2.4 STATIČNI IZRAČUN

SNG zunanji avditorij Nova Gorica - streha

1 ANALIZA ZUNANJIH VPLIVOV

Pozicija in vrednost posameznega zunanjega vpliva (obtežbe), ki je bila upoštevana v izračunu je razvidna v nadaljevanju tega poglavja in v kasnejših izpisih iz računalniškega programa SOFiSTiK.

1.1 Stalni vplivi

1.1.1 Vpliv lastne teže konstrukcije

Lastno težo konstrukcije izračuna računalniški program. Izračun temelji na podlagi geometrije elementa in predpisanega materiala. Specifične teže materialov, uporabljenih pri gradnji, so navedene v standardu SIST EN 1991-1-1. Lastna teža konstrukcije je določena ob upoštevanju specifične teže, navedenih spodaj (Preglednica 1).

Preglednica 1: Specifične teže materialov, uporabljenih za izračun lastne teže konstrukcije

material	γ [kN/m^3]
beton	24,0
armiran beton	25,0
les	4,6-6,6
konstrukcijsko jeklo	78,6

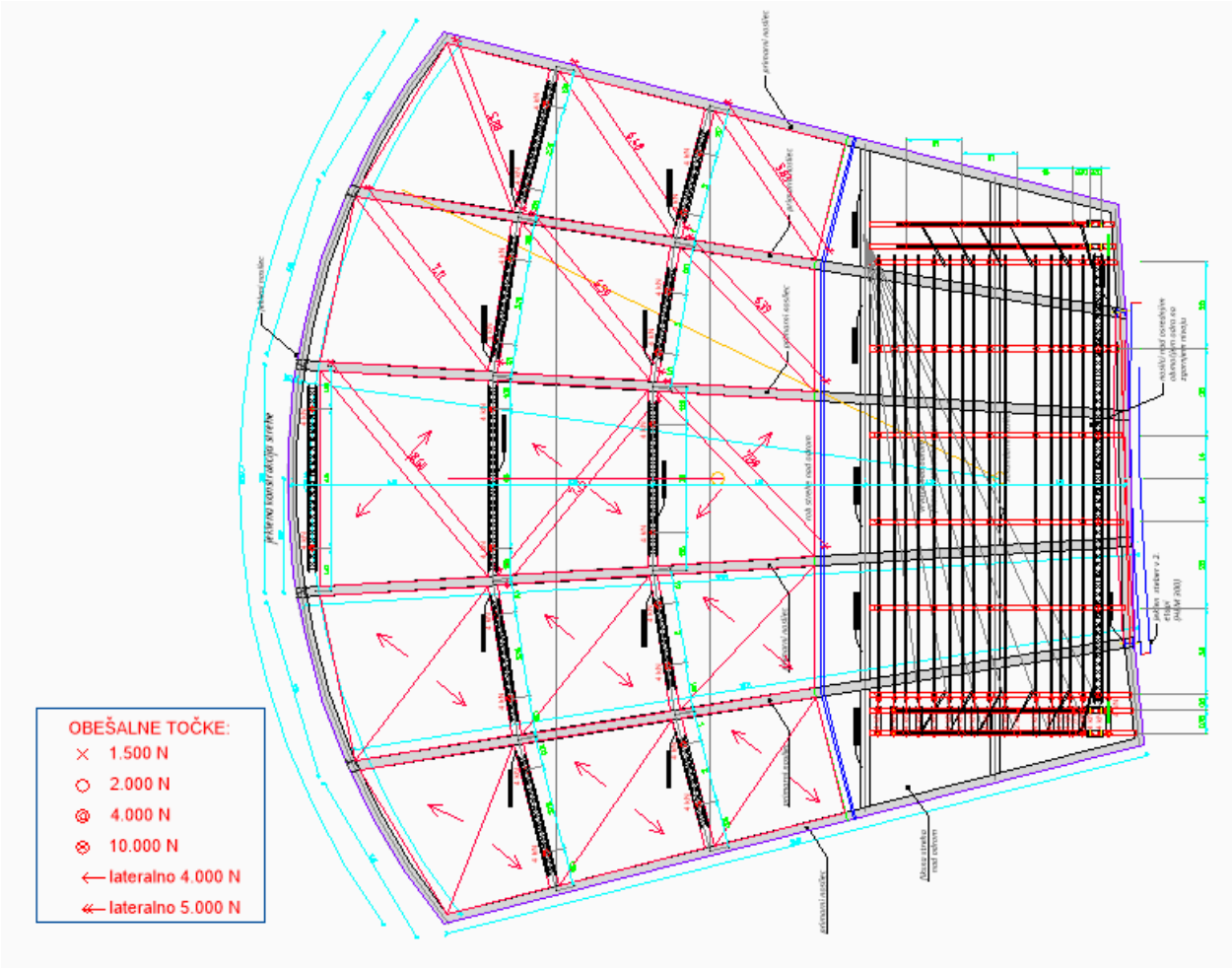
1.1.2 Vpliv stalne teže

Kot dodatno obtežbo upoštevamo vso preostalo stalno obtežbo, ki se jo vgradi na objekt. Stalno obtežbo predstavlja sestava slojev in je opredeljena v nadaljevanju.

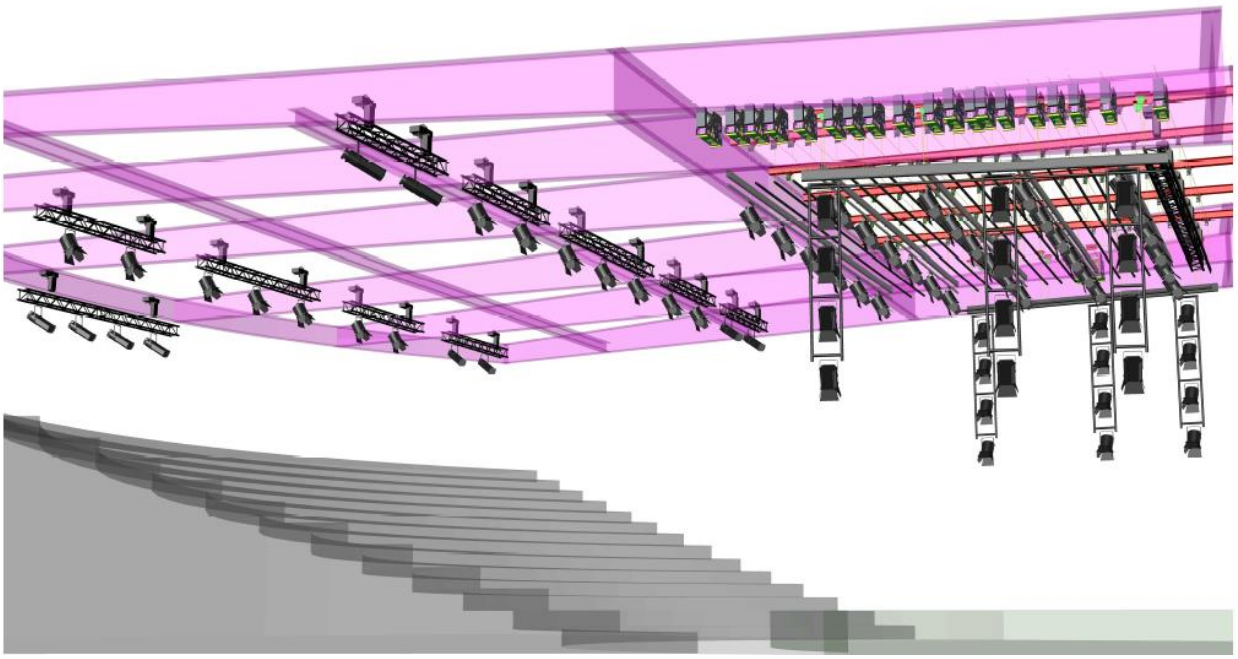
1.1.3 Obtežba težke opreme na jekleno nadstrešnico

Obtežba tehnične in scenske opreme je bila pridobljena s strani opremljevalca (MAORI d.o.o., e-mail korespondenca, marec 2024).

Obtežba nepremične strehe nad odrom je upoštevana v vrednosti 0,30 kN/m^2. Obtežba lahke premične strehe pa je upoštevana v vrednosti 0,15 kN/m^2.



Slika.1: Pozicije in velikost obtežbe tehnične in scenske opreme na jekleno nadstrešnico



Slika.2: 3D pogled na tehnično in scensko opremo

1.2 Spremenljivi vplivi

1.2.1 Vplivi koristne obtežbe

Nivo koristne obtežbe določa standard SIST EN 1991-1-1. Investitor se lahko odloči za večje obremenitve, vendar mora o tem pisno obvestiti projektanta gradbenih konstrukcij. Obremenitve, manjše od tistih, ki jih določa standard, niso dopustne. V preglednici spodaj so povzete koristne obremenitve glede na namen uporabe prostorov.

Preglednica 2: Koristna obtežba

Namembnost	*kategorija*	q_k [kN/m^2]
Streha – vzdrževanje	H	0,4

1.2.2 Vplivi snega

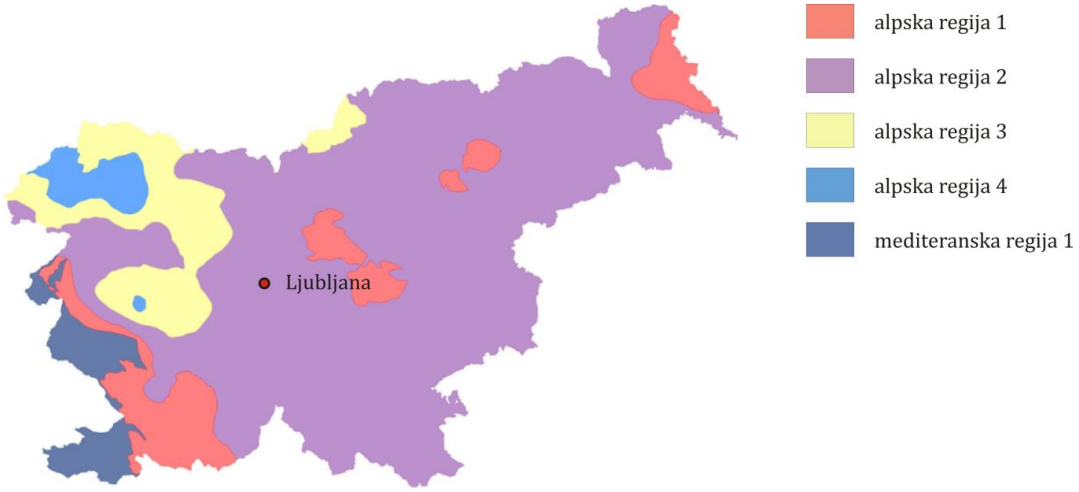
Po standardu SIST EN 1991-1-3 se stavba nahaja v coni M1 (Nova Gorica), in sicer na 90 m nadmorske višine. Karakteristična obtežba snega na ravnih tleh tako znaša

$$s_k=0{,}289\left[1+\left(\frac{A}{452}\right)^2\right]=0{,}289\left[1+\left(\frac{90}{452}\right)^2\right]=0{,}30\ \text{kN/m}^2.$$

Za ravne strehe (naklon od 0°do 5°):

$$q_s = \mu_1(\alpha = 0°)\cdot C_e\cdot C_t\cdot s_k = 0{,}8 \times 1{,}0 \times 1{,}0 \times 0{,}3 = 0{,}24\ \text{kN/m}^2$$

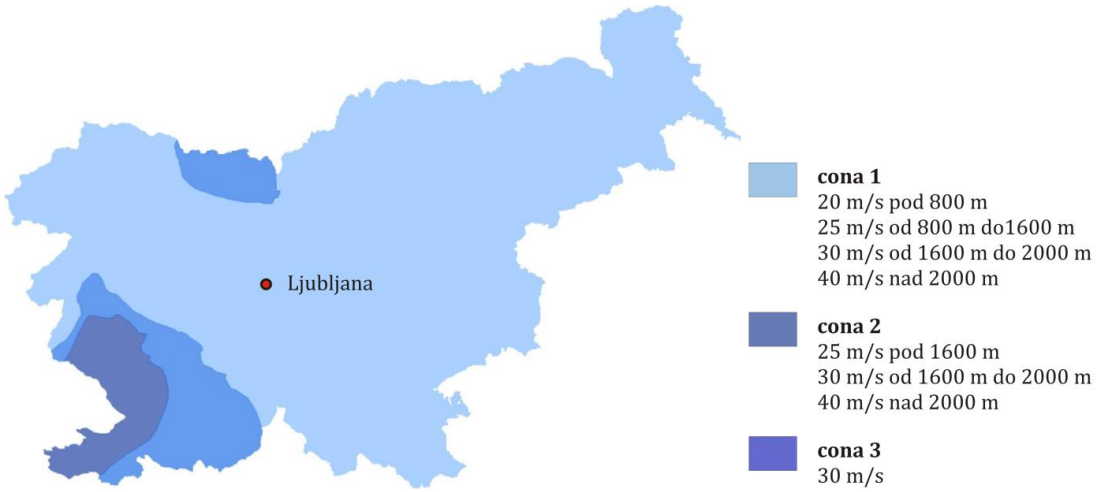
V računu je privzeta snežna obtežba v vrednosti q_s=0,24 kN/m^2.



Slika.3: Regije za določitev obtežbe zaradi snega

1.2.3 Vplivi vetra

Po standardu SIST EN 1991-1-4 se stavba nahaja v coni 1 (Nova Gorica), in sicer na 90 m nadmorske višine. Referenčna hitrost vetra tako znaša $v_{b,0}$=30 m/s.



