TMD INVEST d.o.o.
Projektna in investicijska dejavnost, trgovina in storitve

30 LET

NAČRTI S PODROČJA GRADBENIŠTVA 2 - KONSTRUKCIJA

INVESTITOR:	OBČINA ŽETALE Žetale 4, 2287 Žetale
NAZIV GRADNJE:	OZELENITEV OŽJEGA OBČINSKEGA SREDIŠČA S POKOPALIŠČEM
VRSTA DOKUMENTACIJE:	PZI
ŠT. PROJEKTA:	30021-23-K/AP
ŠT. NAČRTA:	30021-23-K/AP-2
DATUM:	APRIL 2025

KAZALO VSEBINE PROJEKTNE DOKUMENTACIJE

1. Naslovna stran dokumentacije

2. Kazalo vsebine dokumentacije

3. Naslovna stran načrta (obrazec 1C)

4. Izjava projektanta načrta in pooblaščenega strokovnjaka(obrazec 2C)

5. Tehnično poročilo

6. Tehnični prikazi

5. TEHNIČNO POROČILO - KONSTRUKCIJA

Obravnava se konstrukcija opornih zidov in žarnega zidu na pokopališču Žetale, opornih zidov pred občino Žetale, dveh nadstrešnic v ožjem središču občine.

Vse osnovne podatke zemljine in nosilnost tal sem uporabila iz geotehničnega poročila št. Geo/mn-76/2025(Božidar Janžekovič s.p.).
Oporni zid na pokopališču je globine 1.30 m, dolžine 77.15 m in 8.70 m in ima peto, dimenzij, 120/50. Oporni zid je debeline 25 cm.
Oporni zid 1 pred občino je globok 2.60m, peta je dimenzij 200/50, zid debeline 25 cm.
Oporni zid 2 pred občino je globine 1.30 m, peta dimenzij 90/50, zid debeline 25 cm.
Oporni zid se, ki bo postavljen na poševnem terenu, se naj izvaja v stopničastih kampadah. Oporni zid mora imeti na zasipani strani urejeno odvodnjavanje, kot je definirano v geotehničnem poročilu.
Oporni zid bo armirano betonski, zaščitni sloj 4 cm.
Del konstrukcije je AB žarni zid, dimenzij 198/100, višine 117 cm, z temeljnim nastavkom globine 40 cm.
Oporne zidove in žarni zid betoniramo z betonom C30/37, XD1,XF1,CL 0,2, Dmax 16, S3, uporabimo pa železo S500 B.
Geometrija zidu in pete je prikazana v načrtu.

Del tega projekta sta tudi dve kovinski pergoli z ustreznimi AB temelji.
Pergola pred občino - pergola 1 je sestavljena iz konzolnih okvirjev, v osni razdalji 2.40 m in sicer:

- Steber HOP 100/200/8
- Strešni nosilec HOP 100/200/8
- Diagonale HOP 100/100/5
- Temelj 100/140/4

Temelj betoniramo z betonom C25/30(MB 30) uporabimo pa železo S500 B. Jeklo S235.
Pergola pred vrtcem - pergola 2 je sestavljena iz konzolnih okvirjev, v osni razdalji 2.50 m in sicer:

- Steber HOP 100/200/8
- Strešni nosilec HOP 100/200/8
- Diagonale HOP 100/100/5
- Sidra se v obstoječ oporni zid

Jeklo S235.

Izkope za temelje mora prevzeti geomehanik. V primeru slabo nosilnih tal je potrebno upoštevati navodila geomehanika.

Pri statičnem izračunu sem upoštevala veljavni Pravilnik o mehanski odpornosti in stabilnosti objektov, načrt konstrukcij je izdelan na podlagi evrokod standardov in sicer EC0,EC1, EC2, EC3, EC5, EC6, EC8.
Pri izvedbi in montaži vseh konstruktivnih elementov mora biti prisotna nadzorna oseba z ustrezno izobrazbo, ki tudi odgovarja za dosledno upoštevanje projektnih rešitev.
V kolikor se pojavijo nejasnosti in težave, je potrebno zadeve reševati s projektantom, odstopanja od projekta so nedovoljena in zanje in njihove posledice ne odgovarja odgovorni projektant tega dela projekta. konstrukcije.

2.1 STATIČNI IZRAČUN

2.1.1 ANALIZA IN DIMENZIONIRANJE OPORNEGA ZIDU št.1

Zasnova:
- AB oporni zid, debeline 25 cm
- peta zidu 200/50
- zaščitni sloj 4 cm
- C30/37, XD1,XF1,CL 0,2, Dmax 16, S3
- S500 B

Dopustna nosilnost tal

Izračunam sile, ki vplivajo na konstrukcijo. Izračunam varnost opornega zidu.

Ma= 37.50 kNm
Md= 86.91 kNm
K= Md/Ma=2.32

Oporni zid je varen!

Vgraditi v zid 1 armaturo na notranji strani Q503, na zunanji Q 283, stremena ϕ8/20, v temeljϕ10/15, vzdolžne palice ϕ12/15 !
Vgraditi v zid 2 armaturo na notranji in zunanji ϕ10/15, v temelj ϕ10/15, vzdolžne palice ϕ12/15 !
Vgraditi v zid na pokopališču armaturo na notranji strani Q424, na zunanji Q 283, stremena ϕ8/20, v temeljϕ10/15, vzdolžne palice ϕ12/15 !

2.1.2 ANALIZA IN DIMENZIONIRANJE ŽARNEGA ZIDU

Zasnova- AB žarni zid, velikosti, 198 100 cm in višine 117cm
- zgornja plošča d=15 cm
- vmesni plošči d=10 cm
- stene d=11 cm
- temelj 120/220/40
- beton C30/37, z zahtevami XD3, XF4
- mrežasta armatura S500 (MA 500/560)
- zaščitni sloj 3 cm

Vgraditi v stene MREŽO Q221, v plošče(zgornja, vmesne, spodnja) SPODAJ Q 221, v temelj SPODAJ in ZGORAJ MREŽO Q335!

Izkope za temelje mora prevzeti geomehanik. V kolikor pride do večje debeline tampona, je potrebno nasutje ustrezno utrjevati po plasteh, debeline 30 cm in meriti zbitost in nosilnost tampona. V tem primeru je potrebno upoštevati navodila in meritve geomehanika.
Nosilnost tal mora doseči vsaj 100 kN/m2.

2.1.3 ANALIZA PERGOL

Pergola pred občino - pergola 1 je sestavljena iz konzolnih okvirjev, v osni razdalji 2.40 m in sicer:

- Steber HOP 100/200/8
- Strešni nosilec HOP 100/200/8
- Diagonale HOP 100/100/5
- Temelj 100/140/4

Temelj betoniramo z betonom C25/30(MB 30) uporabimo pa železo S500 B. Jeklo S235.
Pergola pred vrtcem - pergola 2 je sestavljena iz konzolnih okvirjev, v osni razdalji 2.50 m in sicer:

- Steber HOP 100/200/8
- Strešni nosilec HOP 100/200/8
- Diagonale HOP 100/100/5
- Sidra se v obstoječ oporni zid

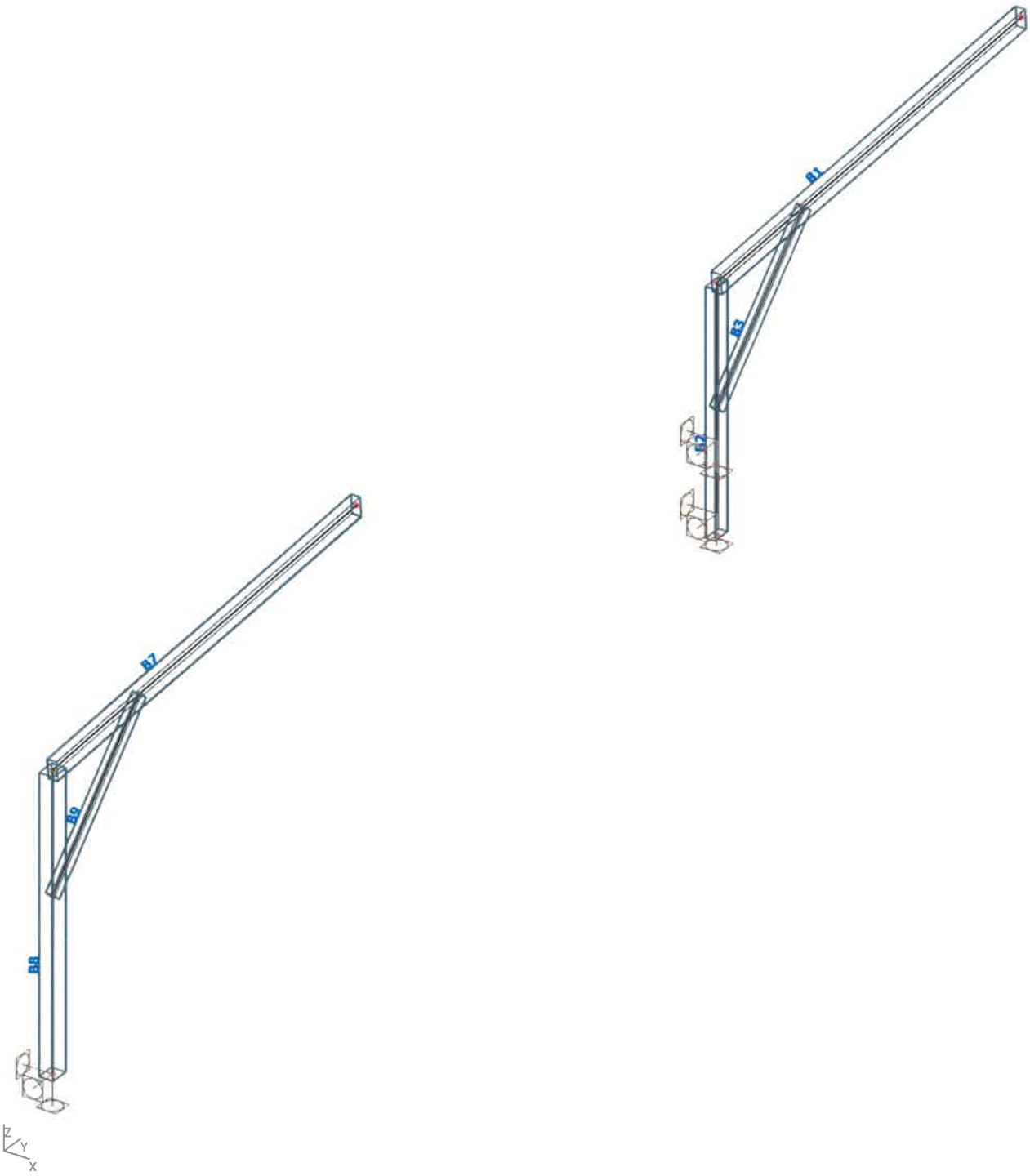
Uporabimo Jeklo S235.

Izpisi na naslednji straneh- v programu TOWER!

1. Obtežni primeri

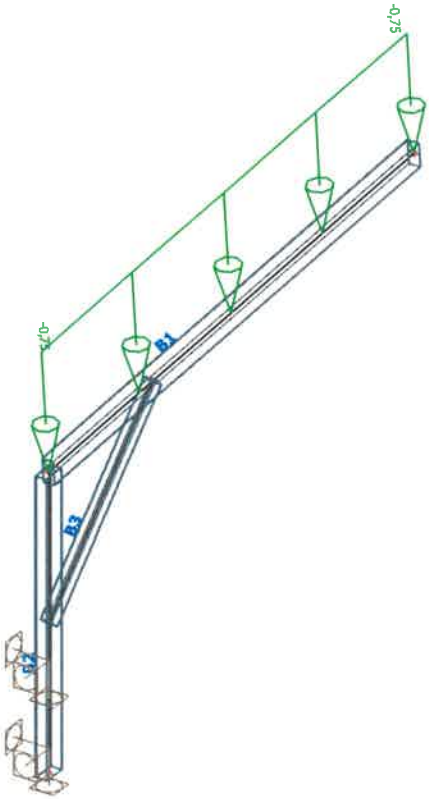
1.1. Obtežni primeri - LC1

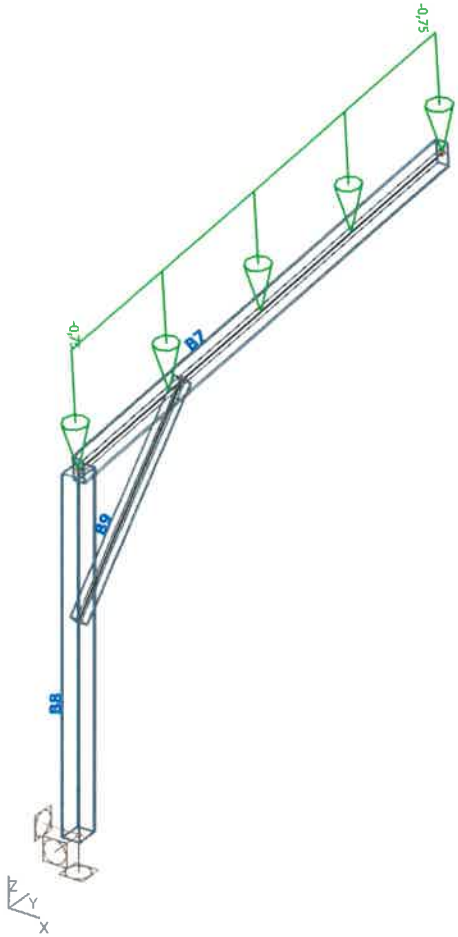
Name	Description Spec	Action type Load type	Load group	Direction
LC1	lastna teža	Permanent Self weight	Stalna obtežba	-Z



1.2. Obtežni primeri - LC2

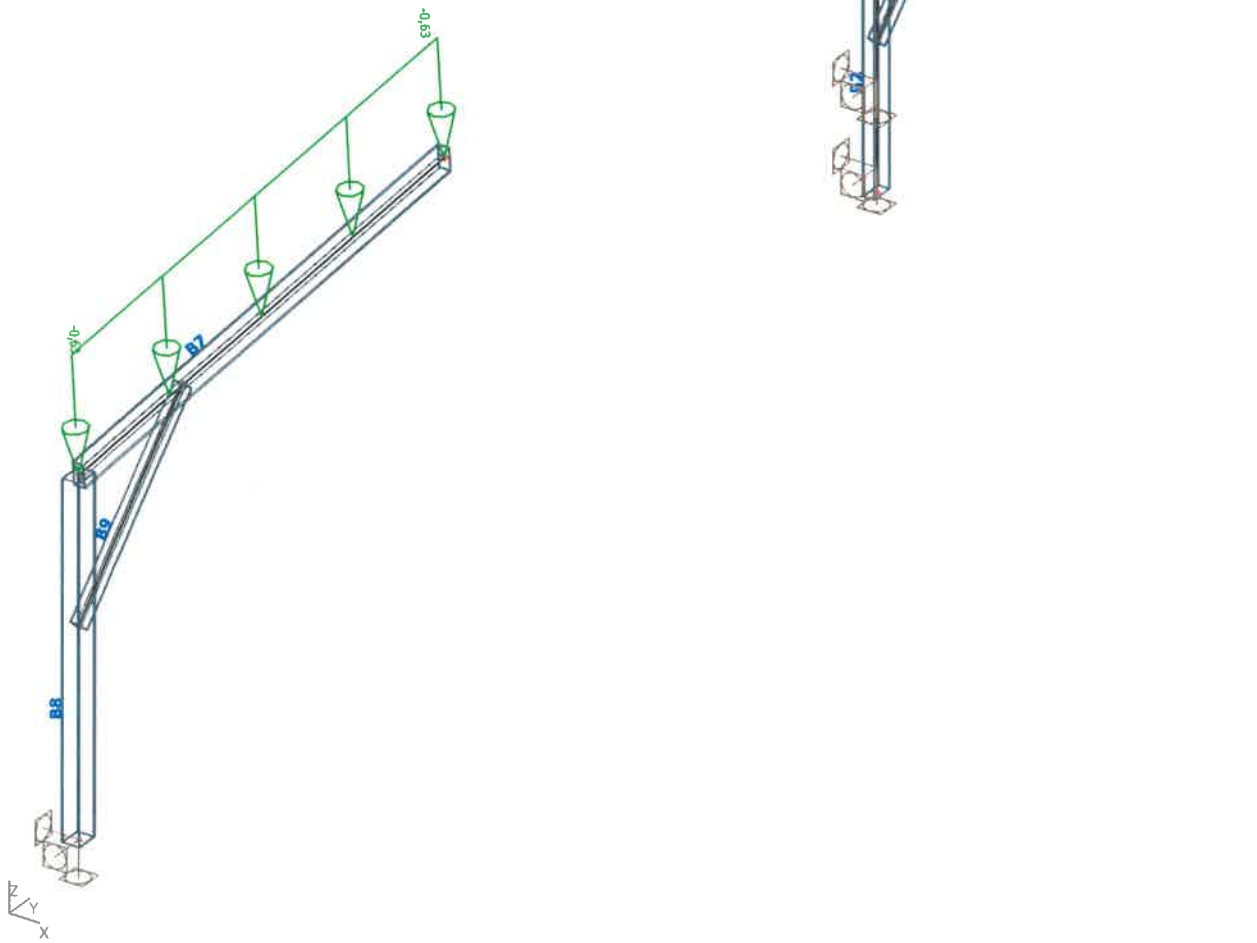
Name	Description Spec	Action type Load type	Load group
LC2	stalna koristna obtežba	Permanent Standard	Stalna obtežba





