

OKVIRJA poz : P1, P2

Obtežba :

- Teža nosilca	0.50 x 0.30x 25	=	3.83 kN/m
- Stropna plošča	(4.00 + 3.00) x 7.00	=	49.00 kN/m
- Zid	0.51 x 1.00 x 18	=	9.20 kN/m
- Streha	(4.00 + 3.00) x 1.50	=	10.50 kN/m

$$g = 72.53 \text{ kN/m}$$

$$p = 10.50 \text{ kN/m}$$

Horizontalna obtežba : $H = 1.50 \times 0.10 \times 72.53 \times 1.45 = 15.80 \text{ kN}$

Osnovni podatki o modelu

Datoteka: DERMA UKC P1 P2.twp
Datum preračuna: 24.10.2019

Način preračuna: 2D model (Xp, Zp, Yr)

- ☒ Teorija I-ga reda
- ☐ Modalna analiza
- ☐ Stabilnost
- ☐ Teorija II-ga reda
- ☐ Seizmični preračun
- ☐ Faze gradnje
- ☐ Nelinearen preračun

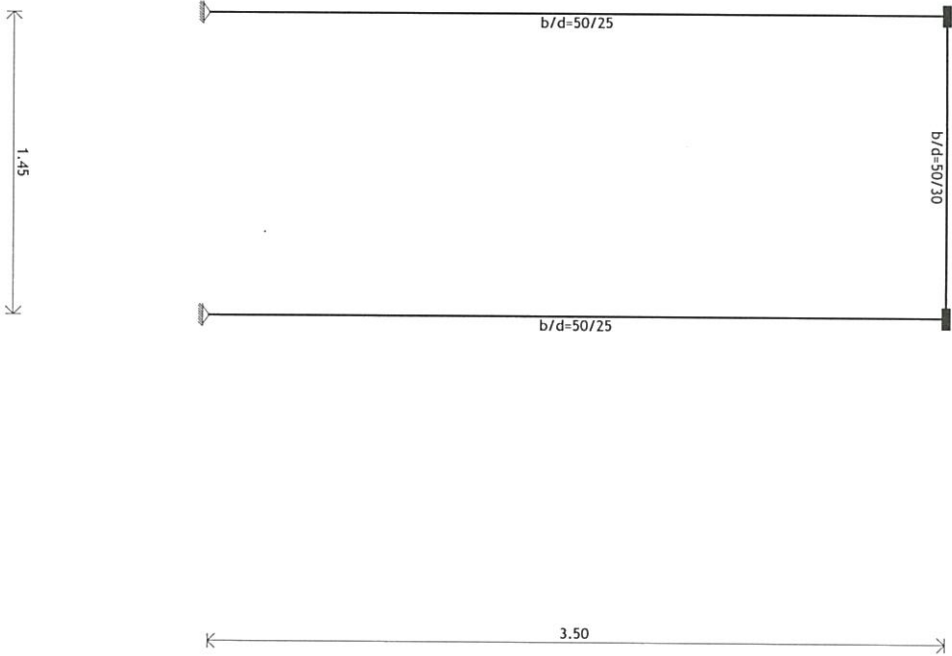
Velikost modela

- Število vozlišč: 4
- Število ploskovnih elementov: 0
- Število grednih elementov 3
- Število robnih elementov 8
- Število osnovnih obtežnih primerov: 3
- Število kombinacij obtežb: 3

Enote mer

- Dolžina: m [cm,mm]
- Sila: kN
- Temperatura: Celsius

Vhodni podatki - Konstrukcija

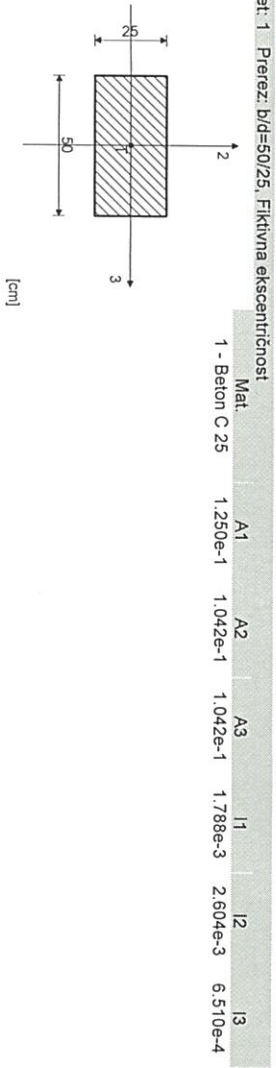


OKVIR P1,P2

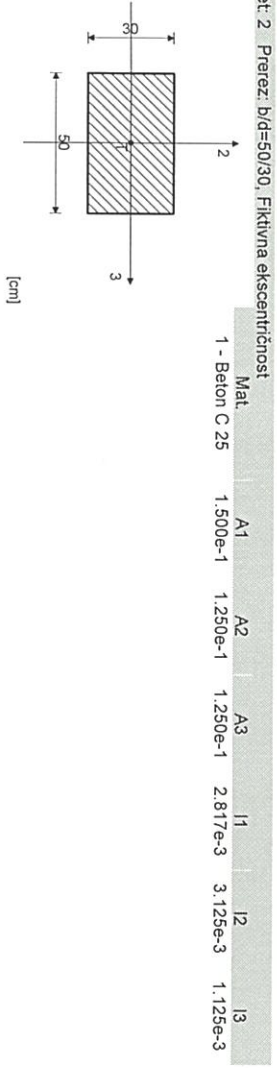
Tabele materialov						
No	Naziv materiala	E[kN/m2]	μ	γ [kN/m3]	α [1/C]	Em[kN/m2]
1	Beton C 25	2.583e+7	0.20	25.00	1.000e-5	2.583e+7
						μ_m
						0.20

Self gred

Set: 1 Prerez: b/d=50/25, Fiktivna ekscentričnost



Set: 2 Prerez: b/d=50/30, Fiktivna ekscentričnost



Vhodni podatki - Obtežba

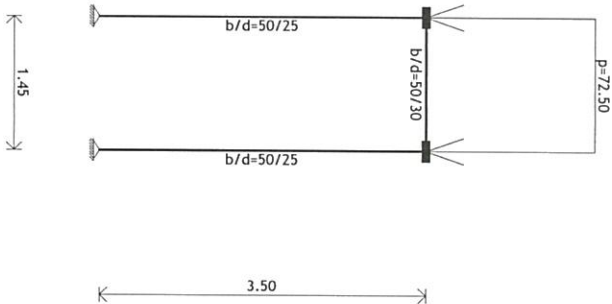
Lista obtežnih primerov

LC	Naziv
1	stalna (g)
2	koristna
3	horizontalna

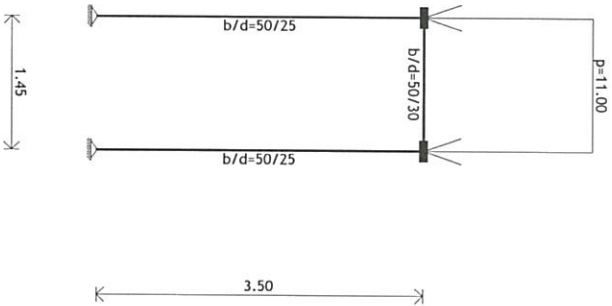
Obt. 1: stalna (g)

LC	Naziv
4	Komb.: stalna+koristna (1.35xI+1.5xII)
5	Komb.: stalna+kor+potres (I+II+III)
6	Komb.: stalna+koristna+potres (I+II-1xIII)

