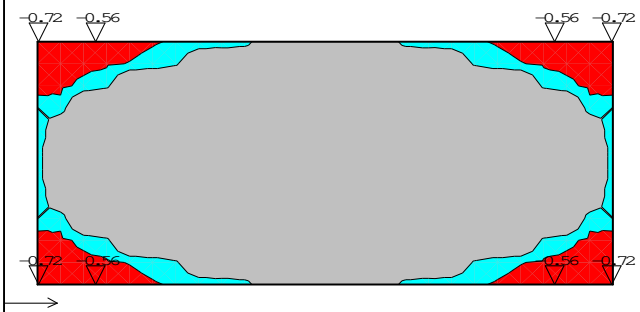
Aa - sp.cona - Smer 2 [cm²/m]
0.09
1.04
1.98



Aa - sp.cona - Smer 2 - max Aa2,s= 1.97 cm²/m

Merodajna obtežba: Kompletna shema
EC 2 (EN 1992-1-1:2004), C25, S500H, a=3.50 cm

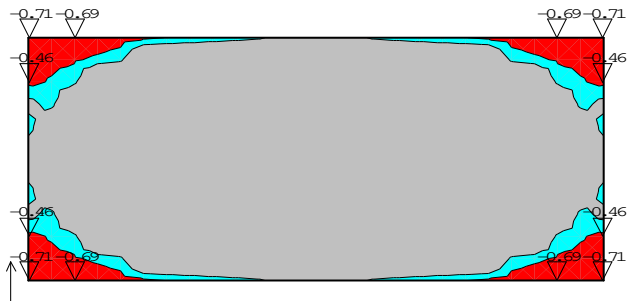
Aa - zg.cona - Smer 1 [cm²/m]
−0.72
−0.36
0.00



Aa - zg.cona - Smer 1 - max Aa1,z= -0.72 cm²/m

Merodajna obtežba: Kompletna shema
EC 2 (EN 1992-1-1:2004), C25, S500H, a=3.50 cm

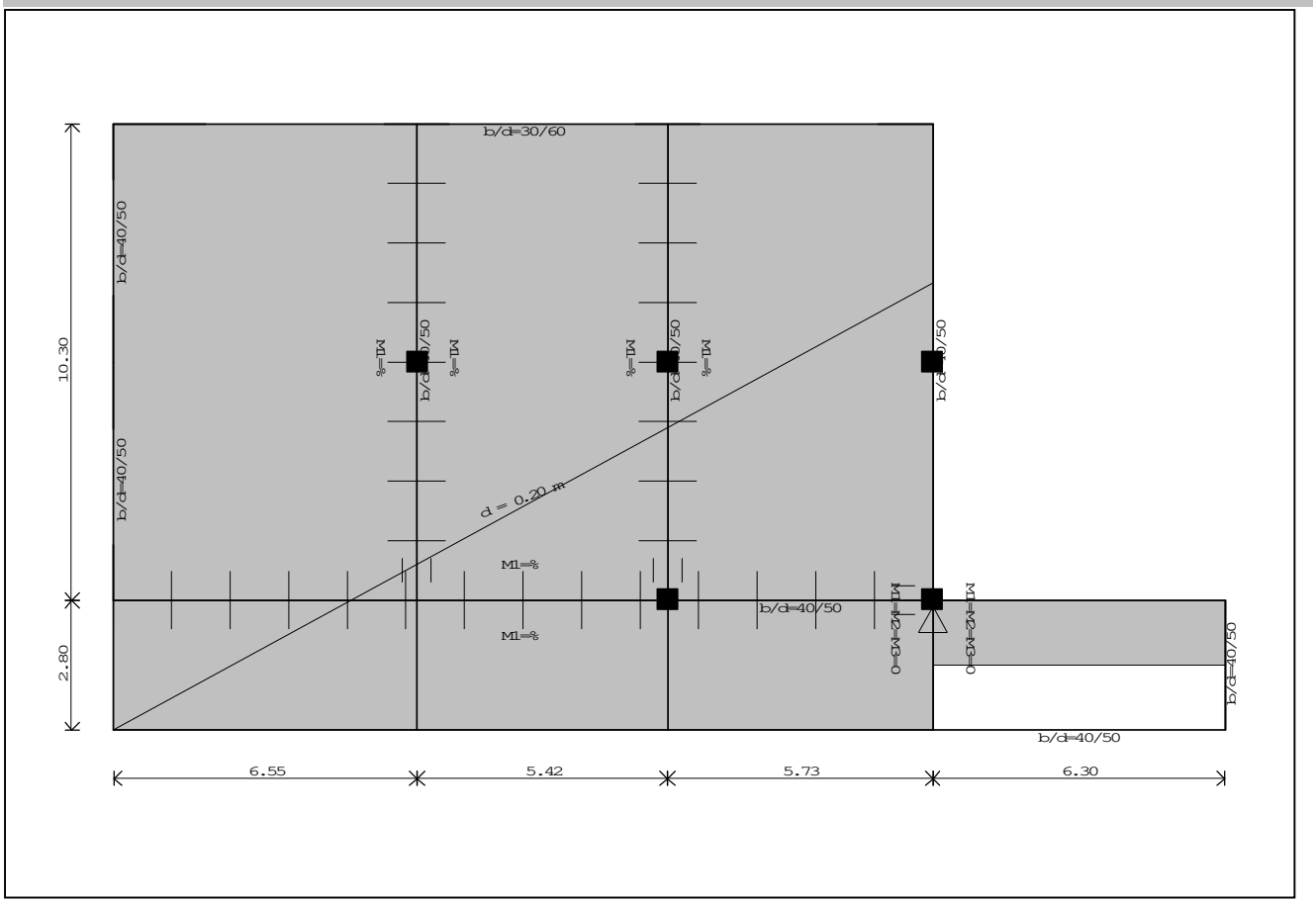
Aa - zg.cona - Smer 2 [cm²/m]
−0.72
−0.36
0.00



Aa - zg.cona - Smer 2 - max Aa2,z= -0.71 cm²/m

7. ETAŽNA PLOŠČA

Vhodni podatki - Konstrukcija



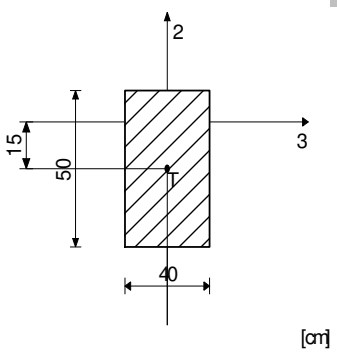
Tabele materialov

No	Naziv materiala	E[kN/m2]	μ	γ[kN/m3]	αt[1/C]	Em[kN/m2]	μm
1	Beton	3.150e+7	0.20	25.00	1.000e-5	3.150e+7	0.20
2	C 25/30	3.100e+7	0.20	25.00	1.000e-5	3.100e+7	0.20

Seti gred

Set: 1 Prerez: b/d=40/50, Fiktivna ekscentričnost

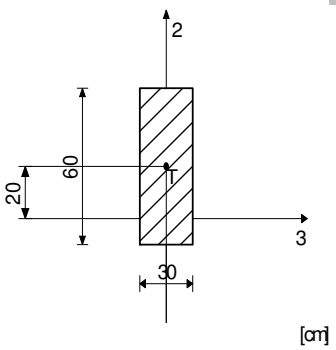
Mat.	A1	A2	A3	I1	I2	I3
1 - Beton	2.000e-1	1.667e-1	1.667e-1	5.474e-3	2.667e-3	4.167e-3



[cm]

Set: 3 Prerez: b/d=30/60, Fiktivna ekscentričnost

Mat.	A1	A2	A3	I1	I2	I3
2 - C 25/30	1.800e-1	1.500e-1	1.500e-1	3.708e-3	1.350e-3	5.400e-3



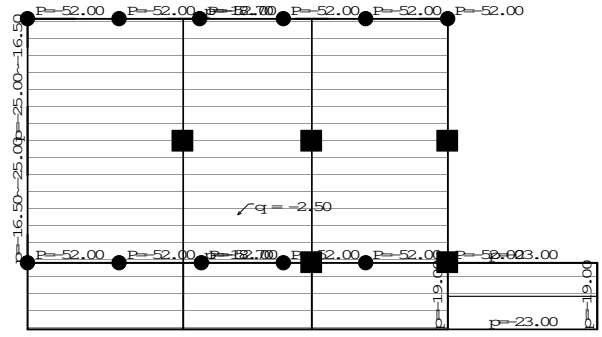
[cm]

Vhodni podatki - Obtežba

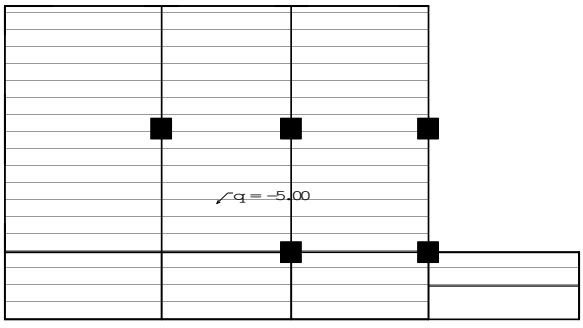
Lista obtežnih primerov

LC	Naziv
1	g (g)
2	p
3	p sahovna
4	s
5	w
6	Komb.: 1.35xI+1.05xIII+1.5xIV+0.9xV
7	Komb.: 1.35xI+1.05xII+1.5xIV+0.9xV
8	Komb.: 1.35xI+1.05xIII+0.75xIV+1.5xV
9	Komb.: 1.35xI+1.05xII+0.75xIV+1.5xV
10	Komb.: 1.35xI+1.5xIII+0.75xIV+0.9xV
11	Komb.: 1.35xI+1.5xII+0.75xIV+0.9xV
12	Komb.: I+1.05xIII+1.5xIV+0.9xV
13	Komb.: I+1.05xII+1.5xIV+0.9xV
14	Komb.: I+1.05xIII+0.75xIV+1.5xV
15	Komb.: I+1.05xII+0.75xIV+1.5xV
16	Komb.: I+1.5xIII+0.75xIV+0.9xV
17	Komb.: I+1.5xII+0.75xIV+0.9xV
18	Komb.: 1.35xI+1.05xIII+1.5xV
19	Komb.: 1.35xI+1.05xIII+1.5xIV
20	Komb.: 1.35xI+1.05xII+1.5xV
21	Komb.: 1.35xI+1.05xII+1.5xIV
22	Komb.: 1.35xI+1.5xIV+0.9xV
23	Komb.: 1.35xI+1.5xIII+0.9xV
24	Komb.: 1.35xI+1.5xII+0.9xV
25	Komb.: 1.35xI+0.75xIV+1.5xV
26	Komb.: 1.35xI+1.5xIII+0.75xIV
27	Komb.: 1.35xI+1.5xII+0.75xIV
28	Komb.: I+1.05xIII+1.5xV
29	Komb.: I+1.05xIII+1.5xIV
30	Komb.: I+1.05xII+1.5xV
31	Komb.: I+1.05xII+1.5xIV
32	Komb.: I+1.5xIV+0.9xV
33	Komb.: I+1.5xIII+0.9xV
34	Komb.: I+1.5xII+0.9xV
35	Komb.: I+0.75xIV+1.5xV
36	Komb.: I+1.5xIII+0.75xIV
37	Komb.: I+1.5xII+0.75xIV
38	Komb.: 1.35xI+1.5xV
39	Komb.: 1.35xI+1.5xIV
40	Komb.: 1.35xI+1.5xIII
41	Komb.: 1.35xI+1.5xII
42	Komb.: I+1.5xV
43	Komb.: I+1.5xIV
44	Komb.: I+1.5xIII
45	Komb.: I+1.5xII
46	Komb.: 1.35xI
47	Komb.: I+II+IV+V
48	Komb.: I+III+IV+V

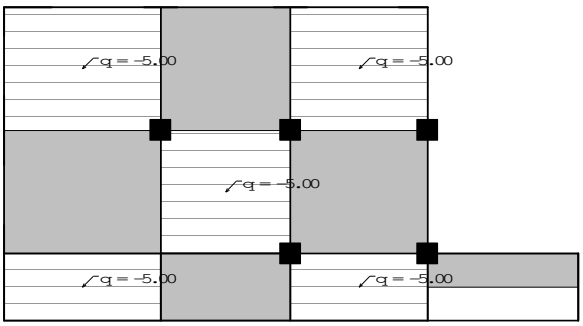
Obt. 1: g (g)



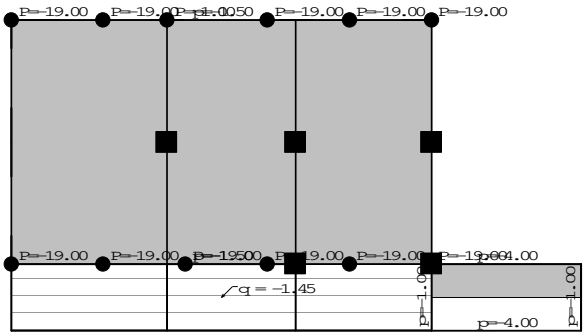
Obt. 2: p



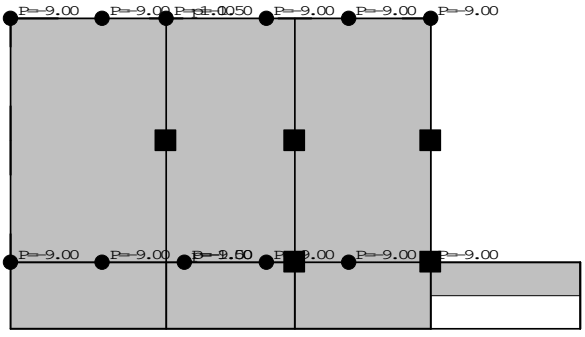
Obt. 3: psahovna



Obt. 4: s

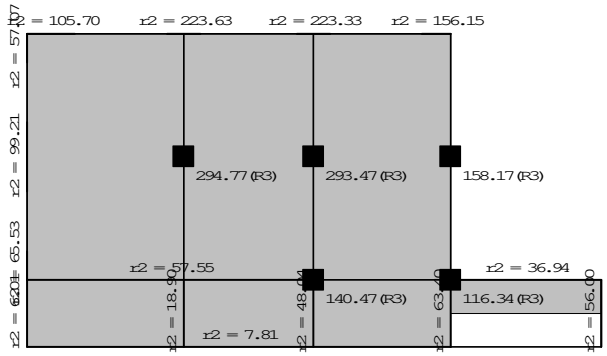


Obt. 5: w



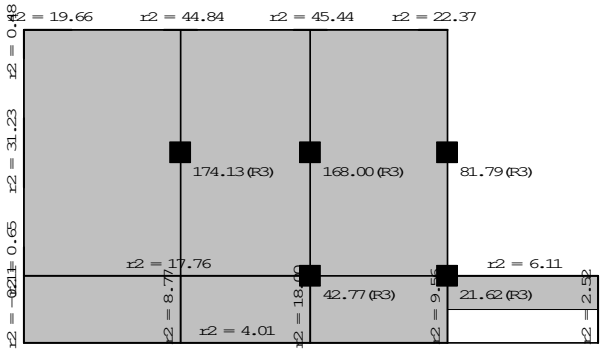
Statični preračun

Obt. 1: g (g)