1.3. Obtežni primeri - LC3

Name	Description	Action type	Load group	Duration	Master load case
	Spec	Load type			
LC3	sneg Standard	Variable Static	Sneg	Short	None



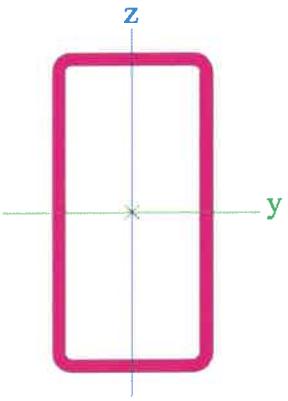
2. Obtežne skupine

Name	Load	Relation	Type
Stalna obtežba	Permanent		
Sneg	Variable	Exclusive	Snow
Vzdrževanje strehe	Variable	Exclusive	Cat H : Roofs

3. Obtežne kombinacije

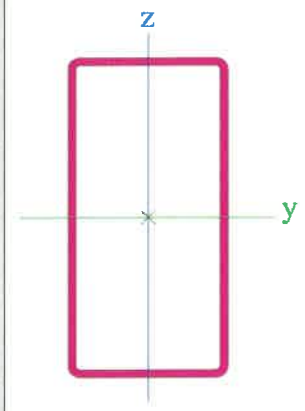
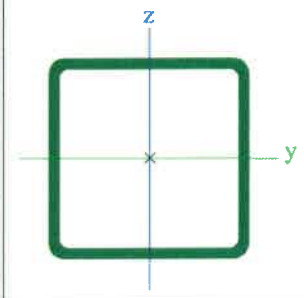
Name	Description	Type	Load cases	Coeff.
CO1		EN-ULS (STR/GEO) Set B	LC1 - lastna teža	1,00
			LC2 - stalna koristna obtežba	1,00
			LC3 - sneg	1,00
CO2		EN-SLS Characteristic	LC1 - lastna teža	1,00
			LC2 - stalna koristna obtežba	1,00
			LC3 - sneg	1,00

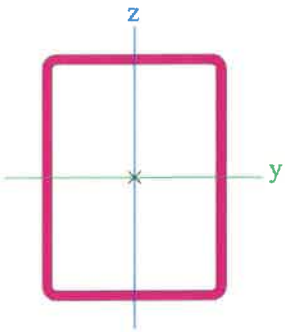
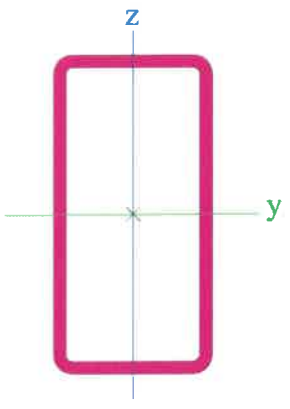
4. Prečni prerezi jeklenih elementov

Steber - PERGOLA NA ZIDU		
Type	RHS200/100/8.0	
Formcode	2 - Rectangular hollow section	
Shape type	Thin-walled	
Item material	S 235	
Fabrication	cold formed	
Colour		
Flexural buckling y-y, Flexural buckling z-z	c	c
A [m^2]	4,4800e-03	
A_y [m^2], A_z [m^2]	1,4774e-03	2,9547e-03
A_L [m^2/m], A_D [m^2/m]	5,7900e-01	1,1084e+00
$c_{Y.UCS}$ [mm], $c_{Z.UCS}$ [mm]	50	100
α [deg]	0,00	
I_y [m^4], I_z [m^4]	2,2340e-05	7,3900e-06
i_y [mm], i_z [mm]	71	41
$W_{el.y}$ [m^3], $W_{el.z}$ [m^3]	2,2300e-04	1,4800e-04
$W_{pl.y}$ [m^3], $W_{pl.z}$ [m^3]	2,7805e-04	1,7005e-04
$M_{pl.y.+}$ [Nm], $M_{pl.y.-}$ [Nm]	6,53e+04	6,53e+04
$M_{pl.z.+}$ [Nm], $M_{pl.z.-}$ [Nm]	4,00e+04	4,00e+04
d_y [mm], d_z [mm]	0	0
I_t [m^4], I_w [m^6]	1,8040e-05	4,0000e-08
β_y [mm], β_z [mm]	0	0
Picture		

Primarni nosilec - PERGOLA NA ZIDU		
Type	RHS200/100/5.0	
Formcode	2 - Rectangular hollow section	
Shape type	Thin-walled	
Item material	S 235	
Fabrication	cold formed	
Colour		
Flexural buckling y-y, Flexural buckling z-z	c	c
A [m^2]	2,8700e-03	
A_y [m^2], A_z [m^2]	9,5209e-04	1,9042e-03
A_L [m^2/m], A_D [m^2/m]	5,8700e-01	1,1428e+00
$c_{Y.UCS}$ [mm], $c_{Z.UCS}$ [mm]	50	100
α [deg]	0,00	
I_y [m^4], I_z [m^4]	1,4950e-05	5,0500e-06
i_y [mm], i_z [mm]	72	42
$W_{el.y}$ [m^3], $W_{el.z}$ [m^3]	1,4900e-04	1,0100e-04
$W_{pl.y}$ [m^3], $W_{pl.z}$ [m^3]	1,8343e-04	1,1312e-04
$M_{pl.y.+}$ [Nm], $M_{pl.y.-}$ [Nm]	4,31e+04	4,31e+04
$M_{pl.z.+}$ [Nm], $M_{pl.z.-}$ [Nm]	2,66e+04	2,66e+04
d_y [mm], d_z [mm]	0	0
I_t [m^4], I_w [m^6]	1,2040e-05	2,5000e-08
β_y [mm], β_z [mm]	0	0

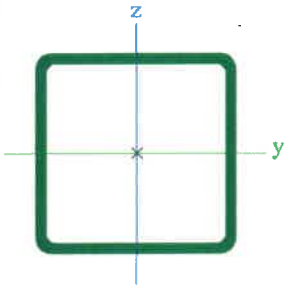
Project	Ozelenitev ožjega občinskega središča s pokopališčem
Part	Pergola na parkirišču

Picture		
Sekundarni nosilec - PERGOLA NA ZIDU		
Type	SHS100/100/5.0	
Formcode	2 - Rectangular hollow section	
Shape type	Thin-walled	
Item material	S 235	
Fabrication	cold formed	
Colour		
Flexural buckling y-y, Flexural buckling z-z	c	c
A [m^2]	1,8700e-03	
A_y [m^2], A_z [m^2]	9,3634e-04	9,3634e-04
A_L [m^2/m], A_D [m^2/m]	3,8700e-01	7,3844e-01
$c_{y.ucs}$ [mm], $c_{z.ucs}$ [mm]	50	50
α [deg]	0,00	
I_y [m^4], I_z [m^4]	2,7900e-06	2,7900e-06
i_y [mm], i_z [mm]	39	39
$W_{el.y}$ [m^3], $W_{el.z}$ [m^3]	5,5900e-05	5,5900e-05
$W_{pl.y}$ [m^3], $W_{pl.z}$ [m^3]	6,6400e-05	6,6400e-05
$M_{pl.y.+}$ [Nm], $M_{pl.y.-}$ [Nm]	1,56e+04	1,56e+04
$M_{pl.z.+}$ [Nm], $M_{pl.z.-}$ [Nm]	1,56e+04	1,56e+04
d_y [mm], d_z [mm]	0	0
I_t [m^4], I_w [m^6]	4,3900e-06	4,1667e-09
β_y [mm], β_z [mm]	0	0
Picture		
Steber - PERGOLA NA TEMELJU		
Type	RHS200/150/8.0	
Formcode	2 - Rectangular hollow section	
Shape type	Thin-walled	
Item material	S 235	
Fabrication	cold formed	
Colour		
Flexural buckling y-y, Flexural buckling z-z	c	c
A [m^2]	5,2800e-03	
A_y [m^2], A_z [m^2]	2,2423e-03	2,9898e-03
A_L [m^2/m], A_D [m^2/m]	6,7900e-01	1,3084e+00
$c_{y.ucs}$ [mm], $c_{z.ucs}$ [mm]	75	100
α [deg]	0,00	
I_y [m^4], I_z [m^4]	2,9710e-05	1,8940e-05
i_y [mm], i_z [mm]	75	60
$W_{el.y}$ [m^3], $W_{el.z}$ [m^3]	2,9700e-04	2,5300e-04

$W_{pl.y}$ [m³], $W_{pl.z}$ [m³]	3,5485e-04	2,9085e-04
$M_{pl.y.+}$ [Nm], $M_{pl.y.-}$ [Nm]	8,34e+04	8,34e+04
$M_{pl.z.+}$ [Nm], $M_{pl.z.-}$ [Nm]	6,83e+04	6,83e+04
d_y [mm], d_z [mm]	0	0
I_t [m⁴], I_w [m⁶]	3,6430e-05	1,0500e-07
β_y [mm], β_z [mm]	0	0
Picture		
Primarni nosilec - PERGOLA NA TEMELJU		
Type	RHS200/100/8.0	
Formcode	2 - Rectangular hollow section	
Shape type	Thin-walled	
Item material	S 235	
Fabrication	cold formed	
Colour		
Flexural buckling y-y, Flexural buckling z-z	c	c
A [m²]	4,4800e-03	
A_y [m²], A_z [m²]	1,4774e-03	2,9547e-03
A_L [m²/m], A_D [m²/m]	5,7900e-01	1,1084e+00
$c_{Y.UCS}$ [mm], $c_{Z.UCS}$ [mm]	50	100
α [deg]	0,00	
I_y [m⁴], I_z [m⁴]	2,2340e-05	7,3900e-06
i_y [mm], i_z [mm]	71	41
$W_{el.y}$ [m³], $W_{el.z}$ [m³]	2,2300e-04	1,4800e-04
$W_{pl.y}$ [m³], $W_{pl.z}$ [m³]	2,7805e-04	1,7005e-04
$M_{pl.y.+}$ [Nm], $M_{pl.y.-}$ [Nm]	6,53e+04	6,53e+04
$M_{pl.z.+}$ [Nm], $M_{pl.z.-}$ [Nm]	4,00e+04	4,00e+04
d_y [mm], d_z [mm]	0	0
I_t [m⁴], I_w [m⁶]	1,8040e-05	4,0000e-08
β_y [mm], β_z [mm]	0	0
Picture		
Sekundarni nosilec - PERGOLA NA TEMELJU		
Type	SHS100/100/5.0	
Formcode	2 - Rectangular hollow section	
Shape type	Thin-walled	
Item material	S 235	
Fabrication	cold formed	
Colour		
Flexural buckling y-y, Flexural buckling z-z	c	c

Project	Ozelenitev ožjega občinskega središča s pokopališčem
Part	Pergola na parkirišču

A [m^2]	1,8700e-03	
A_y [m^2], A_z [m^2]	9,3634e-04	9,3634e-04
A_L [m^2/m], A_D [m^2/m]	3,8700e-01	7,3844e-01
$c_{Y,UCS}$ [mm], $c_{Z,UCS}$ [mm]	50	50
α [deg]	0,00	
I_y [m^4], I_z [m^4]	2,7900e-06	2,7900e-06
i_y [mm], i_z [mm]	39	39
$W_{el,y}$ [m^3], $W_{el,z}$ [m^3]	5,5900e-05	5,5900e-05
$W_{pl,y}$ [m^3], $W_{pl,z}$ [m^3]	6,6400e-05	6,6400e-05
$M_{pl,y,+}$ [Nm], $M_{pl,y,-}$ [Nm]	1,56e+04	1,56e+04
$M_{pl,z,+}$ [Nm], $M_{pl,z,-}$ [Nm]	1,56e+04	1,56e+04
d_y [mm], d_z [mm]	0	0
I_t [m^4], I_w [m^6]	4,3900e-06	4,1667e-09
β_y [mm], β_z [mm]	0	0
Picture		



Explanations of symbols	
Formcode	h - Height b - Width s - Thickness r - Outer radius r1 - Inner radius
A	Area
A_y	Shear Area in principal y-direction
A_z	Shear Area in principal z-direction
A_L	Circumference per unit length
A_D	Drying surface per unit length
$c_{Y,UCS}$	Centroid coordinate in Y-direction of Input axis system
$c_{Z,UCS}$	Centroid coordinate in Z-direction of Input axis system
$I_{Y,LCS}$	Second moment of area about the YLCS axis
$I_{Z,LCS}$	Second moment of area about the ZLCS axis
$I_{YZ,LCS}$	Product moment of area in the LCS system
α	Rotation angle of the principal axis system
I_y	Second moment of area about the principal y-axis
I_z	Second moment of area about the principal z-axis
i_y	Radius of gyration about the principal y-axis

Explanations of symbols	
i_z	Radius of gyration about the principal z-axis
$W_{el,y}$	Elastic section modulus about the principal y-axis
$W_{el,z}$	Elastic section modulus about the principal z-axis
$W_{pl,y}$	Plastic section modulus about the principal y-axis
$W_{pl,z}$	Plastic section modulus about the principal z-axis
$M_{pl,y,+}$	Plastic moment about the principal y-axis for a positive My moment
$M_{pl,y,-}$	Plastic moment about the principal y-axis for a negative My moment
$M_{pl,z,+}$	Plastic moment about the principal z-axis for a positive Mz moment
$M_{pl,z,-}$	Plastic moment about the principal z-axis for a negative Mz moment
d_y	Shear center coordinate in principal y-direction measured from the centroid
d_z	Shear center coordinate in principal z-direction measured from the centroid
I_t	Torsional constant
I_w	Warping constant
β_y	Mono-symmetry constant about the principal y-axis
β_z	Mono-symmetry constant about the principal z-axis

5. Reakcije v podporah

5.1. Reactions

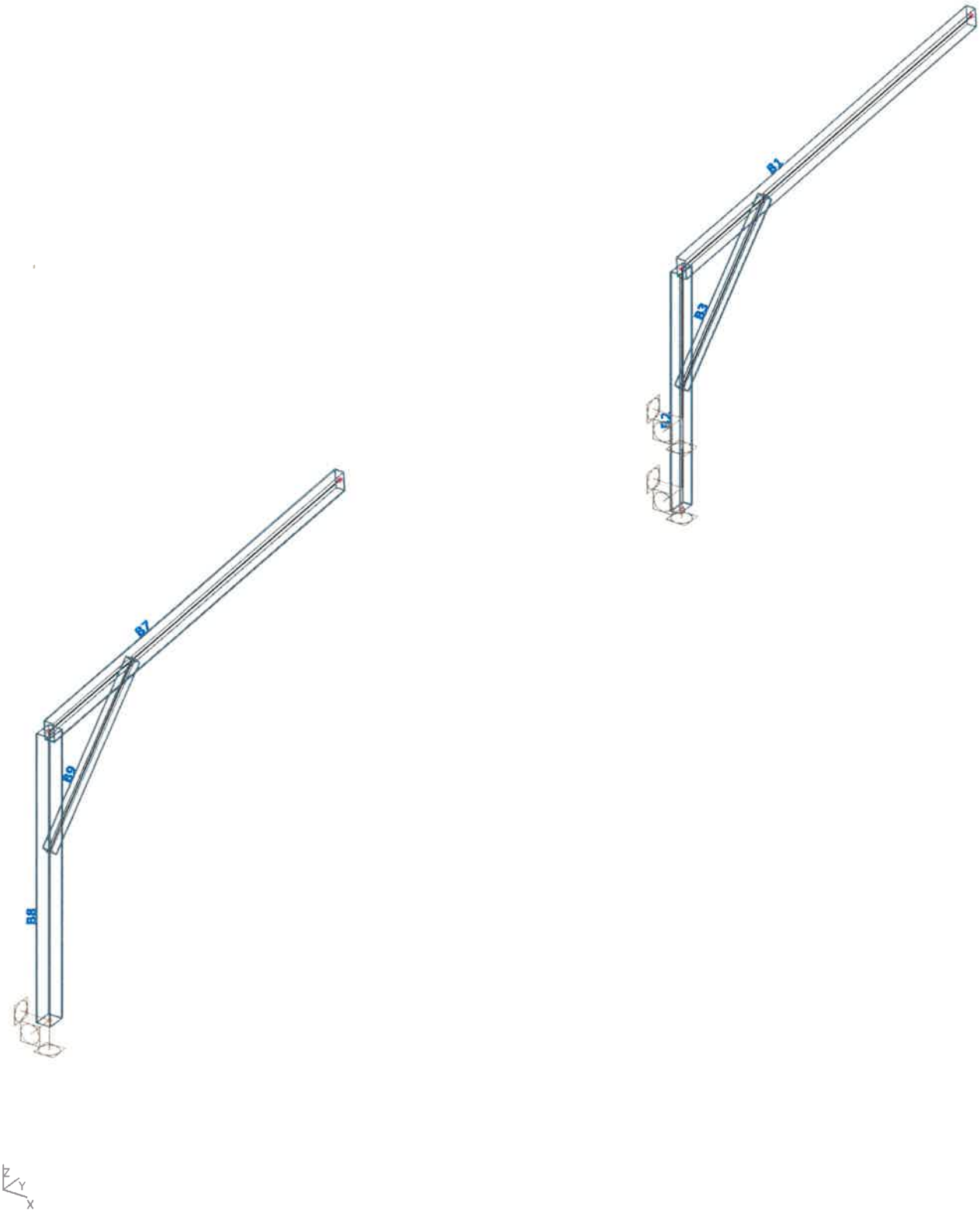
Linear calculation
Combination: CO1
System: Global
Extreme: Member
Selection: All