Obt. 2: koristna

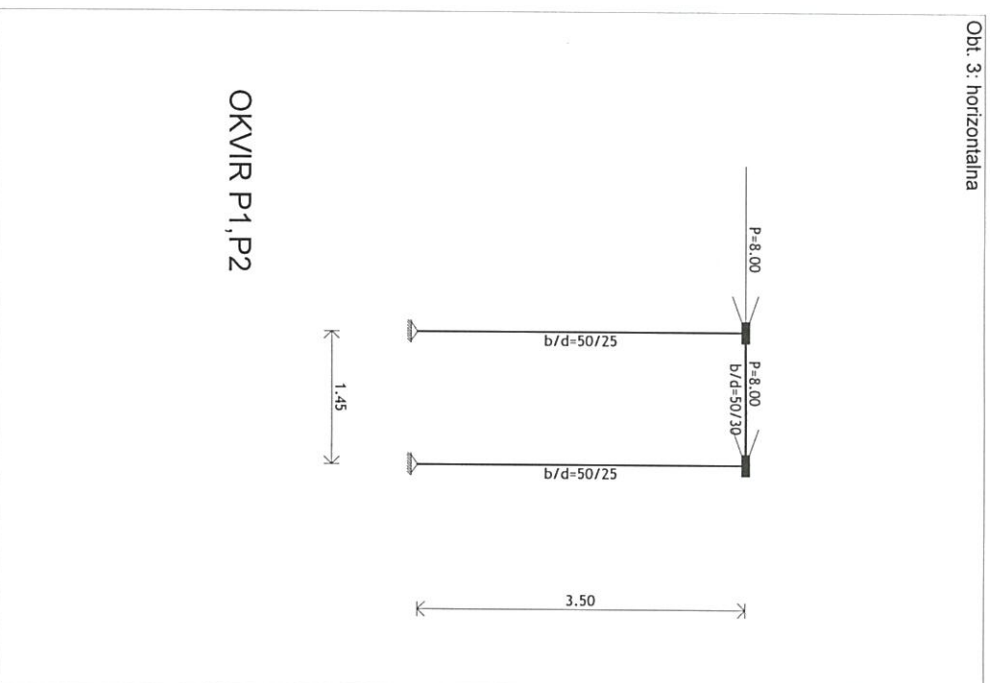


OKVIR P1,P2



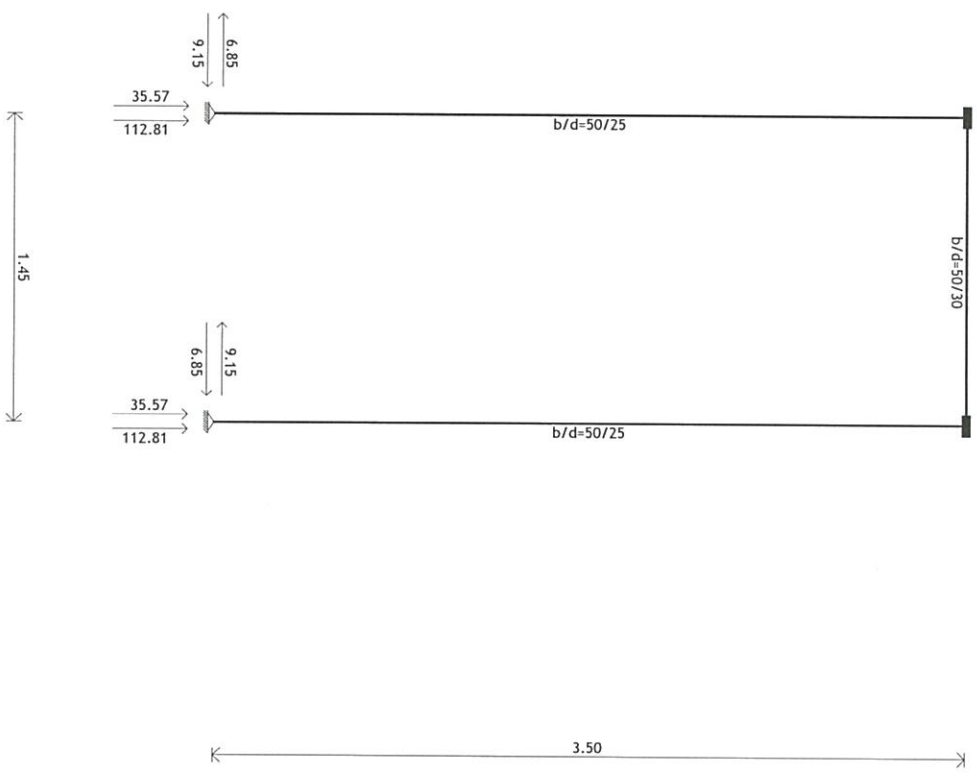
OKVIR P1,P2

Obt. 3: horizontalna



Obt. 7: [Ovo] 4-6 OVOJNICA REAKCIJ

Statični preračun



OKVIR P1,P2

Reakcije podpor (Min/Max)

POTREBNA ARMATURA V PREKLADI

Dimenzioniranje (beton)

Aa2/Aa1

3.06

1.76

Aa3/Aa4

Aa,st

5.21

Armatura v gredi: (3-4)

Greda 3-4

EC 2 (EN 1992-1-1:2004)
C 35 ($\gamma_C = 1.50, \gamma_S = 1.15$)
S500H
Dimenzioniranje skupine obtežnih
primerov: 4-6

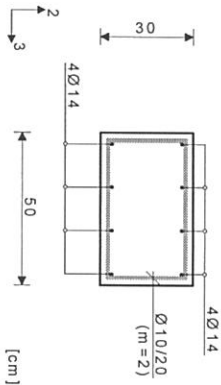
Procent armiranja: 0.82%

Merodajna kombinacija za upogib:
 $1.00xI+1.00xII+1.00xIII$
 $N1u = -1.15 \text{ kN}$
 $M2u = 0.00 \text{ kNm}$
 $M3u = 23.97 \text{ kNm}$

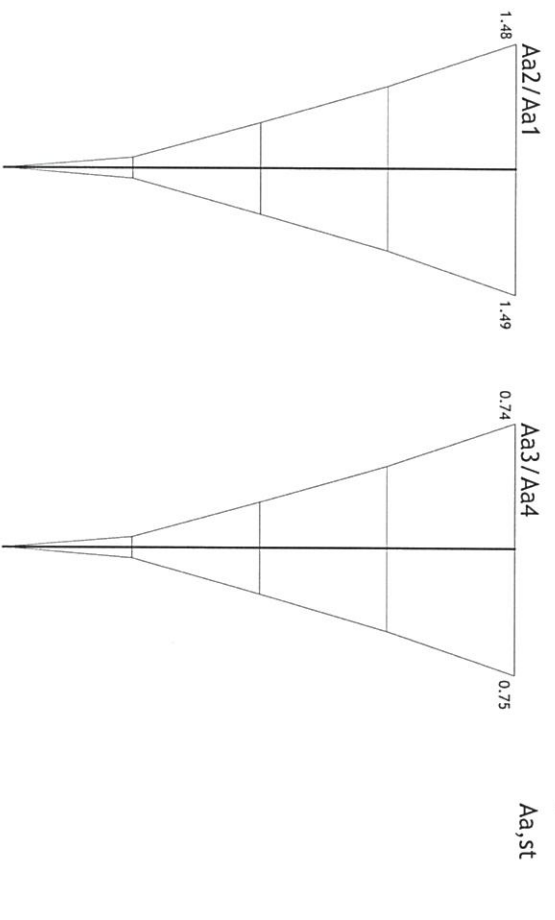
Merodajna kombinacija za strig:

$1.00xI+1.00xII-1.00xIII$
 $T2u = -101.88 \text{ kN}$
 $T3u = 0.00 \text{ kN}$
 $M1u = 0.00 \text{ kNm}$

$eb/ea = -2.668/25.000 \text{ ‰}$
 $Aa1 = 1.76 \text{ cm}^2$
 $Aa2 = 3.06 \text{ cm}^2$
 $Aa3 = 0.00 \text{ cm}^2$
 $Aa4 = 0.00 \text{ cm}^2$
 $Aa.st = 5.21 \text{ cm}^2/\text{m}$
[osvojeno $Aa.st = \varnothing 10/20(m=2) = 3.93 \text{ cm}^2/\text{m}$]
(m=2)