Slika 4: Cone za določitev obtežbe zaradi vetra

Za račun vpliva vetra se upošteva spodnje predpostavke:

a.) Ravna streha brez parapetov

- **ravna streha z naklonom** $\alpha<5°$
- višina strehe z = 8,6 m,
- osnovna hitrost vetra $v_b=C_{dir}C_{season}v_{b,0}=1.0\times1.0\times30=30$ m/s
- III. kategorija terena
- osnovni tlak vetra $q_0=\frac{1}{2}\rho v_b^2=0{,}5\times1{,}25\times30^2=0{,}56$ kN/m^2
- faktor izpostavljenosti $c_e(z)=1{,}0$
- $w_{e,i} = q_p(z)c_{pe}$:
- -vrednosti so srk, + vrednosti so tlak

- veter s SEVERA: z=8,6 m, tlak pri največji hitrosti ob sunkih vetra $q_p(z)$=0,91 kN/m^2

$w_{e,F}$ = 0,91×(-1,68) = **- 1,52 *kN/m²***
$w_{e,G}$ = 0,91×(-1,10) = **- 1,00 *kN/m²***
$w_{e,H}$ = 0,91×(-0,70) = **- 0,63 *kN/m²***
$w_{e,I}$ = 0,91×(±0,20) = **± 0,18 *kN/m²***

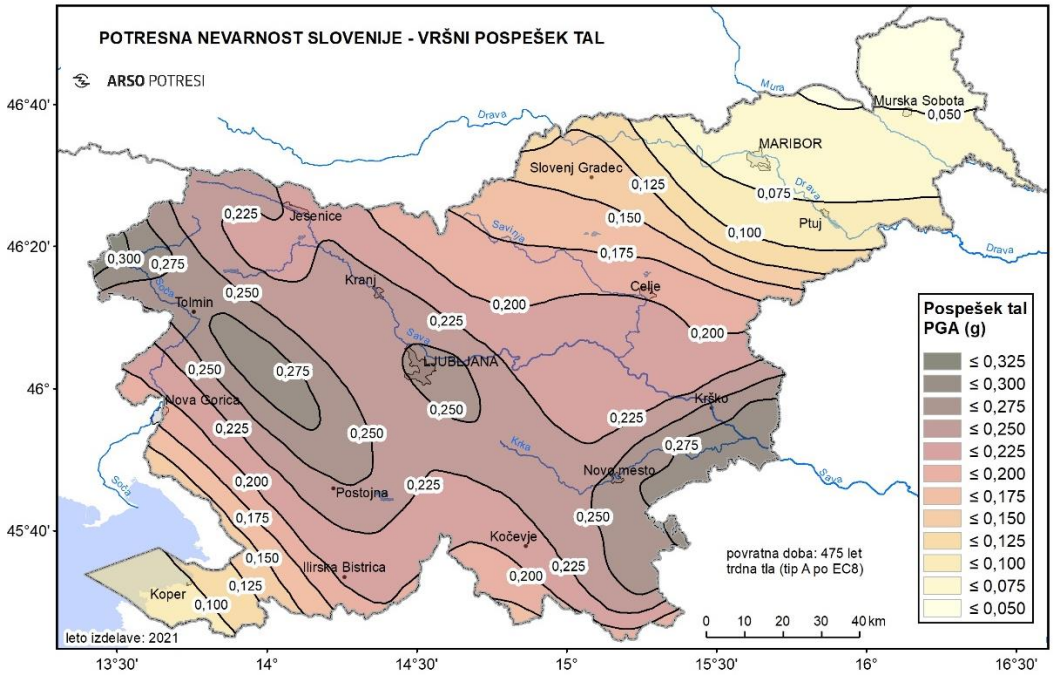
- veter z VZHODA ali ZAHODA: z=8,5 m, tlak pri največji hitrosti ob sunkih vetra $q_p(z)$=0,91 kN/m^2

$w_{e,F}$ = 0,91×(-2,32) = **- 2,11 *kN/m²***
$w_{e,G}$ = 0,91×(-1,10) = **-1,00 *kN/m²***
$w_{e,H}$ = 0,91×(-0,70) = **- 0,63 *kN/m²***
$w_{e,I}$ = 0,91×(±0,20) =**± 0,18 *kN/m²***

1.2.4 Potresni vpliv

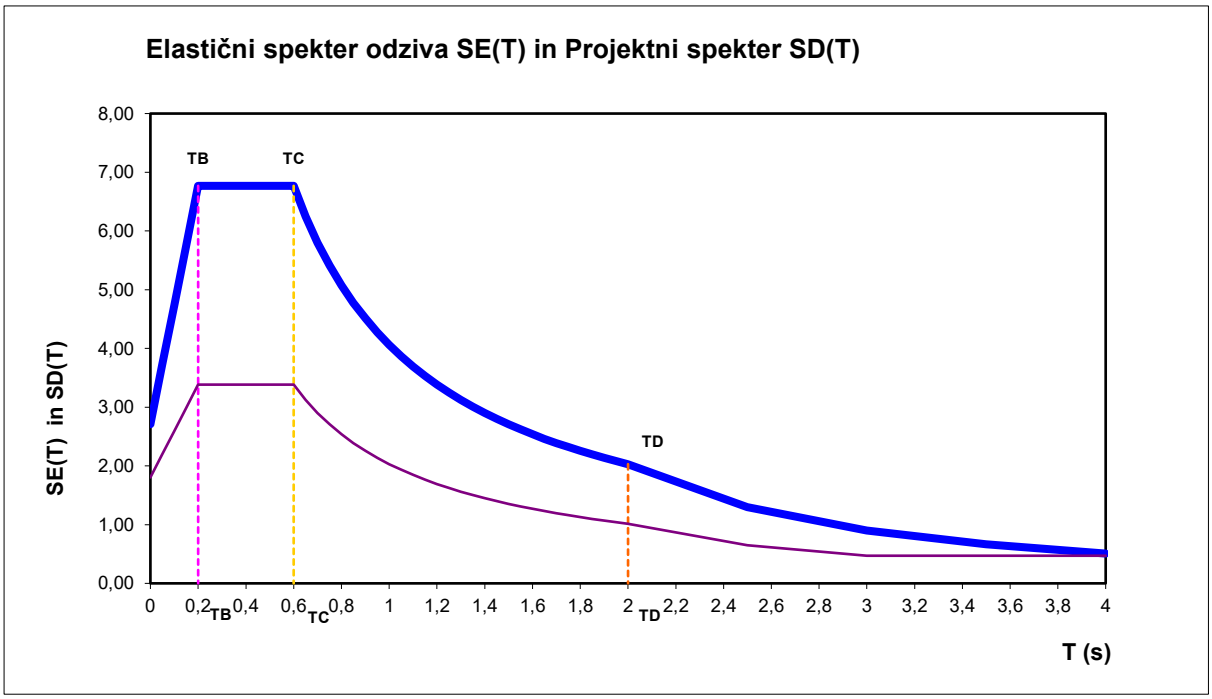
Objekt se nahaja v Novi Gorici. Glede na geološko-geomehansko poročilo in sestavo tal so temeljna tla takšna, da jih glede na SIST EN 1998-1 lahko razvrstimo v kategorijo C. Projektni pospešek temeljnih tal ob upoštevanju višje pomembnosti objekta (III. kategorija, γ_I=1,2) in faktorja tal S=1,15 tako znaša

$$a_g = \gamma_I \times a_{gR} \times S = 1{,}2 \times 0{,}2g \times 1{,}15 = \mathbf{0{,}276g}.$$



Slika 5: Karta projektnih pospeškov temeljnih tal za povratno dobo 475 let

Glede na lastnosti konstrukcije je bil za obe horizontalni smeri delovanja potresne obtežbe določen redukcijski faktor q=2˙0. Vpliv potresa v vertikalni smeri ni bil upoštevan. Pri računu mas sta bila upoštevana vpliva lastne in stalne teže v celoti ter del koristne obtežbe kategorij C ($\Psi_E=\varphi\cdot\Psi_2$=0,5·0,6 = 0,30).



Slika 6: Elastični in projektni spekter odziva

2 KOMBINACIJE VPLIVOV IN VARNOSTNI FAKTORJI

Kombinacije in varnostni faktorji se določijo v skladu s standardom SIST EN 1990.

- vpliv krčenja in lezenja se za MSN upošteva samo, če deluje neugodno
- vpliv krčenja in lezenja se za MSU upošteva samo, če deluje neugodno

Kombiniranje vseh vplivov je izvedeno v programu SOFiSTiK, modul MAXIMA, ki upošteva, glavne in spremljajoče koristne ter stalne vplive na konstrukcijo. Zaradi obsežnega zapisa avtomatično generiranih kombinacij (za vsak končni elementi posebej) le teh v nadaljevanju ne prikazujemo. Za nedvoumnost in jasnost generiranih kombinacij v nadaljevanju tabelarično prikazujemo parcialne in kombinacijske faktorje varnosti, ter osnovne kombinacijske enačbe, po katerih se generirajo vplivi v SOFiSTiK-u.

V nadaljevanju so $G_{k,j}$ in $Q_{k,i}$ karakteristične vrednosti stalne in spremenljive obtežbe, P je vpliv prednapetja, A_d predstavlja nezgodni vpliv, A_{Ed} pa potresno obtežbo.

2.1 Mejno stanje nosilnosti

Stalna in začasna projektna stanja:

$$\sum_{j\geq 1} \gamma_{G,j} G_{k,j} + \gamma_P P + \gamma_{Q,1} Q_{k,1} + \sum_{i>1} \gamma_{Q,i} \psi_{0,i} Q_{k,i}$$

Nezgodna projektna stanja:

$$\sum_{j\geq 1} G_{k,j} + P + A_d + \left(\psi_{1,1} \text{ ali } \psi_{2,1}\right) Q_{k,1} + \sum_{i>1} \gamma_{Q,i} \psi_{2,i} Q_{k,i}$$

Potresna projektna stanja:

$$\sum_{j\geq 1} G_{k,j} + P + A_{Ed} + \sum_{i\geq 1} \psi_{2,i} Q_{k,i}$$

2.2 Mejno stanje uporabnosti

Karakteristična kombinacija:

$$\sum_{j\geq 1} G_{k,j} + P + Q_{k,1} + \sum_{i>1} \psi_{0,i} Q_{k,i}$$

Pogosta kombinacija:

$$\sum_{j\geq 1} G_{k,j} + P + \psi_{1,1} Q_{k,1} + \sum_{i>1} \psi_{2,i} Q_{k,i}$$

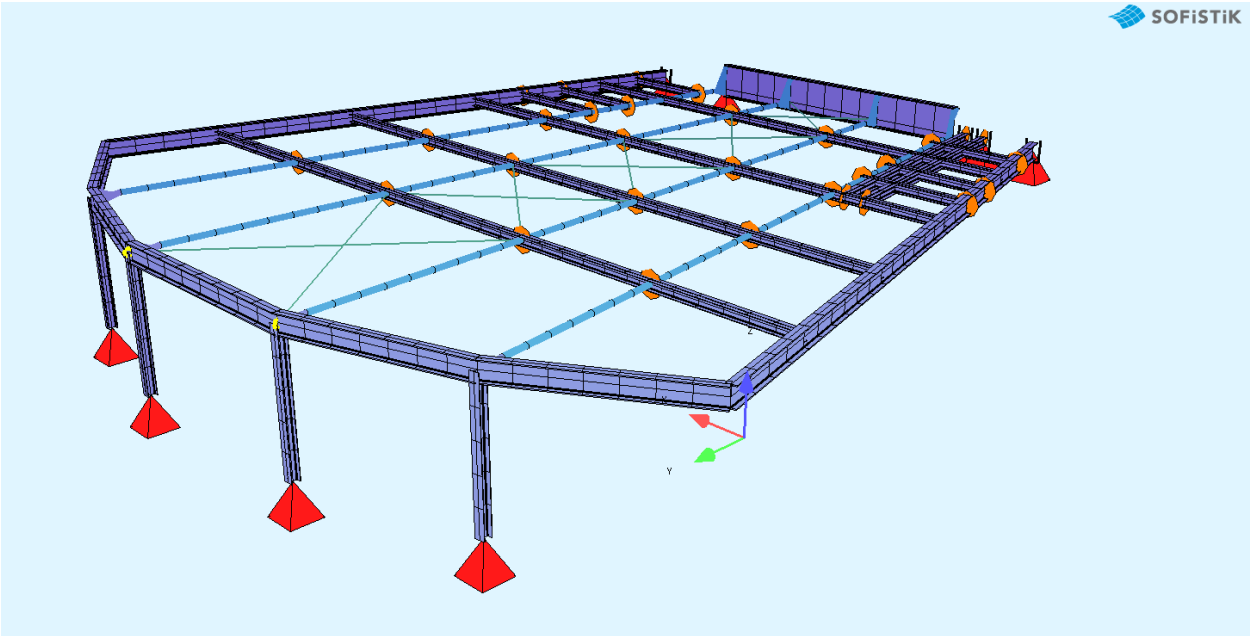
Navidezno stalna kombinacija:

$$\sum_{j\geq 1} G_{k,j} + P + \sum_{i\geq 1} \psi_{2,i} Q_{k,i}$$

3 RAČUNSKI MODEL

3.1 Predpostavke globalnega računskega modela

Statična in dinamična (seizmična) analiza konstrukcije je bila izvedena s pomočjo prostorskega računskega modela iz linijskih in ploskovnih končnih elementov v programu *SOFiSTiK FEM 27*, ki uporablja metodo končnih elementov. Opravljena je bila analiza po teoriji prvega reda.



Slika 7: 3D globalni računski model v SOFiSTiKu

V globalnem računskem modelu smo robne pogoje temeljenja predpostavili s pomočjo elastičnih vzmeti: ena vertikalna in dve horizontalni. Predpostavili smo temeljenje na temeljni plošči na globljem delu ter kombinirano na vodnjakih in deloma na plošči na višjem delu.

Za določitev potresnih vplivov je bila uporabljena modalna analiza z upoštevanjem projektnega spektra pospeškov in 3D model. Razpokani AB prerezi so upoštevani s polovično vrednostjo togosti AB slopov in sten.

Izbrano je bilo duktilno obnašanje konstrukcije s faktorjem duktilnosti q=2.0 za obe horizontalni smeri vpliva potresa.

Mase v računskem modelu so bile upoštevane po pravilu SIST EN 1991-1, točka 3.2.4 (2)P. Upošteva se le del mase, ki izhaja iz koristne obtežbe (glede na koeficiente za kombinacijo $\psi_{E,i}$ za različne kategorije koristne obtežbe), in celotna masa, ki izhaja iz lastne in stalne obtežbe na objektu. Koeficienti za kombinacijo $\psi_{E,i}$ upoštevajo verjetnost, da v času potresa koristna obtežba ni prisotna po celotni konstrukciji.