Nodal reactions

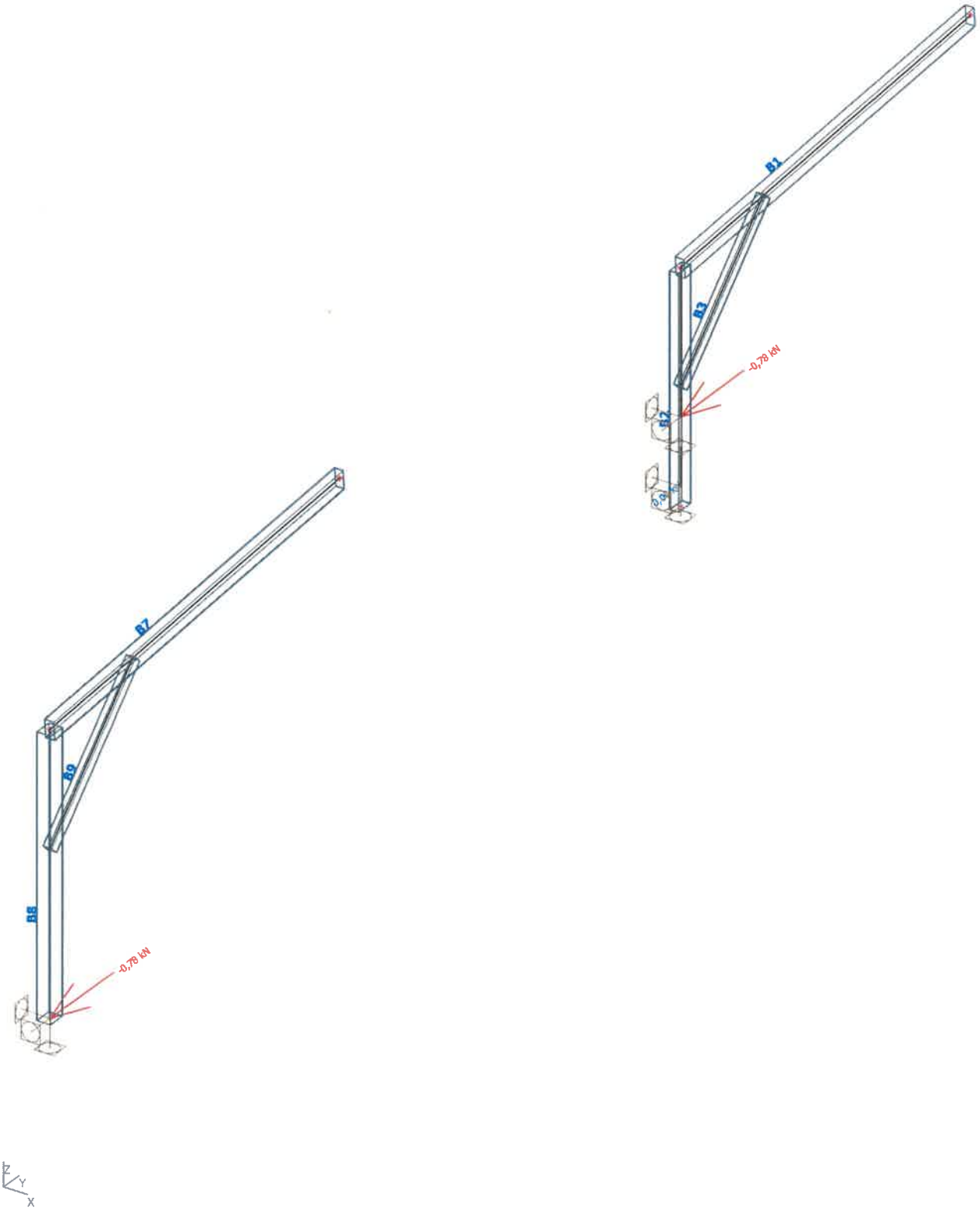
Name	Case	R_x [kN]	R_y [kN]	R_z [kN]	M_x [kNm]	M_y [kNm]	M_z [kNm]	e_x [mm]	e_y [mm]
Sn1/N13	CO1/1	**0,00**	**-0,78**	**13,03**	**28,04**	**0,00**	**0,00**	2152,0	0,0
Sn1/N13	CO1/2	0,00	**-0,30**	**6,47**	**12,62**	0,00	0,00	1950,2	0,0
Sb1/B2	CO1/2	**0,00**	**0,00**	**0,19**	**0,00**	**0,00**	**0,00**	0,0	0,0
Sb1/B2	CO1/1	0,00	**0,00**	**0,26**	**0,00**	0,00	0,00	0,0	0,0
Sb2/B2	CO1/1	**0,00**	**-0,78**	**11,53**	**25,19**	**0,00**	**0,00**	2184,1	0,0
Sb2/B2	CO1/2	0,00	**-0,30**	**5,36**	**10,89**	0,00	0,00	2032,2	0,0

Name	Combination key
CO1/1	1.35*LC1 + 1.35*LC2 + 1.50*LC3
CO1/2	LC1 + LC2

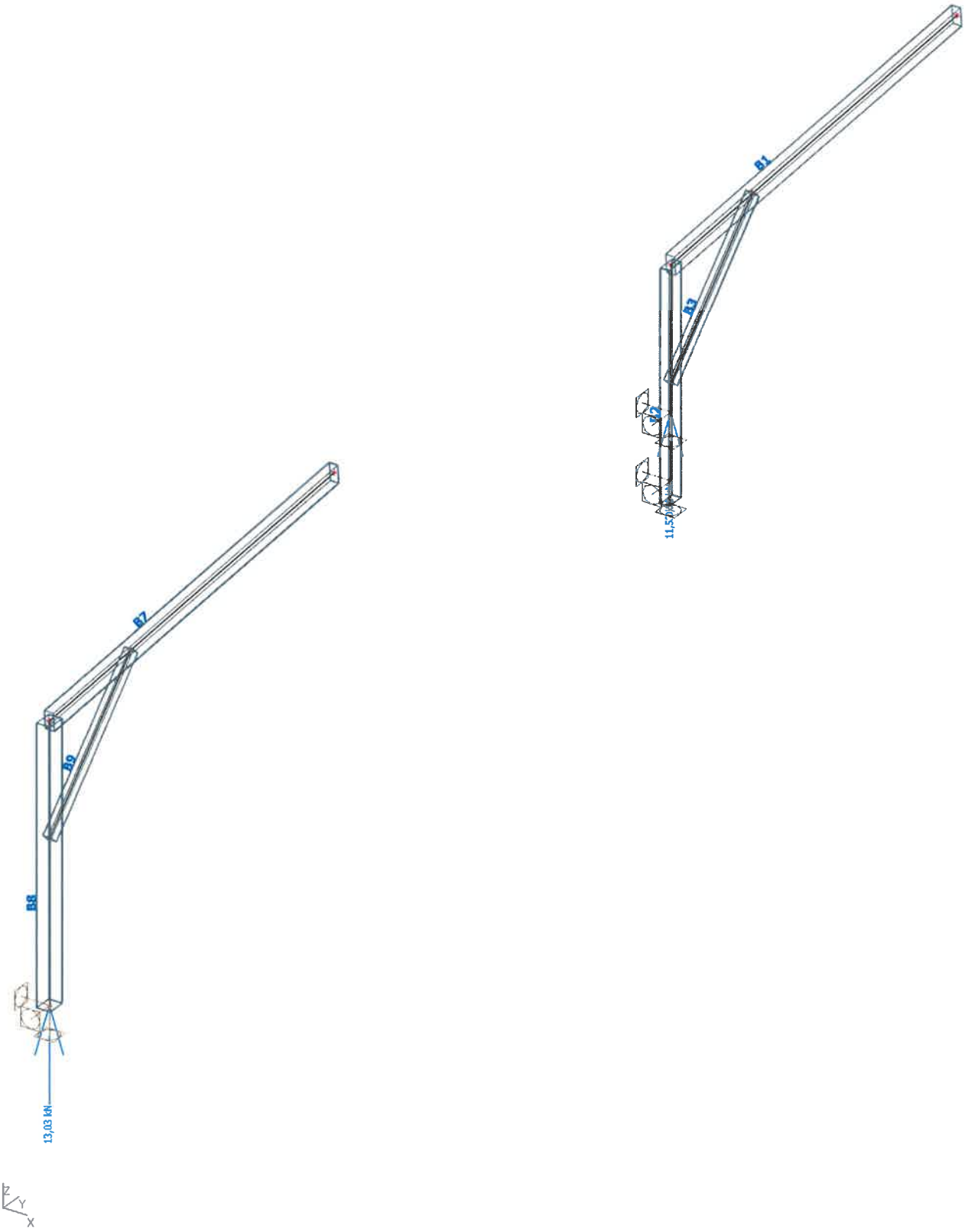
Values: R_x
Linear calculation
Combination: CO1
System: Global
Extreme: Member
Selection: All



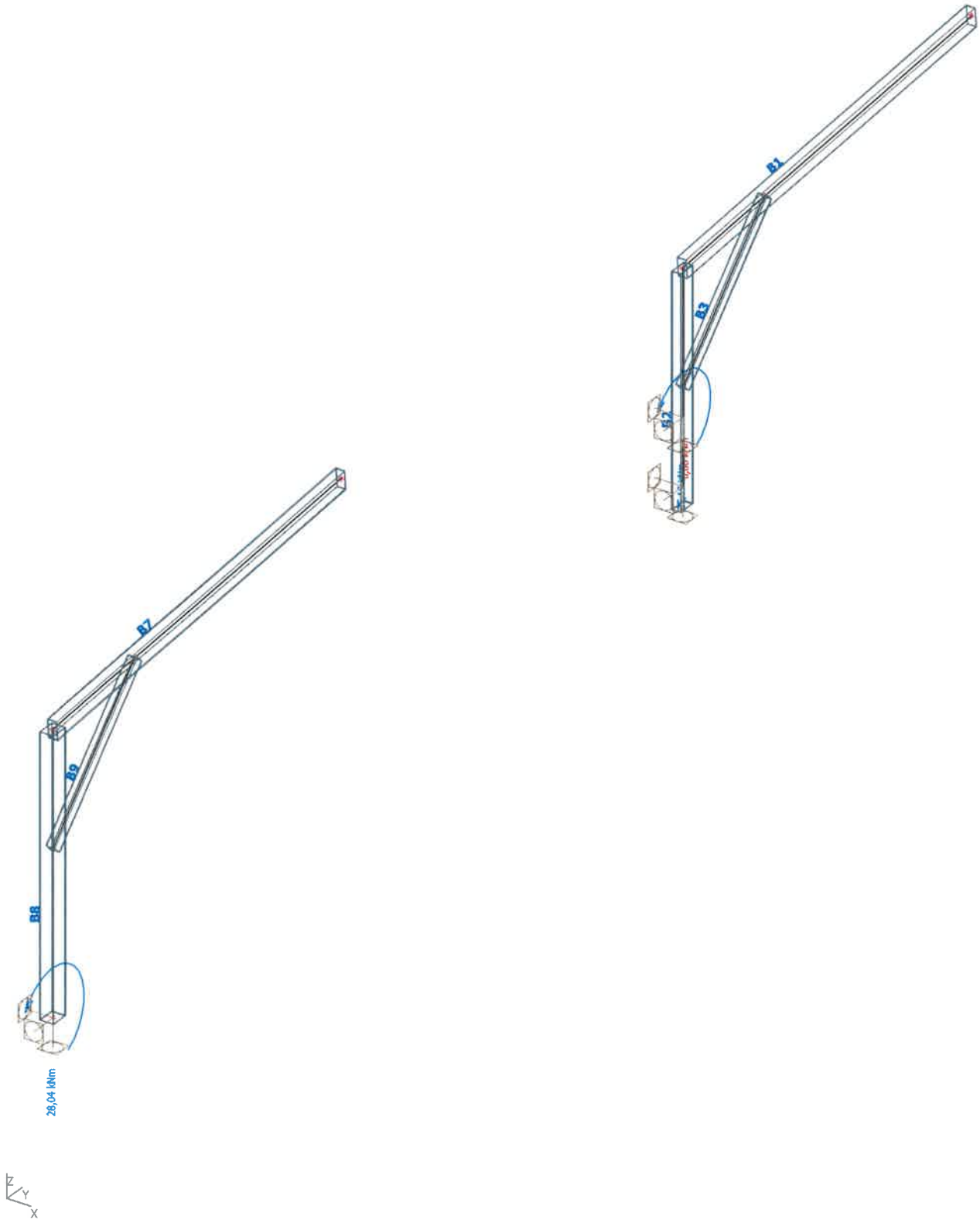
Values: R_y
Linear calculation
Combination: CO1
System: Global
Extreme: Member
Selection: All



Values: R_z
Linear calculation
Combination: CO1
System: Global
Extreme: Member
Selection: All



Values: **M_x**
Linear calculation
Combination: CO1
System: Global
Extreme: Member
Selection: All



Values: **M_y**
Linear calculation
Combination: CO1
System: Global
Extreme: Member
Selection: All



Values: M_z
Linear calculation
Combination: CO1
System: Global
Extreme: Member
Selection: All



6. Notranje statične količine

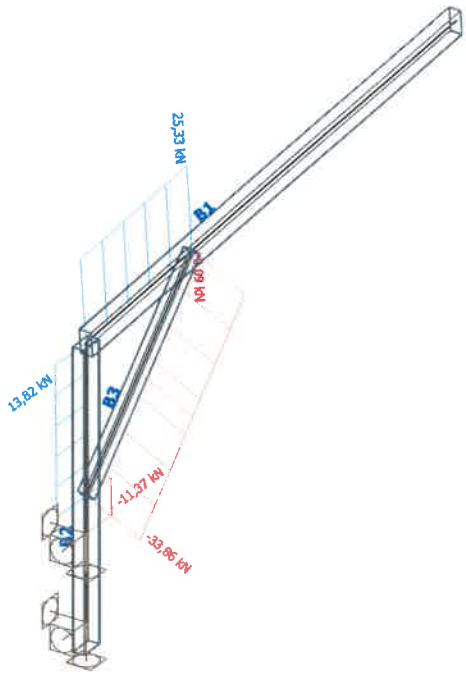
Linear calculation
Combination: CO1
Coordinate system: Principal
Extreme 1D: Cross-section
Selection: All