POTREBNA ARMATURA V STEBRU



Armatura v gredi: (1-3)

Greda 3-1

EC 2 (EN 1992-1-1:2004)
C 35 ($\gamma_C = 1.50, \gamma_S = 1.15$)

S500H

Dimenzioniranje skupine obtežnih

primerov: 4-6

II, 2 = 3.50 m ($\gamma_2 = 24.25$)

II, 3 = 3.50 m ($\gamma_3 = 48.50$)

Nepomična konstrukcija

Merodajna kombinacija za upogib:

1.00xI+1.00xII-1.00xIII

N1u = -101.88 kN

M2u = 0.00 kNm

M3u = 32.03 kNm

Merodajna kombinacija za strig:

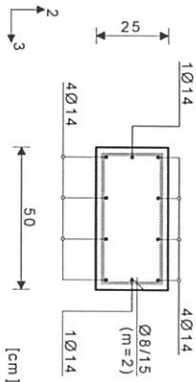
1.00xI+1.00xII-1.00xIII

T2u = 9.15 kN

T3u = 0.00 kN

M1u = 0.00 kNm

Perez 1-1 x = 0.00m



$\epsilon_b/\epsilon_a = -3.500/19.521 \text{ ‰}$

Aa1 = 1.49 cm²

Aa2 = 1.48 cm²

Aa3 = 0.75 cm²

Aa4 = 0.74 cm²

Aa,sl = 0.00 cm²/m

(Osvobodeno Aa,sl = Ø8x15(m=2) = 3.35 cm²/m)

Procent armiranja: 1.23%

(m=2)

OKVIR poz : P3

Obteřba :

- | | | | |
|------------------|------------------------------|---|------------|
| - Teža nosilca | $0.50 \times 0.30 \times 25$ | = | 3.83 kN/m |
| - Stropna plošča | $(4.00 + 3.00) \times 7.00$ | = | 49.00 kN/m |
| - Zid | $0.51 \times 1.00 \times 18$ | = | 9.20 kN/m |
| - Streha | $(4.00 + 3.00) \times 1.50$ | = | 10.50 kN/m |

$$g = 72.53 \text{ kN/m}$$

$$\text{Koristna obteřba } p = 12.00 \text{ kN/m}$$

$$\text{Horizontalna obteřba : } H = 1.50 \times 0.10 \times 72.53 \times 1.80 = 19.60 \text{ kN}$$

Osnovni podatki o modelu

Datoteka:
Datum preračuna:

DERMA UKC P3.twp
24.10.2019

Način preračuna:

2D model (Xp, Zp, Yr)

- ☒ Teorija I-ga reda
- ☐ Modalna analiza
- ☐ Stabilnost
- ☐ Teorija II-ga reda
- ☐ Seizmični preračun
- ☐ Faze gradnje
- ☐ Nelinearen preračun

Velikost modela

Število vozlišč:
Število ploskovnih elementov:
Število grednih elementov
Število robnih elementov
Število osnovnih obtežnih primerov:
Število kombinacij obtežb:

4
0
3
8
3
3

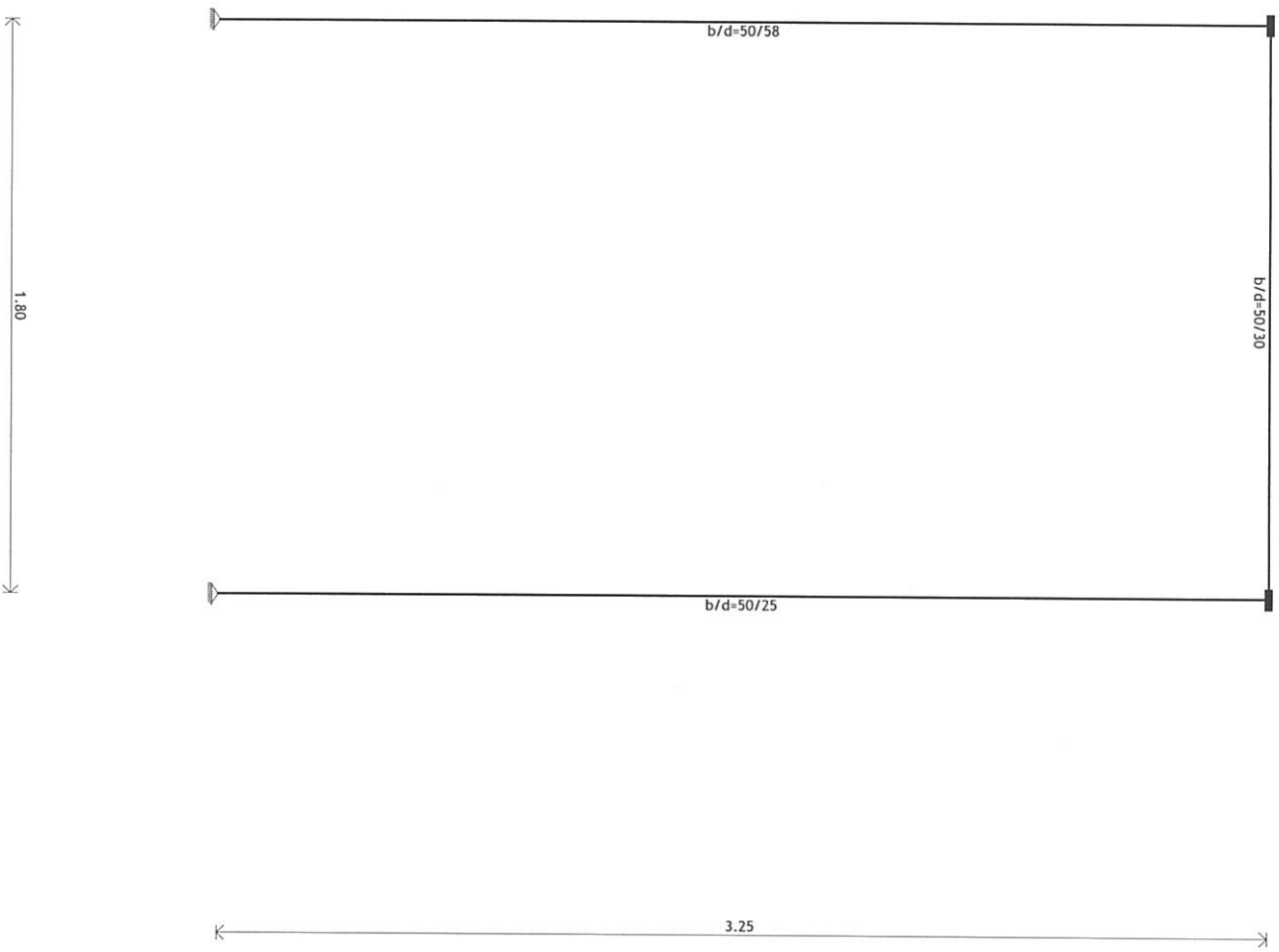
Enote mer

Dolžina:
Sila:
Temperatura:

m [cm,mm]
kN
Celsius

RAČUNSKI MODEL

Vhodni podatki - Konstrukcija

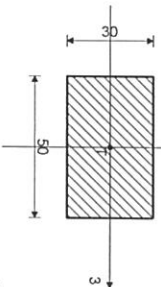


OKVIR P3

Tabele materialov						
No	Naziv materiala	E[kN/m2]	μ	γ [kN/m3]	α [1/C]	E _m [kN/m2]
1	Beton C 25	2.583e+7	0.20	25.00	1.000e-5	2.583e+7

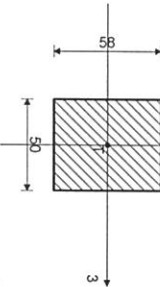
Seti gred

Set: 1 Prerez: b/d=50/30, Fiktivna ekscentričnost						
Mat.	A1	A2	A3	I1	I2	I3
1 - Beton C 25	1.500e-1	1.250e-1	1.250e-1	2.817e-3	3.125e-3	1.125e-3