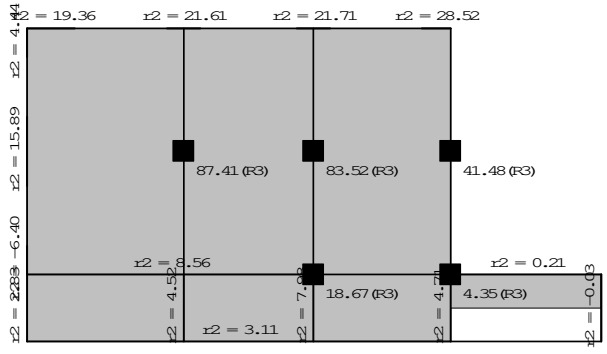
Reakcije podpor

Obt. 2: p



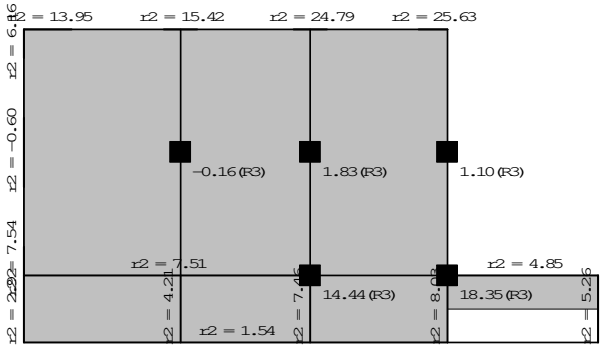
Reakcije podpor

Obt. 3: p sahovna



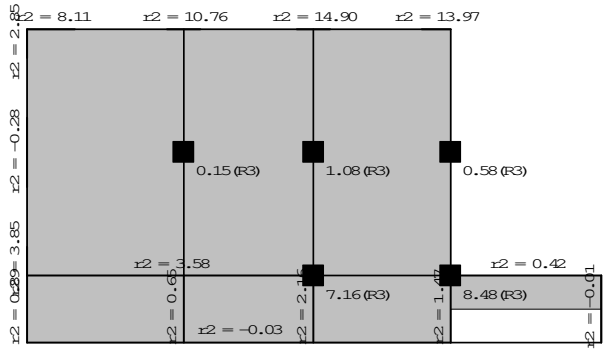
Reakcije podpor

Obt. 4: s



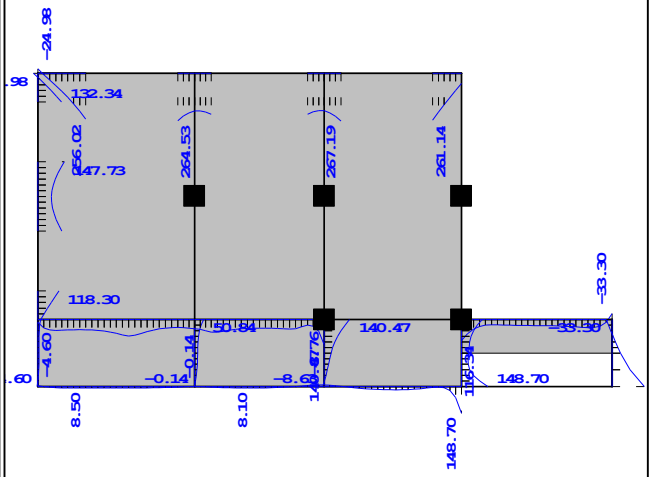
Reakcije podpor

Obt. 5: w



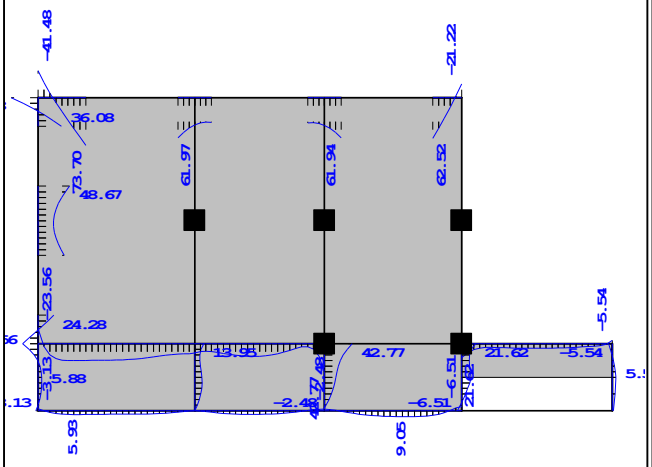
Reakcije podpor

Obt. 1: g (g)



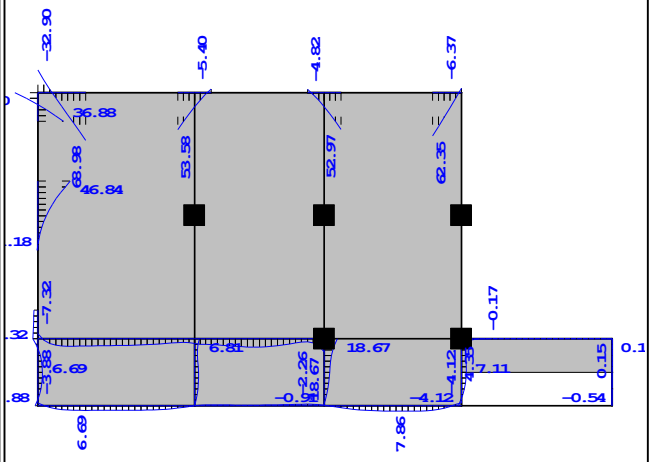
Vplivi v lin. podpori: max r2= 267.19 / min r2= -33.30 kN/m

Obt. 2: p



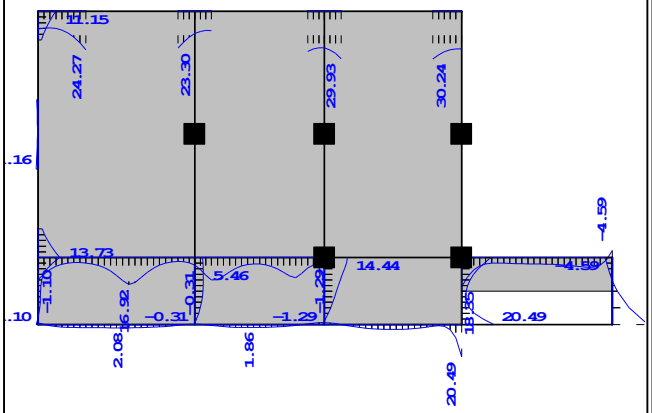
Vplivi v lin. podpori: max r2= 73.70 / min r2= -41.48 kN/m

Obt. 3: p sahovna



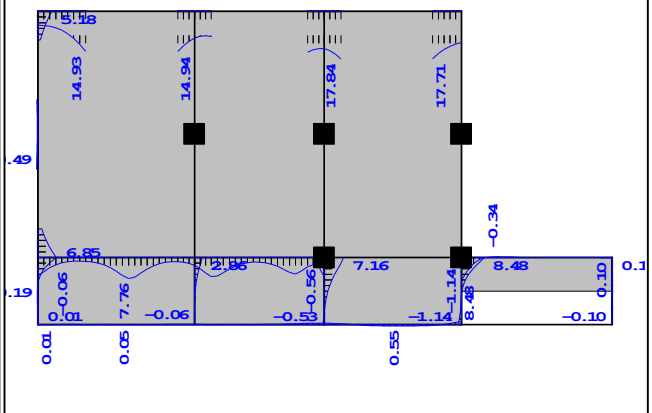
Vplivi v lin. podpori: max r2= 68.98 / min r2= -32.90 kN/m

Obt. 4: s



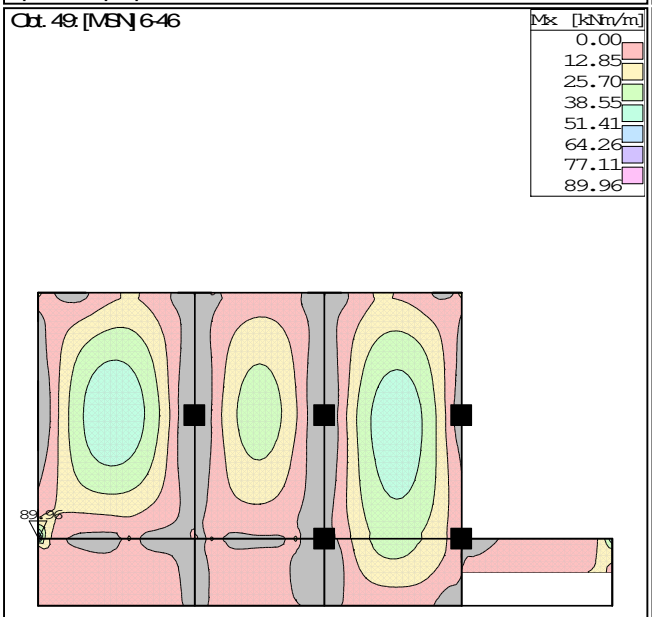
Vplivi v lin. podpori: max r2= 30.24 / min r2= -4.59 kN/m

Obt. 5: w



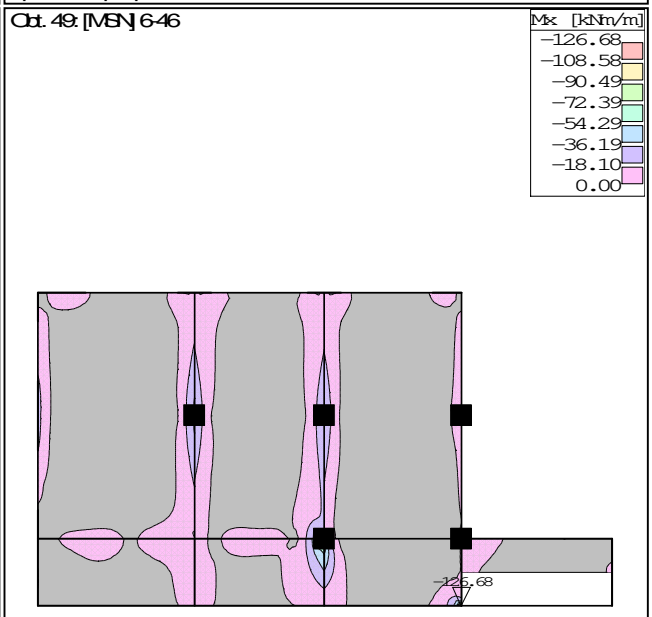
Vplivi v lin. podpori: max r2= 17.84 / min r2= -1.14 kN/m

Obt. 49: [MSN] 6-46



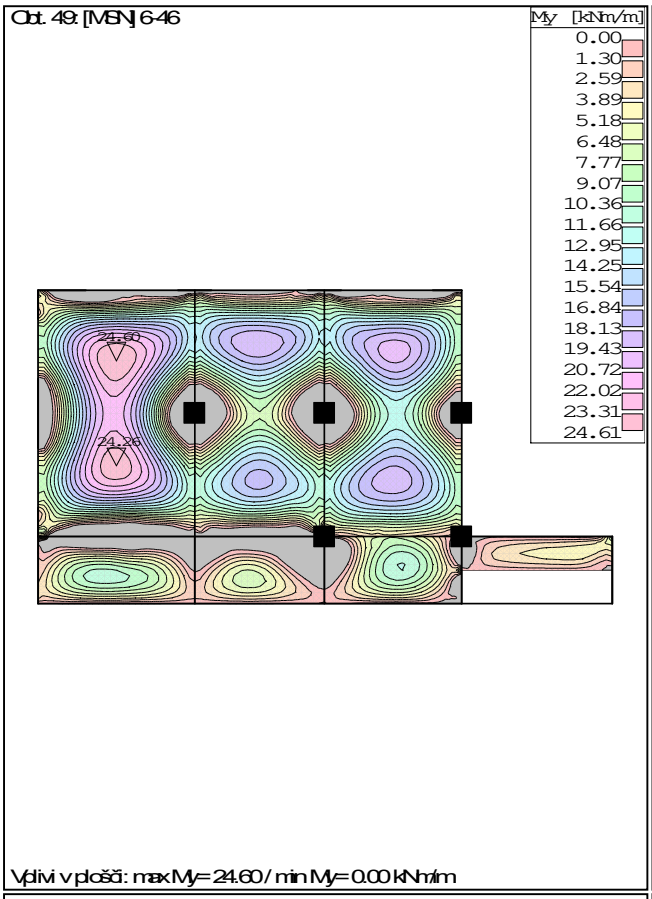
Vplivi v plošči: max Mx= 89.96 / min Mx= 0.00 kNm/m