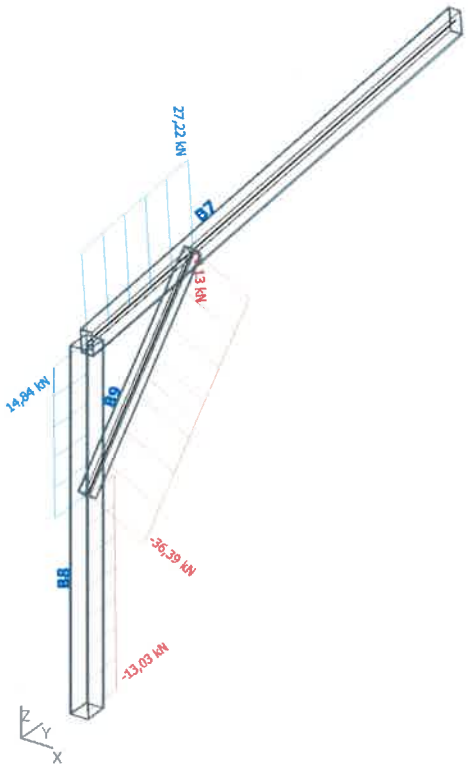
Name	dx [m]	Case	Cross-section	N [kN]	V_y [kN]	V_z [kN]	M_x [kNm]	M_y [kNm]	M_z [kNm]
B1	1,320-	CO1/1	Primarni nosilec - PERGOLA NA ZIDU - RHS200/100/5.0	**25,33**	0,00	**-14,62**	0,00	-11,60	0,00
B1	1,320+	CO1/1	Primarni nosilec - PERGOLA NA ZIDU - RHS200/100/5.0	**-0,09**	0,00	**7,37**	0,00	**-12,09**	0,00
B1	0,000	CO1/1	Primarni nosilec - PERGOLA NA ZIDU - RHS200/100/5.0	25,29	**0,00**	-11,66	**0,00**	**5,75**	**0,00**
B2	0,200+	CO1/1	Steber - PERGOLA NA ZIDU - RHS200/100/8.0	-0,16	0,00	**0,00**	0,00	0,00	0,00
B2	0,900+	CO1/1	Steber - PERGOLA NA ZIDU - RHS200/100/8.0	**-11,37**	0,00	0,78	0,00	**-25,19**	0,00
B2	2,400	CO1/1	Steber - PERGOLA NA ZIDU - RHS200/100/8.0	**13,82**	**0,00**	**24,18**	**0,00**	**5,75**	**0,00**
B3	1,860	CO1/2	Sekundarni nosilec - PERGOLA NA ZIDU - SHS100/100/5.0	**-14,54**	**0,00**	**0,19**	**0,00**	**-0,22**	**0,00**
B3	0,000	CO1/1	Sekundarni nosilec - PERGOLA NA ZIDU - SHS100/100/5.0	**-33,86**	0,00	**0,77**	0,00	**-1,69**	**0,00**
B7	1,320-	CO1/1	Primarni nosilec - PERGOLA NA TEMELJU - RHS200/100/8.0	**27,22**	0,00	**-15,71**	0,00	-12,69	0,00
B7	1,320+	CO1/1	Primarni nosilec - PERGOLA NA TEMELJU - RHS200/100/8.0	**-0,13**	0,00	**7,92**	0,00	**-12,98**	0,00
B7	0,000	CO1/1	Primarni nosilec - PERGOLA NA TEMELJU - RHS200/100/8.0	27,17	**0,00**	-12,52	**0,00**	**5,94**	**0,00**
B8	0,000	CO1/2	Steber - PERGOLA NA TEMELJU - RHS200/150/8.0	-6,47	0,00	**0,30**	0,00	-12,62	0,00
B8	2,900	CO1/1	Steber - PERGOLA NA TEMELJU - RHS200/150/8.0	**14,84**	**0,00**	**25,97**	**0,00**	**5,94**	**0,00**
B8	0,000	CO1/1	Steber - PERGOLA NA TEMELJU - RHS200/150/8.0	**-13,03**	0,00	0,78	0,00	**-28,04**	**0,00**
B9	1,860	CO1/2	Sekundarni nosilec - PERGOLA NA	**-16,40**	**0,00**	**0,20**	**0,00**	**-0,14**	**0,00**

Name	dx [m]	Case	Cross-section	N [kN]	V_y [kN]	V_z [kN]	M_x [kNm]	M_y [kNm]	M_z [kNm]
			TEMELJU - SHS100/100/5.0						
B9	0,000	CO1/1	Sekundarni nosilec - PERGOLA NA TEMELJU - SHS100/100/5.0	**-36,39**	0,00	**0,77**	0,00	**-1,49**	**0,00**

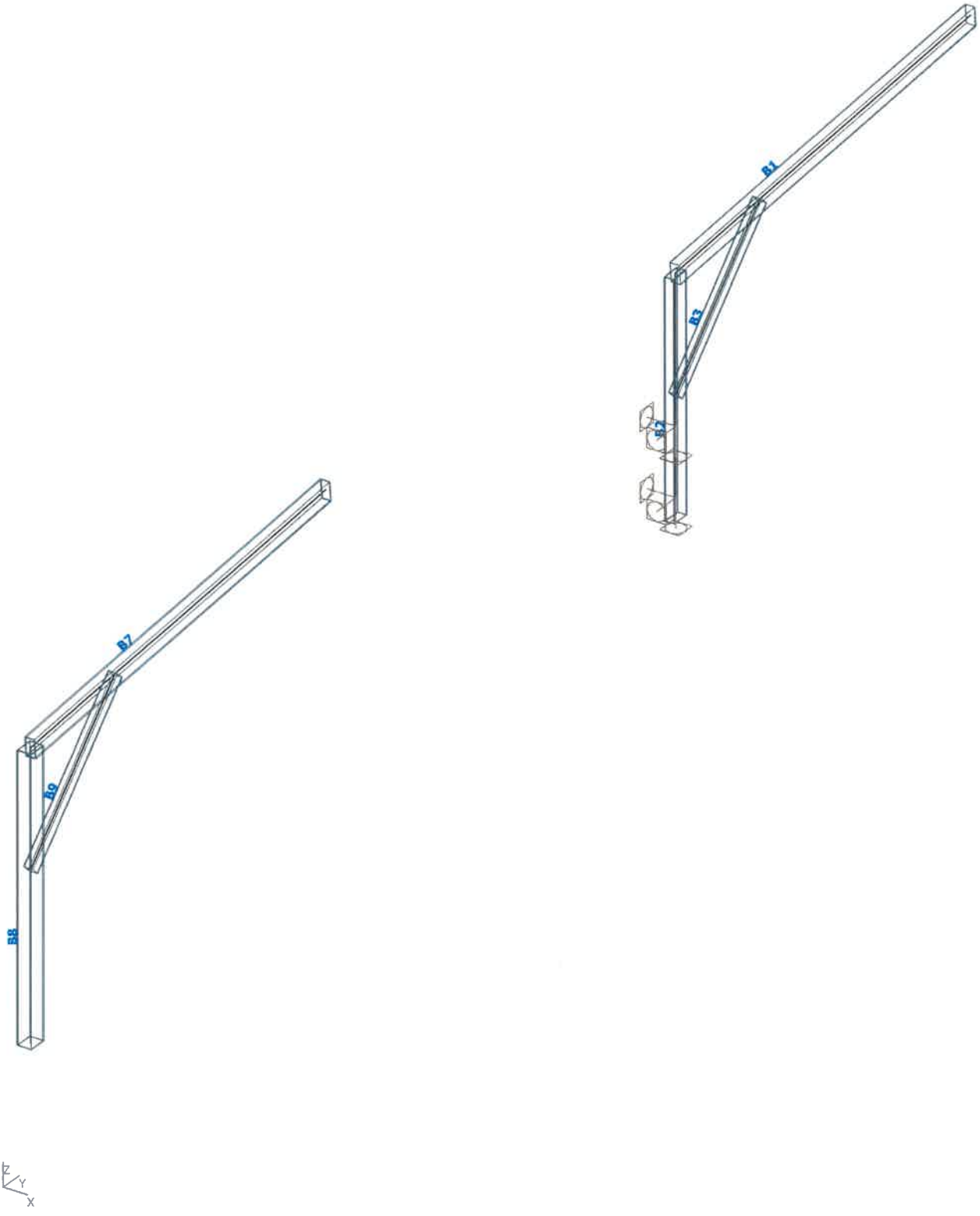
Name	Combination key
CO1/1	1.35*LC1 + 1.35*LC2 + 1.50*LC3
CO1/2	LC1 + LC2

Values: **N**
Linear calculation
Combination: CO1
Coordinate system: Principal
Extreme 1D: Cross-section
Selection: All

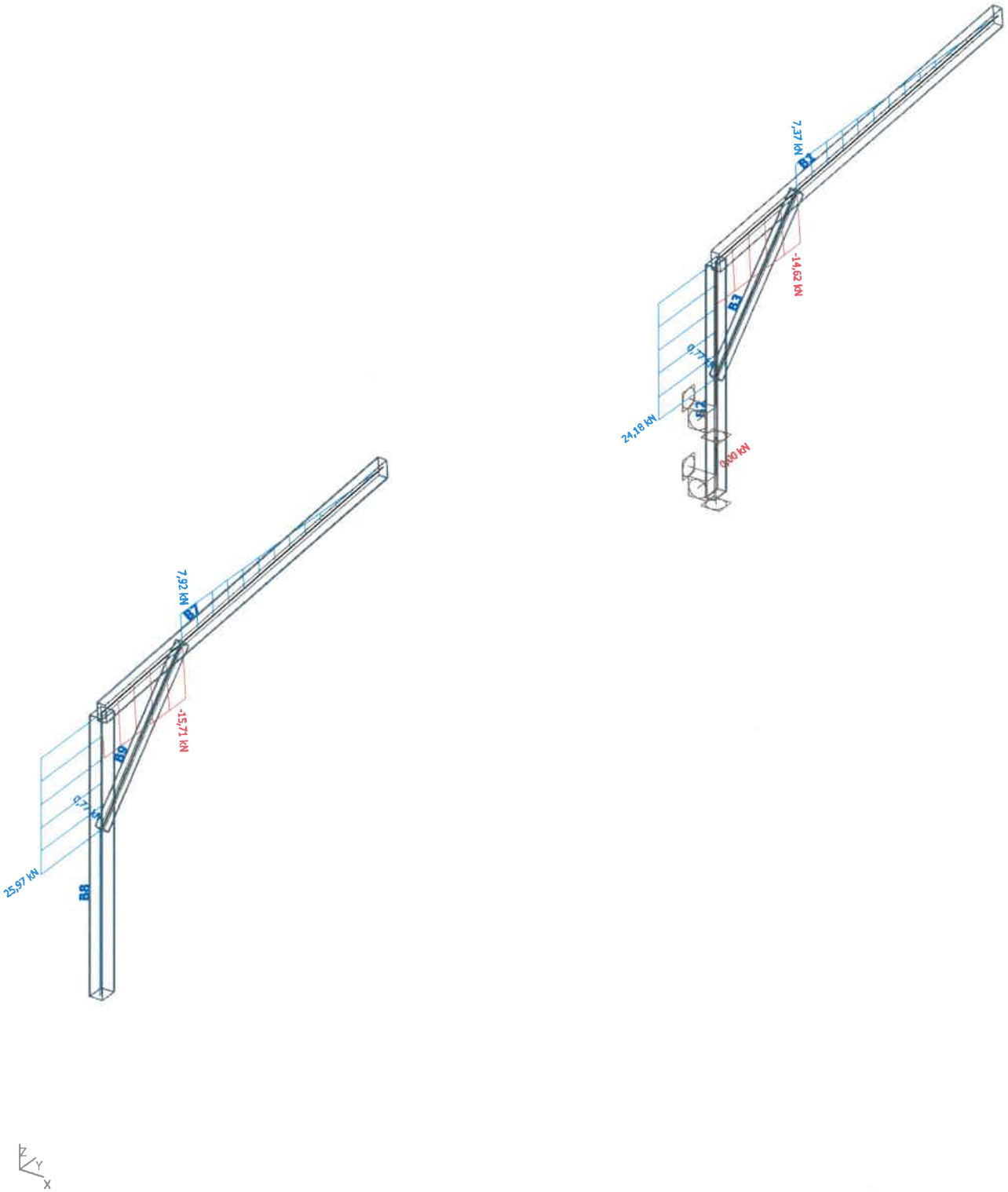




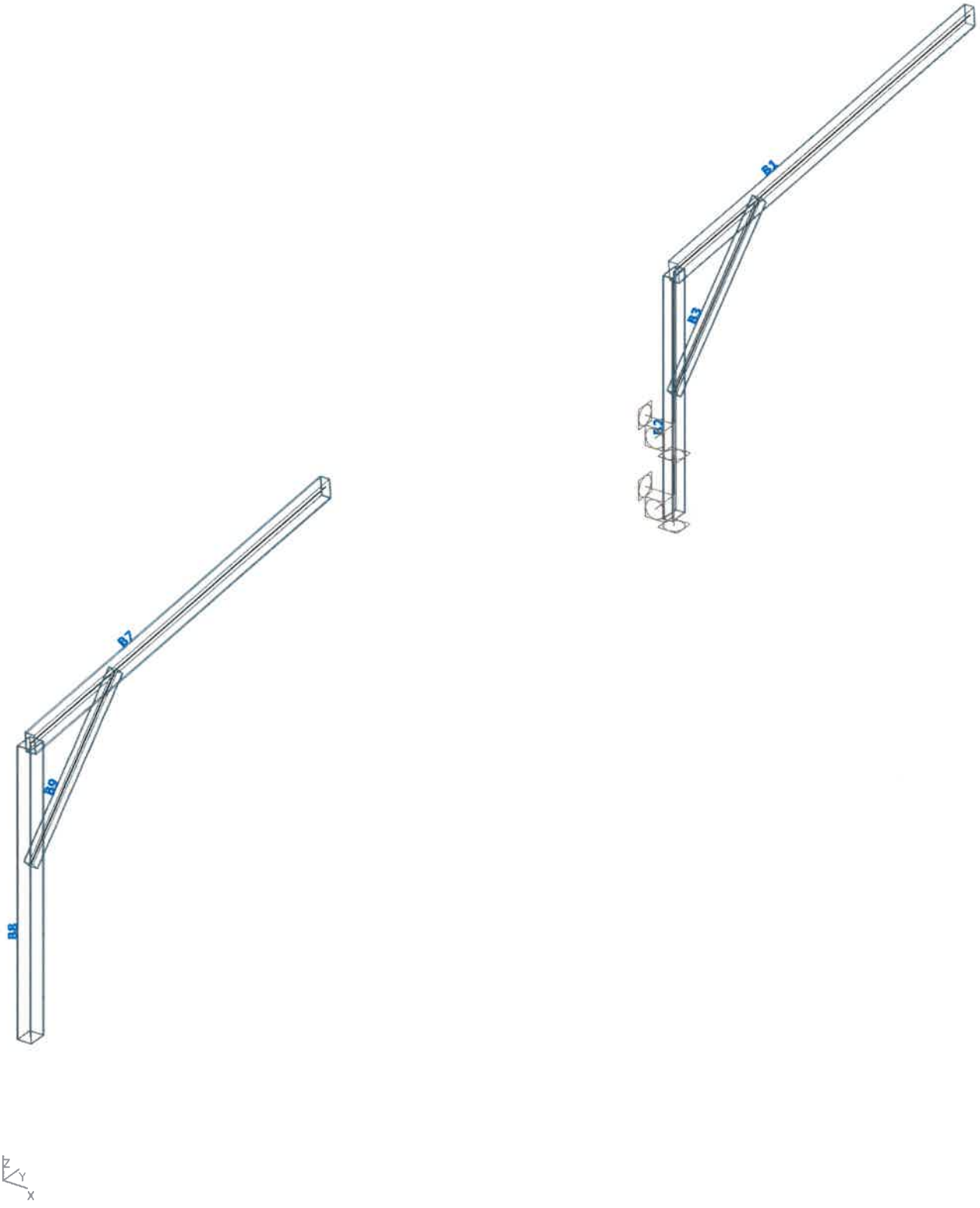
Values: V_y
Linear calculation
Combination: CO1
Coordinate system: Principal
Extreme 1D: Cross-section
Selection: All