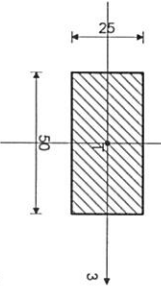
[cm]

Set: 2 Prerez: b/d=50/58, Fiktivna ekscentričnost						
Mat.	A1	A2	A3	I1	I2	I3
1 - Beton C 25	2.900e-1	2.417e-1	2.417e-1	1.165e-2	6.042e-3	8.130e-3



[cm]

Set: 3 Prerez: b/d=50/25, Fiktivna ekscentričnost						
Mat.	A1	A2	A3	I1	I2	I3
1 - Beton C 25	1.250e-1	1.042e-1	1.042e-1	1.788e-3	2.604e-3	6.510e-4



[cm]

Vhodni podatki - Obtežba

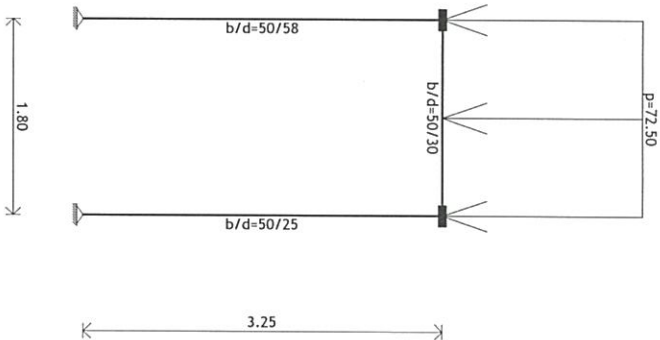
Lista obtežnih primerov

LC	Naziv
1	stalna (g)
2	korisna
3	horizontalna

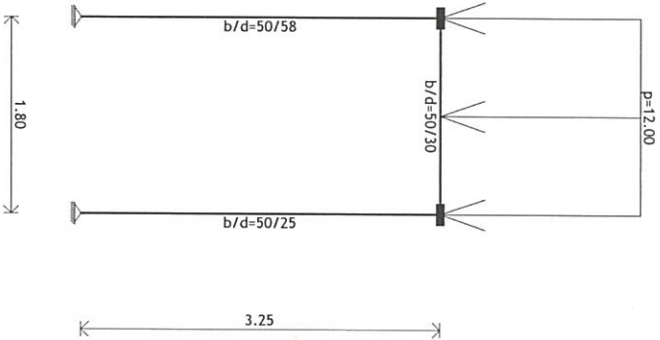
Obt. 1: stalna (g)

LC	Naziv
4	Komb.: stalna+korisna (1.35xI+1.5xII)
5	Komb.: stalna+kor+horiz (I+II+III)
6	Komb.: stalna+horiz-horiz (I+II-1xIII)

Obt. 2: korisna

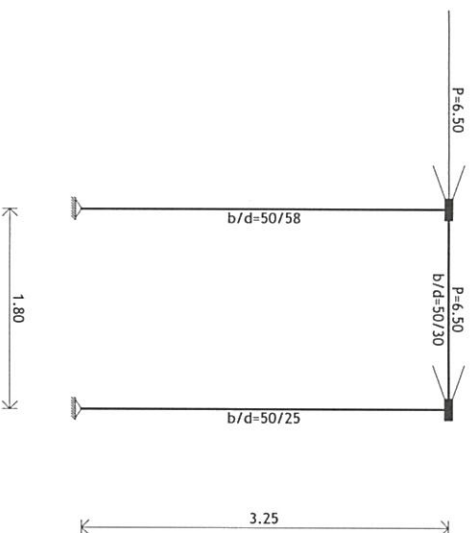


OKVIR P3



OKVIR P3

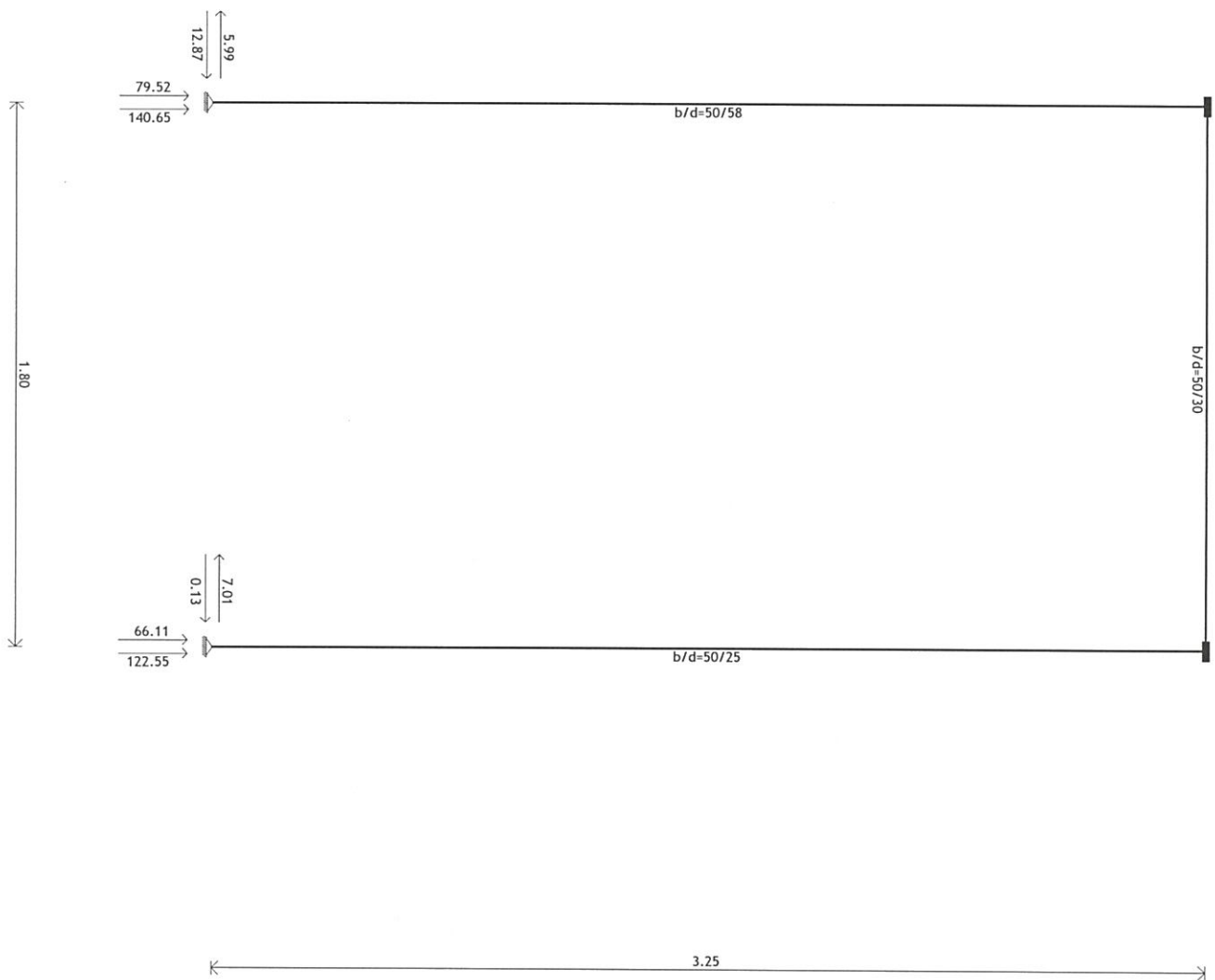
Obt. 3: horizontalna



OKVIR P3

Obt. 7: [Ovo] 4-6 REAKCIJE

Statični preračun

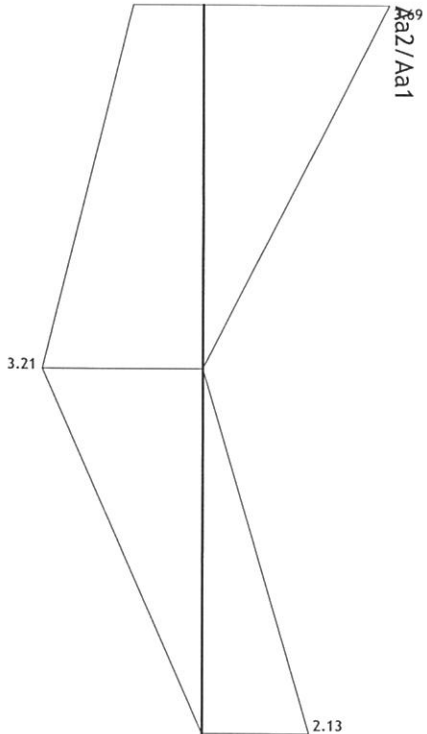


OKVIR P3

Reakcije podpor (Min/Max)