Obt. 49: [MSN] 6-46



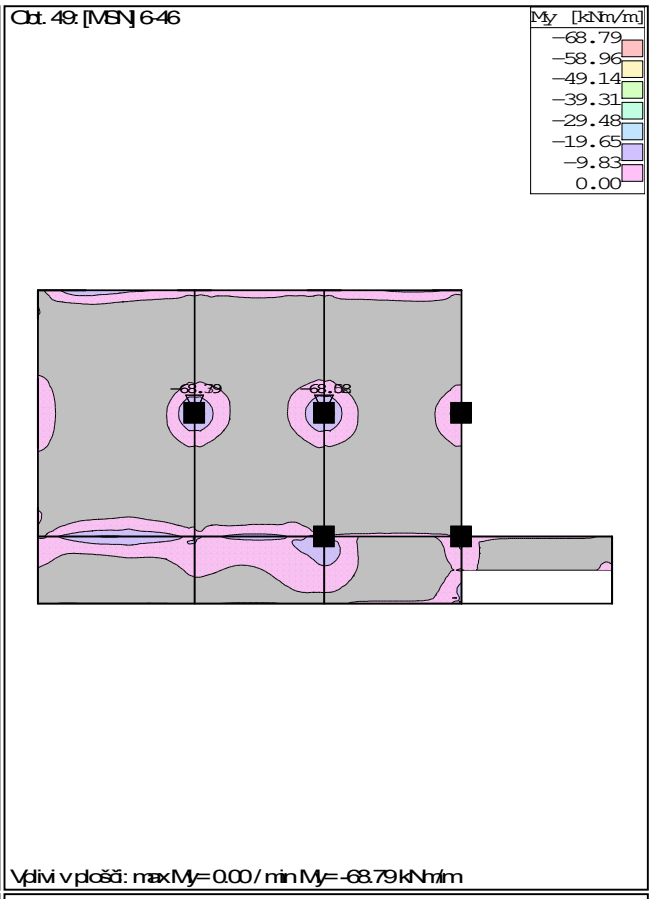
Vplivi v plošči: max Mx= 0.00 / min Mx= -126.68 kNm/m

Obt. 49: [MSN] 6-46



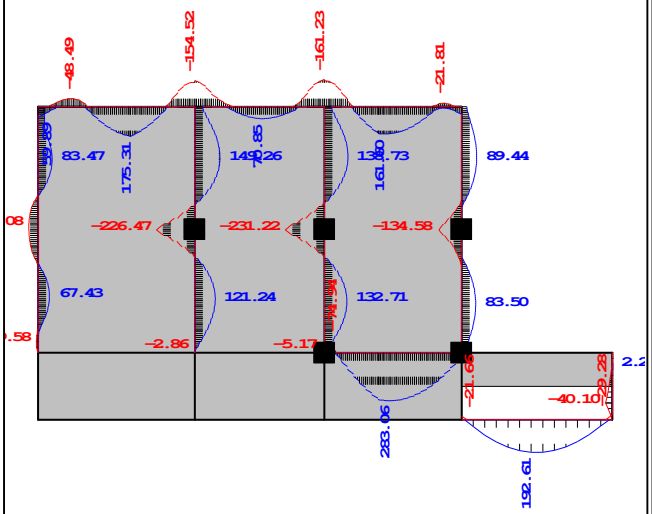
Vplivi v plošči: max My= 24.60 / min My= 0.00 kNm/m

Obt. 49: [MSN] 6-46



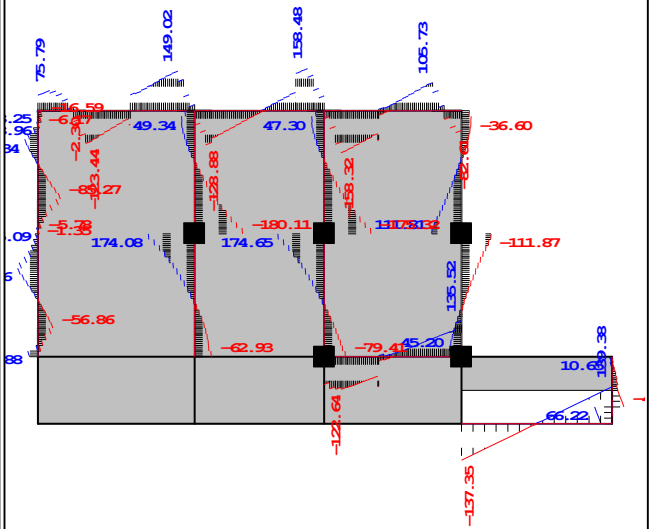
Vplivi v plošči: max My= 0.00 / min My= -68.79 kNm/m

Obt. 49: [MSN] 6-46

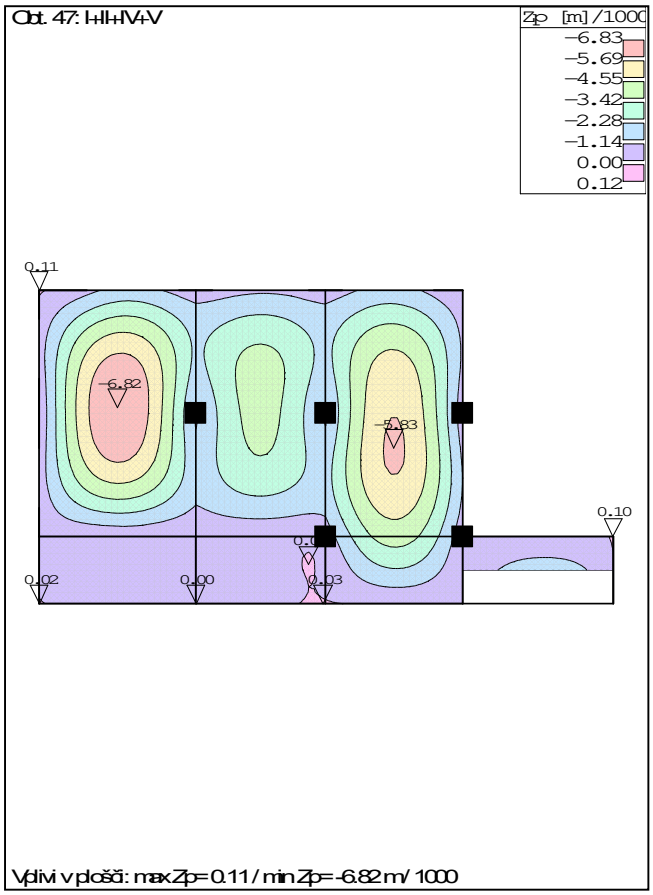


Vplivi v gredi: max MB= 283.06 / min MB= -231.22 kNm

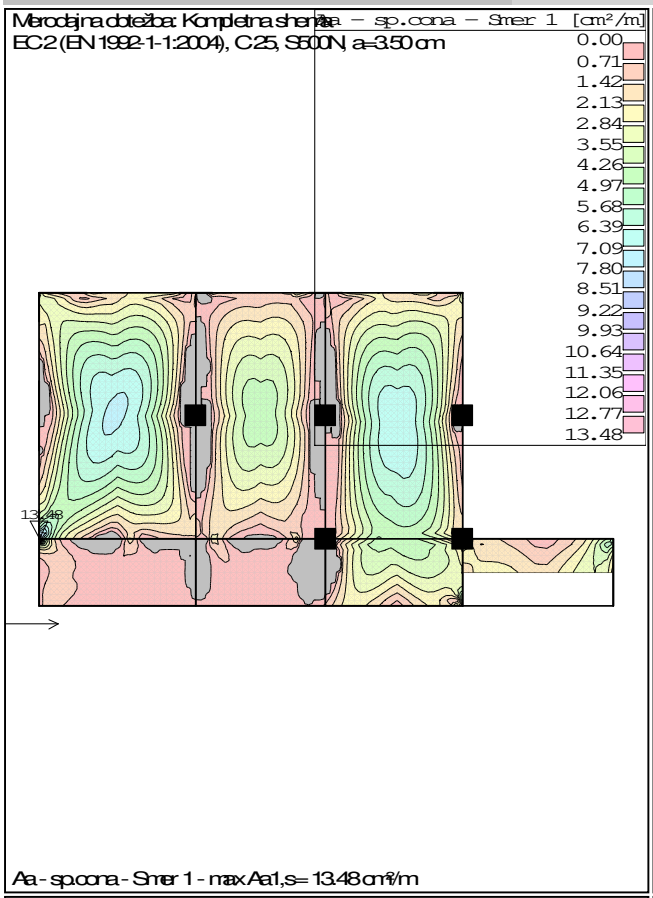
Obt. 49: [MSN] 6-46

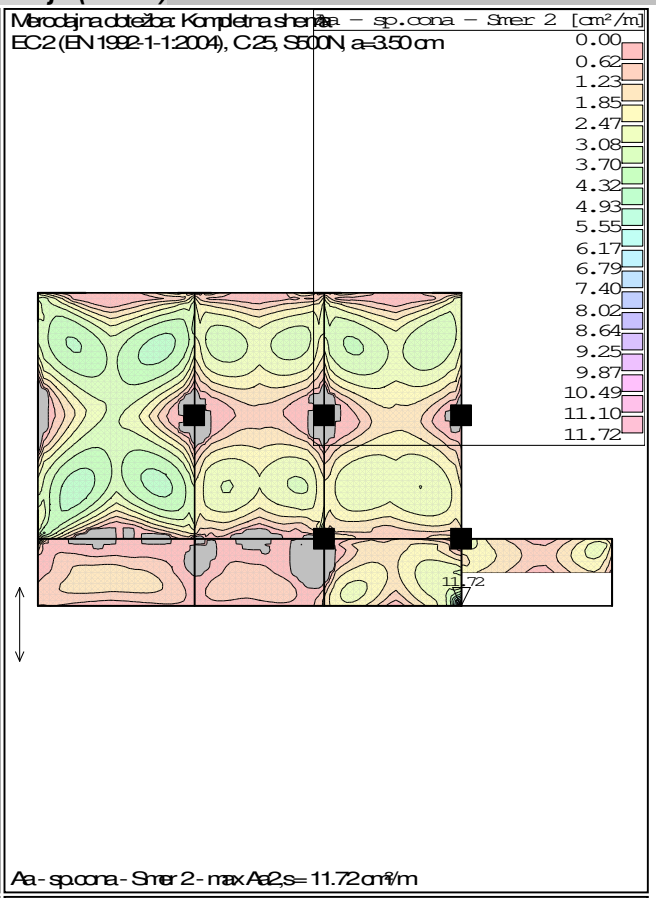


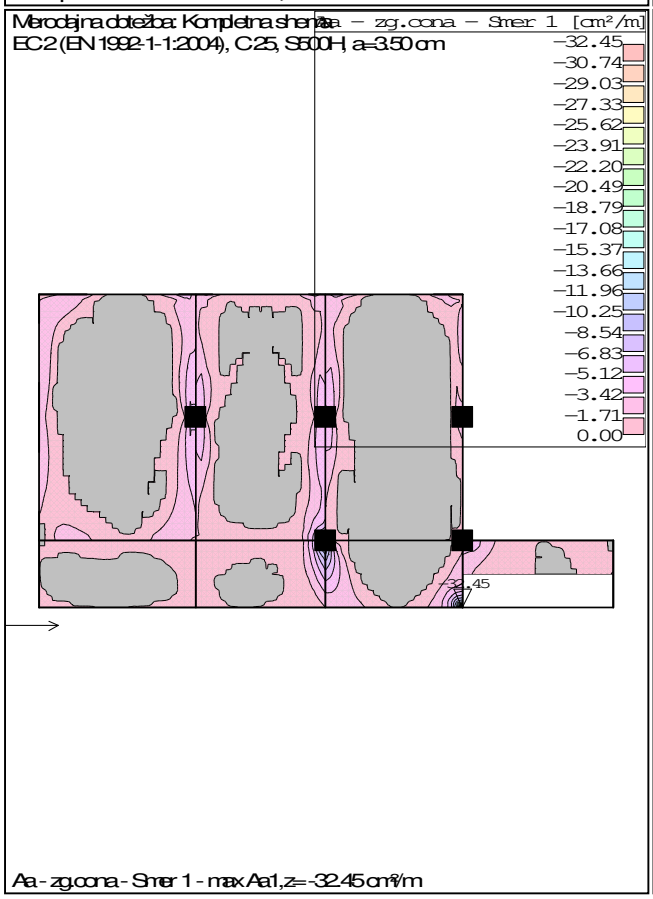
Vplivi v gredi: max T2= 174.65 / min T2= -180.11 kN

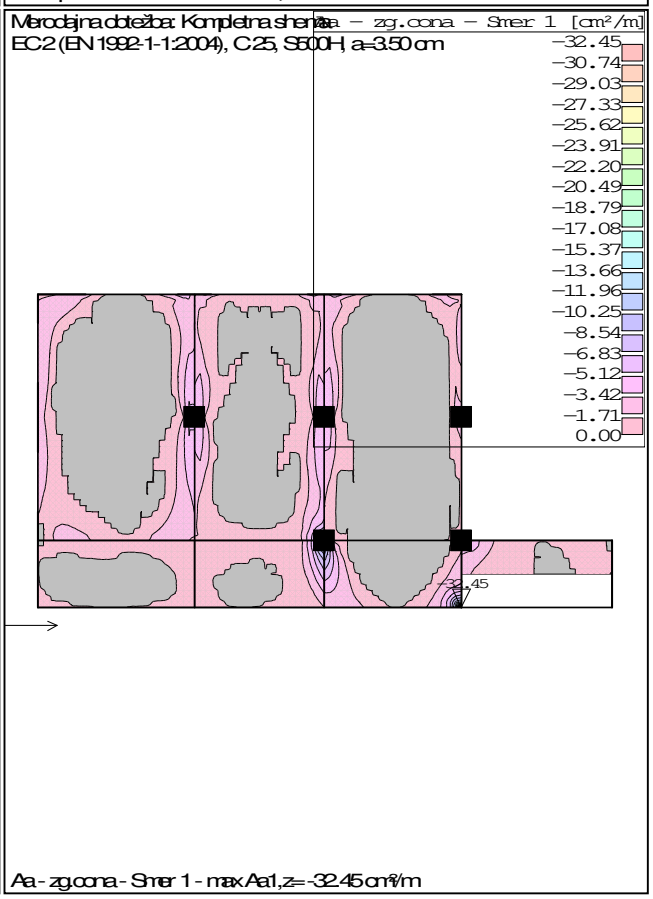

Obt. 47: I+II+IV+V
Zp [m] /1000
-6.83
-5.69
-4.55
-3.42
-2.28
-1.14
0.00
0.12
0.11
-6.82
-5.83
0.10
0.01
0.02
0.00
0.03
Vplivi v plošči: max Zp= 0.11 / min Zp= -6.82 m/ 1000