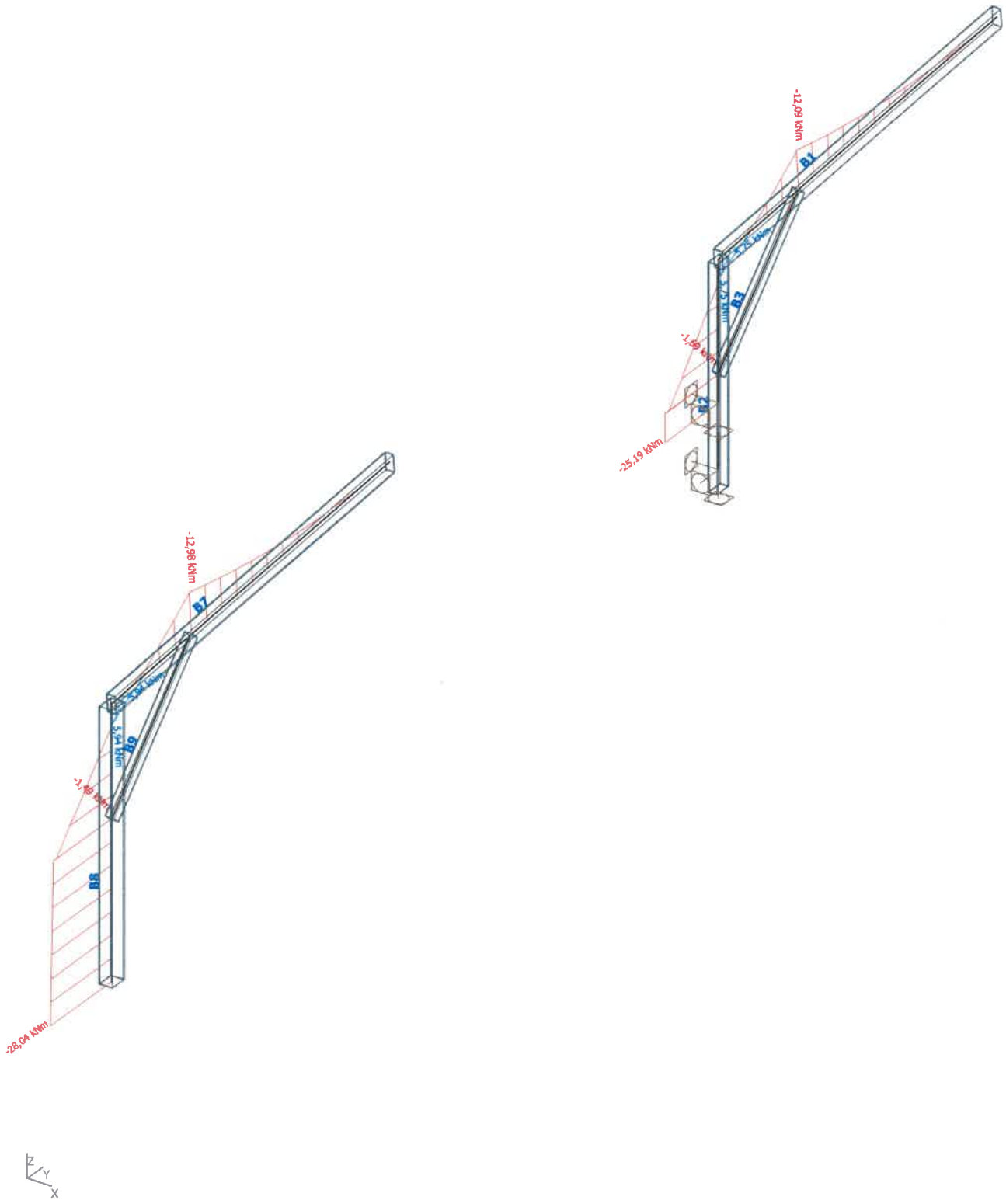
Values: V_z
Linear calculation
Combination: CO1
Coordinate system: Principal
Extreme 1D: Cross-section
Selection: All



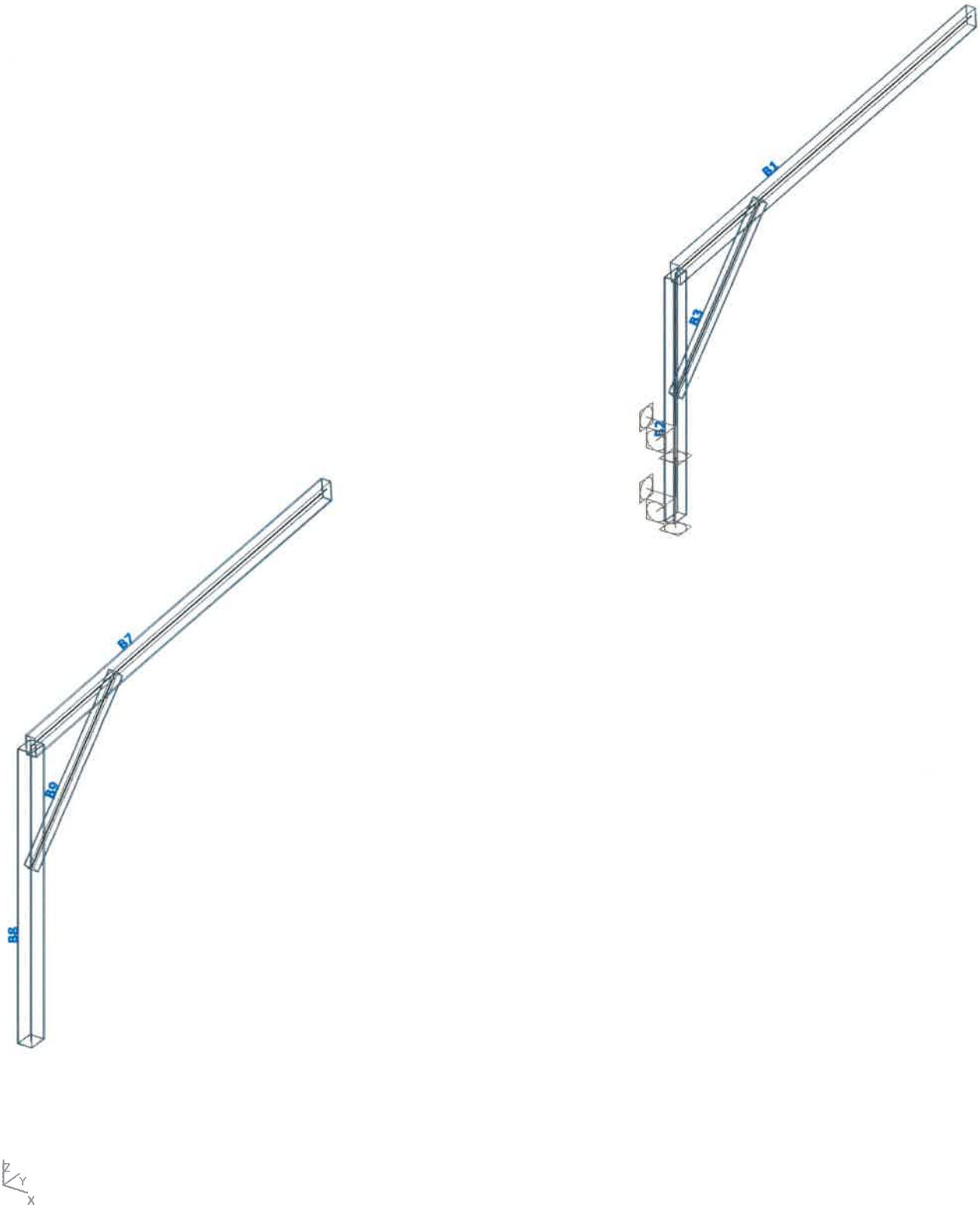
Values: M_x
Linear calculation
Combination: CO1
Coordinate system: Principal
Extreme 1D: Cross-section
Selection: All



Values: **M_y**
Linear calculation
Combination: CO1
Coordinate system: Principal
Extreme 1D: Cross-section
Selection: All



Values: M_z
Linear calculation
Combination: CO1
Coordinate system: Principal
Extreme 1D: Cross-section
Selection: All



7. Deformacije

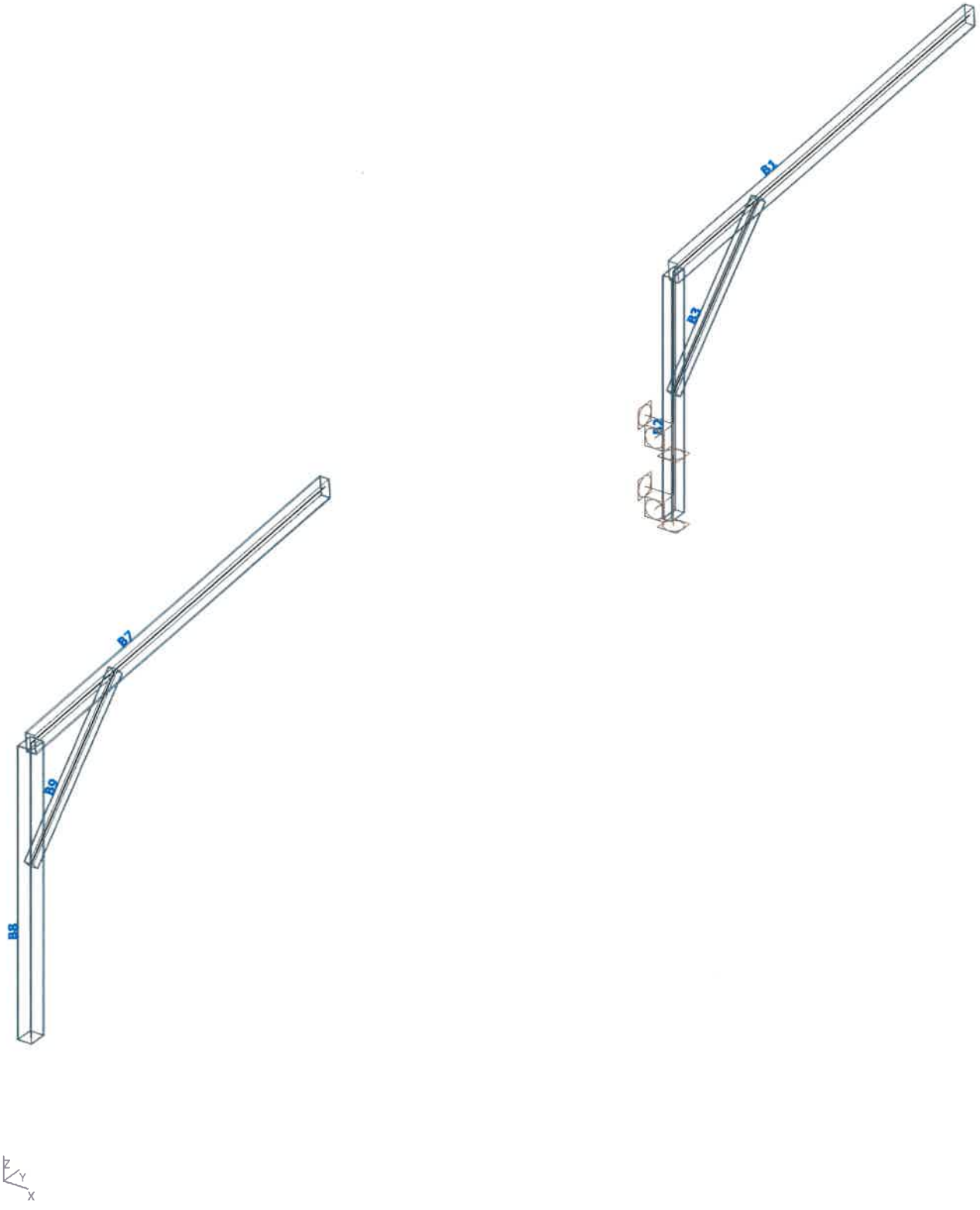
Linear calculation
Combination: CO1
Coordinate system: Global
Extreme 1D: Cross-section
Selection: All
Deformations

Name	dx [m]	Case	Cross-section	u_x [mm]	u_y [mm]	u_z [mm]	Φ_x [mrad]	Φ_y [mrad]	Φ_z [mrad]	U_{total} [mm]
B1	0,000	CO1/1	Primarni nosilec - PERGOLA NA ZIDU - RHS200/100/5.0	0,0	**1,9**	0,0	-1,7	0,0	0,0	1,9
B1	0,000	CO1/2	Primarni nosilec - PERGOLA NA ZIDU - RHS200/100/5.0	**0,0**	4,4	**0,0**	-3,8	**0,0**	**0,0**	4,4
B1	4,600	CO1/2	Primarni nosilec - PERGOLA NA ZIDU - RHS200/100/5.0	0,0	**7,2**	**-31,4**	**-9,1**	0,0	0,0	**32,2**
B1	0,528	CO1/1	Primarni nosilec - PERGOLA NA ZIDU - RHS200/100/5.0	0,0	2,0	-0,8	**-1,5**	0,0	0,0	2,1
B2	1,200-	CO1/2	Steber - PERGOLA NA ZIDU - RHS200/100/8.0	0,0	0,2	**0,0**	-1,6	0,0	0,0	0,2
B2	2,160	CO1/2	Steber - PERGOLA NA ZIDU - RHS200/100/8.0	0,0	3,4	0,0	**-4,0**	0,0	0,0	3,4
B2	0,000	CO1/3	Steber - PERGOLA NA ZIDU - RHS200/100/8.0	0,0	**0,0**	0,0	**0,0**	0,0	**0,0**	0,0
B2	2,400	CO1/2	Steber - PERGOLA NA ZIDU - RHS200/100/8.0	**0,0**	**4,4**	**0,0**	-3,8	**0,0**	**0,0**	**4,4**
B3	0,000	CO1/1	Sekundarni nosilec - PERGOLA NA ZIDU - SHS100/100/5.0	**0,0**	**0,1**	**0,0**	**-0,7**	**0,0**	**0,0**	0,1
B3	1,860	CO1/2	Sekundarni nosilec - PERGOLA NA ZIDU - SHS100/100/5.0	0,0	**4,9**	**-4,8**	**-4,9**	0,0	0,0	**6,9**
B7	0,000	CO1/1	Primarni nosilec - PERGOLA NA TEMELJU - RHS200/100/8.0	0,0	**7,8**	**0,0**	-4,2	0,0	0,0	7,8
B7	4,600	CO1/2	Primarni nosilec - PERGOLA NA TEMELJU - RHS200/100/8.0	0,0	**21,9**	**-52,8**	**-13,2**	0,0	0,0	**57,2**
B7	0,528	CO1/1	Primarni nosilec - PERGOLA NA TEMELJU - RHS200/100/8.0	**0,0**	8,0	-2,2	**-4,1**	**0,0**	**0,0**	8,2
B8	1,700-	CO1/2	Steber - PERGOLA NA TEMELJU - RHS200/150/8.0	0,0	6,4	**0,0**	-7,5	0,0	0,0	6,4
B8	2,660	CO1/2	Steber - PERGOLA NA	0,0	14,9	0,0	**-9,4**	0,0	0,0	14,9

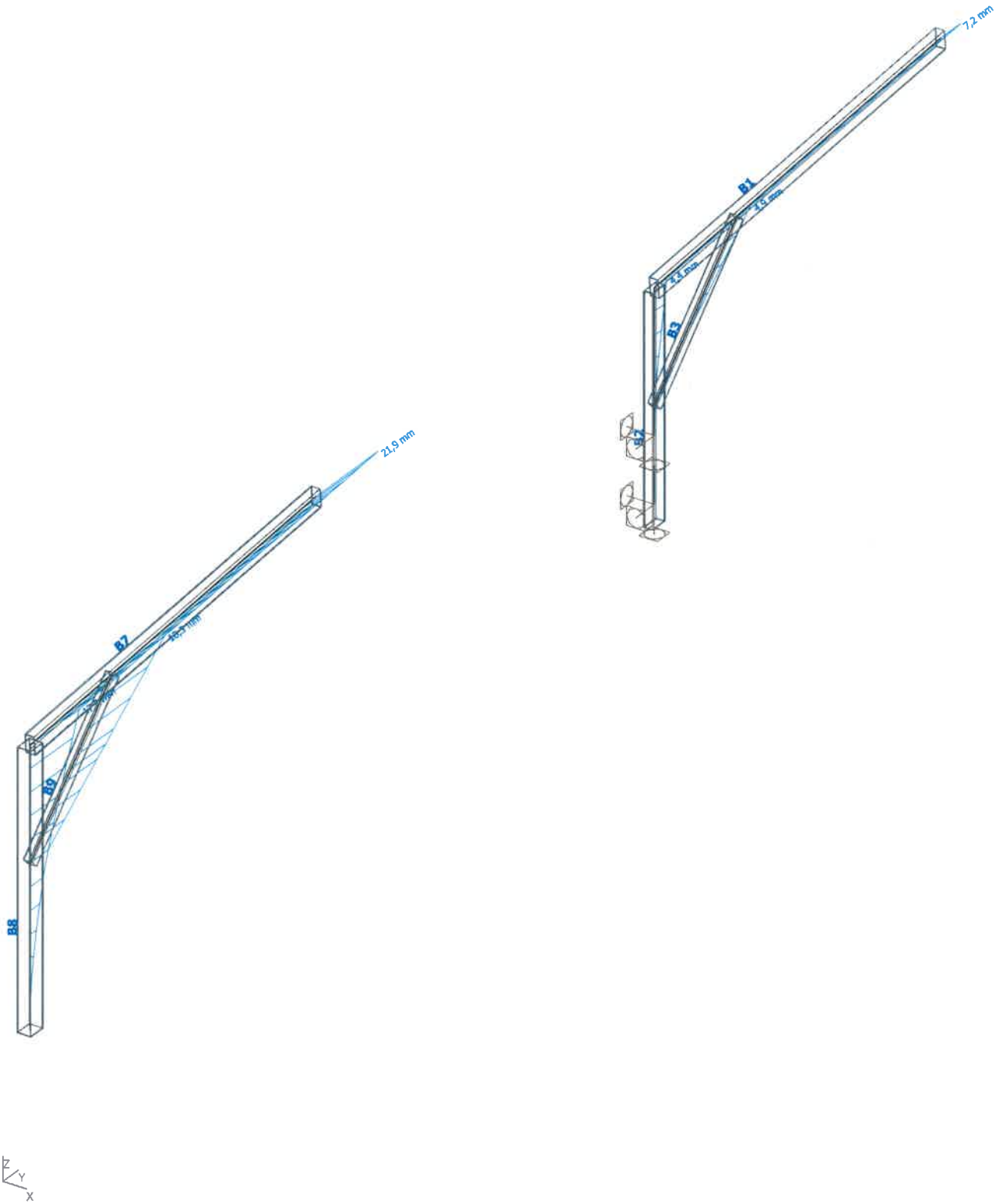
Name	dx [m]	Case	Cross-section	u_x [mm]	u_y [mm]	u_z [mm]	φ_x [mrad]	φ_y [mrad]	φ_z [mrad]	U_{total} [mm]
			TEMELJU - RHS200/150/8.0							
B8	0,000	CO1/3	Steber - PERGOLA NA TEMELJU - RHS200/150/8.0	0,0	**0,0**	**0,0**	**0,0**	0,0	**0,0**	0,0
B8	2,900	CO1/2	Steber - PERGOLA NA TEMELJU - RHS200/150/8.0	**0,0**	**17,2**	0,0	-9,3	**0,0**	**0,0**	**17,2**
B9	0,000	CO1/1	Sekundarni nosilec - PERGOLA NA TEMELJU - SHS100/100/5.0	**0,0**	**2,9**	**0,0**	**-3,4**	**0,0**	**0,0**	2,9
B9	1,860	CO1/2	Sekundarni nosilec - PERGOLA NA TEMELJU - SHS100/100/5.0	0,0	**18,3**	**-12,2**	**-10,2**	0,0	0,0	**22,0**