Vpliv naključne torzije (SIST EN 1998-1, točka 4.3.2 (1)P), ki jo je potrebno pri seizmični analizi računskega modela objekta upoštevati zaradi negotovosti, povezanih s položajem mas in s prostorskim spreminjanjem potresnega gibanja, se v računalniškem programu SOFiSTiK izvede avtomatično, s posebnim postopkom: projektni spekter za horizontalne potresne vplive se definira v štirih smereh (X+, Y-, Y+, Y-) tako, da se za vsako smer po posameznih etažah definira slučajno ekscentričnost (glede na formulo št. 4.3 v 4. poglavju SIST EN 1998-1), ki vpliva na premaknitev masnega središča v vsaki etaži iz nazivne lege. V nadaljevanju program SOFiSTiK avtomatsko izračuna potresne sile v vozliščih (iz mas v vozliščih in podanih pospeškov iz projektnega spektra), ki vključujejo vpliv naključne torzije.

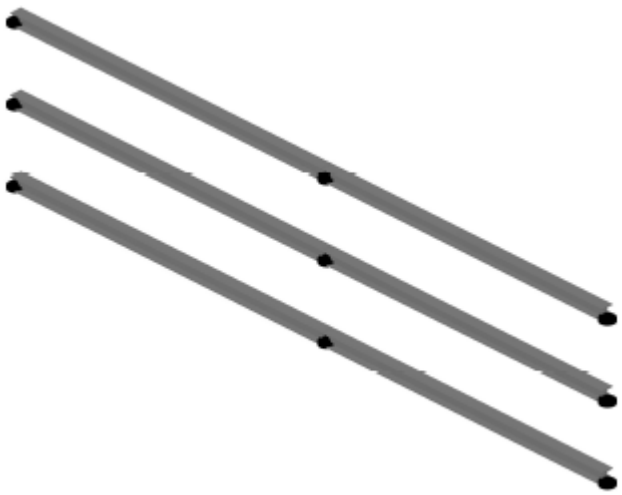
Vpliv nihajnih oblik je upoštevan s popolno kvadratno kombinacijo (CQC), pri čemer vsota efektivnih modalnih mas znaša več kot 90% celotne mase konstrukcije (10 nihajnih oblik). Za kombinacijo vodoravnih komponent potresnega

vpliva (kombiniranje smeri X in Y) učinek obeh vodoravnih komponent potresnega vpliva upoštevamo tako, da predpostavimo, da potres deluje 100 % v eni in 30 % v drugi smeri ter obratno.

Vsi vertikalni elementi so dimenzionirani za srednjo stopnjo duktilnosti (DCM) v skladu z SIST EN 1992-1-1 in SIST EN 1998-1 po metodi načrtovanja nosilnosti. Upogibne nosilnosti sten in stebrov so določene v sklad s SIST EN 1992-1-1 s programom DIAS (IKPIR, FGG 1990). Strižna nosilnost stebrov je določena po metodi načrtovanja nosilnosti.

3.2 Predpostavke lokalnega računskega modela

Terciarne nosilce se je preverilo in dimenzioniralo na lokalnem modelu. Statična analiza konstrukcije je bila izvedena s pomočjo prostorskega računskega modela iz linijskih končnih elementov v programu *Tower8*, ki uporablja metodo končnih elementov. Opravljena je bila analiza po teoriji prvega reda. Reakcije lokalnega modela se je uporabilo na globalnem modelu.



Slika 8: Lokalni računski model terciarnih nosilcev v programu Tower

3.3 Osnovni obtežni slučaji v globalnem računskem modelu

Preglednica 3: Osnovni obtežni slučaji v globalnem računskem modelu

	Obtežni slučaj	OPIS
G	1	Lastna teža konstrukcije
	2	Stalna obtežba – stalna streha nad odrom
	3	Stalna obtežba – odrska tehnika
	4	Stalna obtežba – premična streha
Q	20	Koristna obtežba - kategorija C – dvorana
	21	Koristna obtežba - kategorija C – skupni prostori
	22	Koristna obtežba - kategorija C – AB streha
	23	Koristna obtežba - kategorija C – Lesena streha
S	5	Sneg
W	41	Veter S
	42	Veter J
	43	Veter V
	44	Veter Z

3.4 Izpisi podatkov o globalnem računskem modelu iz programa SOFiSTiK

V nadaljevanju so prikazani izpisi iz računalniškega programa SOFiSTiK:

- karakteristike materialov v računskem modelu
- karakteristike prečnih prerezov linijskih elementov v računskem modelu
- geometrija računskega modela - grafični prikaz
- zunanji vplivi na računskem modelu

3.5 Izpisi podatkov o lokalnem računskem modelu iz programa TOWER

V nadaljevanju so prikazani izpisi iz računalniškega programa TOWER:

- karakteristike materialov v računskem modelu
- karakteristike prečnih prerezov linijskih elementov v računskem modelu
- geometrija računskega modela - grafični prikaz
- zunanji vplivi na računskem modelu
- statični preračun
- dimenzioniranje

SNG zunanji avditorij
Materials

Design Code

EuroNorm: EN 1992-1-1:2004 Design of concrete structures (Slowenija) V 2024
EuroNorm: EN 1993-1-1:2005 Design of steel structures
EuroNorm: EN 1994-1-1:2004 Design of composite steel and concrete structures
Snow load zone : 1

National Defined Parameters

Reference of parameter in design code	Value
long term reduction concrete compressive strength α-cc EN 1992-1-1 3.1.6 (1)	1.000¹
long term reduction concrete tensile strength α-ct EN 1992-1-1 3.1.6 (2)	1.000¹
safety coefficient γ-c for concrete EN 1992-1-1 2.4.2.4	1.500¹
safety coefficient γ-CE for concrete elasticity EN 1992-1-1 5.8.6 (3)	1.200¹
safety coefficient γ-s for reinforcing steel EN 1992-1-1 2.4.2.4	1.150¹
safety coefficient γ-M0 for structural steel EN 1993-1-1 6.1	1.000¹
safety coefficient γ-M1 for structural steel EN 1993-1-1 6.1	1.000¹
safety coefficient γ-M2 for structural steel EN 1993-1-1 6.1	1.250¹

¹ national defined parameter taken from the INI-files

Materials

Mat	Classification
1	C 30/37 (EN 1992)
2	B 500 B (EN 1992)
3	S 355 (EN 1993)
4	S 355 (EN 1993) - y=0

SOFiSTiK AG - www.sofistik.de

Mat 1 C 30/37 (EN 1992)

Young's modulus	E	32837	[N/mm2]	Safetyfactor		1.50	[-]
Poisson's ratio	μ	0.20	[-]	Strength¹	fc	30.00	[MPa]
Shear modulus	G	13682	[N/mm2]	Nominal strength	fck	30.00	[MPa]
Compression modulus	K	18243	[N/mm2]	Tensile strength	fctm	2.90	[MPa]
Nominal Weight	γ	25.0	[kN/m3]	Tensile strength	fctk,05	2.03	[MPa]
Mean density	ρ	2400.0	[kg/m3]	Tensile strength	fctk,95	3.77	[MPa]
Elongation coefficient	α	1.00E-05	[1/K]	Bond strength	fbd	3.04	[MPa]
				Service strength	fcm	38.00	[MPa]
				Fatigue strength	fcd,fat	14.96	[MPa]
				Tensile strength	fctd	1.35	[MPa]
				Tensile failure energy	Gf	0.14	[N/mm]

¹ fc = fck * α-cc

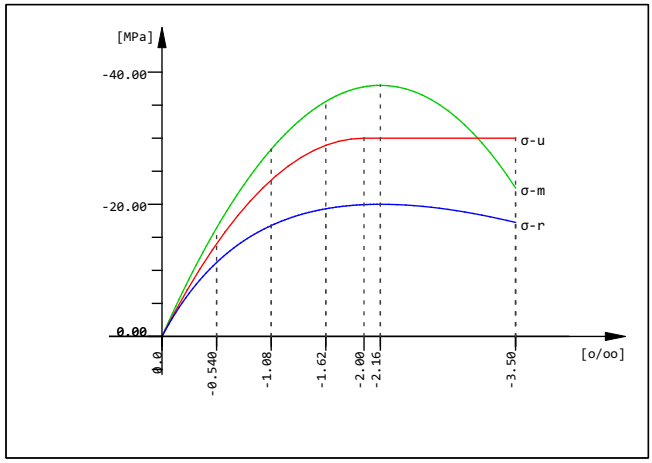
Stress-Strain for serviceability	ε[o/oo]	σ-m[MPa]	E-t[N/mm2]
Is only valid within the defined	0.000	0.00	34478
stress range	-0.540	-16.42	26234
	-1.081	-28.31	17746
	-1.621	-35.55	9005
	-2.162	-38.00	0
	-3.500	-22.47	-23499
	Safetyfactor		1.50

Stress-Strain for ultimate load	ε[o/oo]	σ-u[MPa]	E-t[N/mm2]
Is only valid within the defined	0.000	0.00	30000
stress range	-2.000	-30.00	0
	-3.500	-30.00	0
	Safetyfactor		1.50

Stress-Strain of calc. mean values	ε[o/oo]	σ-r[MPa]	E-t[N/mm2]
Is only valid within the defined	0.000	0.00	28732
stress range	-0.540	-11.19	14403
	-1.081	-16.78	7018
	-1.621	-19.32	2720
	-2.162	-20.00	0
	-3.500	-17.25	-3601

SNG zunanji avditorij
Materials

Stress-Strain of calc. mean values	ε[o/oo]	σ-r[MPa]	E-t[N/mm2]
	Safetyfactor		(1.50)



C 30/37 (EN 1992)

Mat 2 B 500 B (EN 1992)

Young's modulus	E	200000	[N/mm2]	Safetyfactor		1.15	[-]
Poisson's ratio	μ	0.30	[-]	Yield stress	fy	500.00	[MPa]
Shear modulus	G	76923	[N/mm2]	Compressive yield	fyc	500.00	[MPa]
Compression modulus	K	166667	[N/mm2]	Tensile strength	ft	540.00	[MPa]
Nominal Weight	γ	78.5	[kN/m3]	Compressive strength	fc	540.00	[MPa]
Mean density	ρ	7850.0	[kg/m3]	Ultimate strain		50.00	[o/oo]
Elongation coefficient	α	1.20E-05	[1/K]	relative bond coeff.		1.00	[-]
max. thickness	t-max	32.00	[mm]	EN 1992 bond coeff.	k1	0.80	[-]
				Hardening modulus	Eh	0.00	[MPa]
				Proportional limit	fp	500.00	[MPa]
				Dynamic allowance	σ-dyn	152.17	[MPa]

Stress-Strain for serviceability	ε[o/oo]	σ-m[MPa]	E-t[N/mm2]
Is also extended beyond the	1000.000	540.00	0
defined stress range	50.000	540.00	0
	2.500	500.00	842
	0.000	0.00	200000
	-2.500	-500.00	842
	-50.000	-540.00	0
	-1000.000	-540.00	0
	Safetyfactor		1.15

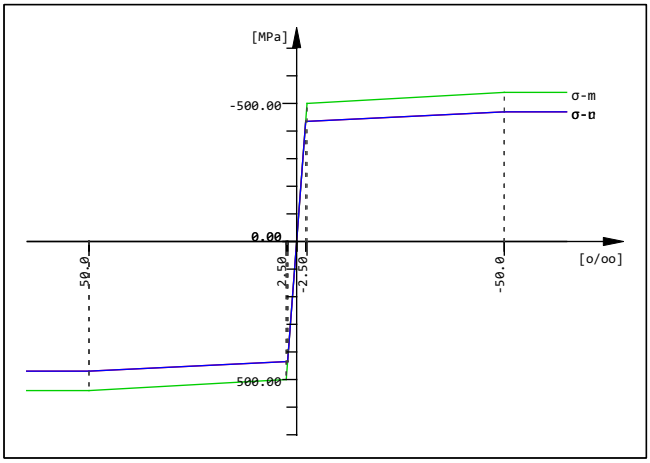
Stress-Strain for ultimate load	ε[o/oo]	σ-u[MPa]	E-t[N/mm2]
Is also extended beyond the	1000.000	469.57	0
defined stress range	50.000	469.57	0
	2.174	434.78	727
	0.000	0.00	200000
	-2.174	-434.78	727
	-50.000	-469.57	0
	-1000.000	-469.57	0
	Safetyfactor		(1.15)

Stress-Strain of calc. mean values	ε[o/oo]	σ-r[MPa]	E-t[N/mm2]
Is also extended beyond the	1000.000	469.57	0
defined stress range	50.000	469.57	0
	2.174	434.78	727
	0.000	0.00	200000
	-2.174	-434.78	727
	-50.000	-469.57	0
	-1000.000	-469.57	0

SOFiSTiK AG - www.sofistik.de

SNG zunanji avditorij
Materials

Stress-Strain of calc. mean values	ε[o/oo]	σ-r[MPa]	E-t[N/mm2]
	Safetyfactor		(1.15)



B 500 B (EN 1992)

Mat 3 S 355 (EN 1993)