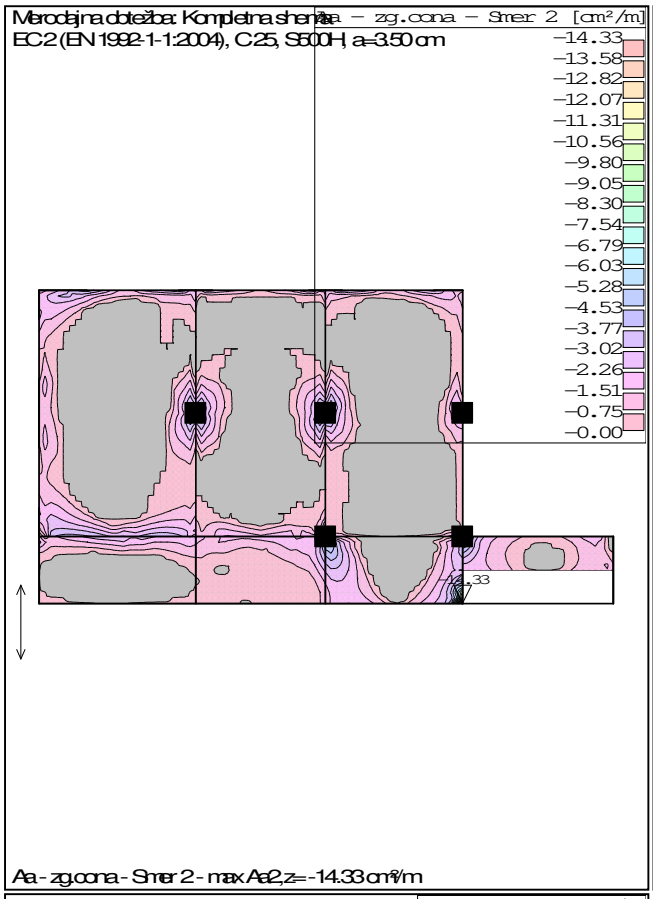
Dimenzioniranje (beton)

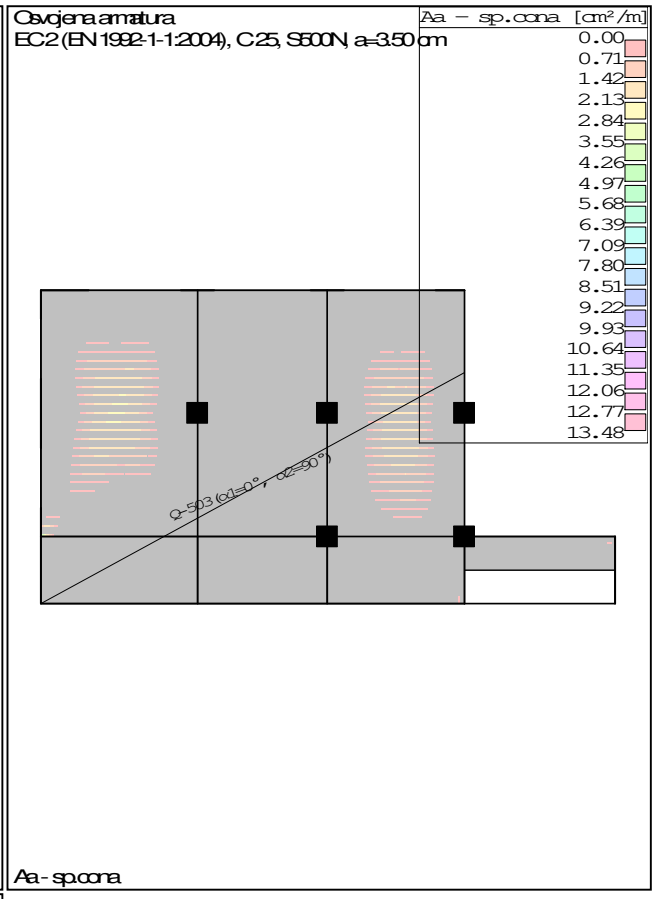


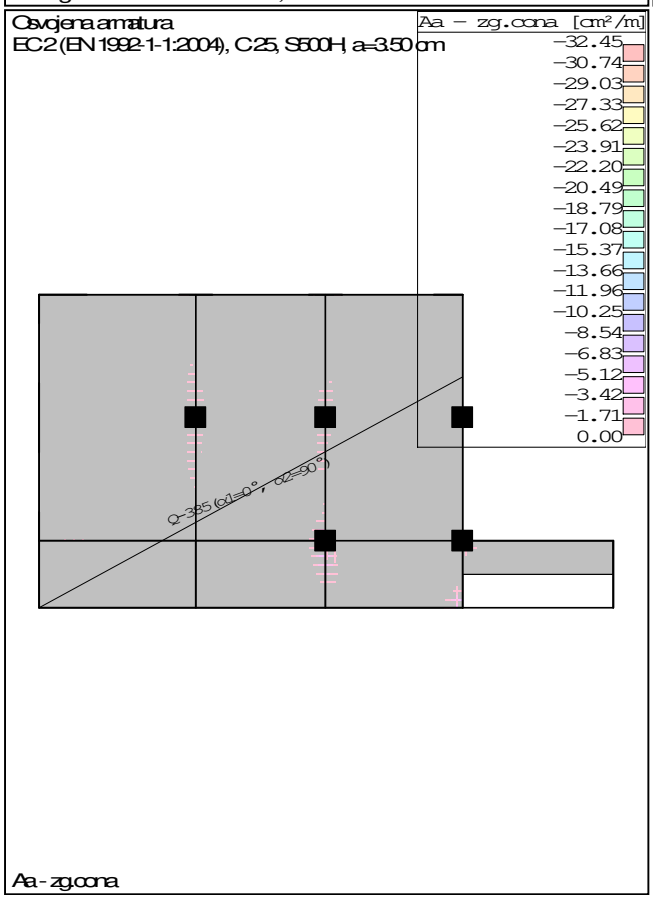




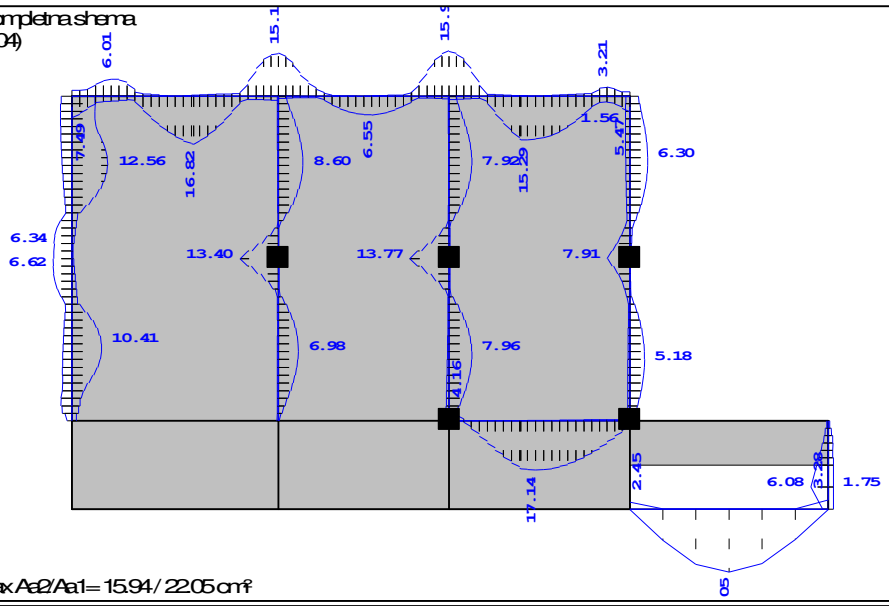



Merodajna obtežba: Kompletna shema
EC 2 (EN 1992-1-1:2004), C 25, S 500 H, a=3.50 cm
Aa – zg.cona – Smer 2 [cm²/m]
-14.33
-13.58
-12.82
-12.07
-11.31
-10.56
-9.80
-9.05
-8.30
-7.54
-6.79
-6.03
-5.28
-4.53
-3.77
-3.02
-2.26
-1.51
-0.75
-0.00
-14.33
Aa - zg.cona - Smer 2 - max Aa2,z=-14.33 cm²/m


Osvojena armatura
EC 2 (EN 1992-1-1:2004), C 25, S 500 N, a=3.50 cm
Aa – sp.cona [cm²/m]
0.00
0.71
1.42
2.13
2.84
3.55
4.26
4.97
5.68
6.39
7.09
7.80
8.51
9.22
9.93
10.64
11.35
12.06
12.77
13.48
Q-503 (α1=0°, α2=90°)
Aa - sp.cona

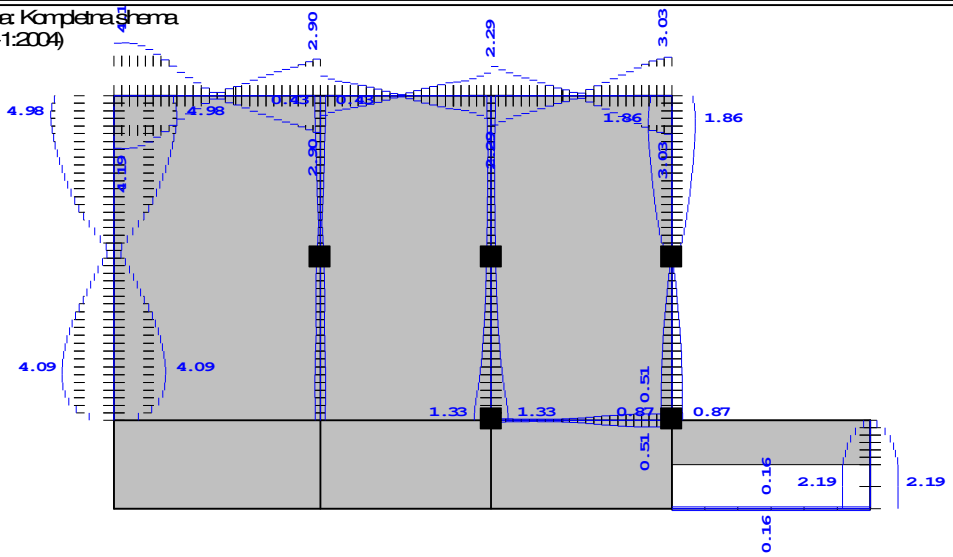

Osvojena armatura
EC 2 (EN 1992-1-1:2004), C 25, S 500 H, a=3.50 cm
Aa – zg.cona [cm²/m]
-32.45
-30.74
-29.03
-27.33
-25.62
-23.91
-22.20
-20.49
-18.79
-17.08
-15.37
-13.66
-11.96
-10.25
-8.54
-6.83
-5.12
-3.42
-1.71
0.00
Q-385 (α1=0°, α2=90°)
Aa - zg.cona

Merodajna obtežba: Kompletna shema
EC 2 (EN 1992-1-1:2004)



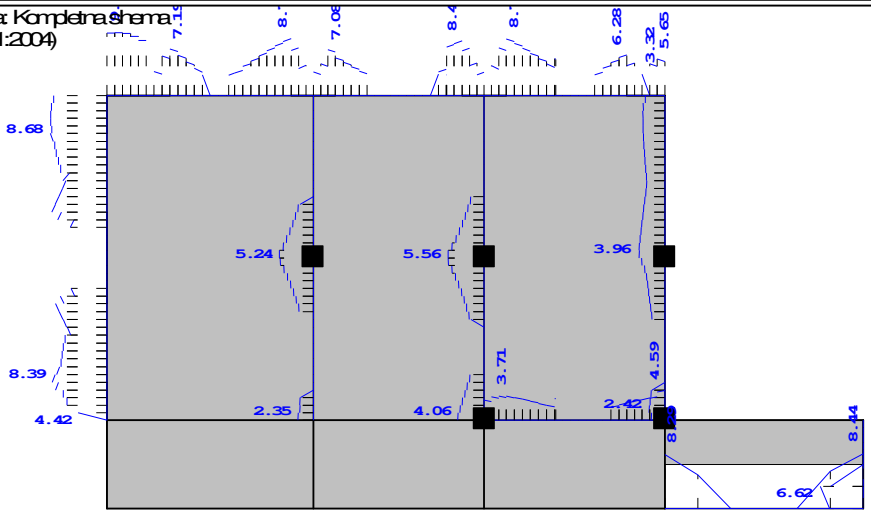
Armatura v gredah: max Aa2/Aa1= 15.94 / 22.05 cm²

Merodajna obtežba: Kompletna shema
EC 2 (EN 1992-1-1:2004)



Armatura v gredah: max Aa3/Aa4= 4.98 / 4.98 cm²

Merodajna obtežba: Kompletna shema
EC 2 (EN 1992-1-1:2004)



Armatura v gredah: max Aa,st= 9.69 cm²

9. TEMELJNA PLOŠČA

Vhodni podatki - Konstrukcija

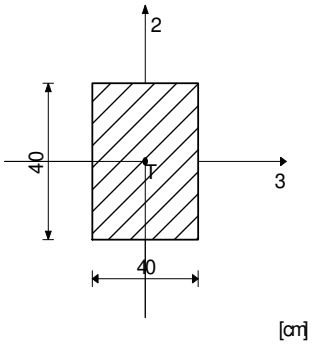
Tabele materialov

No	Naziv materiala	E[kN/m2]	μ	γ[kN/m3]	αt[1/C]	Em[kN/m2]	μm
1	Beton	3.150e+7	0.20	25.00	1.000e-5	3.150e+7	0.20
2	C 25/30	3.100e+7	0.20	25.00	1.000e-5	3.100e+7	0.20

Seti gred

Set: 2 Prerez: b/d=40/40, Fiktivna ekscentričnost

Mat.	A1	A2	A3	I1	I2	I3
2 - C 25/30	1.600e-1	1.333e-1	1.333e-1	3.605e-3	2.133e-3	2.133e-3