Name	Combination key
CO1/1	LC1 + LC2
CO1/2	1.35*LC1 + 1.35*LC2 + 1.50*LC3
CO1/3	1.35*LC1 + 1.35*LC2

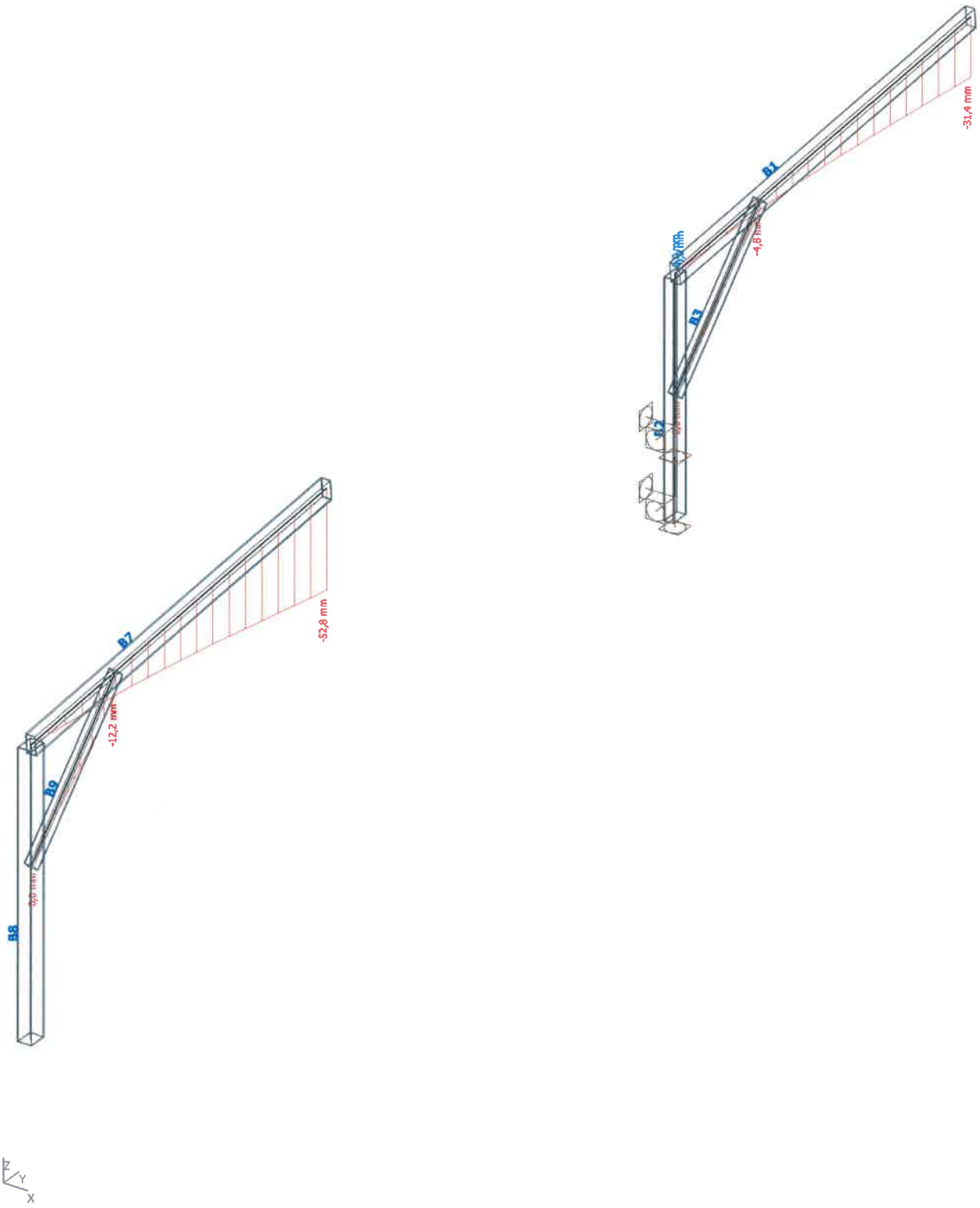
Values: u_x
Linear calculation
Combination: CO1
Coordinate system: Global
Extreme 1D: Cross-section
Selection: All



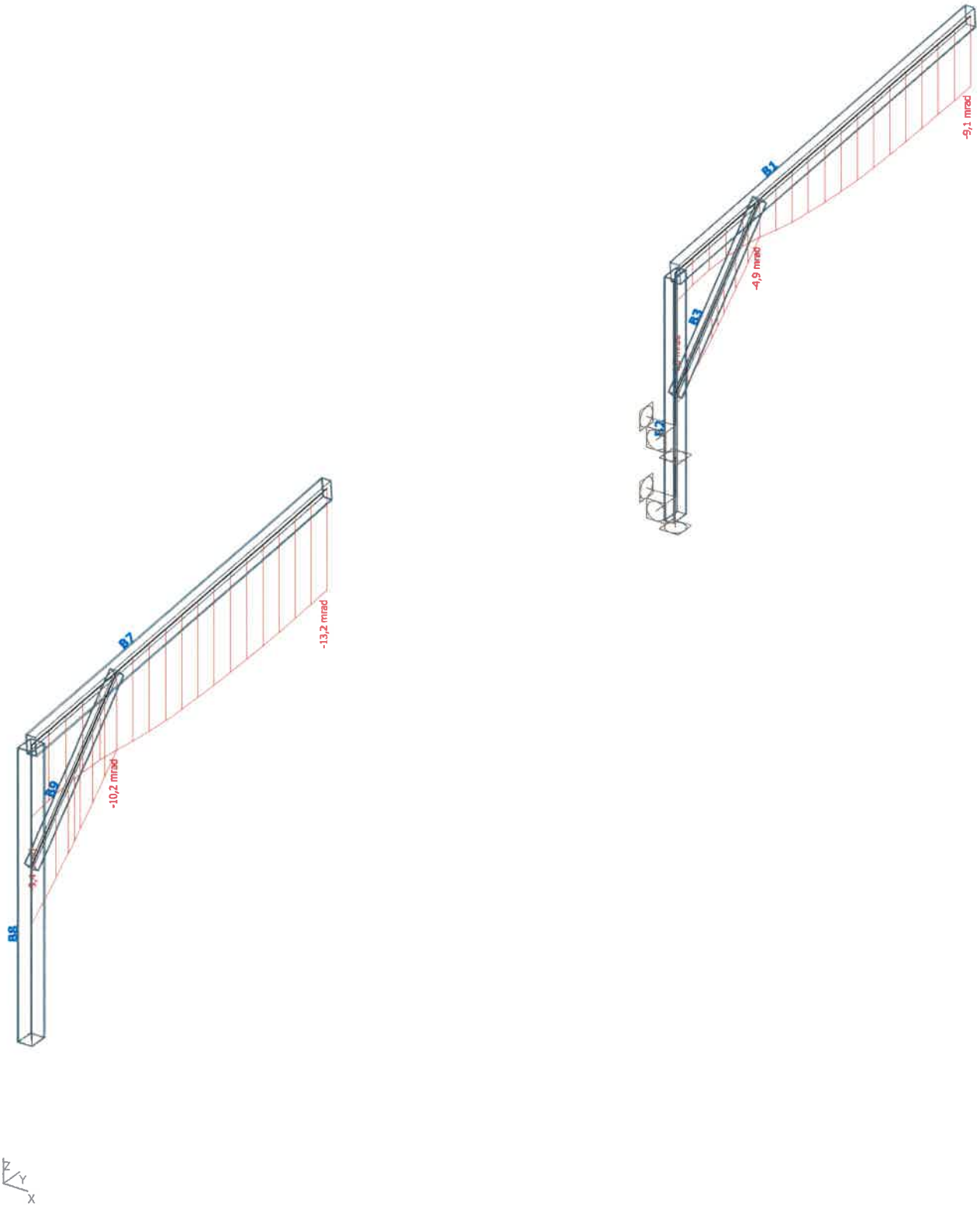
Values: u_y
Linear calculation
Combination: CO1
Coordinate system: Global
Extreme 1D: Cross-section
Selection: All



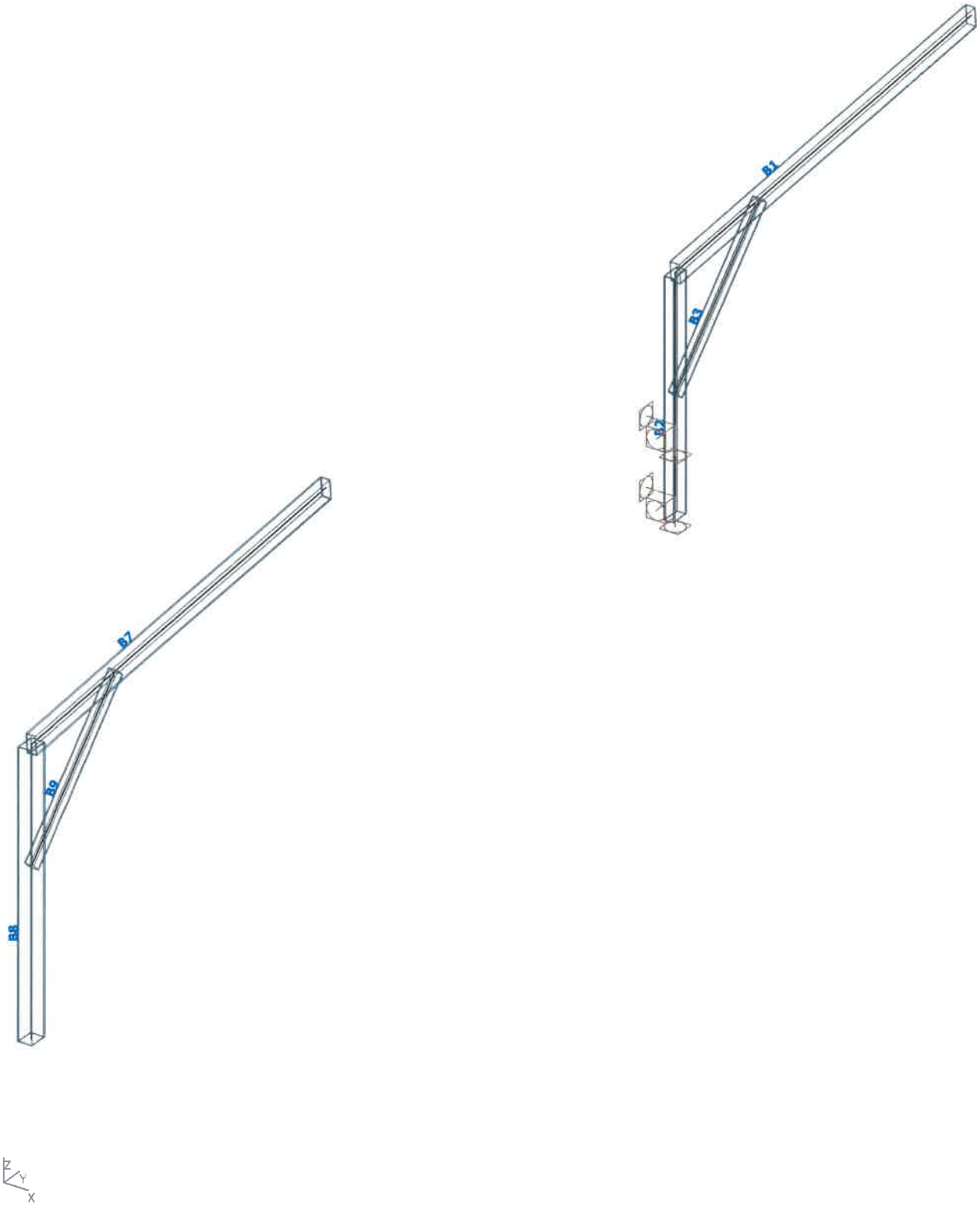
Values: u_z
Linear calculation
Combination: CO1
Coordinate system: Global
Extreme 1D: Cross-section
Selection: All



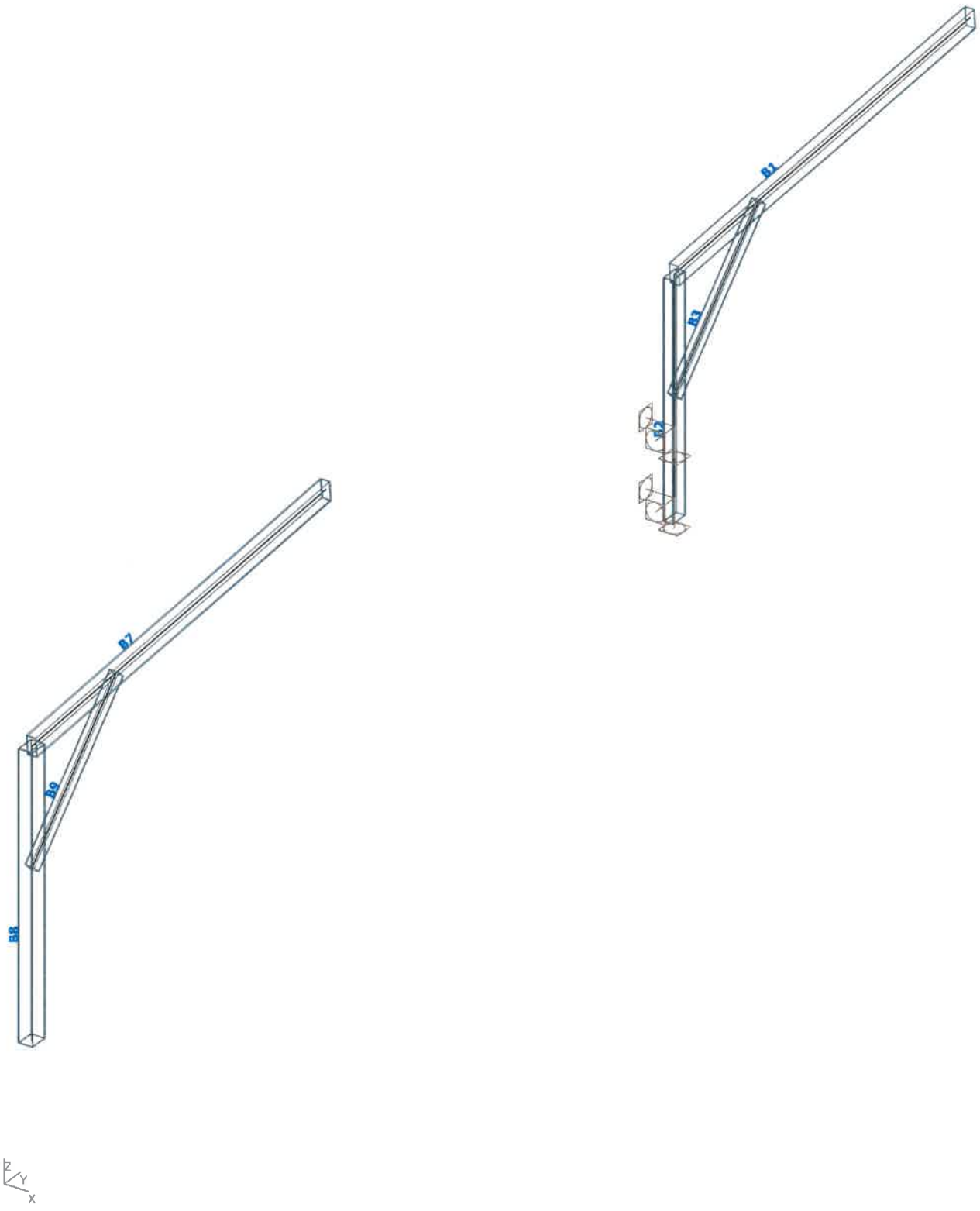
Values: Φ_x
Linear calculation
Combination: CO1
Coordinate system: Global
Extreme 1D: Cross-section
Selection: All



Values: φ_y
Linear calculation
Combination: CO1
Coordinate system: Global
Extreme 1D: Cross-section
Selection: All



Values: φ_z
Linear calculation
Combination: CO1
Coordinate system: Global
Extreme 1D: Cross-section
Selection: All



8. Preverjanje nosilnosti elementov skladno z EC3

Linear calculation
Combination: CO1
Coordinate system: Principal
Extreme 1D: Cross-section
Selection: All

EN 1993-1-1 Code Check
National annex: Slovenian SIST-EN NA

Member B1	**1,320 / 4,600 m**	**RHS200/100/5.0**	**S 235**	**CO1**	**0,28 -**

Note: EN 1993-1-3 article 1.1(3) specifies that this part does not apply to cold formed CHS and RHS sections. The default EN 1993-1-1 code check is executed instead of the EN 1993-1-3 code check.