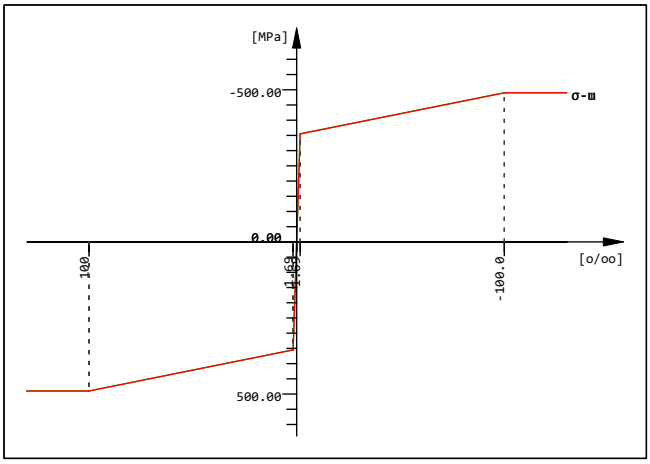
Young's modulus	E	210000	[N/mm2]	Safetyfactor		1.00	[-]
Poisson's ratio	μ	0.30	[-]	Yield stress	fy	355.00	[MPa]
Shear modulus	G	80769	[N/mm2]	Compressive yield	fyc	355.00	[MPa]
Compression modulus	K	175000	[N/mm2]	Tensile strength	ft	490.00	[MPa]
Nominal Weight	γ	78.5	[kN/m3]	Compressive strength	fc	490.00	[MPa]
Mean density	ρ	7850.0	[kg/m3]	Ultimate strain		100.00	[o/oo]
Elongation coefficient	α	1.20E-05	[1/K]	relative bond coeff.		0.00	[-]
max. thickness	t-max	40.00	[mm]	EN 1992 bond coeff.	k1	0.00	[-]
Safety sectional design	γ-M0	1.00	[-]	Hardening modulus	Eh	0.00	[MPa]
Safety stability design	γ-M1	1.00	[-]	Proportional limit	fp	355.00	[MPa]
Safety rupture	γ-M2	1.25	[-]	Dynamic allowance	σ-dyn	0.00	[MPa]

Stress-Strain for serviceability	ε[o/oo]	σ-m[MPa]	E-t[N/mm2]
Is also extended beyond the	1000.000	490.00	0
defined stress range	100.000	490.00	0
	1.690	355.00	1373
	0.000	0.00	210000
	-1.690	-355.00	1373
	-100.000	-490.00	0
	-1000.000	-490.00	0
	Safetyfactor		1.00

Stress-Strain for ultimate load	ε[o/oo]	σ-u[MPa]	E-t[N/mm2]
Is also extended beyond the	1000.000	490.00	0
defined stress range	100.000	490.00	0
	1.690	355.00	1373
	0.000	0.00	210000
	-1.690	-355.00	1373
	-100.000	-490.00	0
	-1000.000	-490.00	0
	Safetyfactor		1.00

SOFiSTiK AG - www.sofistik.de

SNG zunanji avditorij
Materials



S 355 (EN 1993)

Mat 4 S 355 (EN 1993) - y=0

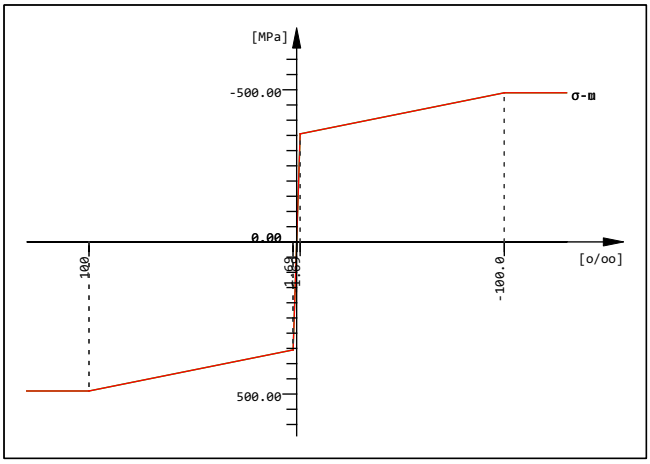
Young's modulus	E	210000	[N/mm2]	Safetyfactor		1.00	[-]
Poisson's ratio	μ	0.30	[-]	Yield stress	fy	355.00	[MPa]
Shear modulus	G	80769	[N/mm2]	Compressive yield	fyc	355.00	[MPa]
Compression modulus	K	175000	[N/mm2]	Tensile strength	ft	490.00	[MPa]
Nominal Weight	γ	0.0	[kN/m3]	Compressive strength	fc	490.00	[MPa]
Mean density	ρ	0.0	[kg/m3]	Ultimate strain		100.00	[o/oo]
Elongation coefficient	α	1.20E-05	[1/K]	relative bond coeff.		0.00	[-]
max. thickness	t-max	40.00	[mm]	EN 1992 bond coeff.	k1	0.00	[-]
Safety sectional design	γ-M0	1.00	[-]	Hardening modulus	Eh	0.00	[MPa]
Safety stability design	γ-M1	1.00	[-]	Proportional limit	fp	355.00	[MPa]
Safety rupture	γ-M2	1.25	[-]	Dynamic allowance	σ-dyn	0.00	[MPa]

Stress-Strain for serviceability	**ε[o/oo]**	**σ-m[MPa]**	**E-t[N/mm2]**
Is also extended beyond the	1000.000	490.00	0
defined stress range	100.000	490.00	0
	1.690	355.00	1373
	0.000	0.00	210000
	-1.690	-355.00	1373
	-100.000	-490.00	0
	-1000.000	-490.00	0
	Safetyfactor		1.00

Stress-Strain for ultimate load	**ε[o/oo]**	**σ-u[MPa]**	**E-t[N/mm2]**
Is also extended beyond the	1000.000	490.00	0
defined stress range	100.000	490.00	0
	1.690	355.00	1373
	0.000	0.00	210000
	-1.690	-355.00	1373
	-100.000	-490.00	0
	-1000.000	-490.00	0
	Safetyfactor		1.00

SOFiSTiK AG - www.sofistik.de

SNG zunanji avditorij
Materials



S 355 (EN 1993) - y=0

Thermal material constants

Mat	T[°C]	S[kJ/K/m3]	Kxx[W/K/m]	Kyy[W/K/m]	Kzz[W/K/m]	
1	AUTO	2.16E+03	1.951E+00			C 30/37 (EN 1992)
2	AUTO	3.45E+03	5.333E+01			B 500 B (EN 1992)
3	AUTO	3.45E+03	5.333E+01			S 355 (EN 1993)
4	AUTO	3.45E+03	5.333E+01			S 355 (EN 1993) - y=0

Mat	material number	S[kJ/K/m3]	Heat capacity
T[°C]	Temperature	Kxx[W/K/m],Kyy[W/K/m],Kzz[W/K/m]	Heat conductivity

SOFiSTiK AG - www.sofistik.de

SNG zunanji avditorij
Sections

Design Code

EuroNorm: EN 1992-1-1:2004 Design of concrete structures (Slowenija) V 2024
EuroNorm: EN 1993-1-1:2005 Design of steel structures
Snow load zone : 1

Materials

Mat	Classification
1	C 30/37 (EN 1992)
2	B 500 B (EN 1992)
3	S 355 (EN 1993)
4	S 355 (EN 1993) - y=0

Cross-sections static properties

SNo	Mat	A[m2]	Ay[m2]	Iy[m4]	yc[mm]	ysc[mm]	E[N/mm2]	g[kg/m]	I-1[m4]
	MRf	It[m4]	Az[m2]	Iz[m4]	zc[mm]	zsc[mm]	G[N/mm2]		I-2[m4]
			Ayz[m2]	Iyz[m4]					α[°]
1	3	2.6997E-02	1.600E-02	1.710E-03	0.0	0.0	210000	211.9	
		6.814E-06	9.058E-03	1.353E-04	0.0	0.0	80769	(BEAM)	
	=	HEB 600							
	=	HEB 600							
2	3	3.7847E-02	1.605E-02	9.958E-03	0.0	0.0	210000	297.1	9.958E-03
		7.683E-06	1.958E-02	1.355E-04	-350.0	-350.0	80769	(BEAM)	1.355E-04
				-4.243E-13					0.00
	=	HEB 600 - 1300 mm							
3	3	1.1254E-02	7.665E-03	1.826E-04	0.0	0.0	210000	88.3	
		8.450E-07	2.432E-03	6.310E-05	0.0	0.0	80769	(BEAM)	
	=	HE 300 A (EN 10365)							
4	1	2.5000E-01	2.083E-01	2.083E-02	0.0	0.0	32837	625.0	
	2[1]	4.388E-03	2.083E-01	1.302E-03	0.0	0.0	13682	(CENTR)	
	=	B/H = 250 / 1000 mm							
	=	B/H = 250 / 1000 mm							
5	1	2.0000E-01	1.667E-01	1.067E-02	0.0	0.0	32837	500.0	
	2[1]	3.346E-03	1.667E-01	1.042E-03	0.0	0.0	13682	(CENTR)	
	=	B/H = 250 / 800 mm							
	=	B/H = 250 / 800 mm							
6	1	2.2000E-01	1.833E-01	5.546E-03	0.0	0.0	32837	550.0	
	2[1]	6.496E-03	1.833E-01	2.933E-03	-175.0	-175.0	13682	(BEAM)	
	=	B/H = 400 / 550 mm							
	=	B/H = 400 / 550 mm							
7	1	5.0265E-01	4.524E-01	2.011E-02	0.0	0.0	32837	1256.6	
	2[1]	4.021E-02	4.524E-01	2.011E-02	0.0	0.0	13682	(COMPR)	
	=	D 800 mm							
	=	D 800 mm							
8	4	2.0106E-04	1.810E-04	3.217E-09	0.0	0.0	210000	0.0	
		6.434E-09	1.810E-04	3.217E-09	0.0	0.0	80769	(COMPR)	
	=	D 16 mm							
	=	D 16 mm							

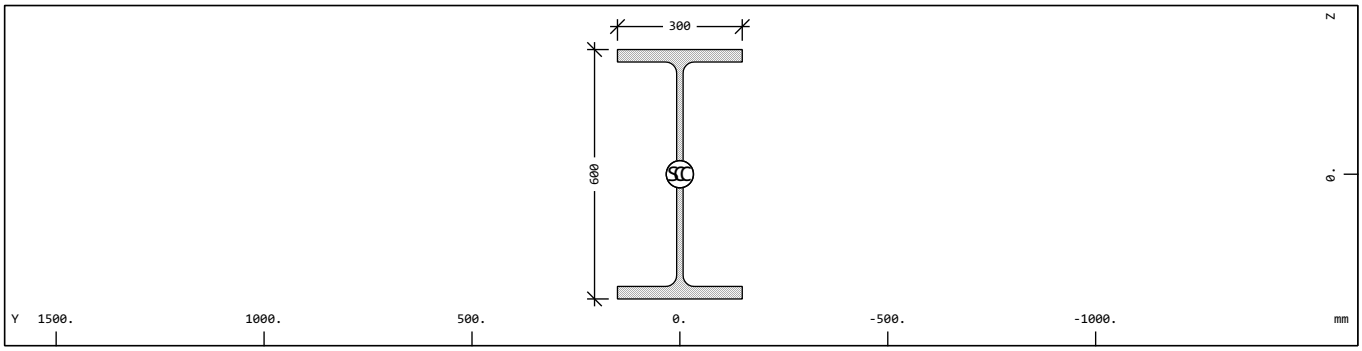
[1] Reinforcements are not considered in the sectional values

SNo	section number	yc[mm],zc[mm]	ordinate of elastic centroid
Mat	material number	ysc[mm],zsc[mm]	ordinate of shear centre
A[m2]	sectional area	E[N/mm2]	Young's modulus
Ay[m2],Az[m2],Ayz[m2]	transverse shear deformation area	g[kg/m]	mass per length
Iy[m4],Iz[m4],Iyz[m4]	bending moment of inertia		
I-1[m4],I-2[m4],α[°]	principal moments of inertia and angle of the principal axes		
MRf	reinforcement material number		
It[m4]	torsional moment of inertia		
G[N/mm2]	Shear modulus		

SOFiSTiK AG - www.sofistik.de

SNG zunanji avditorij
Sections

Cross section No. 1 - HEB 600



Cross section No. 1 - HEB 600

Static properties of cross section

Mat	A[m2]	Ay[m2]	Iy[m4]	yc[mm]	ysc[mm]	E[N/mm2]	g[kg/m]	I-1[m4]
MRf	It[m4]	Az[m2]	Iz[m4]	zc[mm]	zsc[mm]	G[N/mm2]		I-2[m4]
		Ayz[m2]	Iyz[m4]					α[°]
3	2.6997E-02	1.600E-02	1.710E-03	0.0	0.0	210000	211.9	
	6.814E-06	9.058E-03	1.353E-04	0.0	0.0	80769	(BEAM)	

Mat	material number	yc[mm],zc[mm]	ordinate of elastic centroid
A[m2]	sectional area	ysc[mm],zsc[mm]	ordinate of shear centre
Ay[m2],Az[m2],Ayz[m2]	transverse shear deformation area	E[N/mm2]	Young's modulus
Iy[m4],Iz[m4],Iyz[m4]	bending moment of inertia	g[kg/m]	mass per length
I-1[m4],I-2[m4],α[°]	principal moments of inertia and angle of the principal axes		
MRf	reinforcement material number		
It[m4]	torsional moment of inertia		
G[N/mm2]	Shear modulus		

Additional static properties of cross section

α-T[1/K]	ymin[mm]	zmin[mm]	hymin[mm]	AK[m2]	MRs	1/WT[1/m3]	1/WVy[1/m2]
	ymax[mm]	zmax[mm]	hzmin[mm]	AB[m2]		1/WT2[1/m3]	1/WVz[1/m2]
1.2E-05	-150.0	-300.0	194.5	1.363E-02		6.331E+03	9.694E+01
	150.0	300.0	532.4			3.423E+02	1.212E+02

α-T[1/K]	Elongation coefficient
ymin[mm],zmin[mm],ymax[mm],zmax[mm]	extreme coordinates relative to centroid
hymin[mm],hzmin[mm]	minimum value for internal lever
AK[m2]	torsional equivalent area (Bredt)
MRs	transverse reinforcements material number
1/WT[1/m3],1/WT2[1/m3]	torsional resistance
1/WVy[1/m2],1/WVz[1/m2]	shear force resistance
AB[m2]	gross concrete area

Section values for warping

Wmin[m2]	Wmax[m2]	CM[m6]	CMS[m4]	ASwyy[m6]	ASwzz[m6]	ry[mm]	rz[mm]
-0.0446	0.0446	1.084E-05	0.001	1.515E-15	8.775E-15	0.0	0.0