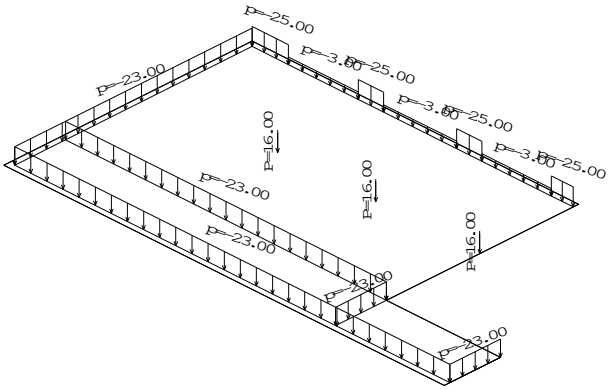
Vhodni podatki - Obtežba

Lista obtežnih primerov

LC	Naziv
1	g (g)
2	g poz 100 (g)
3	p
4	p poz 100
5	s
6	w
7	Komb.: 1.35xI+1.35xII+1.05xIII+1.05xIV+1.5xV+0.9xVI
8	Komb.: 1.35xI+1.35xII+1.05xIII+1.05xIV+0.75xV+1.5xVI
9	Komb.: 1.35xI+1.35xII+1.05xIII+1.5xIV+0.75xV+0.9xVI
10	Komb.: 1.35xI+1.35xII+1.5xIII+1.05xIV+0.75xV+0.9xVI
11	Komb.: I+1.35xII+1.05xIII+1.05xIV+1.5xV+0.9xVI
12	Komb.: 1.35xI+II+1.05xIII+1.05xIV+1.5xV+0.9xVI
13	Komb.: I+1.35xII+1.05xIII+1.05xIV+0.75xV+1.5xVI
14	Komb.: 1.35xI+II+1.05xIII+1.05xIV+0.75xV+1.5xVI
15	Komb.: I+1.35xII+1.05xIII+1.5xIV+0.75xV+0.9xVI
16	Komb.: I+1.35xII+1.5xIII+1.05xIV+0.75xV+0.9xVI
17	Komb.: 1.35xI+II+1.05xIII+1.5xIV+0.75xV+0.9xVI
18	Komb.: 1.35xI+II+1.5xIII+1.05xIV+0.75xV+0.9xVI
19	Komb.: I+II+1.05xIII+1.05xIV+1.5xV+0.9xVI
20	Komb.: I+II+1.05xIII+1.05xIV+0.75xV+1.5xVI
21	Komb.: 1.35xI+1.35xII+1.05xIII+1.05xIV+1.5xVI
22	Komb.: 1.35xI+1.35xII+1.05xIII+1.05xIV+1.5xV
23	Komb.: I+II+1.05xIII+1.5xIV+0.75xV+0.9xVI
24	Komb.: I+II+1.5xIII+1.05xIV+0.75xV+0.9xVI
25	Komb.: 1.35xI+1.35xII+1.05xIV+1.5xV+0.9xVI
26	Komb.: 1.35xI+1.35xII+1.05xIII+1.5xV+0.9xVI
27	Komb.: 1.35xI+1.35xII+1.05xIII+1.5xIV+0.9xVI
28	Komb.: 1.35xI+1.35xII+1.5xIII+1.05xIV+0.9xVI
29	Komb.: 1.35xI+1.35xII+1.05xIV+0.75xV+1.5xVI
30	Komb.: 1.35xI+1.35xII+1.05xIII+0.75xV+1.5xVI
31	Komb.: 1.35xI+1.35xII+1.05xIII+1.5xIV+0.75xV
32	Komb.: 1.35xI+1.35xII+1.5xIII+1.05xIV+0.75xV
33	Komb.: I+1.35xII+1.05xIII+1.05xIV+1.5xVI
34	Komb.: I+1.35xII+1.05xIII+1.05xIV+1.5xV
35	Komb.: 1.35xI+II+1.05xIII+1.05xIV+1.5xVI
36	Komb.: 1.35xI+II+1.05xIII+1.05xIV+1.5xV
37	Komb.: 1.35xI+1.35xII+1.5xIV+0.75xV+0.9xVI
38	Komb.: 1.35xI+1.35xII+1.5xIII+0.75xV+0.9xVI
39	Komb.: I+1.35xII+1.05xIV+1.5xV+0.9xVI
40	Komb.: I+1.35xII+1.05xIII+1.5xV+0.9xVI
41	Komb.: I+1.35xII+1.05xIII+1.5xIV+0.9xVI
42	Komb.: I+1.35xII+1.5xIII+1.05xIV+0.9xVI
43	Komb.: 1.35xI+II+1.05xIV+1.5xV+0.9xVI
44	Komb.: 1.35xI+II+1.05xIII+1.5xV+0.9xVI
45	Komb.: 1.35xI+II+1.05xIII+1.5xIV+0.9xVI
46	Komb.: 1.35xI+II+1.5xIII+1.05xIV+0.9xVI
47	Komb.: I+1.35xII+1.05xIV+0.75xV+1.5xVI
48	Komb.: I+1.35xII+1.05xIII+0.75xV+1.5xVI
49	Komb.: I+1.35xII+1.05xIII+1.5xIV+0.75xV
50	Komb.: I+1.35xII+1.5xIII+1.05xIV+0.75xV
51	Komb.: 1.35xI+II+1.05xIV+0.75xV+1.5xVI
52	Komb.: 1.35xI+II+1.05xIII+0.75xV+1.5xVI
53	Komb.: 1.35xI+II+1.05xIII+1.5xIV+0.75xV
54	Komb.: 1.35xI+II+1.5xIII+1.05xIV+0.75xV
55	Komb.: I+II+1.05xIII+1.05xIV+1.5xVI
56	Komb.: I+II+1.05xIII+1.05xIV+1.5xV
57	Komb.: I+1.35xII+1.5xIV+0.75xV+0.9xVI
58	Komb.: I+1.35xII+1.5xIII+0.75xV+0.9xVI
59	Komb.: 1.35xI+II+1.5xIV+0.75xV+0.9xVI
60	Komb.: 1.35xI+II+1.5xIII+0.75xV+0.9xVI
61	Komb.: I+II+1.05xIV+1.5xV+0.9xVI
62	Komb.: I+II+1.05xIII+1.5xV+0.9xVI
63	Komb.: I+II+1.05xIII+1.5xIV+0.9xVI
64	Komb.: I+II+1.5xIII+1.05xIV+0.9xVI
65	Komb.: I+II+1.05xIV+0.75xV+1.5xVI
66	Komb.: I+II+1.05xIII+0.75xV+1.5xVI
67	Komb.: I+II+1.05xIII+1.5xIV+0.75xV
68	Komb.: I+II+1.5xIII+1.05xIV+0.75xV
69	Komb.: 1.35xI+1.35xII+1.05xIV+1.5xVI
70	Komb.: 1.35xI+1.35xII+1.05xIV+1.5xV

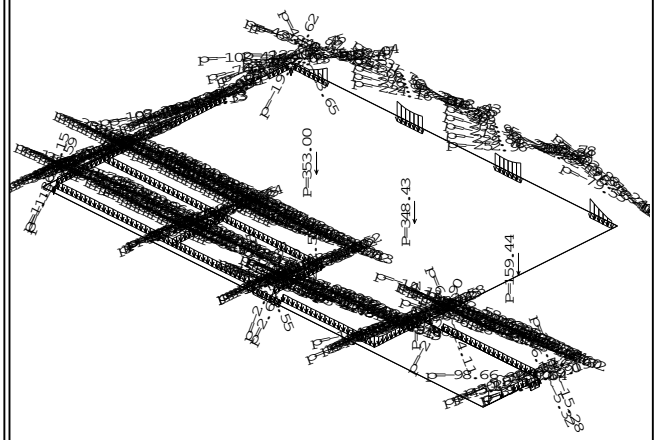
71	Komb.: 1.35xI+1.35xII+1.05xIII+1.5xVI
72	Komb.: 1.35xI+1.35xII+1.05xIII+1.5xV
73	Komb.: 1.35xI+1.35xII+1.05xIII+1.5xIV
74	Komb.: 1.35xI+1.35xII+1.5xIII+1.05xIV
75	Komb.: I+II+1.5xIV+0.75xV+0.9xVI
76	Komb.: I+II+1.5xIII+0.75xV+0.9xVI
77	Komb.: 1.35xI+1.35xII+1.5xV+0.9xVI
78	Komb.: 1.35xI+1.35xII+1.5xIV+0.9xVI
79	Komb.: 1.35xI+1.35xII+1.5xIII+0.9xVI
80	Komb.: 1.35xI+1.35xII+0.75xV+1.5xVI
81	Komb.: 1.35xI+1.35xII+1.5xIV+0.75xV
82	Komb.: 1.35xI+1.35xII+1.5xIII+0.75xV
83	Komb.: I+1.35xII+1.05xIV+1.5xVI
84	Komb.: I+1.35xII+1.05xIV+1.5xV
85	Komb.: I+1.35xII+1.05xIII+1.5xVI
86	Komb.: I+1.35xII+1.05xIII+1.5xV
87	Komb.: I+1.35xII+1.05xIII+1.5xIV
88	Komb.: I+1.35xII+1.5xIII+1.05xIV
89	Komb.: 1.35xI+II+1.05xIV+1.5xVI
90	Komb.: 1.35xI+II+1.05xIV+1.5xV
91	Komb.: 1.35xI+II+1.05xIII+1.5xVI
92	Komb.: 1.35xI+II+1.05xIII+1.5xV
93	Komb.: 1.35xI+II+1.05xIII+1.5xIV
94	Komb.: 1.35xI+II+1.5xIII+1.05xIV
95	Komb.: I+1.35xII+1.5xV+0.9xVI
96	Komb.: I+1.35xII+1.5xIV+0.9xVI
97	Komb.: I+1.35xII+1.5xIII+0.9xVI
98	Komb.: 1.35xI+II+1.5xV+0.9xVI
99	Komb.: 1.35xI+II+1.5xIV+0.9xVI
100	Komb.: 1.35xI+II+1.5xIII+0.9xVI
101	Komb.: I+1.35xII+0.75xV+1.5xVI
102	Komb.: I+1.35xII+1.5xIV+0.75xV
103	Komb.: I+1.35xII+1.5xIII+0.75xV
104	Komb.: 1.35xI+II+0.75xV+1.5xVI
105	Komb.: 1.35xI+II+1.5xIV+0.75xV
106	Komb.: 1.35xI+II+1.5xIII+0.75xV
107	Komb.: I+II+1.05xIV+1.5xVI
108	Komb.: I+II+1.05xIV+1.5xV
109	Komb.: I+II+1.05xIII+1.5xVI
110	Komb.: I+II+1.05xIII+1.5xV
111	Komb.: I+II+1.05xIII+1.5xIV
112	Komb.: I+II+1.5xIII+1.05xIV
113	Komb.: I+II+1.5xV+0.9xVI
114	Komb.: I+II+1.5xIV+0.9xVI
115	Komb.: I+II+1.5xIII+0.9xVI
116	Komb.: I+II+0.75xV+1.5xVI
117	Komb.: I+II+1.5xIV+0.75xV
118	Komb.: I+II+1.5xIII+0.75xV
119	Komb.: 1.35xI+1.35xII+1.5xVI
120	Komb.: 1.35xI+1.35xII+1.5xV
121	Komb.: 1.35xI+1.35xII+1.5xIV
122	Komb.: 1.35xI+1.35xII+1.5xIII
123	Komb.: I+1.35xII+1.5xVI
124	Komb.: I+1.35xII+1.5xV
125	Komb.: I+1.35xII+1.5xIV
126	Komb.: I+1.35xII+1.5xIII
127	Komb.: 1.35xI+II+1.5xVI
128	Komb.: 1.35xI+II+1.5xV
129	Komb.: 1.35xI+II+1.5xIV
130	Komb.: 1.35xI+II+1.5xIII
131	Komb.: I+II+1.5xVI
132	Komb.: I+II+1.5xV
133	Komb.: I+II+1.5xIV
134	Komb.: I+II+1.5xIII
135	Komb.: 1.35xI+1.35xII
136	Komb.: I+1.35xII
137	Komb.: 1.35xI+II
138	Komb.: I+II+III+IV+V+VI

Obt. 1: g (g)



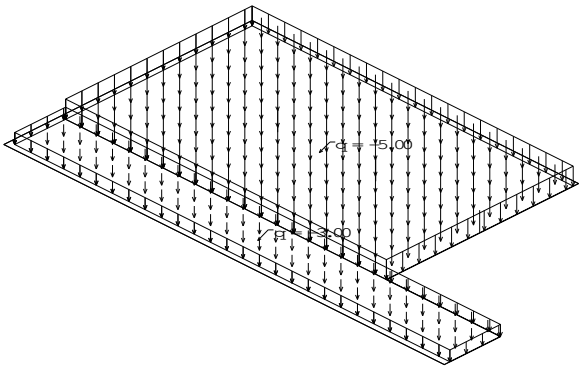
Izometrija

Obt. 2: g poz 100 (g)