Combination key
CO1 / 1.35*LC1 + 1.35*LC2 + 1.50*LC3

The critical check is on position 1,320 m

Section check	
Section classification	1
Compression check	0,00 -
Bending moment check for M_y	0,28 -
Shear check for V_z	0,03 -
Combined bending, axial force and shear force check	0,28 -
Conclusion - section check	0,28 -

Stability Check	
Stability classification	1
Bending and axial compression check	0,28 -
Conclusion - stability check	0,28 -

E/W/N	Description
N16	Note: Since the shear forces are less than half the plastic shear resistances their effect on the moment resistances is neglected.
N25	Note: The slenderness or compression force is such that Flexural Buckling effects may be ignored according to EN 1993-1-1 article 6.3.1.2(4).
N30	Note: The cross-section concerns a RHS section which is not susceptible to Torsional(-Flexural) Buckling.
N34	Note: The cross-section concerns an RHS section with 'h / b < 10 / $\lambda_{rel,z}$'. This section is thus not susceptible to Lateral Torsional Buckling.

EN 1993-1-1 Code Check
National annex: Slovenian SIST-EN NA

Member B2	**0,900 / 2,400 m**	**RHS200/100/8.0**	**S 235**	**CO1**	**0,40 -**

Note: EN 1993-1-3 article 1.1(3) specifies that this part does not apply to cold formed CHS and RHS sections. The default EN 1993-1-1 code check is executed instead of the EN 1993-1-3 code check.

Combination key
CO1 / 1.35*LC1 + 1.35*LC2 + 1.50*LC3

The critical check is on position 0,900 m

Section check	
Section classification	1
Compression check	0,01 -
Bending moment check for M_y	0,39 -
Shear check for V_z	0,00 -
Combined bending, axial force and shear force check	0,39 -
Conclusion - section check	0,39 -

Stability Check	
Stability classification	1
Bending and axial compression check	0,40 -
Conclusion - stability check	0,40 -

E/W/N	Description
N16	Note: Since the shear forces are less than half the plastic shear resistances their effect on the moment resistances is neglected.
N25	Note: The slenderness or compression force is such that Flexural Buckling effects may be ignored according to EN 1993-1-1 article 6.3.1.2(4).
N30	Note: The cross-section concerns a RHS section which is not susceptible to Torsional(-Flexural) Buckling.
N34	Note: The cross-section concerns an RHS section with 'h / b < 10 / $\lambda_{rel,z}$'. This section is thus not susceptible to Lateral Torsional Buckling.

EN 1993-1-1 Code Check
National annex: Slovenian SIST-EN NA

Member B3	0,000 / 1,860 m	SHS100/100/5.0	S 235	CO1	0,24 -

Note: EN 1993-1-3 article 1.1(3) specifies that this part does not apply to cold formed CHS and RHS sections.
The default EN 1993-1-1 code check is executed instead of the EN 1993-1-3 code check.

Combination key
CO1 / 1.35*LC1 + 1.35*LC2 + 1.50*LC3

The critical check is on position 0,000 m

Section check	
Section classification	1
Compression check	0,08 -
Bending moment check for M_y	0,11 -
Shear check for V_z	0,01 -
Combined bending, axial force and shear force check	0,11 -
Conclusion - section check	0,11 -

Stability Check	
Stability classification	1
Flexural Buckling check	0,12 -
Bending and axial compression check	0,24 -
Conclusion - stability check	0,24 -

E/W/N	Description
N16	Note: Since the shear forces are less than half the plastic shear resistances their effect on the moment resistances is neglected.
N30	Note: The cross-section concerns a RHS section which is not susceptible to Torsional(-Flexural) Buckling.
N34	Note: The cross-section concerns an RHS section with 'h / b < 10 / $\lambda_{rel,z}$'. This section is thus not susceptible to Lateral Torsional Buckling.

EN 1993-1-1 Code Check
National annex: Slovenian SIST-EN NA

Member B7	1,320 / 4,600 m	RHS200/100/8.0	S 235	CO1	0,20 -

Note: EN 1993-1-3 article 1.1(3) specifies that this part does not apply to cold formed CHS and RHS sections.
The default EN 1993-1-1 code check is executed instead of the EN 1993-1-3 code check.

Combination key
CO1 / 1.35*LC1 + 1.35*LC2 + 1.50*LC3

The critical check is on position 1,320 m

Section check	
Section classification	1
Compression check	0,00 -
Bending moment check for M_y	0,20 -
Shear check for V_z	0,02 -
Combined bending, axial force and shear force check	0,20 -
Conclusion - section check	0,20 -

Stability Check	
Stability classification	1
Bending and axial compression check	0,20 -
Conclusion - stability check	0,20 -

E/W/N	Description
N16	Note: Since the shear forces are less than half the plastic shear resistances their effect on the moment resistances is neglected.
N25	Note: The slenderness or compression force is such that Flexural Buckling effects may be ignored according to EN 1993-1-1 article 6.3.1.2(4).
N30	Note: The cross-section concerns a RHS section which is not susceptible to Torsional(-Flexural) Buckling.
N34	Note: The cross-section concerns an RHS section with 'h / b < 10 / $\lambda_{rel,z}$'. This section is thus not susceptible to Lateral Torsional Buckling.

EN 1993-1-1 Code Check
National annex: Slovenian SIST-EN NA

Member B8	0,000 / 2,900 m	RHS200/150/8.0	S 235	CO1	0,35 -

Note: EN 1993-1-3 article 1.1(3) specifies that this part does not apply to cold formed CHS and RHS sections.
The default EN 1993-1-1 code check is executed instead of the EN 1993-1-3 code check.

Combination key
CO1 / 1.35*LC1 + 1.35*LC2 + 1.50*LC3

The critical check is on position 0,000 m

Section check	
Section classification	1
Compression check	0,01 -
Bending moment check for M_y	0,34 -
Shear check for V_z	0,00 -
Combined bending, axial force and shear force check	0,34 -
Conclusion - section check	0,34 -

Stability Check	
Stability classification	1
Bending and axial compression check	0,35 -
Conclusion - stability check	0,35 -

E/W/N	Description
N16	Note: Since the shear forces are less than half the plastic shear resistances their effect on the moment resistances is neglected.
N25	Note: The slenderness or compression force is such that Flexural Buckling effects may be ignored according to EN 1993-1-1 article 6.3.1.2(4).
N30	Note: The cross-section concerns a RHS section which is not susceptible to Torsional(-Flexural) Buckling.
N34	Note: The cross-section concerns an RHS section with 'h / b < 10 / $\lambda_{rel,z}$'. This section is thus not susceptible to Lateral Torsional Buckling.

EN 1993-1-1 Code Check
National annex: Slovenian SIST-EN NA

Member B9	0,000 / 1,860 m	SHS100/100/5.0	S 235	CO1	0,42 -

Note: EN 1993-1-3 article 1.1(3) specifies that this part does not apply to cold formed CHS and RHS sections.
The default EN 1993-1-1 code check is executed instead of the EN 1993-1-3 code check.

Combination key
CO1 / 1.35*LC1 + 1.35*LC2 + 1.50*LC3

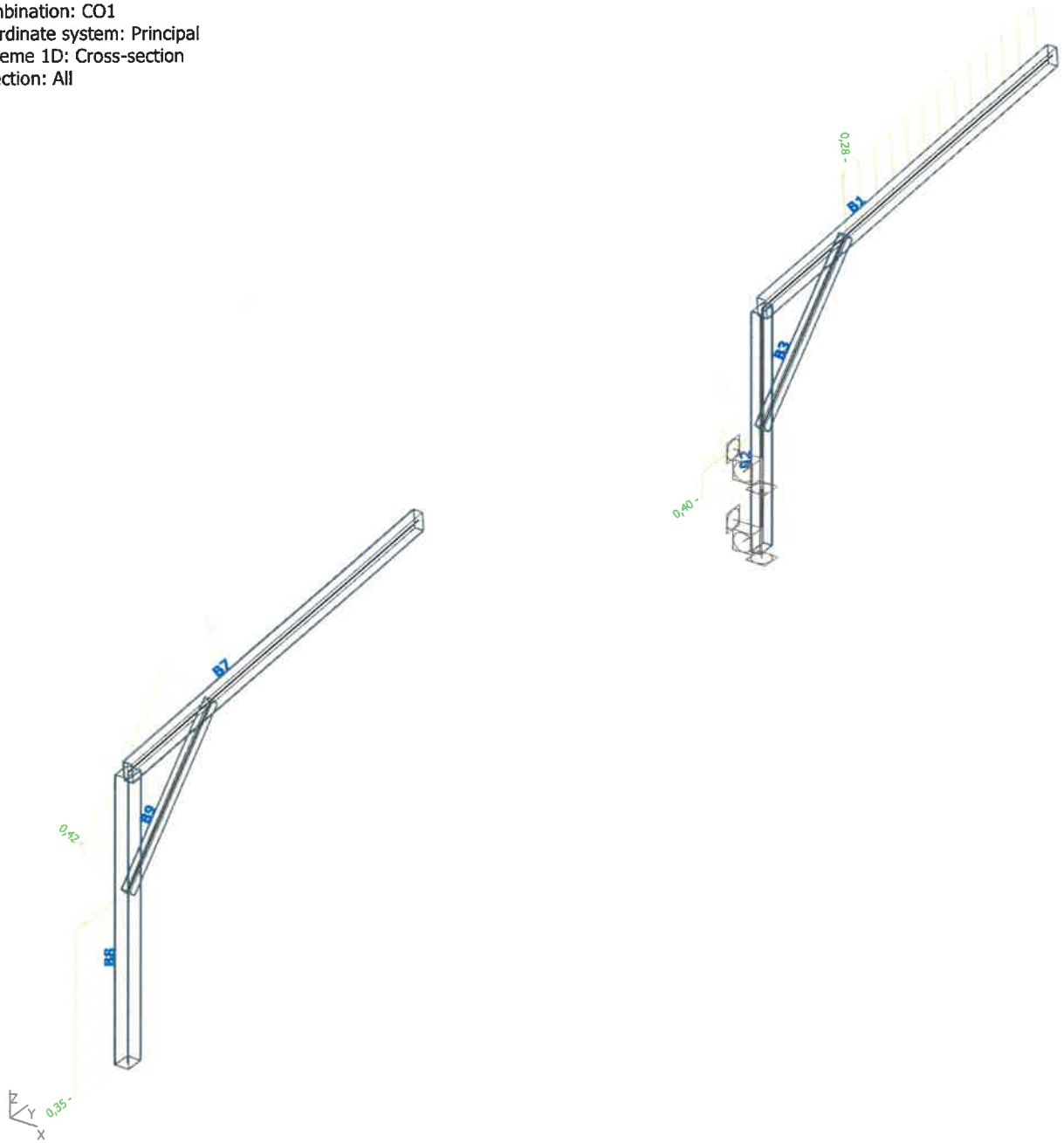
The critical check is on position 0,000 m

Section check	
Section classification	1
Compression check	0,08 -
Bending moment check for M_y	0,10 -
Shear check for V_z	0,01 -
Combined bending, axial force and shear force check	0,10 -
Conclusion - section check	0,10 -

Stability Check	
Stability classification	1
Flexural Buckling check	0,33 -
Bending and axial compression check	0,42 -
Conclusion - stability check	0,42 -

E/W/N	Description
N16	Note: Since the shear forces are less than half the plastic shear resistances their effect on the moment resistances is neglected.
N30	Note: The cross-section concerns a RHS section which is not susceptible to Torsional(-Flexural) Buckling.
N34	Note: The cross-section concerns an RHS section with 'h / b < 10 / $\lambda_{rel,z}$'. This section is thus not susceptible to Lateral Torsional Buckling.

Values: **$UC_{Overall}$**
Linear calculation
Combination: CO1
Coordinate system: Principal
Extreme 1D: Cross-section
Selection: All



9. Ocenjena masa jeklenih elementov

Selection: All
Filter: Material = S 235
Type of sorting: Cross-section

Summary

Material	Mass [kg]	Surface [m²]	Volume [m³]
Steel	524,6	10,162	6,6830e-02
Total	524,6	10,162	6,6830e-02

Note: Value 'Surface' represents for 1D members the total exposed surface area, while for 2D members it corresponds only to the surface area of the centroidal plane.

Steel (1D)

Cross-section	Material	Length [m]	Unit mass [kg/m]	Mass [kg]	Surface [m²]	Volume [m³]
Steber - PERGOLA NA ZIDU - RHS200/100/8.0	S 235	2,400	35,2	84,4	1,390	1,0752e-02
Sekundarni nosilec - PERGOLA NA ZIDU - SHS100/100/5.0	S 235	1,860	14,7	27,3	0,720	3,4778e-03
Primarni nosilec - PERGOLA NA ZIDU - RHS200/100/5.0	S 235	4,600	22,5	103,6	2,700	1,3202e-02
Steber - PERGOLA NA TEMELJU - RHS200/150/8.0	S 235	2,900	41,4	120,2	1,969	1,5312e-02
Primarni nosilec - PERGOLA NA TEMELJU - RHS200/100/8.0	S 235	4,600	35,2	161,8	2,663	2,0608e-02
Sekundarni nosilec - PERGOLA NA TEMELJU - SHS100/100/5.0	S 235	1,860	14,7	27,3	0,720	3,4778e-03
Total		18,220		524,6	10,162	6,6830e-02

PREVERITEV OBSTOJEČEGA OPORNEGA ZIDU PRI VRTCU

Project : Podporni zid
Date :
Settings
(input for current task)
Materials and standards

Concrete structures : EN 1992-1-1 (EC2)
Coefficients EN 1992-1-1 : standard
Wall analysis

Verification methodology : according to EN 1997
Active earth pressure calculation : Coulomb
Passive earth pressure calculation : Mazindrani (Rankine)
Earthquake analysis : Mononobe-Okabe
Shape of earth wedge : Calculate as skew
Base key : The base key is considered as inclined footing bottom
Allowable eccentricity : 0,333
Design approach : 2 - reduction of actions and resistances

Partial factors on actions (A)
Permanent design situation

		Unfavourable		Favourable	
Permanent actions :	γG =	1,35	[–]	1,00	[–]
Variable actions :	γQ =	1,50	[–]	0,00	[–]
Water load :	γw =	1,35	[–]		

Partial factors for resistances (R)
Permanent design situation

Partial factor on overturning :	γRv =	1,40	[–]
Partial factor on sliding resistance :	γRh =	1,10	[–]
Partial factor on bearing capacity :	γRe =	1,40	[–]

Partial factors for variable actions
Permanent design situation

Factor for combination value :	ψ0 =	0,70	[–]
Factor for frequent value :	ψ1 =	0,50	[–]
Factor for quasi-permanent value :	ψ2 =	0,30	[–]

Material of structure
Unit weight γ = 25,00 kN/m3
Analysis of concrete structures carried out according to the standard EN 1992-1-1 (EC2).