Wmin[m2],Wmax[m2]	unit warping	ASwyy[m6],ASwzz[m6]	warping sectional value
CM[m6]	warping resistance	ry[mm],rz[mm]	sectional distance
CMS[m4]	warping shear resistance		

Design forces and moments

	N[kN]	Vy[kN]	Vz[kN]	Mt[kNm]	Mt2[kNm]	Mb[kNm2]	My[kNm]	Mz[kNm]	y[mm]	z[mm]	BUCK
P[1,2]	9583.8	3689.27	2271.11	73.20	1051.44	136.59	2280.99	493.83	0.0	0.0	-, a, b
E[3,2]	9583.8	2114.32	1691.41	32.37	598.81	86.35	2024.04	320.22	0.0	0.0	

[1] P = plastic design values (ultimate bearing capacity)
[2] Material safety γ-M0 for structural steel = 1.00
[3] E = elastic design values (stress limit reached)

N[kN]	normal force	Mb[kNm2]	warping moment
Vy[kN],Vz[kN]	shear force	My[kNm],Mz[kNm]	bending moment
Mt[kNm]	primary torsional moment	y[mm],z[mm]	ordinate of plastic centre
Mt2[kNm]	secondary torsional moment	BUCK	buckling curve (LTB, y-y, z-z)

Additional design data

Mat	periphery-O/-I		deff	t-min	t-max	thet-p	thet-y	thet-z	thet-yz	yg	zg
	[m2/m]	[m2/m]	[mm]	[mm]	[mm]	[kgm2/m]	[kgm2/m]	[kgm2/m]	[kgm2/m]	[mm]	[mm]
	2.323		23.2	15.5	30.0	14.489	13.427	1.062	0.000	0.0	0.0

Mat	material number	t-min,t-max	thickness
periphery-O/-I	peripheral area per length	thet-p,thet-y,thet-z,thet-yz	rotational mass
deff	effective depth	yg,zg	ordinate of the mass centre

SOFiSTiK AG - www.sofistik.de

SNG zunanji avditorij
Sections

Rolled steel

Rolled steel				D[mm]	B[mm]	s[mm]	t[mm]	r[mm]	yr[mm]	zr[mm]	[grd]
HEB	600			600.0	300.0	15.5	30.0	27.0			

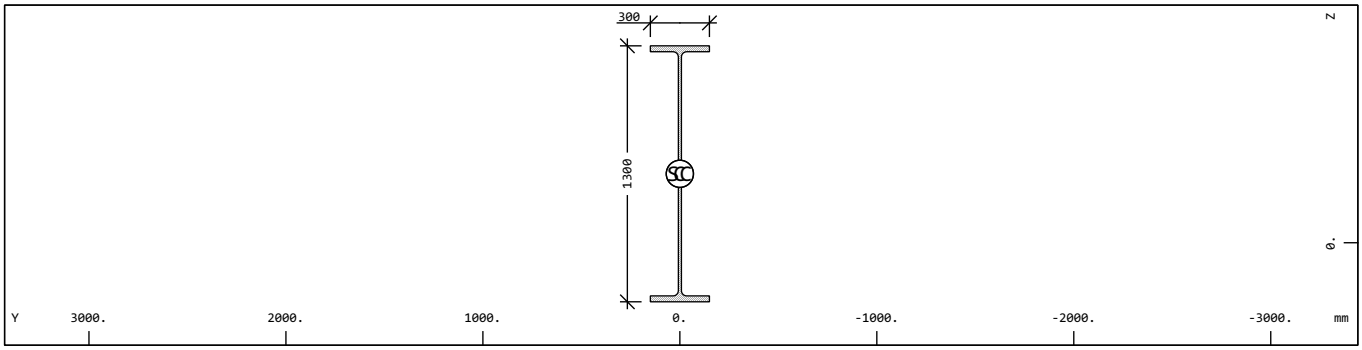
D[mm]	height	t[mm]	flange thickness
B[mm]	width	r[mm]	fillet radius
s[mm]	web thickness	yr[mm],zr[mm]	sectional coordinate

Hydrodynamic coefficients for wind and wave loading

α[°]	cw-y[-]	cw-z[-]	cw-t[-]	ref	c-m[-]	c-lat[-]	Strouhal
-180.00	-2.000	0.000	0.000	BH	2.000	0.800	0.110
-135.00	-1.800	-1.200	0.000	BH	2.000	0.800	0.110
-90.00	0.000	-1.600	0.000	BH	2.000	0.800	0.110
-45.00	1.800	-1.200	0.000	BH	2.000	0.800	0.110
0.00	2.000	0.000	0.000	BH	2.000	0.800	0.110
45.00	1.800	1.200	0.000	BH	2.000	0.800	0.110
90.00	0.000	1.600	0.000	BH	2.000	0.800	0.110
135.00	-1.800	1.200	0.000	BH	2.000	0.800	0.110
180.00	-2.000	0.000	0.000	BH	2.000	0.800	0.110

α[°]	angle of attack	ref	reference for force coefficients
cw-y[-]	drag coefficient	c-m[-]	hydrodynamic coefficient
cw-z[-]	lift coefficient	c-lat[-]	lateral coefficient
cw-t[-]	moment coefficient	Strouhal	Strouhal number

Cross section No. 2 - HEB 600 - 1300 mm



Cross section No. 2 - HEB 600 - 1300 mm

Static properties of cross section

Mat	A[m2]	Ay[m2]	Iy[m4]	yc[mm]	ysc[mm]	E[N/mm2]	g[kg/m]	I-1[m4]
MRf	It[m4]	Az[m2]	Iz[m4]	zc[mm]	zsc[mm]	G[N/mm2]		I-2[m4]
		Ayz[m2]	Iyz[m4]					α[°]
3	3.7847E-02	1.605E-02	9.958E-03	0.0	0.0	210000	297.1	9.958E-03
	7.683E-06	1.958E-02	1.355E-04	-350.0	-350.0	80769	(BEAM)	1.355E-04
			-4.243E-13					0.00

Mat	material number	yc[mm],zc[mm]	ordinate of elastic centroid
A[m2]	sectional area	ysc[mm],zsc[mm]	ordinate of shear centre
Ay[m2],Az[m2],Ayz[m2]	transverse shear deformation area	E[N/mm2]	Young's modulus
Iy[m4],Iz[m4],Iyz[m4]	bending moment of inertia	g[kg/m]	mass per length
I-1[m4],I-2[m4],α[°]	principal moments of inertia and angle of the principal axes		
MRf	reinforcement material number		
It[m4]	torsional moment of inertia		
G[N/mm2]	Shear modulus		

Additional static properties of cross section

α-T[1/K]	ymin[mm]	zmin[mm]	hymin[mm]	AK[m2]	MRs	1/WT[1/m3]	1/WVy[1/m2]
	ymax[mm]	zmax[mm]	hzmin[mm]	AB[m2]		1/WT2[1/m3]	1/WVz[1/m2]
1.2E-05	-150.0	-650.0	189.1	1.903E-02		5.620E+03	9.358E+01
	150.0	650.0	1120.6			1.480E+02	5.757E+01

α-T[1/K]	Elongation coefficient
ymin[mm],zmin[mm],ymax[mm],zmax[mm]	extreme coordinates relative to centroid
hymin[mm],hzmin[mm]	minimum value for internal lever
AK[m2]	torsional equivalent area (Bredt)
MRs	transverse reinforcements material number
1/WT[1/m3],1/WT2[1/m3]	torsional resistance
1/WVy[1/m2],1/WVz[1/m2]	shear force resistance
AB[m2]	gross concrete area

SOFiSTiK AG - www.sofistik.de

SNG zunanji avditorij
Sections

Section values for warping

Wmin[m2]	Wmax[m2]	CM[m6]	CMS[m4]	ASwyy[m6]	ASwzz[m6]	ry[mm]	rz[mm]
-0.0971	0.0971	5.421E-05	0.006	2.989E-15	5.386E-14	0.0	0.0

Wmin[m2],Wmax[m2]	unit warping	ASwyy[m6],ASwzz[m6]	warping sectional value
CM[m6]	warping resistance	ry[mm],rz[mm]	sectional distance
CMS[m4]	warping shear resistance		

Design forces and moments

	N[kN]	Vy[kN]	Vz[kN]	Mt[kNm]	Mt2[kNm]	Mb[kNm2]	My[kNm]	Mz[kNm]	y[mm]	z[mm]	BUCK
P[1,2]	13435.5	6428.77	4533.11	119.65	2979.53	314.41	6309.36	508.76	0.0	-350.	-, a, b
E[3,2]	13435.5	2190.30	3560.06	36.47	1384.49	198.28	5438.75	320.73	0.0	-350.	

[1] P = plastic design values (ultimate bearing capacity)
[2] Material safety γ-M0 for structural steel = 1.00
[3] E = elastic design values (stress limit reached)

N[kN]	normal force	Mb[kNm2]	warping moment
Vy[kN],Vz[kN]	shear force	My[kNm],Mz[kNm]	bending moment
Mt[kNm]	primary torsional moment	y[mm],z[mm]	ordinate of plastic centre
Mt2[kNm]	secondary torsional moment	BUCK	buckling curve (LTB, y-y, z-z)

Additional design data

Mat	periphery-O/-I [m2/m]	[m2/m]	deff [mm]	t-min [mm]	t-max [mm]	thet-p [kgm2/m]	thet-y [kgm2/m]	thet-z [kgm2/m]	thet-yz [kgm2/m]	yg [mm]	zg [mm]
	3.723		20.3	15.5	30.0	79.236	78.173	1.064	0.000	0.0	-350.0

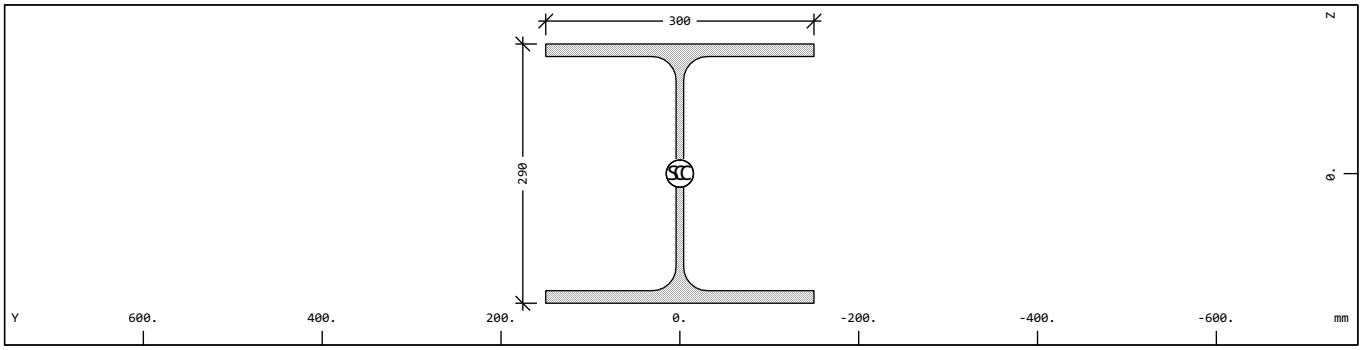
Mat	material number	t-min,t-max	thickness
periphery-O/-I	peripheral area per length	thet-p,thet-y,thet-z,thet-yz	rotational mass
deff	effective depth	yg,zg	ordinate of the mass centre

Hydrodynamic coefficients for wind and wave loading

α[°]	cw-y[-]	cw-z[-]	cw-t[-]	ref	c-m[-]	c-lat[-]	Strouhal
-180.00	-2.000	0.000	0.000	BH	2.000	0.800	0.110
-135.00	-1.800	-1.200	0.000	BH	2.000	0.800	0.110
-90.00	0.000	-1.600	0.000	BH	2.000	0.800	0.110
-45.00	1.800	-1.200	0.000	BH	2.000	0.800	0.110
0.00	2.000	0.000	0.000	BH	2.000	0.800	0.110
45.00	1.800	1.200	0.000	BH	2.000	0.800	0.110
90.00	0.000	1.600	0.000	BH	2.000	0.800	0.110
135.00	-1.800	1.200	0.000	BH	2.000	0.800	0.110
180.00	-2.000	0.000	0.000	BH	2.000	0.800	0.110

α[°]	angle of attack	ref	reference for force coefficients
cw-y[-]	drag coefficient	c-m[-]	hydrodynamic coefficient
cw-z[-]	lift coefficient	c-lat[-]	lateral coefficient
cw-t[-]	moment coefficient	Strouhal	Strouhal number

Cross section No. 3 - HE 300 A (EN 10365)



Cross section No. 3 - HE 300 A (EN 10365)

Static properties of cross section

Mat	A[m2]	Ay[m2]	Iy[m4]	yc[mm]	ysc[mm]	E[N/mm2]	g[kg/m]	I-1[m4]
MRf	It[m4]	Az[m2]	Iz[m4]	zc[mm]	zsc[mm]	G[N/mm2]		I-2[m4]
		Ayz[m2]	Iyz[m4]					α[°]
3	1.1254E-02	7.665E-03	1.826E-04	0.0	0.0	210000	88.3	
	8.450E-07	2.432E-03	6.310E-05	0.0	0.0	80769	(BEAM)	

Mat	material number	yc[mm],zc[mm]	ordinate of elastic centroid
A[m2]	sectional area	ysc[mm],zsc[mm]	ordinate of shear centre
Ay[m2],Az[m2],Ayz[m2]	transverse shear deformation area	E[N/mm2]	Young's modulus

SOFiSTiK AG - www.sofistik.de

SNG zunanji avditorij
Sections

Iy[m4],Iz[m4],Iyz[m4]	bending moment of inertia	g[kg/m]	mass per length
I-1[m4],I-2[m4],α[°]	principal moments of inertia and angle of the principal axes		
MRf	reinforcement material number		
It[m4]	torsional moment of inertia		
G[N/mm2]	Shear modulus		

Additional static properties of cross section

α-T[1/K]	ymin[mm]	zmin[mm]	hymin[mm]	AK[m2]	MRs	1/WT[1/m3]	1/WVy[1/m2]
	ymax[mm]	zmax[mm]	hzmin[mm]	AB[m2]		1/WT2[1/m3]	1/WVz[1/m2]
1.2E-05	-150.0	-145.0	196.8	5.670E-03		3.097E+04	1.913E+02
	150.0	145.0	264.1			1.399E+03	4.455E+02