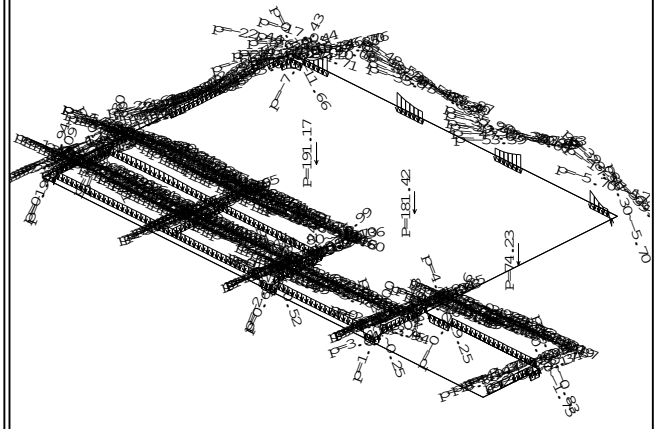
Izometrija

Obt. 3: p

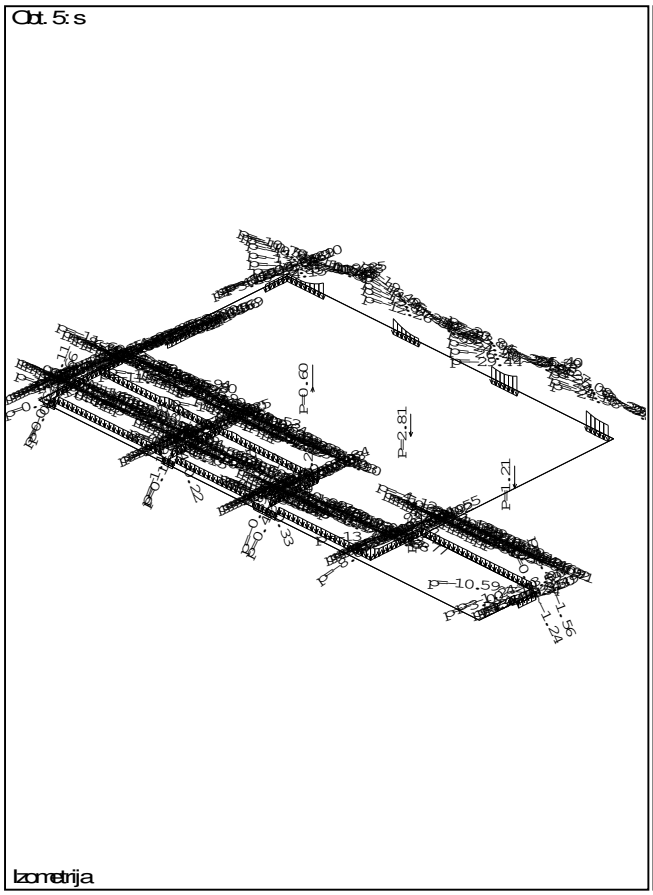


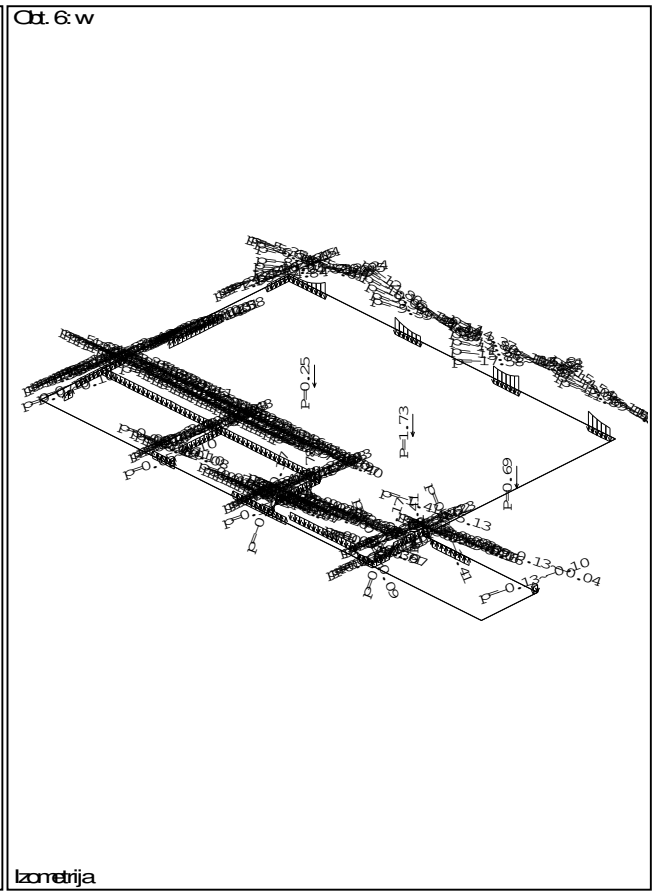
Izometrija

Obt. 4: p poz 100

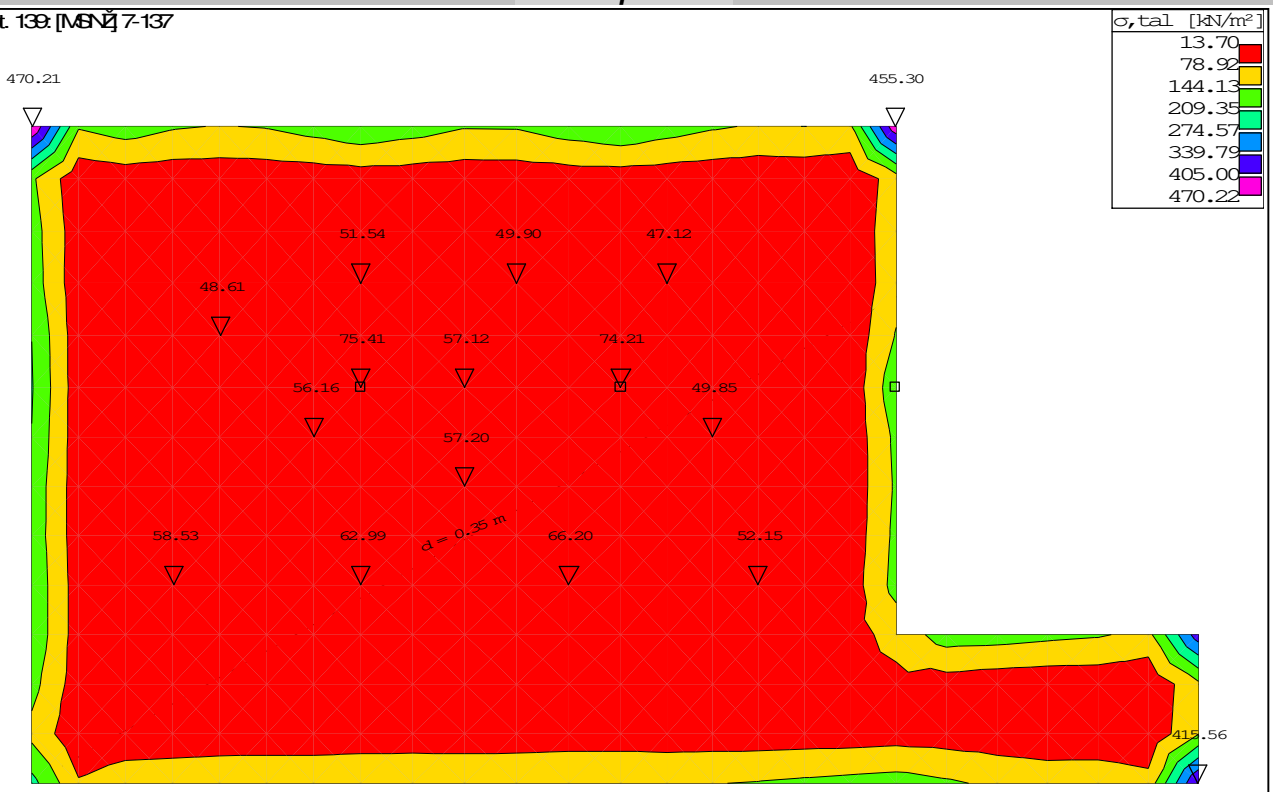


Izometrija


Obt. 5: s
P=0.60
P=2.81
P=1.21
P=10.59
Izometrija

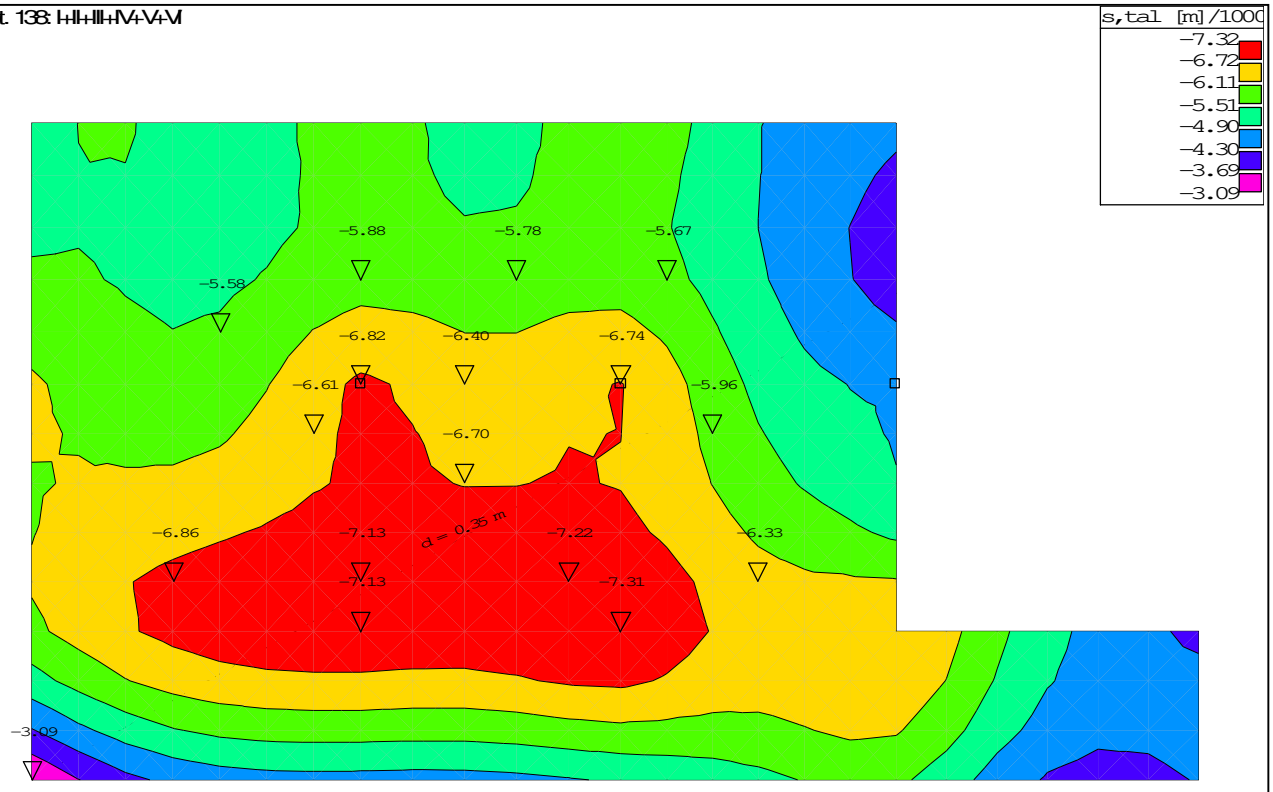

Obt. 6: w
P=0.25
P=1.73
P=0.69
Izometrija

Obt. 139: [MSNŽ] 7-137



Nivo: [0.00 m]
Vplivi v pov.podpori: max σ,tal= 470.21 / min σ,tal= 13.70 kN/m²

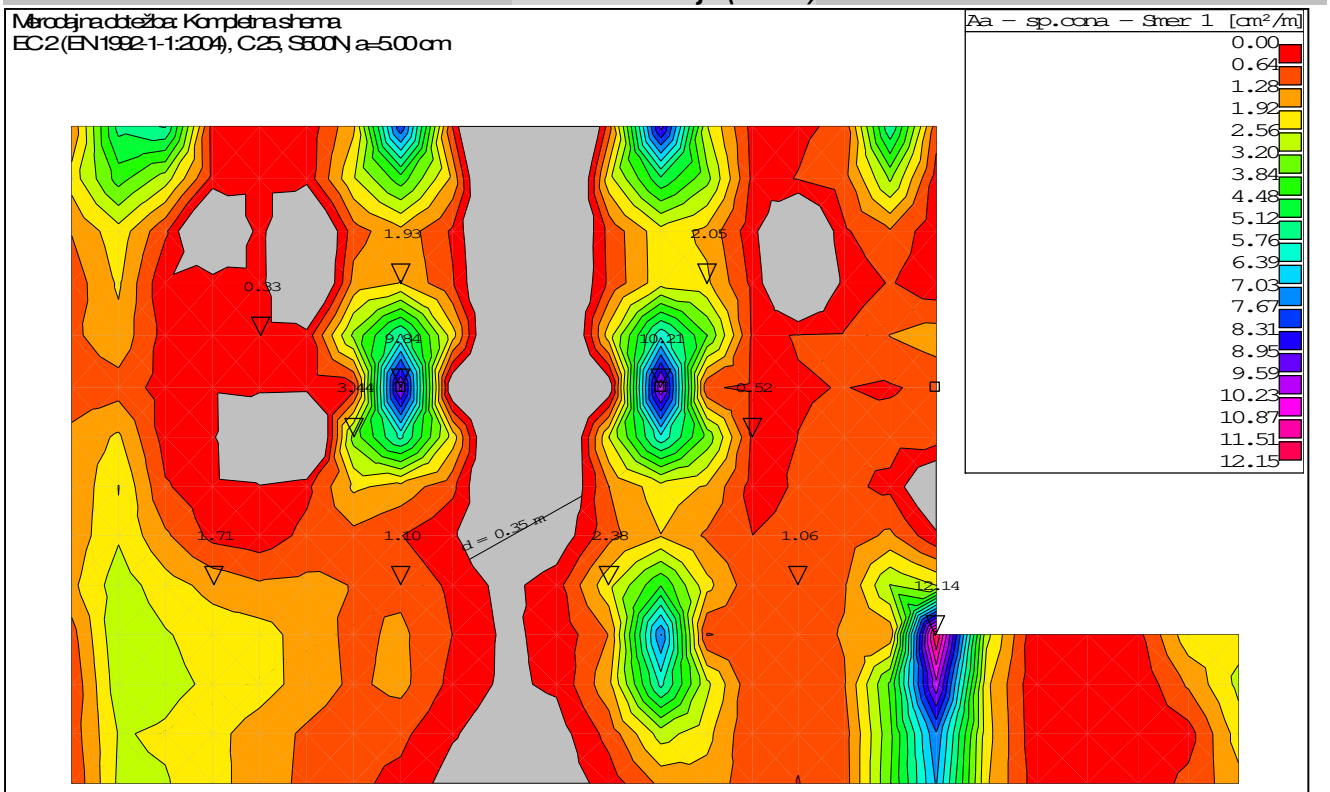
Obt. 138: I+II+III+IV+V+VI



Nivo: [0.00 m]
Vplivi v pov.podpori: max s,tal= -3.09 / min s,tal= -7.31 m/ 1000

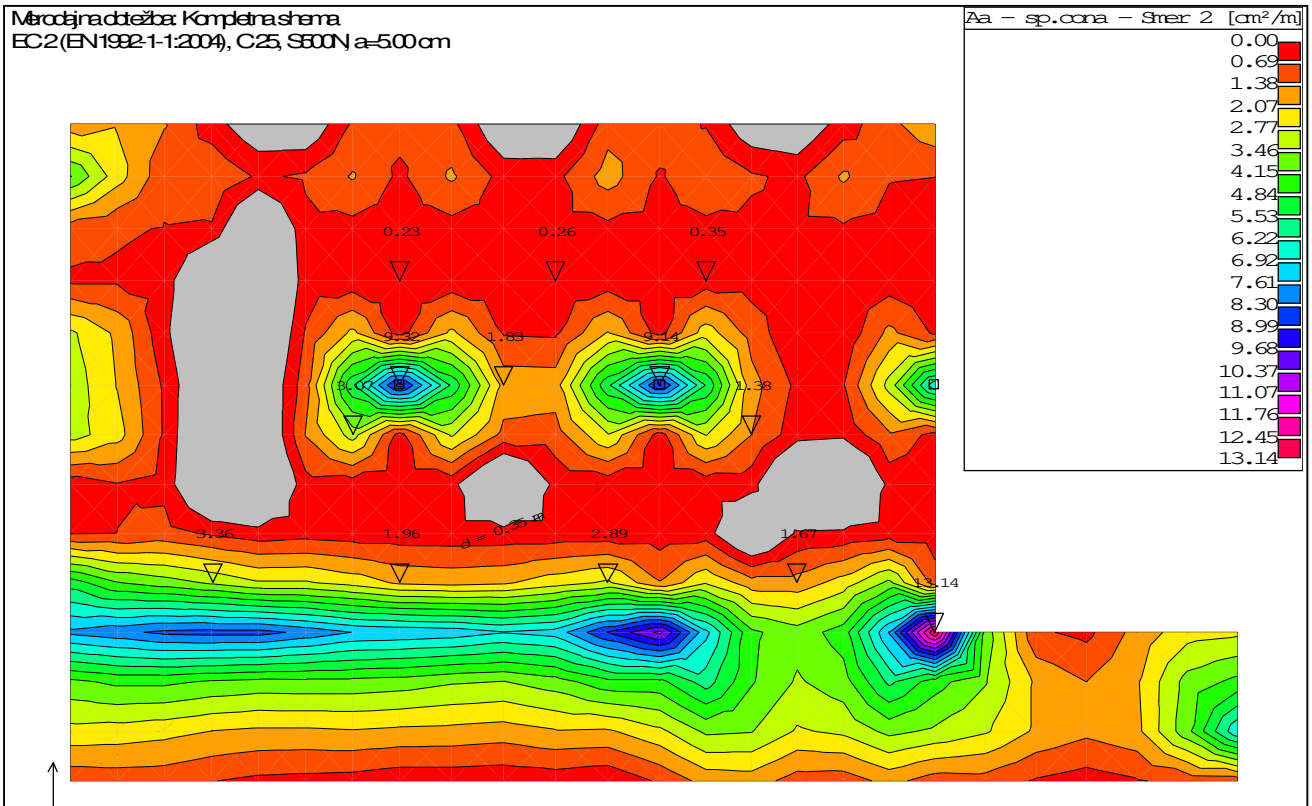
Dimenzioniranje (beton)