POTREBNA ARMATURA V GREDI

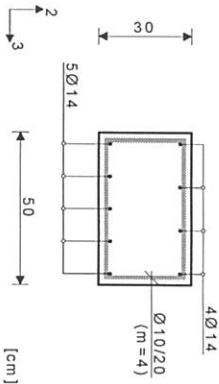
Dimenzioniranje (beton)



Greda 3-4

EC 2 (EN 1992-1-1:2004)
C 35 ($\gamma_C = 1.50$, $\gamma_S = 1.15$)
S500H
Dimenzioniranje skupine obtežnih
primerov: 4-6

Pretez 1-1 $x = 0.00m$



Merodajna kombinacija za upogib:
1.00xI+1.00xII-1.00xIII
N1u = -6.37 kN
M2u = 0.00 kNm
M3u = -41.82 kNm

Merodajna kombinacija za strig:

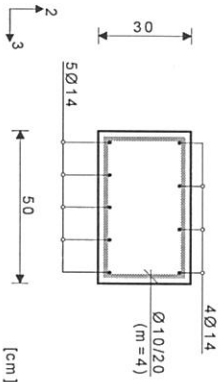
1.35xI+1.50xII -108.84 kN
T2u = 0.00 kN
T3u = 0.00 kN
M1u = 0.00 kNm

$eb/ea = -2.842/25.000 \%$

Aa1 = 1.40 cm²
Aa2 = 3.69 cm²
Aa3 = 0.00 cm²
Aa4 = 0.00 cm²
Aa.st = 5.56 cm²/m (m=2)
[Osnovno Aa.st = 0.020(m=4) = 7.65 cm²/m]

Procent armiranja: 0.92%

Pretez 2-2 $x = 0.90m$



Merodajna kombinacija za upogib:

1.00xI+1.00xII+1.00xIII
N1u = -0.51 kN
M2u = 0.00 kNm
M3u = 34.07 kNm

$eb/ea = -1.969/25.000 \%$

Aa1 = 3.21 cm²
Aa2 = 0.00 cm²
Aa3 = 0.00 cm²
Aa4 = 0.00 cm²
Aa.st = 0.00 cm²/m (m=2)
[Osnovno Aa.st = 0.020(m=4) = 7.65 cm²/m]

Procent armiranja: 0.92%

Merodajna kombinacija za strig:

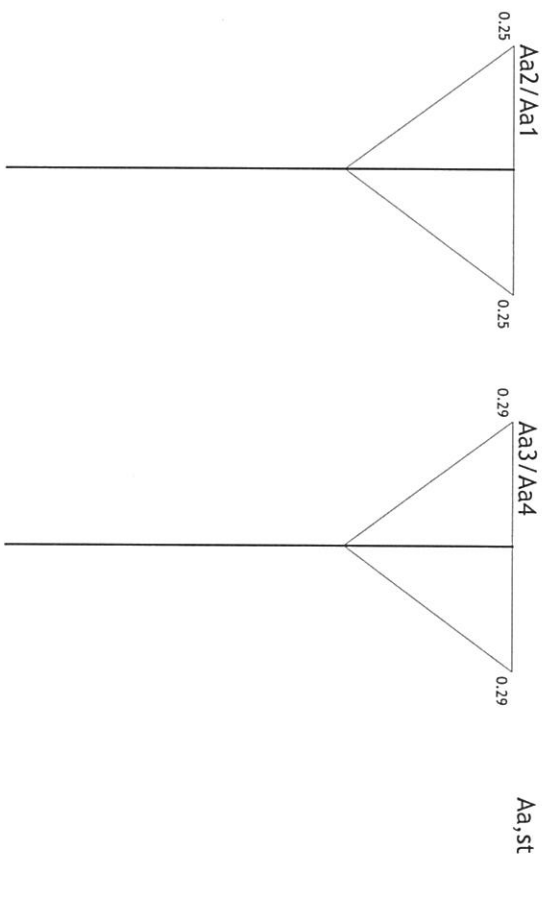
1.00xI+1.00xII-1.00xIII
T2u = -23.47 kN
T3u = 0.00 kN
M1u = 0.00 kNm

$eb/ea = -1.969/25.000 \%$

Aa1 = 3.21 cm²
Aa2 = 0.00 cm²
Aa3 = 0.00 cm²
Aa4 = 0.00 cm²
Aa.st = 0.00 cm²/m (m=2)
[Osnovno Aa.st = 0.020(m=4) = 7.65 cm²/m]

Procent armiranja: 0.92%

POTREBNA ARMATURA V STEBRU 50/58 cm



Armatura v gredi: (1-3)

Greda 3-1

EC 2 (EN 1992-1-1:2004)
C 35 ($\gamma_C = 1.50$, $\gamma_S = 1.15$)
S500H

Dimenzioniranje skupine obtežnih

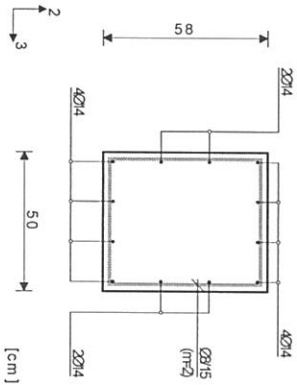
primerov: 4-6

li, 2 = 3.25 m ($\lambda.2 = 22.52$)

li, 3 = 3.25 m ($\lambda.3 = 19.41$)

Nepomikna konstrukcija

Pretez 1-1 x = 0.00m



Merodajna kombinacija za upogib:

1.00x1+1.00xII-1.00xIII
N1u = -102.90 kN
M2u = 0.00 kNm
M3u = 41.82 kNm

Merodajna kombinacija za strig:

1.00xI+1.00xII-1.00xIII
T2u = 12.87 kN
T3u = 0.00 kN
M1u = 0.00 kNm

eb/ea = -1.373/25.000 ‰

Aa1 = 0.25 cm²

Aa2 = 0.25 cm²

Aa3 = 0.29 cm²

Aa4 = 0.29 cm²

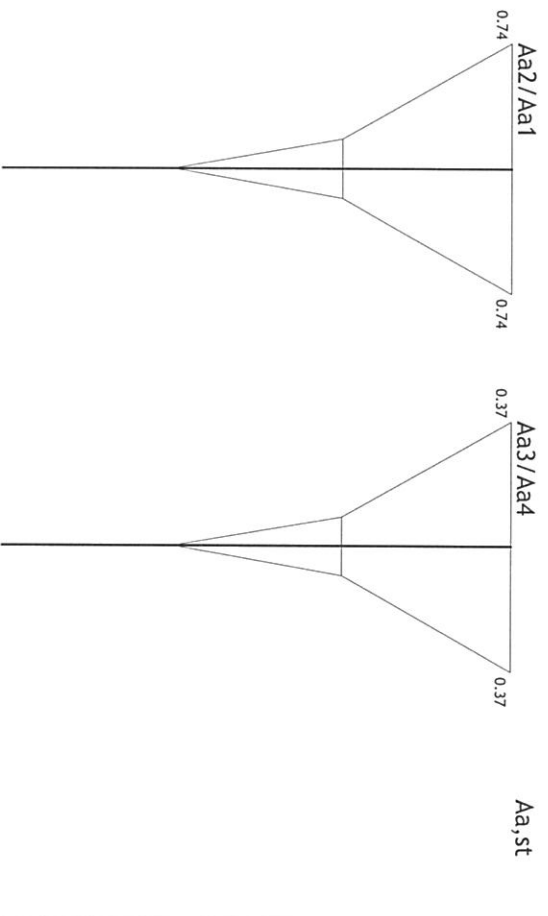
Aa, st = 0.00 cm²/m

[Osvojeno Aa, st = 0.8/15(m=2) = 3.35 cm/m]