α-T[1/K]	Elongation coefficient
ymin[mm],zmin[mm],ymax[mm],zmax[mm]	extreme coordinates relative to centroid
hymin[mm],hzmin[mm]	minimum value for internal lever
AK[m2]	torsional equivalent area (Bredt)
MRs	transverse reinforcements material number
1/WT[1/m3],1/WT2[1/m3]	torsional resistance
1/WVy[1/m2],1/WVz[1/m2]	shear force resistance
AB[m2]	gross concrete area

Section values for warping

Wmin[m2]	Wmax[m2]	CM[m6]	CMS[m4]	ASwyy[m6]	ASwzz[m6]	ry[mm]	rz[mm]
-0.0215	0.0215	1.175E-06	0.000	4.992E-16	8.302E-16	0.0	0.0

Wmin[m2],Wmax[m2]	unit warping	ASwyy[m6],ASwzz[m6]	warping sectional value
CM[m6]	warping resistance	ry[mm],rz[mm]	sectional distance
CMS[m4]	warping shear resistance		

Design forces and moments

	N[kN]	Vy[kN]	Vz[kN]	Mt[kNm]	Mt2[kNm]	Mb[kNm2]	My[kNm]	Mz[kNm]	y[mm]	z[mm]	BUCK
P[1,2]	3995.0	1721.66	764.04	16.69	237.59	30.86	491.09	227.62	0.0	0.0	-, b, c
E[3,2]	3995.0	1060.30	460.04	6.62	144.98	19.37	447.16	149.33	0.0	0.0	

[1] P = plastic design values (ultimate bearing capacity)
[2] Material safety γ-M0 for structural steel = 1.00
[3] E = elastic design values (stress limit reached)

N[kN]	normal force	Mb[kNm2]	warping moment
Vy[kN],Vz[kN]	shear force	My[kNm],Mz[kNm]	bending moment
Mt[kNm]	primary torsional moment	y[mm],z[mm]	ordinate of plastic centre
Mt2[kNm]	secondary torsional moment	BUCK	buckling curve (LTB, y-y, z-z)

Additional design data

Mat	periphery-O/-I		deff	t-min	t-max	thet-p	thet-y	thet-z	thet-yz	yg	zg
	[m2/m]	[m2/m]	[mm]	[mm]	[mm]	[kgm2/m]	[kgm2/m]	[kgm2/m]	[kgm2/m]	[mm]	[mm]
	1.717		13.1	8.5	14.0	1.929	1.434	0.495	0.000	0.0	0.0

Mat	material number	t-min,t-max	thickness
periphery-O/-I	peripheral area per length	thet-p,thet-y,thet-z,thet-yz	rotational mass
deff	effective depth	yg,zg	ordinate of the mass centre

Rolled steel

Rolled steel				D[mm]	B[mm]	s[mm]	t[mm]	r[mm]	yr[mm]	zr[mm]	[grd]
HEA	300			290.0	300.0	8.5	14.0	27.0			

D[mm]	height	t[mm]	flange thickness
B[mm]	width	r[mm]	fillet radius
s[mm]	web thickness	yr[mm],zr[mm]	sectional coordinate

Hydrodynamic coefficients for wind and wave loading

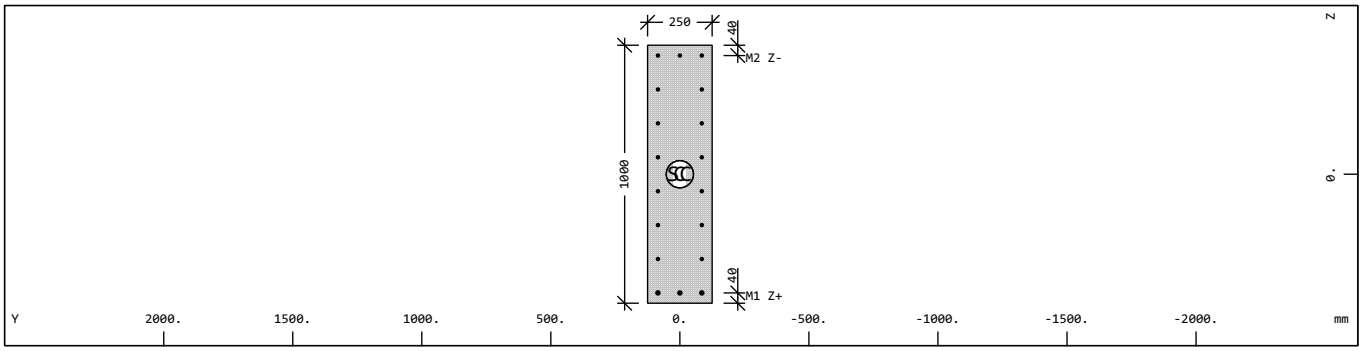
α[°]	cw-y[-]	cw-z[-]	cw-t[-]	ref	c-m[-]	c-lat[-]	Strouhal
-180.00	-1.700	0.000	0.000	BH	2.000	0.300	0.140
-135.00	-1.500	-1.500	0.000	BH	2.000	0.300	0.140
-90.00	0.000	-1.700	0.000	BH	2.000	0.300	0.140
-45.00	1.500	-1.500	0.000	BH	2.000	0.300	0.140
0.00	1.700	0.000	0.000	BH	2.000	0.300	0.140
45.00	1.500	1.500	0.000	BH	2.000	0.300	0.140
90.00	0.000	1.700	0.000	BH	2.000	0.300	0.140
135.00	-1.500	1.500	0.000	BH	2.000	0.300	0.140
180.00	-1.700	0.000	0.000	BH	2.000	0.300	0.140

α[°]	angle of attack	ref	reference for force coefficients
cw-y[-]	drag coefficient	c-m[-]	hydrodynamic coefficient
cw-z[-]	lift coefficient	c-lat[-]	lateral coefficient
cw-t[-]	moment coefficient	Strouhal	Strouhal number

SOFiSTiK AG - www.sofistik.de

SNG zunanji avditorij
Sections

Cross section No. 4 - B/H = 250 / 1000 mm



Cross section No. 4 - B/H = 250 / 1000 mm

Static properties of cross section

Mat	A[m2]	Ay[m2]	Iy[m4]	yc[mm]	ysc[mm]	E[N/mm2]	g[kg/m]	I-1[m4]
MRf	It[m4]	Az[m2]	Iz[m4]	zc[mm]	zsc[mm]	G[N/mm2]		I-2[m4]
		Ayz[m2]	Iyz[m4]					α[°]
1	2.5000E-01	2.083E-01	2.083E-02	0.0	0.0	32837	625.0	
2¹	4.388E-03	2.083E-01	1.302E-03	0.0	0.0	13682	(CENTR)	

¹ Reinforcements are not considered in the sectional values

Mat	material number	yc[mm],zc[mm]	ordinate of elastic centroid
A[m2]	sectional area	ysc[mm],zsc[mm]	ordinate of shear centre
Ay[m2],Az[m2],Ayz[m2]	transverse shear deformation area	E[N/mm2]	Young's modulus
Iy[m4],Iz[m4],Iyz[m4]	bending moment of inertia	g[kg/m]	mass per length
I-1[m4],I-2[m4],α[°]	principal moments of inertia and angle of the principal axes		
MRf	reinforcement material number		
It[m4]	torsional moment of inertia		
G[N/mm2]	Shear modulus		

Additional static properties of cross section

α-T[1/K]	ymin[mm]	zmin[mm]	hymin[mm]	AK[m2]	MRs	1/WT[1/m3]	1/WVy[1/m2]
	ymax[mm]	zmax[mm]	hzmin[mm]	AB[m2]		1/WT2[1/m3]	1/WVz[1/m2]
1.0E-05	-125.0	-500.0	166.7	1.350E-01	2	3.704E+01	6.000E+00
	125.0	500.0	666.7	2.500E-01			6.000E+00

α-T[1/K]	Elongation coefficient
ymin[mm],zmin[mm],ymax[mm],zmax[mm]	extreme coordinates relative to centroid
hymin[mm],hzmin[mm]	minimum value for internal lever
AK[m2]	torsional equivalent area (Bredt)
MRs	transverse reinforcements material number
1/WT[1/m3],1/WT2[1/m3]	torsional resistance
1/WVy[1/m2],1/WVz[1/m2]	shear force resistance
AB[m2]	gross concrete area

Section values for warping

Wmin[m2]	Wmax[m2]	CM[m6]	CMS[m4]	ASwyy[m6]	ASwzz[m6]	ry[mm]	rz[mm]
-0.0455	0.0455	8.372E-05	0.000	0.000E+00	0.000E+00	0.0	0.0

Wmin[m2],Wmax[m2]	unit warping	ASwyy[m6],ASwzz[m6]	warping sectional value
CM[m6]	warping resistance	ry[mm],rz[mm]	sectional distance
CMS[m4]	warping shear resistance		

Rectangular cross-section/T-beam

H[mm]	Ho[mm]	Aso[cm2]	Do[mm]	So[mm]	a[mm]	B-eff[mm]
B[mm]	Bo[mm]	Asu[cm2]	Du[mm]	Su[mm]	a-min[mm]	incl[°]
		As-type	Ds[mm]	Ss[mm]	a-max[mm]	Ass[cm2/m2]
1000.0		3.39	12	40.0	150.0	100.0
250.0		6.03	16	40.0	40.0	90.0
		ASYM	12	40.0	150.0	8.76

H[mm]	height	B[mm]	width
Ho[mm]	upper height of section	Bo[mm]	upper width of section
Aso[cm2],Asu[cm2]	reinforcement area	a-min[mm]	minimum distance of bars
Do[mm],Du[mm],Ds[mm]	bar diameter	incl[°]	inclination of transverse reinforcements
So[mm],Su[mm],Ss[mm]	static distance	a-max[mm]	maximum distance of bars
a[mm]	distance of bars	Ass[cm2/m2]	area of transverse reinforcements
B-eff[mm]	effective width		

SOFiSTiK AG - www.sofistik.de

SNG zunanji avditorij
Sections

Additional design data

Mat	periphery-O/-I [m2/m]	[m2/m]	deff [mm]	t-min [mm]	t-max [mm]	thet-p [kgm2/m]	thet-y [kgm2/m]	thet-z [kgm2/m]	thet-yz [kgm2/m]	yg [mm]	zg [mm]
	2.500		200.0	250.0	1000.0	55.339	52.083	3.255		0.0	0.0

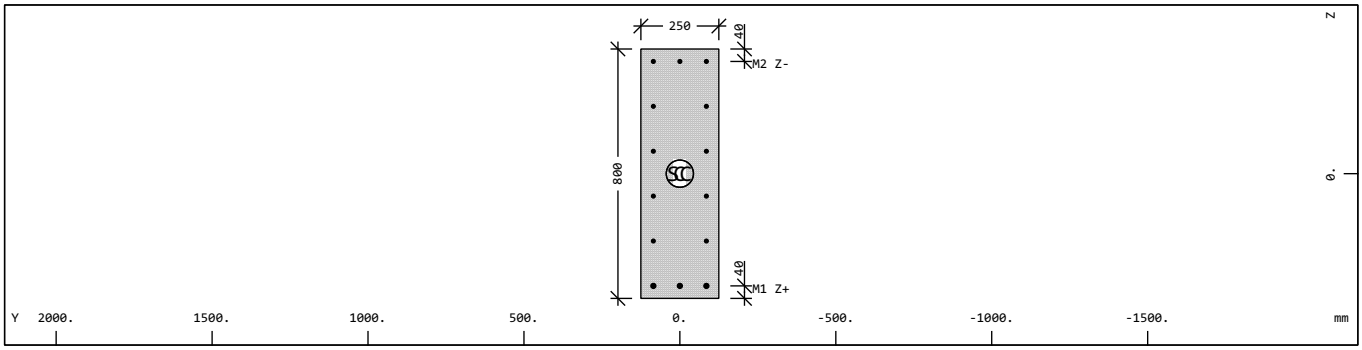
Mat	material number	t-min,t-max	thickness
periphery-O/-I	peripheral area per length	thet-p,thet-y,thet-z,thet-yz	rotational mass
deff	effective depth	yg,zg	ordinate of the mass centre

Reinforcement global values

Layer	Mref	Mat	As [cm2]	As-min [cm2]	As-max [cm2]	D [mm]	yr [mm]	zr [mm]	L-tors [mm]	N-p [kN]	My-p [kNm]	Mz-p [kNm]
M1 Z+	1	2	6.03	6.03		16	0.0	460.0	170.0			
M2 Z-	1	2	3.39	3.39		12	0.0	-460.0	170.0			
M3 Y+-	1	2	13.56	13.56	13.56	12	0.0	0.0	1840.0			

Layer	layer of reinforcement	D	bar diameter
Mref	embedding reference material	yr,zr	ordinate of elastic centroid
Mat	material number	L-tors	torsional effective length
As	reinforcement area	N-p	prestress normal force
As-min	minimum reinforcement area	My-p,Mz-p	prestress bending moment
As-max	maximum reinforcement area		

Cross section No. 5 - B/H = 250 / 800 mm



Cross section No. 5 - B/H = 250 / 800 mm

Static properties of cross section

Mat / MRf	A[m2] / It[m4]	Ay[m2] / Az[m2] / Ayz[m2]	Iy[m4] / Iz[m4] / Iyz[m4]	yc[mm] / zc[mm]	ysc[mm] / zsc[mm]	E[N/mm2] / G[N/mm2]	g[kg/m]	I-1[m4] / I-2[m4] / α[°]
1	2.0000E-01	1.667E-01	1.067E-02	0.0	0.0	32837	500.0	
2[1]	3.346E-03	1.667E-01	1.042E-03	0.0	0.0	13682	(CENTR)	