Merodajna obtežba: Kompletna shema
EC 2 (EN 1992-1-1:2004), C25, S500N, a=5.00 cm



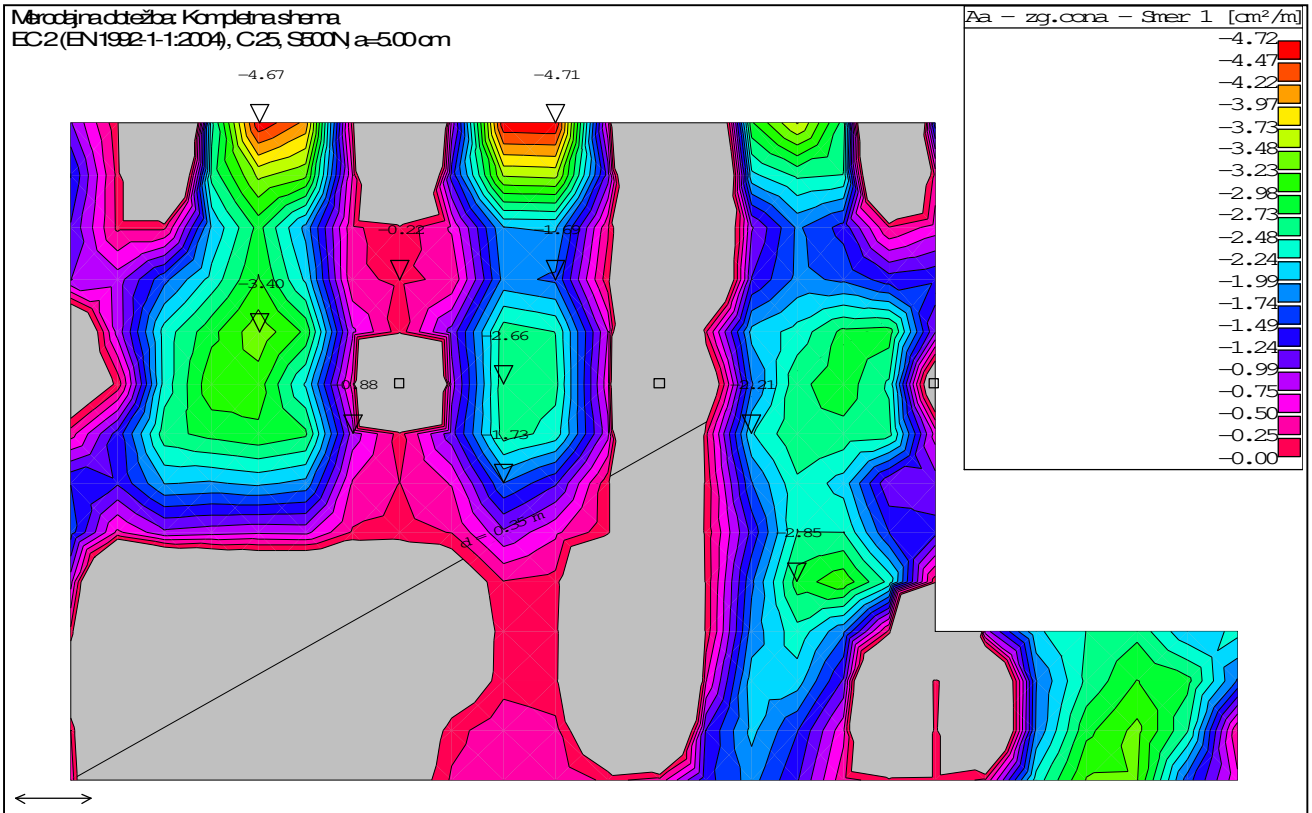
Nivo: [0.00 m]
Aa - sp.cona - Smer 1 - max Aa1,s= 12.14 cm²/m

Merodajna obtežba: Kompletna shema
EC 2 (EN 1992-1-1:2004), C25, S500N, a=5.00 cm



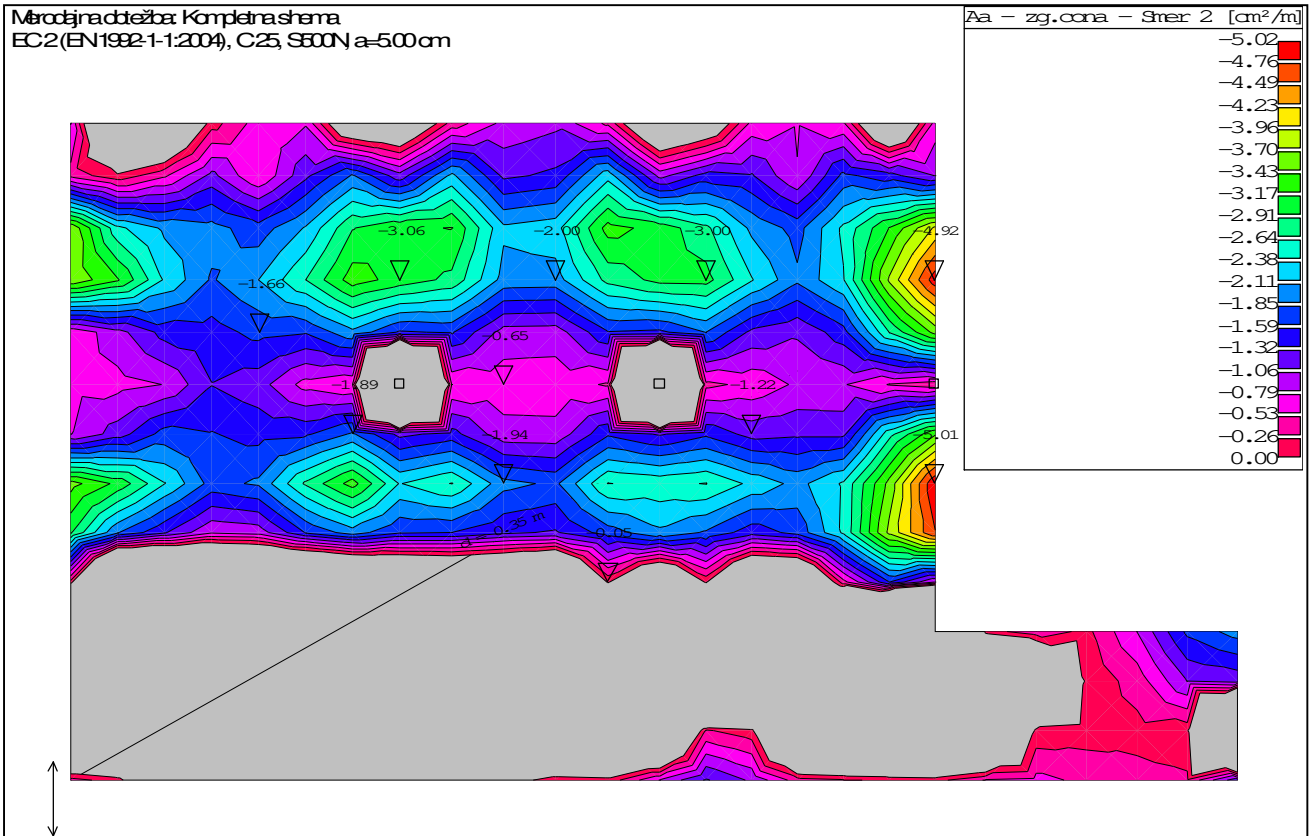
Nivo: [0.00 m]
Aa - sp.cona - Smer 2 - max Aa2,s= 13.14 cm²/m

Merodajna obtežba: Kompletna shema
EC 2 (EN 1992-1-1:2004), C25, S500N, a=5.00 cm



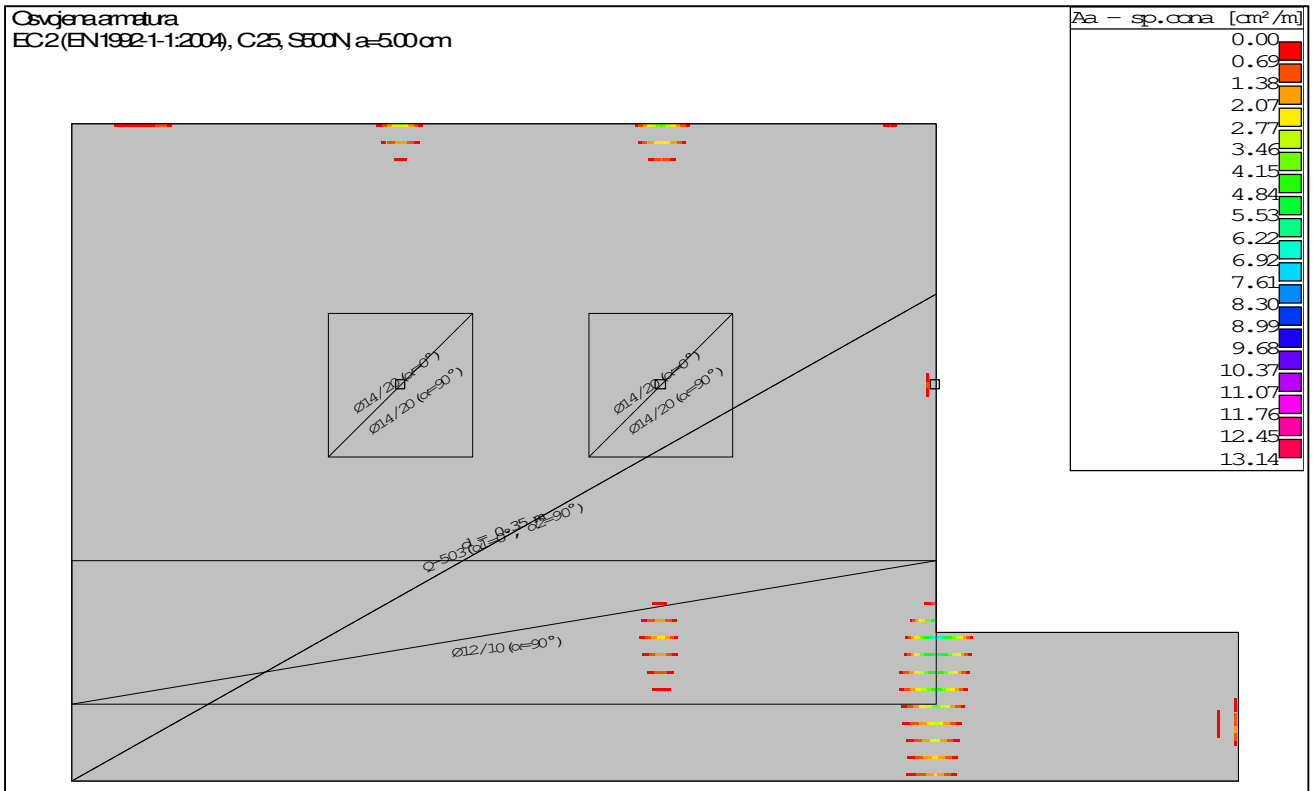
Nivo: [0.00 m]
Aa - zg.cona - Smer 1 - max Aa1,z=-4.71 cm²/m

Merodajna obtežba: Kompletna shema
EC 2 (EN 1992-1-1:2004), C25, S500N, a=5.00 cm