Percent armiranja: 0.64%

(m=2)

POTREBNA ARMATURA V STEBRU 50x25 cm



Greda 4-2

EC 2 (EN 1992-1-1:2004)
C 35 ($\gamma_C = 1.50, \gamma_S = 1.15$)
S500H

Dimenzioniranje skupine obtežnih

primerov: 4-6

II, 2 = 3.25 m ($\lambda_2 = 22.52$)

II, 3 = 3.25 m ($\lambda_3 = 45.03$)

Nepomična konstrukcija

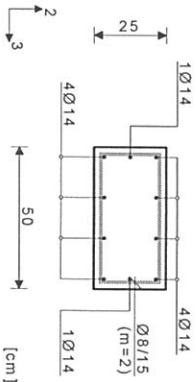
Merodajna kombinacija za upogib:

$1.00xI + 1.00xII + 1.00xIII$
 $N_{Tu} = -102.90 \text{ kN}$
 $M_{2u} = 0.00 \text{ kNm}$
 $M_{3u} = -22.80 \text{ kNm}$

Merodajna kombinacija za strig:

$1.00xI + 1.00xII + 1.00xIII$
 $T_{2u} = -7.01 \text{ kN}$
 $T_{3u} = 0.00 \text{ kN}$
 $M_{1u} = 0.00 \text{ kNm}$

Prerez 1-1 $x = 0.00\text{m}$



$eb/ea = -3.369/25.000 \text{ ‰}$

$A_{a1} = 0.74 \text{ cm}^2$
 $A_{a2} = 0.74 \text{ cm}^2$
 $A_{a3} = 0.37 \text{ cm}^2$
 $A_{a4} = 0.37 \text{ cm}^2$
 $A_{a, st} = 0.00 \text{ cm}^2/\text{m}$
[Osnovno $A_{a, st} = 28x15/(m \times 2) = 3.35 \text{ cm}^2/\text{m}$]
($m=2$)

Procent armiranja: 1.23%

OKVIR poz : P4

Obtežba :

- Teža nosilca	=	3.00 kN/m
- Stropni plošči $2 \times (1.8 + 1.7) \times 7.00$	=	50.00 kN/m
- Zid	=	23.00 kN/m
- Streha	=	6.00 kN/m

 $g = 82.00 \text{ kN/m}$

Koristna obtežba $p = 22.80 \text{ kN/m}$

Horizontalna obtežba : $H = 1.5 \times 0.1 \times 2.90 \times 96 = 41.80 \text{ kN}$

Osnovni podatki o modelu

Datoteka:
Datum preračuna:

DERMA UKC P4.twp
24.10.2019

Način preračuna:

2D model (Xp, Zp, Yr)

- ☒ Teorija I-ga reda
- ☐ Modalna analiza
- ☐ Stabilnost
- ☐ Teorija II-ga reda
- ☐ Seizmični preračun
- ☐ Faze gradnje
- ☐ Nelinearen preračun

Velikost modela

Število vozlišč:
Število ploskovnih elementov:
Število grednih elementov
Število robnih elementov
Število osnovnih obtežnih primerov:
Število kombinacij obtežb:

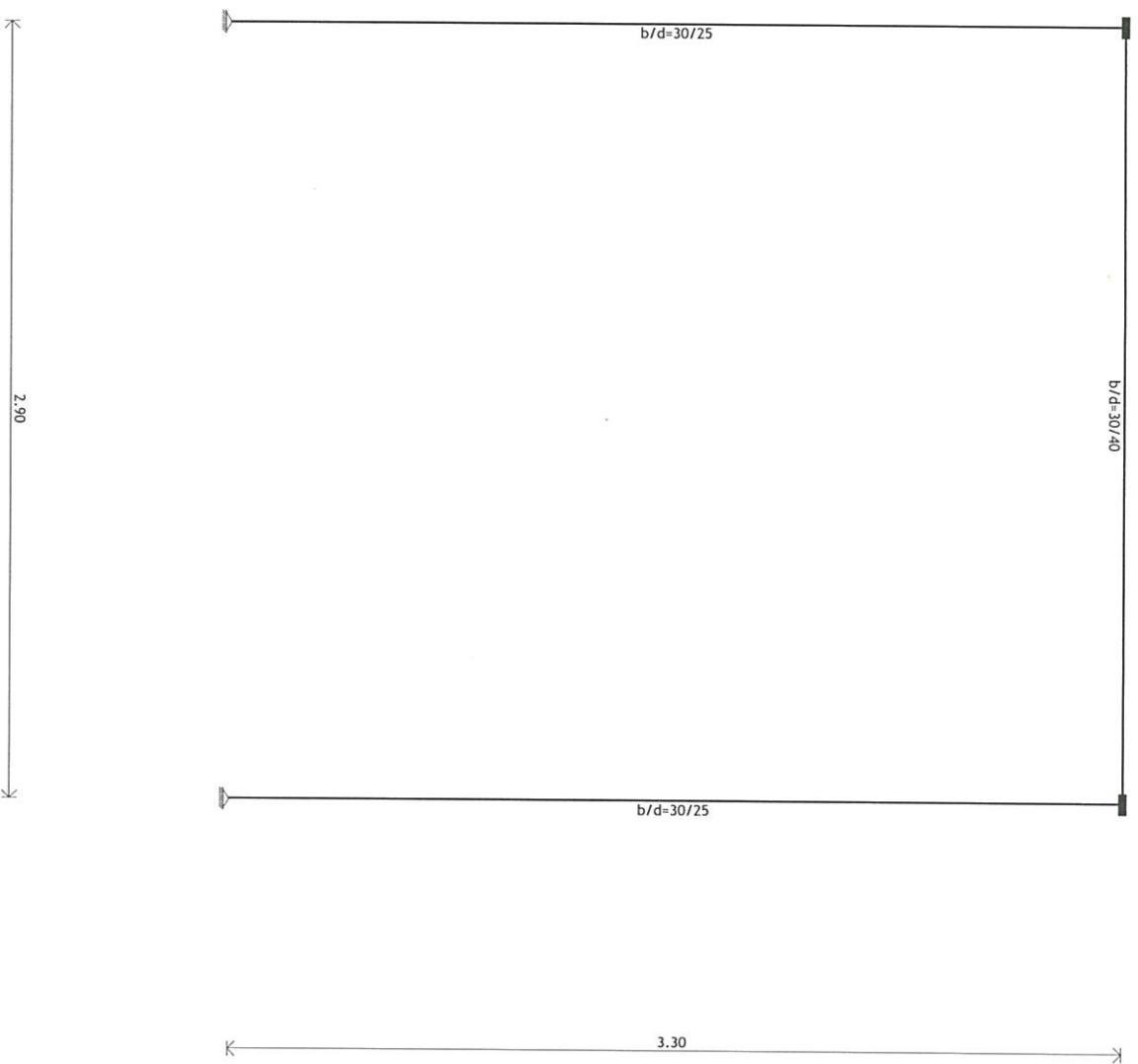
4
0
3
8
3
3

Enote mer

Dolžina:
Sila:
Temperatura:

m [cm, mm]
kN
Celsius

RAČUNSKI MODEL

Vhodni podatki - Konstrukcija

OKVIR P4

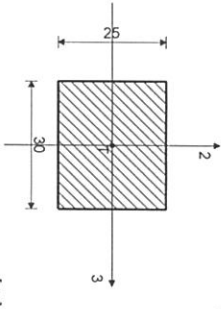
Tabele materialov

No	Naziv materiala	E[kN/m ²]	μ	γ [kN/m ³]	α [1/C]	E_m [kN/m ²]	μ_m
1	Beton C 25	2.583e+7	0.20	25.00	1.000e-5	2.583e+7	0.20