[1] Reinforcements are not considered in the sectional values

Mat	material number	yc[mm],zc[mm]	ordinate of elastic centroid
A[m2]	sectional area	ysc[mm],zsc[mm]	ordinate of shear centre
Ay[m2],Az[m2],Ayz[m2]	transverse shear deformation area	E[N/mm2]	Young's modulus
Iy[m4],Iz[m4],Iyz[m4]	bending moment of inertia	g[kg/m]	mass per length
I-1[m4],I-2[m4],α[°]	principal moments of inertia and angle of the principal axes		
MRf	reinforcement material number		
It[m4]	torsional moment of inertia		
G[N/mm2]	Shear modulus		

Additional static properties of cross section

α-T[1/K]	ymin[mm] / ymax[mm]	zmin[mm] / zmax[mm]	hymin[mm] / hzmin[mm]	AK[m2] / AB[m2]	MRs	1/WT[1/m3] / 1/WT2[1/m3]	1/WVy[1/m2] / 1/WVz[1/m2]
1.0E-05	-125.0	-400.0	166.7	1.091E-01	2	4.813E+01	7.500E+00
	125.0	400.0	533.3	2.000E-01			7.500E+00

α-T[1/K]	Elongation coefficient
ymin[mm],zmin[mm],ymax[mm],zmax[mm]	extreme coordinates relative to centroid
hymin[mm],hzmin[mm]	minimum value for internal lever
AK[m2]	torsional equivalent area (Bredt)
MRs	transverse reinforcements material number
1/WT[1/m3],1/WT2[1/m3]	torsional resistance
1/WVy[1/m2],1/WVz[1/m2]	shear force resistance
AB[m2]	gross concrete area

SOFiSTiK AG - www.sofistik.de

SNG zunanji avditorij
Sections

Section values for warping

Wmin[m2]	Wmax[m2]	CM[m6]	CMS[m4]	ASwyy[m6]	ASwzz[m6]	ry[mm]	rz[mm]
-0.0330	0.0330	3.727E-05	0.000	0.000E+00	0.000E+00	0.0	0.0

Wmin[m2],Wmax[m2]	unit warping	ASwyy[m6],ASwzz[m6]	warping sectional value
CM[m6]	warping resistance	ry[mm],rz[mm]	sectional distance
CMS[m4]	warping shear resistance		

Rectangular cross-section/T-beam

H[mm]	Ho[mm]	Aso[cm2]	Do[mm]	So[mm]	a[mm]	B-eff[mm]
B[mm]	Bo[mm]	Asu[cm2]	Du[mm]	Su[mm]	a-min[mm]	incl[°]
		As-type	Ds[mm]	Ss[mm]	a-max[mm]	Ass[cm2/m2]
800.0		3.39	12	40.0	150.0	95.2
250.0		6.03	16	40.0	36.0	90.0
		ASYM	12	40.0	150.0	8.76

H[mm]	height	B[mm]	width
Ho[mm]	upper height of section	Bo[mm]	upper width of section
Aso[cm2],Asu[cm2]	reinforcement area	a-min[mm]	minimum distance of bars
Do[mm],Du[mm],Ds[mm]	bar diameter	incl[°]	inclination of transverse reinforcements
So[mm],Su[mm],Ss[mm]	static distance	a-max[mm]	maximum distance of bars
a[mm]	distance of bars	Ass[cm2/m2]	area of transverse reinforcements
B-eff[mm]	effective width		

Additional design data

Mat	periphery-O/-I		deff	t-min	t-max	thet-p	thet-y	thet-z	thet-yz	yg	zg
	[m2/m]	[m2/m]	[mm]	[mm]	[mm]	[kgm2/m]	[kgm2/m]	[kgm2/m]	[kgm2/m]	[mm]	[mm]
	2.100		190.5	250.0	800.0	29.271	26.667	2.604		0.0	0.0

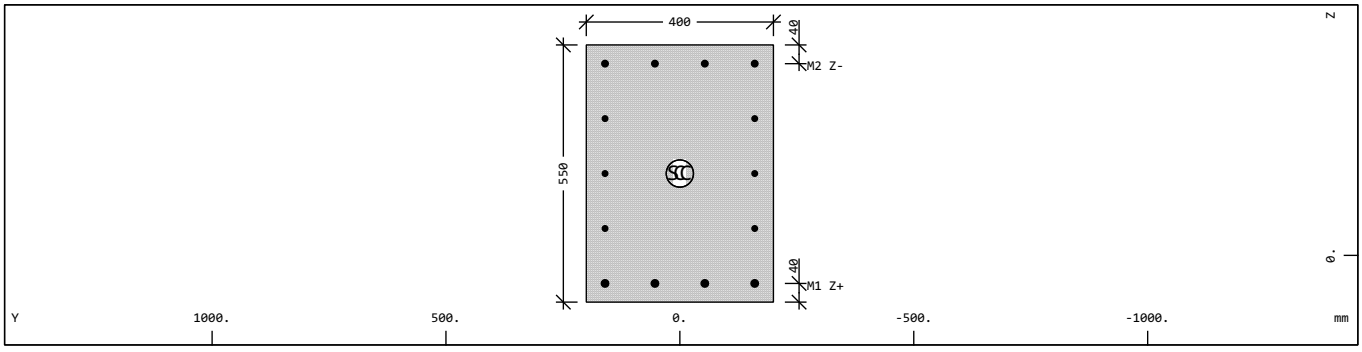
Mat	material number	t-min,t-max	thickness
periphery-O/-I	peripheral area per length	thet-p,thet-y,thet-z,thet-yz	rotational mass
deff	effective depth	yg,zg	ordinate of the mass centre

Reinforcement global values

Layer	Mref	Mat	As [cm2]	As-min [cm2]	As-max [cm2]	D [mm]	yr [mm]	zr [mm]	L-tors [mm]	N-p [kN]	My-p [kNm]	Mz-p [kNm]
M1 Z+	1	2	6.03	6.03		16	0.0	360.0	170.0			
M2 Z-	1	2	3.39	3.39		12	0.0	-360.0	170.0			
M3 Y+-	1	2	9.04	9.04	9.04	12	0.0	0.0	1440.0			

Layer	layer of reinforcement	D	bar diameter
Mref	embedding reference material	yr,zr	ordinate of elastic centroid
Mat	material number	L-tors	torsional effective length
As	reinforcement area	N-p	prestress normal force
As-min	minimum reinforcement area	My-p,Mz-p	prestress bending moment
As-max	maximum reinforcement area		

Cross section No. 6 - B/H = 400 / 550 mm



Cross section No. 6 - B/H = 400 / 550 mm

Static properties of cross section

Mat	A[m2]	Ay[m2]	Iy[m4]	yc[mm]	ysc[mm]	E[N/mm2]	g[kg/m]	I-1[m4]
MRf	It[m4]	Az[m2]	Iz[m4]	zc[mm]	zsc[mm]	G[N/mm2]		I-2[m4]
		Ayz[m2]	Iyz[m4]					α[°]
1	2.2000E-01	1.833E-01	5.546E-03	0.0	0.0	32837	550.0	
2[1]	6.496E-03	1.833E-01	2.933E-03	-175.0	-175.0	13682	(BEAM)	

[1] Reinforcements are not considered in the sectional values

Mat	material number	yc[mm],zc[mm]	ordinate of elastic centroid
A[m2]	sectional area	ysc[mm],zsc[mm]	ordinate of shear centre
Ay[m2],Az[m2],Ayz[m2]	transverse shear deformation area	E[N/mm2]	Young's modulus

SOFiSTiK AG - www.sofistik.de

SNG zunanji avditorij
Sections

Iy[m4],Iz[m4],Iyz[m4]	bending moment of inertia	g[kg/m]	mass per length
I-1[m4],I-2[m4],α[°]	principal moments of inertia and angle of the principal axes		
MRf	reinforcement material number		
It[m4]	torsional moment of inertia		
G[N/mm2]	Shear modulus		

Additional static properties of cross section

α-T[1/K]	ymin[mm]	zmin[mm]	hymin[mm]	AK[m2]	MRs	1/WT[1/m3]	1/WVy[1/m2]
	ymax[mm]	zmax[mm]	hzmin[mm]	AB[m2]		1/WT2[1/m3]	1/WVz[1/m2]
1.0E-05	-200.0	-275.0	266.7	1.234E-01	2	3.499E+01	6.818E+00
	200.0	275.0	366.7	2.200E-01			6.818E+00

α-T[1/K]	Elongation coefficient
ymin[mm],zmin[mm],ymax[mm],zmax[mm]	extreme coordinates relative to centroid
hymin[mm],hzmin[mm]	minimum value for internal lever
AK[m2]	torsional equivalent area (Bredt)
MRs	transverse reinforcements material number
1/WT[1/m3],1/WT2[1/m3]	torsional resistance
1/WVy[1/m2],1/WVz[1/m2]	shear force resistance
AB[m2]	gross concrete area

Section values for warping

Wmin[m2]	Wmax[m2]	CM[m6]	CMS[m4]	ASwyy[m6]	ASwzz[m6]	ry[mm]	rz[mm]
-0.0127	0.0127	8.186E-06	0.000	0.000E+00	0.000E+00	0.0	0.0

Wmin[m2],Wmax[m2]	unit warping	ASwyy[m6],ASwzz[m6]	warping sectional value
CM[m6]	warping resistance	ry[mm],rz[mm]	sectional distance
CMS[m4]	warping shear resistance		

Rectangular cross-section/T-beam

H[mm]	Ho[mm]	Aso[cm2]	Do[mm]	So[mm]	a[mm]	B-eff[mm]
B[mm]	Bo[mm]	Asu[cm2]	Du[mm]	Su[mm]	a-min[mm]	incl[°]
		As-type	Ds[mm]	Ss[mm]	a-max[mm]	Ass[cm2/m2]
550.0		6.16	14	40.0	150.0	115.8
400.0		8.04	16	40.0	40.0	90.0
		ASYM	12	40.0	150.0	8.76

H[mm]	height	B[mm]	width
Ho[mm]	upper height of section	Bo[mm]	upper width of section
Aso[cm2],Asu[cm2]	reinforcement area	a-min[mm]	minimum distance of bars
Do[mm],Du[mm],Ds[mm]	bar diameter	incl[°]	inclination of transverse reinforcements
So[mm],Su[mm],Ss[mm]	static distance	a-max[mm]	maximum distance of bars
a[mm]	distance of bars	Ass[cm2/m2]	area of transverse reinforcements
B-eff[mm]	effective width		

Additional design data

Mat	periphery-O/-I		deff	t-min	t-max	thet-p	thet-y	thet-z	thet-yz	yg	zg
	[m2/m]	[m2/m]	[mm]	[mm]	[mm]	[kgm2/m]	[kgm2/m]	[kgm2/m]	[kgm2/m]	[mm]	[mm]
	1.900		231.6	400.0	550.0	21.198	13.865	7.333		0.0	-175.0

Mat	material number	t-min,t-max	thickness
periphery-O/-I	peripheral area per length	thet-p,thet-y,thet-z,thet-yz	rotational mass
deff	effective depth	yg,zg	ordinate of the mass centre

Reinforcement global values

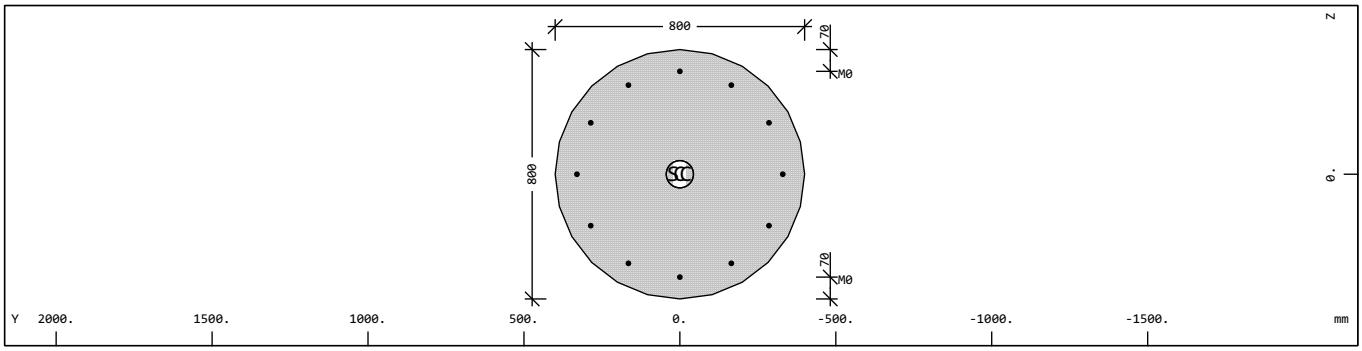
Layer	Mref	Mat	As	As-min	As-max	D	yr	zr	L-tors	N-p	My-p	Mz-p
			[cm2]	[cm2]	[cm2]	[mm]	[mm]	[mm]	[mm]	[kN]	[kNm]	[kNm]
M1 Z+	1	2	8.04	8.04		16	0.0	60.0	320.0			
M2 Z-	1	2	6.16	6.16		14	0.0	-410.0	320.0			
M3 Y+-	1	2	6.78	6.78	6.78	12	0.0	-175.0	940.0			

Layer	layer of reinforcement	D	bar diameter
Mref	embedding reference material	yr,zr	ordinate of elastic centroid
Mat	material number	L-tors	torsional effective length
As	reinforcement area	N-p	prestress normal force
As-min	minimum reinforcement area	My-p,Mz-p	prestress bending moment
As-max	maximum reinforcement area		

SOFiSTiK AG - www.sofistik.de

SNG zunanji avditorij
Sections

Cross section No. 7 - D 800 mm



Cross section No. 7 - D 800 mm

Static properties of cross section

Mat	A[m2]	Ay[m2]	Iy[m4]	yc[mm]	ysc[mm]	E[N/mm2]	g[kg/m]	I-1[m4]
MRf	It[m4]	Az[m2]	Iz[m4]	zc[mm]	zsc[mm]	G[N/mm2]		I-2[m4]
		Ayz[m2]	Iyz[m4]					α[°]
1	5.0265E-01	4.524E-01	2.011E-02	0.0	0.0	32837	1256.6	
2¹	4.021E-02	4.524E-01	2.011E-02	0.0	0.0	13682	(COMPR)	