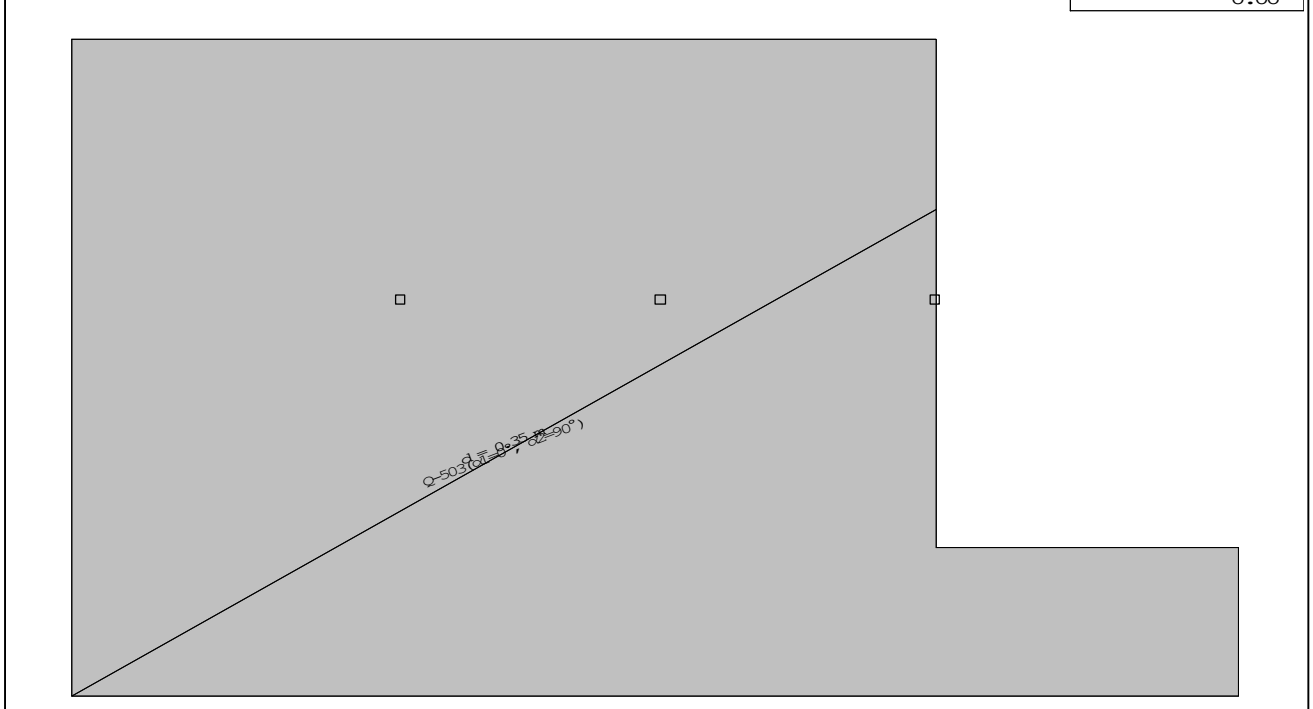
Nivo: [0.00 m]
Aa - zg.cona - Smer 2 - max Aa2,z=-5.01 cm²/m

Osvojena armatura
EC 2 (EN 1992-1-1:2004), C25, S500N, a=5.00 cm

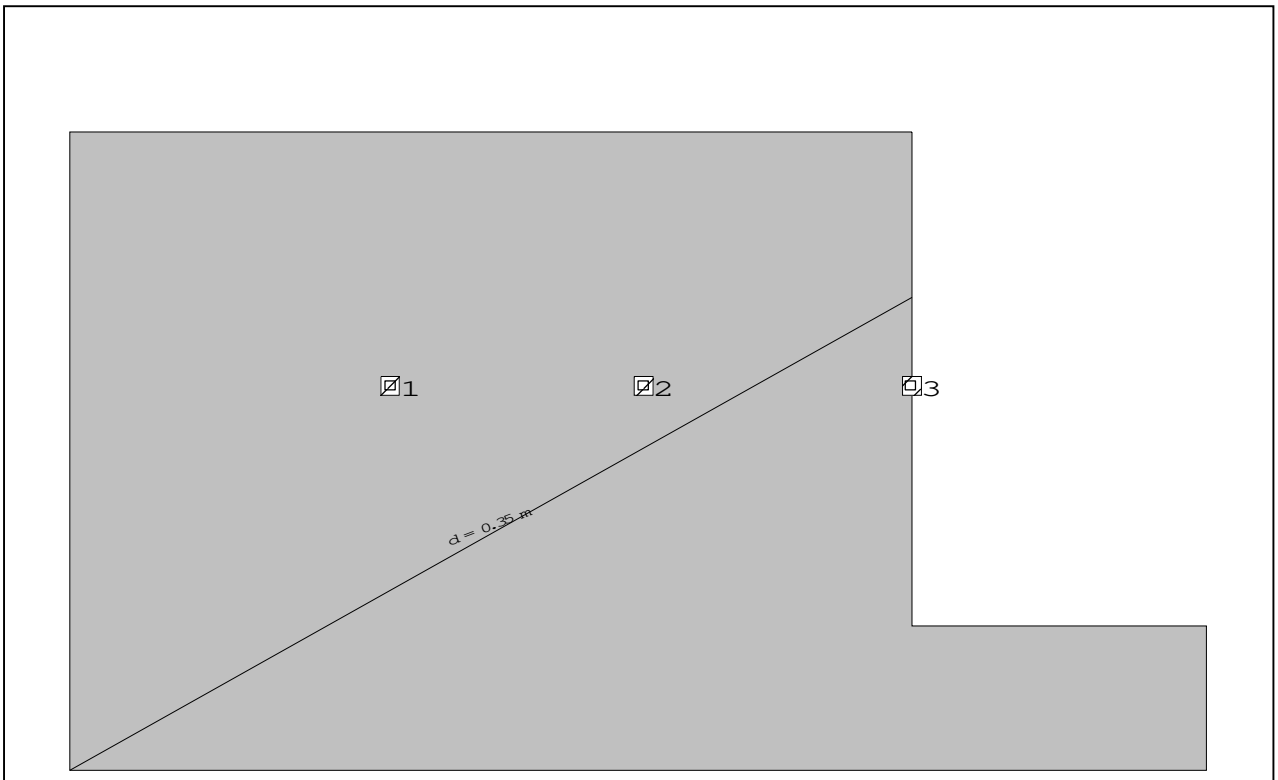


Nivo: [0.00 m]
Aa - sp. cona

Osvojena armatura
EC 2 (EN 1992-1-1:2004), C25, S500N, a=5.00 cm

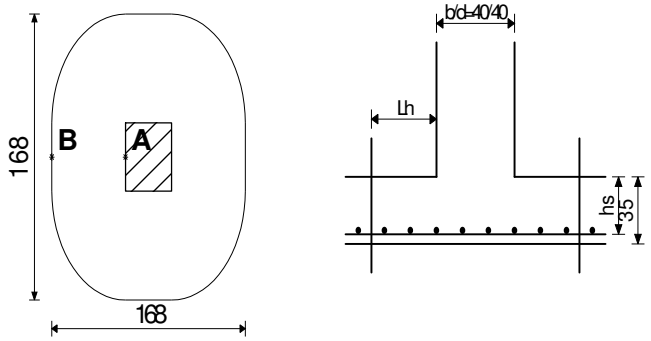


Nivo: [0.00 m]
Aa - zg. cona



Nivo: [0.00 m]
Kontrola plošč na preboj - dispozicija

Kontrola plošče proti preboju
Nivo: [0.00 m]
Prerez 1 (6.55,5.15,0.00)
C 30



KONTROLA PREREZA OB ROBU STEBRA

Merodajna kombinacija: I+II+III+IV+V+VI			
Merodajna strižna napetost (točka A)	ved =	0.061	MPa
Debelina plošče	d,pl =	0.350	m
Statična višina plošče	hs =	0.320	m
Trdnost betona	fck =	30.000	MPa
Računska trdnost betona	fcd =	20.000	MPa
Koeficient	v =	0.528	
Koeficient	γc =	1.500	
Maksimalna odpornost	vRd,max = 0.40×v×fcd =	4.224	MPa

Pogoj: ved <= vRd,max (0.06 <= 4.22)
Pogoj je izpolnjen.

KONTROLA KRITIČNEGA PREREZA 1. (Lh = 0.64m od roba stebra)

Merodajna kombinacija: I+II+III+IV+V+VI			
Merodajna strižna napetost (točka B)	ved =	0.198	MPa
Debelina plošče	d,pl =	0.350	m
Statična višina plošče	hs =	0.320	m

Obseg kritičnega prereza	u1 =	5.621	m
Trdnost betona	fck =	30.000	MPa
Računska trdnost betona	fcd =	20.000	MPa
Koeficient	v =	0.528	
Koeficient	γc =	1.500	
Maksimalna odpornost	vRd,max = 0.40×v×fcd =	4.224	MPa

Pogoj: ved <= vRd,max (0.20 <= 4.22)

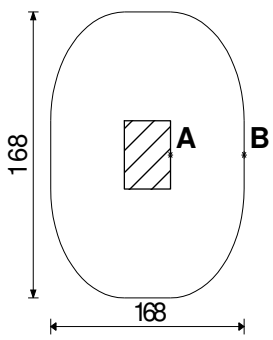
Pogoj je izpolnjen.

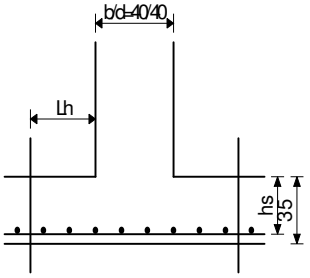
Obstoječa armatura v plošči			
Površina armature - smer 1	Aa,1 =	12.723	cm2
Procent armiranja - smer 1	ρ,1 =	0.398	%
Površina armature - smer 2	Aa,2 =	12.723	cm2
Procent armiranja - smer 2	ρ,2 =	0.398	%
Srednja vrednost procenta armiranja	ρl =	0.398	%
Koeficient	CRd,c =	0.120	
Koeficient	K1 =	0.100	
Koeficient	k,vmin=	0.035	
Koeficient	vmin=	0.459	
Normalna napetost v betonu	σcp =	0.018	MPa
Odpornost proti preboju plošče brez dodatne armature za varnost.	vRd,c =	0.493	MPa

Pogoj: ved <= vRd,c (0.20 <= 0.49)

Pogoj je izpolnjen, ni potrebna dodatna armatura proti preboju plošče.

Kontrola plošče proti preboju
Nivo: [0.00 m]
Prerez 2 (11.97,5.15,0.00)
C 30





KONTROLA PREREZA OB ROBU STEBRA

Merodajna kombinacija: I+II+III+IV+V+VI			
Merodajna strižna napetost (točka A)	ved =	0.062	MPa
Debelina plošče	d,pl =	0.350	m
Statična višina plošče	hs =	0.320	m
Trdnost betona	fck =	30.000	MPa
Računska trdnost betona	fcd =	20.000	MPa
Koeficient	v =	0.528	
Koeficient	γc =	1.500	
Maksimalna odpornost	vRd,max = 0.40×v×fcd =	4.224	MPa

Pogoj: ved <= vRd,max (0.06 <= 4.22)
Pogoj je izpolnjen.

KONTROLA KRITIČNEGA PREREZA 1. (Lh = 0.64m od roba stebra)

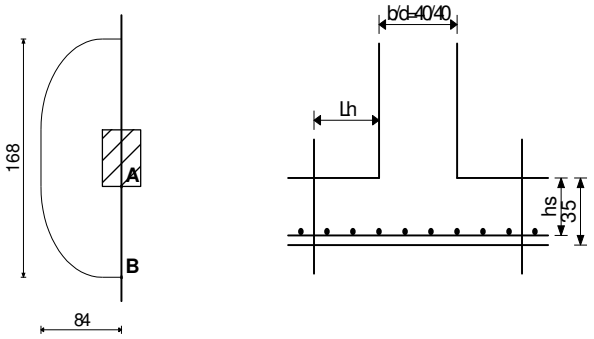
Merodajna kombinacija: I+II+III+IV+V+VI			
Merodajna strižna napetost (točka B)	ved =	0.203	MPa
Debelina plošče	d,pl =	0.350	m
Statična višina plošče	hs =	0.320	m
Obseg kritičnega prereza	u1 =	5.621	m
Trdnost betona	fck =	30.000	MPa
Računska trdnost betona	fcd =	20.000	MPa
Koeficient	v =	0.528	
Koeficient	γc =	1.500	
Maksimalna odpornost	vRd,max = 0.40×v×fcd =	4.224	MPa

Pogoj: ved <= vRd,max (0.20 <= 4.22)
Pogoj je izpolnjen.

Obstoječa armatura v plošči			
Površina armature - smer 1	Aa,1 =	12.723	cm2
Procent armiranja - smer 1	ρ,1 =	0.398	%
Površina armature - smer 2	Aa,2 =	12.723	cm2
Procent armiranja - smer 2	ρ,2 =	0.398	%
Srednja vrednost procenta armiranja	ρl =	0.398	%
Koeficient	CRd,c =	0.120	
Koeficient	K1 =	0.100	
Koeficient	k,vmin=	0.035	
Koeficient	vmin=	0.459	
Normalna napetost v betonu	σcp =	0.019	MPa
Odpornost proti preboju plošče brez dodatne armature za varnost.	vRd,c =	0.493	MPa

Pogoj: ved <= vRd,c (0.20 <= 0.49)
Pogoj je izpolnjen, ni potrebna dodatna armatura proti preboju plošče.

Kontrola plošče proti preboju
Nivo: [0.00 m]
Prerez 3 (17.70,5.15,0.00)
C 30



KONTROLA PREREZA OB ROBU STEBRA

Merodajna kombinacija: I+II+III+IV+V+VI			
Merodajna strižna napetost (točka A)	ved =	0.055	MPa
Debelina plošče	d,pl =	0.350	m
Statična višina plošče	hs =	0.320	m
Trdnost betona	fck =	30.000	MPa
Računska trdnost betona	fcd =	20.000	MPa
Koeficient	v =	0.528	
Koeficient	γc =	1.500	
Maksimalna odpornost	vRd,max = 0.40×v×fcd =	4.224	MPa

Pogoj: ved <= vRd,max (0.05 <= 4.22)
Pogoj je izpolnjen.

KONTROLA KRITIČNEGA PREREZA 1. (Lh = 0.64m od roba stebra)

Merodajna kombinacija: I+II+III+IV+V+VI			
Merodajna strižna napetost (točka B)	ved =	0.161	MPa
Debelina plošče	d,pl =	0.350	m
Statična višina plošče	hs =	0.320	m
Obseg kritičnega prereza	u1 =	2.811	m
Trdnost betona	fck =	30.000	MPa
Računska trdnost betona	fcd =	20.000	MPa
Koeficient	v =	0.528	
Koeficient	γc =	1.500	
Maksimalna odpornost	vRd,max = 0.40×v×fcd =	4.224	MPa

Pogoj: ved <= vRd,max (0.16 <= 4.22)
Pogoj je izpolnjen.

Obstoječa armatura v plošči			
Površina armature - smer 1	Aa,1 =	5.027	cm2
Procent armiranja - smer 1	ρ,1 =	0.157	%
Površina armature - smer 2	Aa,2 =	5.027	cm2
Procent armiranja - smer 2	ρ,2 =	0.157	%
Srednja vrednost procenta armiranja	ρl =	0.157	%
Koeficient	CRd,c =	0.120	
Koeficient	K1 =	0.100	
Koeficient	k,vmin=	0.035	
Koeficient	vmin=	0.459	
Normalna napetost v betonu	σcp =	0.025	MPa
Odpornost proti preboju plošče brez dodatne armature za varnost.	vRd,c =	0.462	MPa

Pogoj: ved <= vRd,c (0.16 <= 0.46)
Pogoj je izpolnjen, ni potrebna dodatna armatura proti preboju plošče.