Concrete: C 25/30
Cylinder compressive strength fck = 25,00 MPa
Tensile strength fctm = 2,60 MPa
Elasticity modulus Ecm = 31000,00 MPa
Longitudinal reinforcement: B500B
Yield strength fyk = 500,00 MPa
Geometry of structure

No.	Coordinate X [m]	Coordinate Z [m]	Depth
1	0,00	0,00	
2	0,00	3,50	
3	1,60	3,50	
4	1,60	4,20	
5	-0,60	4,20	
6	-0,60	3,50	
7	-0,40	3,50	
8	-0,40	0,00	

The origin [0,0] is located at the most upper right point of the wall.
Wall section area = 2,94 m2.
Basic soil parameters

No.	Name	Pattern	φef [°]	cef [kPa]	γ [kN/m3]	γsu [kN/m3]	δ [°]		
1	meljnopeščeni prod				30,00	0,00	19,00	11,00	20,00
2	blazina		36,00	0,00	21,00	11,00	24,00		

All soils are considered as cohesionless for at rest pressure analysis.
Soil parameters

meljnopeščeni prod
Unit weight : γ = 19,00 kN/m3
Stress-state : effective
Angle of internal friction : φef = 30,00 °
Cohesion of soil : cef = 0,00 kPa
Angle of friction struc.-soil : δ = 20,00 °
Soil : cohesionless
Saturated unit weight : γsat = 21,00 kN/m3

blazina
Unit weight : γ = 21,00 kN/m3
Stress-state : effective
Angle of internal friction : φef = 36,00 °
Cohesion of soil : cef = 0,00 kPa
Angle of friction struc.-soil : δ = 24,00 °
Soil : cohesionless
Saturated unit weight : γsat = 21,00 kN/m3

Geological profile and assigned soils

No.	Thickness of layer t [m]	Depth z [m]	Assigned soil	Pattern
1	3,00	0,00 .. 3,00	meljnopeščeni prod	
2	-	3,00 .. ▯	meljnopeščeni prod	

Foundation
Type of foundation : soil from geological profile
Terrain profile
Terrain behind construction has the slope 1: 4,00 (slope angle is 14,04 °).
Water influence
Ground water table is located below the structure.
Input surface surcharges

No.	Surcharge new	change	Action	Mag.1 [kN/m2]	Mag.2 [kN/m2]	Ord.x x [m]	Length l [m]	Depth z [m]
1	Yes		variable	2,50		0,30	6,00	on terrain

No.	Name
1	Spremenljiva koristna obtežba - PROMET

Resistance on front face of the structure
Resistance on front face of the structure is not considered.
Applied forces acting on the structure

No.	Force new	Name edit	Action	Fx [kN/m]	Fz [kN/m]	M [kNm/m]	x [m]	z [m]		
1	Yes		pergola - lastna teža		permanent	0,00	2,73	-3,82	-0,40	-0,30
2	Yes		pergola - stalna koristna obtežba			permanent		0,00	5,73	-13,98
	-0,40	-0,30								

Name : Applied forces Stage - analysis : 1 - 0

Settings of the stage of construction
Design situation : permanent
The wall is free to move. Active earth pressure is therefore assumed.
Reduction of soil/soil friction angle : do not reduce
Verification No. 1
Active pressure behind the structure - partial results

Layer No.	Thickness [m]	[°]	α [°]	φd [kPa]	cd [kN/m3]	γ [°]	δd	Ka	Comment
1	0,03	22,51	30,00	0,00	19,00	30,00	0,713		
2	3,00	22,51	30,00	0,00	19,00	30,00	0,713		
3	0,50	22,51	30,00	0,00	19,00	30,00	0,713		
4	0,70	0,00	30,00	0,00	19,00	20,00	0,364		

Active pressure distribution behind the structure (without surcharge)

Layer No.	Start [m] End [m]	σZ [kPa]	σW [kPa]	Pressure [kPa]	Hor. comp. [kPa]	Vert. comp.
1	-0,03	0,00	0,00	0,00	0,00	0,00
	0,00	0,64	0,00	0,46	0,28	0,36
2	0,00	0,64	0,00	0,46	0,28	0,36
	3,00	57,64	0,00	41,11	25,02	32,62
3	3,00	57,64	0,00	41,11	25,02	32,62
	3,50	67,14	0,00	47,88	29,14	37,99
4	3,50	67,14	0,00	24,44	22,97	8,36
	4,20	80,44	0,00	29,29	27,52	10,02

Pressure distribution from surcharge - Spremenljiva koristna obtežba - PROMET

Point No.	Depth [m]	Hor. comp. [kPa]	Vert. comp. [kPa]
1	-0,03	0,00	0,00
2	0,00	0,00	0,00
3	0,00	0,00	0,00
4	0,05	0,00	0,00
5	0,05	0,52	0,68
6	3,00	0,51	0,67
7	3,50	0,51	0,66
8	3,50	0,81	0,29
9	4,20	0,80	0,29

Forces acting on construction

Name	Fhor [kN/m]	App.Pt. z [m]	Fvert [kN/m]	App.Pt. x [m]	Coeff. overtur.	Coeff. sliding	Coeff. stress					
Weight - wall		0,00	-1,35	73,50	0,77	1,000	1,000	1,350				
Weight - earth wedge		0,00	-1,97	58,22	1,14	1,000	1,000	1,350				
Active pressure	69,17	-1,48	73,56	1,75	1,350	1,350	1,350					
Spremenljiva koristna obtežba - PROMET					2,34	-1,93	2,52	1,54	1,500	1,500	1,500	
pergola - lastna teža		0,00	-4,50	2,73	0,20	1,350	1,000	1,350				
pergola - stalna koristna obtežba					0,00	-4,50	5,73	0,20	1,350	1,000	1,350	

Verification of complete wall
Check for overturning stability
Resisting moment Mres = 217,80 kNm/m
Overturning moment Movr = 169,45 kNm/m
Wall for overturning is SATISFACTORY

Check for slip
Resisting horizontal force Hres = 127,69 kN/m
Active horizontal force Hact = 96,88 kN/m
Wall for slip is SATISFACTORY

Overall check - WALL is SATISFACTORY

Maximum stress in footing bottom : 239,56 kPa
Name : Verification Stage - analysis : 1 - 1

Bearing capacity of foundation soil
Design load acting at the center of footing bottom

No.	Moment [kNm/m]		Norm. force [kN/m]	Shear Force [kN/m]	Eccentricity [–]	Stress [kPa]
1	143,20	292,34	96,88	0,223	239,56	
2	135,39	246,24	96,88	0,250	223,78	

Service load acting at the center of footing bottom

No.	Moment [kNm/m]		Norm. force [kN/m]	Shear Force [kN/m]
1	105,70	216,27	71,51	

Dimensioning No. 1
Wall stem check - front reinf.
Pressure at rest behind the structure - partial results

Layer No.	Thickness [m]	[°]	α [°]	φd [kPa]	cd [kN/m3]	γ	Kr	Comment
1	3,00	0,00	30,00	0,00	19,00	0,550		
2	0,50	0,00	30,00	0,00	19,00	0,550		

Pressure at rest distribution behind the structure (without surcharge)

Layer No.	Start [m] / End [m]	[kPa]	σZ [kPa]	σW [kPa]	Pressure [kPa]	Hor. comp. [kPa]	Vert. comp.
1	0,00	0,00	0,00	0,00	0,00	0,00	
	3,00	57,00	0,00	31,34	31,34	0,00	
2	3,00	57,00	0,00	31,34	31,34	0,00	
	3,50	66,48	0,00	36,55	36,55	0,00	

Pressure distribution from surcharge - Spremenljiva koristna obtežba - PROMET

Point No.	Depth [m]	Hor. comp. [kPa]	Vert. comp. [kPa]
1	0,00	0,73	0,00
2	0,12	1,37	0,00
3	0,25	1,37	0,00
4	0,37	1,37	0,00
5	0,50	1,37	0,00
6	0,62	1,37	0,00
7	0,75	1,37	0,00
8	0,87	1,37	0,00
9	1,00	1,37	0,00
10	1,12	1,37	0,00
11	1,25	1,37	0,00
12	1,37	1,37	0,00
13	1,50	1,37	0,00
14	1,62	1,37	0,00
15	1,75	1,37	0,00
16	1,87	1,37	0,00
17	2,00	1,37	0,00
18	2,12	1,37	0,00

19	2,25	1,37	0,00
20	2,37	1,37	0,00
21	2,50	1,32	0,00
22	2,62	1,28	0,00
23	2,75	1,23	0,00
24	2,87	1,19	0,00
25	3,00	1,15	0,00
26	3,00	1,15	0,00
27	3,12	1,11	0,00
28	3,25	1,07	0,00
29	3,37	1,03	0,00
30	3,50	1,00	0,00

Forces acting on construction

Name	Fhor [kN/m]	App.Pt. z [m]	Fvert [kN/m]	App.Pt. x [m]	Coeff. moment	Coeff.	Coeff. norm.force		shear for.			
Weight - wall		0,00	-1,75	34,99	0,20	1,000	1,350	1,000				
Pressure at rest	63,94		-1,17	0,00	0,40	1,350	1,000	1,350				
Spremenljiva koristna obtežba - PROMET						4,54	-1,80	0,00	0,40	1,500	0,000	1,500
pergola - lastna teža		0,00	-3,80	2,73	0,00	1,350	1,350	1,000				
pergola - stalna koristna obtežba					0,00	-3,80	5,73	0,00	1,350	1,350	1,000	

Wall stem check - front reinf.

Front reinforcement is not required.

Wall stem check - back reinf.

Pressure at rest behind the structure - partial results

Layer No.	Thickness [m]	α [°]	φd [°]	cd [kPa]	γ [kN/m3]	Kr	Comment
1	3,00	0,00	30,00	0,00	19,00	0,550	
2	0,50	0,00	30,00	0,00	19,00	0,550	

Pressure at rest distribution behind the structure (without surcharge)

Layer No.	Start [m] End [m]	σZ [kPa]	σW [kPa]	Pressure [kPa]	Hor. comp. [kPa]	Vert. comp. [kPa]
1	0,00	0,00	0,00	0,00	0,00	0,00
	3,00	57,00	0,00	31,34	31,34	0,00
2	3,00	57,00	0,00	31,34	31,34	0,00
	3,50	66,48	0,00	36,55	36,55	0,00

Pressure distribution from surcharge - Spremenljiva koristna obtežba - PROMET

Point No.	Depth [m]	Hor. comp. [kPa]	Vert. comp. [kPa]
1	0,00	0,73	0,00
2	0,12	1,37	0,00
3	0,25	1,37	0,00
4	0,37	1,37	0,00
5	0,50	1,37	0,00
6	0,62	1,37	0,00
7	0,75	1,37	0,00

8	0,87	1,37	0,00
9	1,00	1,37	0,00
10	1,12	1,37	0,00
11	1,25	1,37	0,00
12	1,37	1,37	0,00
13	1,50	1,37	0,00
14	1,62	1,37	0,00
15	1,75	1,37	0,00
16	1,87	1,37	0,00
17	2,00	1,37	0,00
18	2,12	1,37	0,00
19	2,25	1,37	0,00
20	2,37	1,37	0,00
21	2,50	1,32	0,00
22	2,62	1,28	0,00
23	2,75	1,23	0,00
24	2,87	1,19	0,00
25	3,00	1,15	0,00
26	3,00	1,15	0,00
27	3,12	1,11	0,00
28	3,25	1,07	0,00
29	3,37	1,03	0,00
30	3,50	1,00	0,00

Forces acting on construction

Name	Fhor [kN/m]	App.Pt. z [m]	Fvert [kN/m]	App.Pt. x [m]	Coeff. moment		Coeff. norm.force		Coeff. shear for.			
Weight - wall		0,00	-1,75	34,99	0,20	1,000	1,350	1,000				
Pressure at rest	63,94		-1,17	0,00	0,40	1,350	1,000	1,350				
Spremenljiva koristna obtežba - PROMET						4,54	-1,80	0,00	0,40	1,500	0,000	1,500
pergola - lastna teža		0,00	-3,80	2,73	0,00	1,350	1,350	1,000				
pergola - stalna koristna obtežba					0,00	-3,80	5,73	0,00	1,350	1,350	1,000	

Wall stem check - back reinf.
Wall check at the construction joint 3,50 m from the wall crest
Reinforcement and dimensions of the cross-section
7 prof. 14,0 mm, cover 50,0 mm

Inputted reinforcement area	=	1077,6	mm2
Required reinforcement area	=	969,5	mm2
Cross-section width	=	1,00	m
Cross-section height	=	0,40	m

Reinforcement ratio	ρ	=	0,31	%	>	0,14	%	=	ρmin
Position of neutral axis	x	=	0,05	m	<	0,21	m	=	xmax
Ultimate shear force	VRd	=	144,29	kN	>	93,13	kN	=	VEd
Ultimate moment	MRd	=	157,30	kNm	>	139,26	kNm	=	MEd

Cross-section is SATISFACTORY.

Wall heel check

Active pressure behind the structure - partial results

Layer No.	Thickness [m]	α [°]	φd [°]	cd [kPa]	γ [kN/m3]	δd [°]	Ka	Comment
1	0,03	22,51	30,00	0,00	19,00	30,00	0,713	
2	3,00	22,51	30,00	0,00	19,00	30,00	0,713	
3	0,50	22,51	30,00	0,00	19,00	30,00	0,713	
4	0,70	0,00	30,00	0,00	19,00	20,00	0,364	

Active pressure distribution behind the structure (without surcharge)

Layer No.	Start [m] End [m]	σZ [kPa]	σW [kPa]	Pressure [kPa]	Hor. comp. [kPa]	Vert. comp. [kPa]
1	-0,03	0,00	0,00	0,00	0,00	0,00
	0,00	0,64	0,00	0,46	0,28	0,36
2	0,00	0,64	0,00	0,46	0,28	0,36
	3,00	57,64	0,00	41,11	25,02	32,62
3	3,00	57,64	0,00	41,11	25,02	32,62
	3,50	67,14	0,00	47,88	29,14	37,99
4	3,50	67,14	0,00	24,44	22,97	8,36
	4,20	80,44	0,00	29,29	27,52	10,02

Pressure distribution from surcharge - Spremenljiva koristna obtežba - PROMET

Point No.	Depth [m]	Hor. comp. [kPa]	Vert. comp. [kPa]
1	-0,03	0,00	0,00
2	0,00	0,00	0,00
3	0,00	0,00	0,00
4	0,05	0,00	0,00
5	0,05	0,52	0,68
6	3,00	0,51	0,67
7	3,50	0,51	0,66
8	3,50	0,81	0,29
9	4,20	0,80	0,29

Forces acting on construction

Name	Fhor [kN/m]	App.Pt. z [m]	Fvert [kN/m]	App.Pt. x [m]	Design coefficient				
Weight - wall	0,00	-0,35	28,00	1,40	1,350				
Weight - earth wedge	0,00	-1,97	58,22	1,14	1,350				
Active pressure	69,17	-1,48	73,56	1,75	1,350				
Spremenljiva koristna obtežba - PROMET					2,34	-1,93	2,52	1,54	1,500
Contact stress	0,00	0,00	-132,10	1,01	1,000				

Wall heel check

Reinforcement and dimensions of the cross-section

7 prof. 14,0 mm, cover 50,0 mm

Inputted reinforcement area	=	1077,6	mm2
Required reinforcement area	=	869,3	mm2
Cross-section width	=	1,00	m
Cross-section height	=	0,70	m

Reinforcement ratio	ρ	=	0,17	%	>	0,14	%	=	ρmin
Position of neutral axis	x	=	0,04	m	<	0,40	m	=	xmax
Ultimate shear force	VRd	=	218,77	kN	>	87,39	kN	=	VEd
Ultimate moment	MRd	=	294,67	kNm	>	139,26	kNm	=	MEd

Cross-section is SATISFACTORY.

Računala:
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6. TEHNIČNI PRIKAZI

NAČRTI S PODROČJA KONSTRUKCIJE

1.	OPAŽNI IN ARMATURNI NAČRT OPORNEGA ZIDU I – pred občino	1 : 50
2.	OPAŽNI IN ARMATURNI NAČRT OPORNEGA ZIDU II – pred občino	1 : 50
3.	OPAŽNI IN ARMATURNI NAČRT OPORNEGA ZIDU I – pokopališče	1 : 50
4.	OPAŽNI IN ARMATURNI NAČRT OPORNEGA ZIDU II – pokopališče	1 : 50
5.	OPAŽNI IN ARMATURNI NAČRT ŽARNEGA ZIDU	1 : 50
6.	OPAŽNI IN ARMATURNI NAČRT STOPNIC -pokopališče	1 : 50
7.	OPAŽNI IN ARMATURNI NAČRT NAPISNEGA STEBRA, PLOŠČA ZA KONTEJNER	1 : 50
8.	OPAŽNI IN ARMATURNI NAČRT STOPNIC-občina, TOČKOVNI TEMELJ PERGOLE	1 : 50