Setl gred

Set: 1 Prerez: b/d=30/25, Fiktivna ekscentričnost

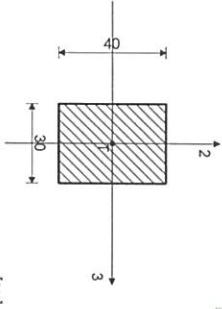
Mat.	A1	A2	A3	I1	I2	I3
1 - Beton C 25	7.500e-2	6.250e-2	6.250e-2	7.752e-4	5.625e-4	3.906e-4



[cm]

Set: 2 Prerez: b/d=30/40, Fiktivna ekscentričnost

Mat.	A1	A2	A3	I1	I2	I3
1 - Beton C 25	1.200e-1	1.000e-1	1.000e-1	1.944e-3	9.000e-4	1.600e-3



[cm]

Vhodni podatki - Obtežba

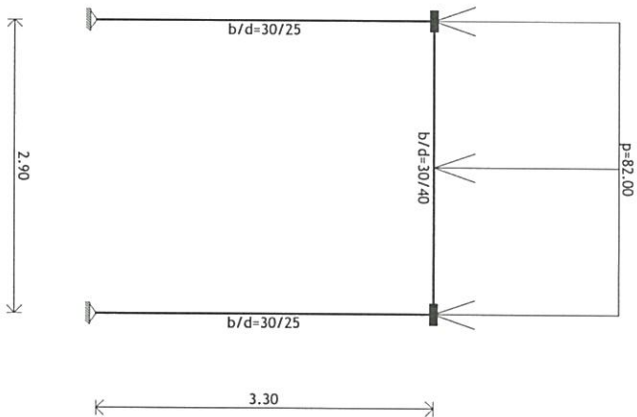
Lista obtežnih primerov

LC	Naziv
1	stalna (g)
2	koristna
3	horizontalna

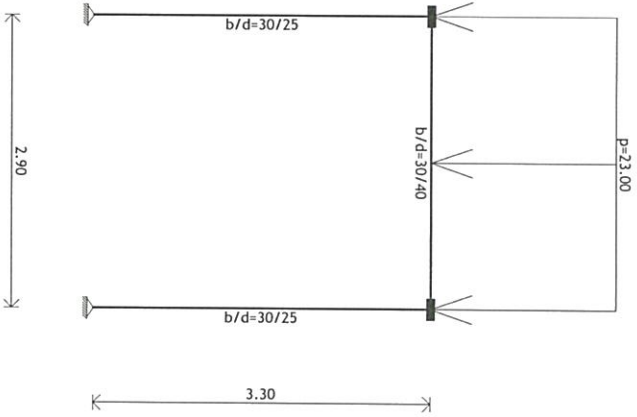
Obt. 1: stalna (g)

LC	Naziv
4	Komb.: stalna+koristna (I,35xI+I,5xII)
5	Komb.: stal+kor+horiz (I+II+III)
6	Komb.: stal+kor-horiz (I+II-1xII)

Obt. 2: koristna

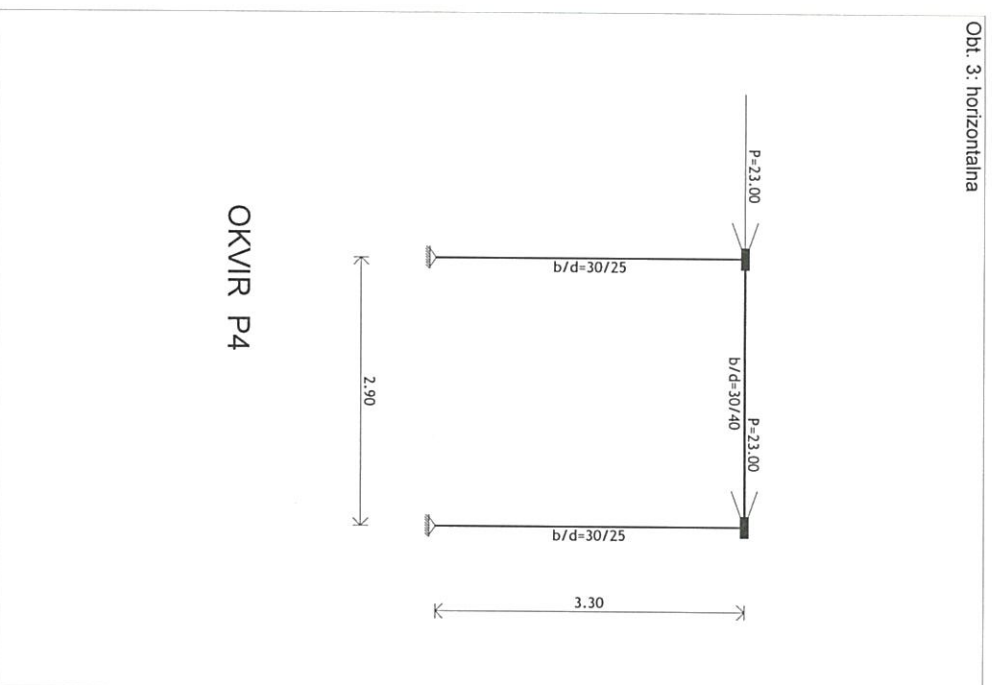


OKVIR P4

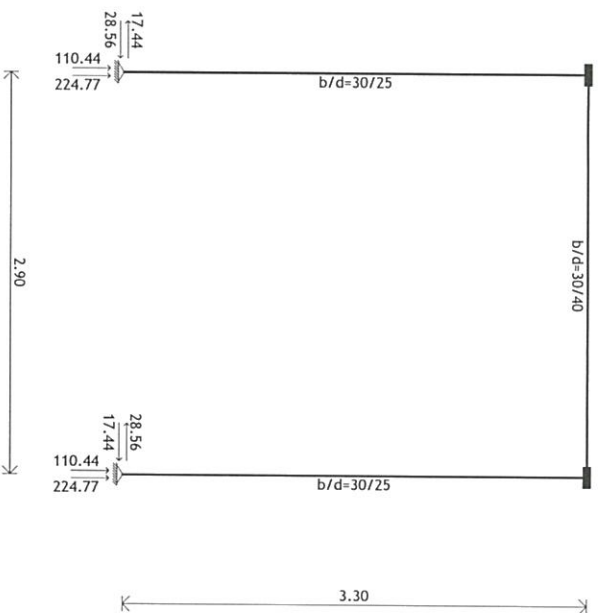


OKVIR P4

Obt. 3: horizontalna



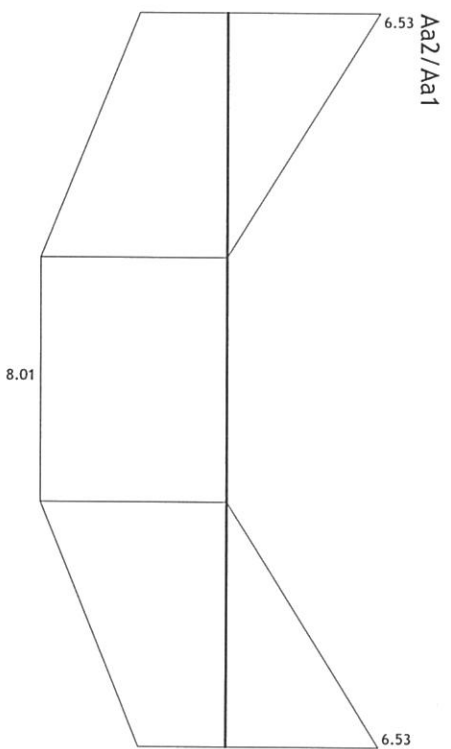
Obt. 7: [Ovo] 4-6

Statični preračun**OKVIR P4**

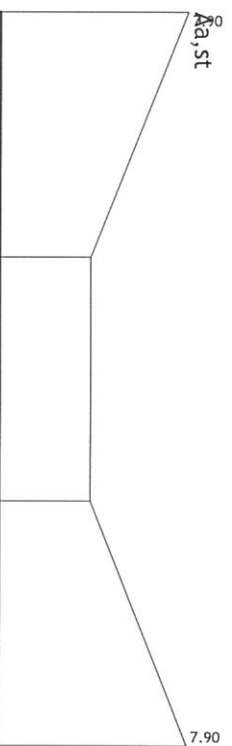
Reakcije podpor (Min/Max)

POTREBNA ARMATURA V GREDI

Dimenzioniranje (beton)



Aa3/Aa4



Greda 3-4

EC 2 (EN 1992-1-1:2004)

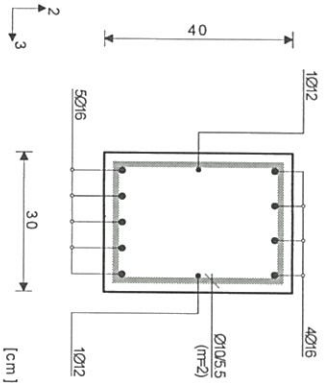
C 35 ($\gamma_C = 1.50$, $\gamma_S = 1.15$)

S500H

Dimenzioniranje skupine obtežnih

primerov: 4-6

Prerez 1-1 $x = 0.00m$



Merodajna kombinacija za upogib:
1.00XI+1.00XII-1.00XIII
N1u = -5.56 kN
M2u = 0.00 kNm
M3u = -94.26 kNm

Merodajna kombinacija za strig:

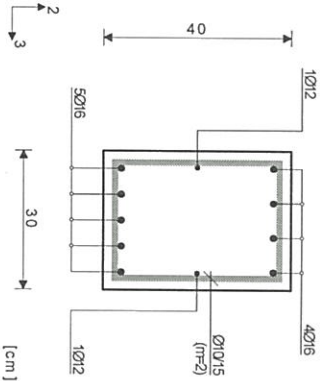
1.35XI+1.50XII
T2u = -216.41 kN
T3u = 0.00 kN
M1u = 0.00 kNm

$eb/ea = -3.500/20.732 \%$

Aa1 = 3.75 cm²
Aa2 = 6.53 cm²
Aa3 = 0.00 cm²
Aa4 = 0.00 cm²
Aa.st = 7.90 cm²/m
(okroglo Aa.st = Ø105.5(m=2) = 14.28 cm²/m) (m=2)

Procent armiranja: 1.70%

Prerez 2-2 $x = 1.93m$



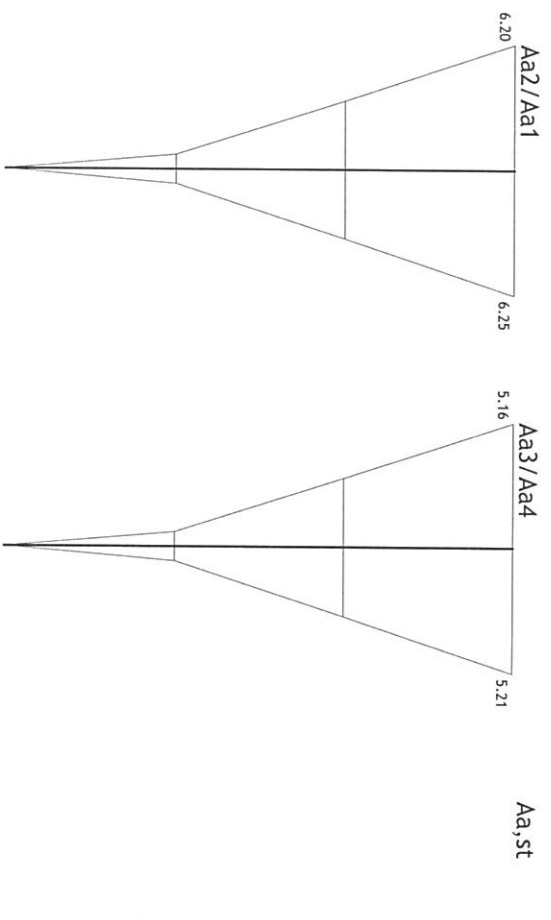
Merodajna kombinacija za upogib:
1.35XI+1.50XII
N1u = -7.69 kN
M2u = 0.00 kNm
M3u = 114.09 kNm

$eb/ea = -3.500/16.041 \%$

Aa1 = 8.01 cm²
Aa2 = 0.00 cm²
Aa3 = 0.00 cm²
Aa4 = 0.00 cm²
Aa.st = 3.82 cm²/m
(okroglo Aa.st = Ø101.5(m=2) = 5.24 cm²/m) (m=2)

Procent armiranja: 1.70%

POTREBNA ARMATURA V STEBRU



Armatura v gredi: (1-3)

Greda 3-1

EC 2 (EN 1992-1-1:2004)
C 35 ($\gamma_C = 1.50, \gamma_S = 1.15$)
S500H
Dimenzioniranje skupine obtežnih primerov: 4-6
li,2 = 3.30 m (li,2 = 38.11)
li,3 = 3.30 m (li,3 = 45.73)
Nepomična konstrukcija

$\epsilon_{b1}/\epsilon_a = -3.500/4.679 \text{ ‰}$
Aa1 = 6.25 cm²
Aa2 = 6.20 cm²
Aa3 = 5.21 cm²
Aa4 = 5.16 cm²
Aa st = 0.00 cm²/m
[Ovojeeno Aa st = 0.815(m=2) = 3.35 cm²/m]
(m=2)

Procent armiranja: 3.75%

Prerez 2-2: x = 0.00m

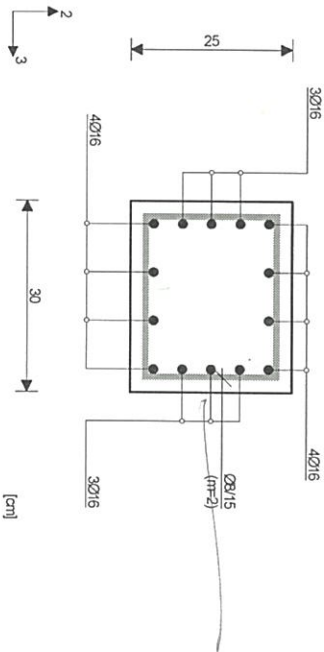
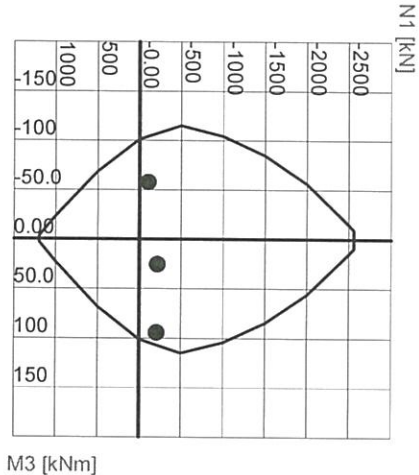


diagram N1-M3 (M2 = 0)



Merodajna kombinacija za upogib: 1.00xI+1.00xII

-1.00xIII
N1u = -208.94 kN
M2u = 0.00 kNm
M3u = 94.26 kNm

Merodajna kombinacija za strig: 1.00xI+1.00xII

-1.00xIII
T2u = 28.56 kN
T3u = 0.00 kN
M1u = 0.00 kNm