¹ Reinforcements are not considered in the sectional values

Mat	material number	yc[mm],zc[mm]	ordinate of elastic centroid
A[m2]	sectional area	ysc[mm],zsc[mm]	ordinate of shear centre
Ay[m2],Az[m2],Ayz[m2]	transverse shear deformation area	E[N/mm2]	Young's modulus
Iy[m4],Iz[m4],Iyz[m4]	bending moment of inertia	g[kg/m]	mass per length
I-1[m4],I-2[m4],α[°]	principal moments of inertia and angle of the principal axes		
MRf	reinforcement material number		
It[m4]	torsional moment of inertia		
G[N/mm2]	Shear modulus		

Additional static properties of cross section

α-T[1/K]	ymin[mm]	zmin[mm]	hymin[mm]	AK[m2]	MRs	1/WT[1/m3]	1/WVy[1/m2]
	ymax[mm]	zmax[mm]	hzmin[mm]	AB[m2]		1/WT2[1/m3]	1/WVz[1/m2]
1.0E-05	-400.0	-400.0	471.2	3.421E-01	2	9.947E+00	2.653E+00
	400.0	400.0	471.2	5.027E-01			2.653E+00

α-T[1/K]	Elongation coefficient
ymin[mm],zmin[mm],ymax[mm],zmax[mm]	extreme coordinates relative to centroid
hymin[mm],hzmin[mm]	minimum value for internal lever
AK[m2]	torsional equivalent area (Bredt)
MRs	transverse reinforcements material number
1/WT[1/m3],1/WT2[1/m3]	torsional resistance
1/WVy[1/m2],1/WVz[1/m2]	shear force resistance
AB[m2]	gross concrete area

Circular/annular cross section

Ra[mm]	Ri[mm]	Rsa[mm]	Rsi[mm]	Asa[cm2]	Asi[cm2]	D[mm]	a[mm]	Ass[cm2/m]
400.0		330.0		18.48		14		

Ra[mm],Ri[mm]	radius	D[mm]	bar diameter
Rsa[mm],Rsi[mm]	radius of reinforcement	a[mm]	distance of bars
Asa[cm2],Asi[cm2]	reinforcement area	Ass[cm2/m]	area of transverse reinforcements

Additional design data

Mat	periphery-O/-I		deff	t-min	t-max	thet-p	thet-y	thet-z	thet-yz	yg	zg
	[m2/m]	[m2/m]	[mm]	[mm]	[mm]	[kgm2/m]	[kgm2/m]	[kgm2/m]	[kgm2/m]	[mm]	[mm]
	2.513			400.0	400.0	100.531	50.265	50.265		0.0	0.0

Mat	material number	t-min,t-max	thickness
periphery-O/-I	peripheral area per length	thet-p,thet-y,thet-z,thet-yz	rotational mass
deff	effective depth	yg,zg	ordinate of the mass centre

Reinforcement global values

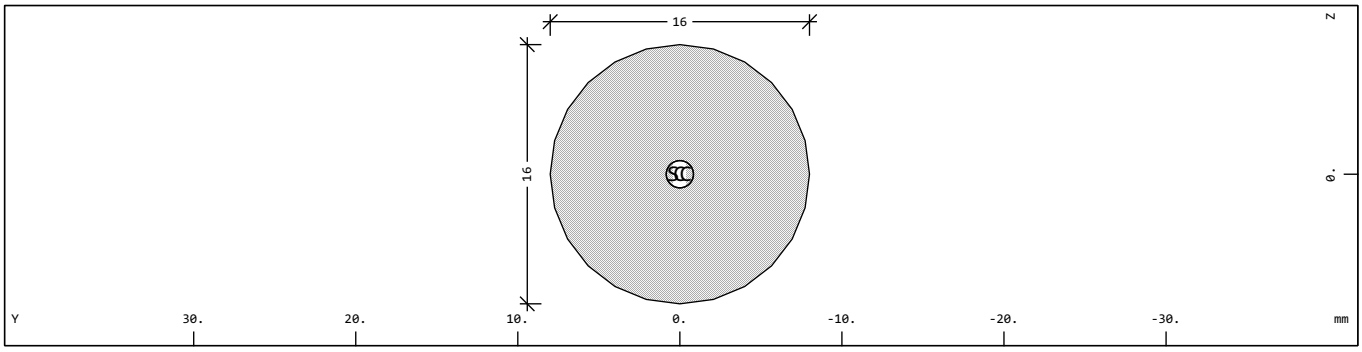
Layer	Mref	Mat	As	As-min	As-max	D	yr	zr	L-tors	N-p	My-p	Mz-p
			[cm2]	[cm2]	[cm2]	[mm]	[mm]	[mm]	[mm]	[kN]	[kNm]	[kNm]
M0	1	2	18.48	18.48		14	0.0	0.0	2073.5			

Layer	layer of reinforcement	D	bar diameter
Mref	embedding reference material	yr,zr	ordinate of elastic centroid
Mat	material number	L-tors	torsional effective length
As	reinforcement area	N-p	prestress normal force
As-min	minimum reinforcement area	My-p,Mz-p	prestress bending moment
As-max	maximum reinforcement area		

SOFiSTiK AG - www.sofistik.de

SNG zunanji avditorij
Sections

Cross section No. 8 - D 16 mm



Cross section No. 8 - D 16 mm

Static properties of cross section

Mat	A[m2]	Ay[m2]	Iy[m4]	yc[mm]	ysc[mm]	E[N/mm2]	g[kg/m]	I-1[m4]
MRf	It[m4]	Az[m2]	Iz[m4]	zc[mm]	zsc[mm]	G[N/mm2]		I-2[m4]
		Ayz[m2]	Iyz[m4]					α[°]
4	2.0106E-04	1.810E-04	3.217E-09	0.0	0.0	210000	0.0	
	6.434E-09	1.810E-04	3.217E-09	0.0	0.0	80769	(COMPR)	

Mat	material number	yc[mm],zc[mm]	ordinate of elastic centroid
A[m2]	sectional area	ysc[mm],zsc[mm]	ordinate of shear centre
Ay[m2],Az[m2],Ayz[m2]	transverse shear deformation area	E[N/mm2]	Young's modulus
Iy[m4],Iz[m4],Iyz[m4]	bending moment of inertia	g[kg/m]	mass per length
I-1[m4],I-2[m4],α[°]	principal moments of inertia and angle of the principal axes		
MRf	reinforcement material number		
It[m4]	torsional moment of inertia		
G[N/mm2]	Shear modulus		

Additional static properties of cross section

α-T[1/K]	ymin[mm]	zmin[mm]	hymin[mm]	AK[m2]	MRs	1/WT[1/m3]	1/WVy[1/m2]
	ymax[mm]	zmax[mm]	hzmin[mm]	AB[m2]		1/WT2[1/m3]	1/WVz[1/m2]
1.2E-05	-8.0	-8.0	9.4	5.542E-03		1.243E+06	6.631E+03
	8.0	8.0	9.4				6.631E+03

α-T[1/K]	Elongation coefficient
ymin[mm],zmin[mm],ymax[mm],zmax[mm]	extreme coordinates relative to centroid
hymin[mm],hzmin[mm]	minimum value for internal lever
AK[m2]	torsional equivalent area (Bredt)
MRs	transverse reinforcements material number
1/WT[1/m3],1/WT2[1/m3]	torsional resistance
1/WVy[1/m2],1/WVz[1/m2]	shear force resistance
AB[m2]	gross concrete area

Circular/annular cross section

Ra[mm]	Ri[mm]	Rsa[mm]	Rsi[mm]	Asa[cm2]	Asi[cm2]	D[mm]	a[mm]	Ass[cm2/m]
8.0		-42.0				8		

Ra[mm],Ri[mm]	radius	D[mm]	bar diameter
Rsa[mm],Rsi[mm]	radius of reinforcement	a[mm]	distance of bars
Asa[cm2],Asi[cm2]	reinforcement area	Ass[cm2/m]	area of transverse reinforcements

Additional design data

Mat	periphery-O/-I		deff	t-min	t-max	thet-p	thet-y	thet-z	thet-yz	yg	zg
	[m2/m]	[m2/m]	[mm]	[mm]	[mm]	[kgm2/m]	[kgm2/m]	[kgm2/m]	[kgm2/m]	[mm]	[mm]
	0.050			8.0	8.0	0.000				0.0	0.0

Mat	material number		t-min,t-max		thickness
periphery-O/-I	peripheral area per length		thet-p,thet-y,thet-z,thet-yz		rotational mass
deff	effective depth		yg,zg		ordinate of the mass centre

SOFiSTiK AG - www.sofistik.de

SNG zunanji avditorij

Design Code

EuroNorm: EN 1992-1-1:2004 Design of concrete structures (Slowenija) V 2024
EuroNorm: EN 1993-1-1:2005 Design of steel structures
EuroNorm: EN 1994-1-1:2004 Design of composite steel and concrete structures
Snow load zone : 1

National Defined Parameters

Reference of parameter in design code	Value
long term reduction concrete compressive strength α-cc EN 1992-1-1 3.1.6 (1)	1.000¹
long term reduction concrete tensile strength α-ct EN 1992-1-1 3.1.6 (2)	1.000¹
safety coefficient γ-c for concrete EN 1992-1-1 2.4.2.4	1.500¹
safety coefficient γ-CE for concrete elasticity EN 1992-1-1 5.8.6 (3)	1.200¹
safety coefficient γ-s for reinforcing steel EN 1992-1-1 2.4.2.4	1.150¹
safety coefficient γ-M0 for structural steel EN 1993-1-1 6.1	1.000¹
safety coefficient γ-M1 for structural steel EN 1993-1-1 6.1	1.000¹
safety coefficient γ-M2 for structural steel EN 1993-1-1 6.1	1.250¹

¹ national defined parameter taken from the INI-files

Materials

Mat	Classification
1	C 30/37 (EN 1992)
2	B 500 B (EN 1992)
3	S 355 (EN 1993)
4	S 355 (EN 1993) - y=0

Mat 1 C 30/37 (EN 1992)

Young's modulus	E	32837	[N/mm2]	Safetyfactor		1.50	[-]
Poisson's ratio	μ	0.20	[-]	Strength¹	fc	30.00	[MPa]
Shear modulus	G	13682	[N/mm2]	Nominal strength	fck	30.00	[MPa]
Compression modulus	K	18243	[N/mm2]	Tensile strength	fctm	2.90	[MPa]
Nominal Weight	γ	25.0	[kN/m3]	Tensile strength	fctk,05	2.03	[MPa]
Mean density	ρ	2400.0	[kg/m3]	Tensile strength	fctk,95	3.77	[MPa]
Elongation coefficient	α	1.00E-05	[1/K]	Bond strength	fbd	3.04	[MPa]
				Service strength	fcm	38.00	[MPa]
				Fatigue strength	fcd,fat	14.96	[MPa]
				Tensile strength	fctd	1.35	[MPa]
				Tensile failure energy	Gf	0.14	[N/mm]

¹ fc = fck * α-cc

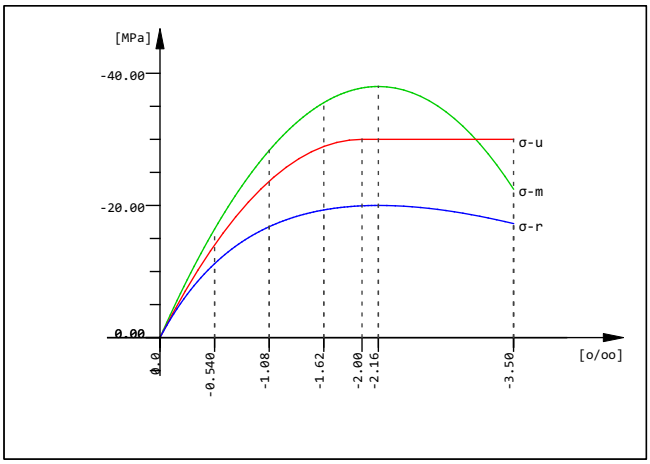
Stress-Strain for serviceability	ε[o/oo]	σ-m[MPa]	E-t[N/mm2]
Is only valid within the defined	0.000	0.00	34478
stress range	-0.540	-16.42	26234
	-1.081	-28.31	17746
	-1.621	-35.55	9005
	-2.162	-38.00	0
	-3.500	-22.47	-23499
	Safetyfactor		1.50

Stress-Strain for ultimate load	ε[o/oo]	σ-u[MPa]	E-t[N/mm2]
Is only valid within the defined	0.000	0.00	30000
stress range	-2.000	-30.00	0
	-3.500	-30.00	0
	Safetyfactor		1.50

Stress-Strain of calc. mean values	ε[o/oo]	σ-r[MPa]	E-t[N/mm2]
Is only valid within the defined	0.000	0.00	28732
stress range	-0.540	-11.19	14403
	-1.081	-16.78	7018
	-1.621	-19.32	2720
	-2.162	-20.00	0
	-3.500	-17.25	-3601
	Safetyfactor		(1.50)

SOFiSTiK AG - www.sofistik.de

SNG zunanji avditorij



C 30/37 (EN 1992)

Mat 2 B 500 B (EN 1992)

Young's modulus	E	200000	[N/mm2]	Safetyfactor		1.15	[-]
Poisson's ratio	μ	0.30	[-]	Yield stress	fy	500.00	[MPa]
Shear modulus	G	76923	[N/mm2]	Compressive yield	fyc	500.00	[MPa]
Compression modulus	K	166667	[N/mm2]	Tensile strength	ft	540.00	[MPa]
Nominal Weight	γ	78.5	[kN/m3]	Compressive strength	fc	540.00	[MPa]
Mean density	ρ	7850.0	[kg/m3]	Ultimate strain		50.00	[o/oo]
Elongation coefficient	α	1.20E-05	[1/K]	relative bond coeff.		1.00	[-]
max. thickness	t-max	32.00	[mm]	EN 1992 bond coeff.	k1	0.80	[-]
				Hardening modulus	Eh	0.00	[MPa]
				Proportional limit	fp	500.00	[MPa]
				Dynamic allowance	σ-dyn	152.17	[MPa]

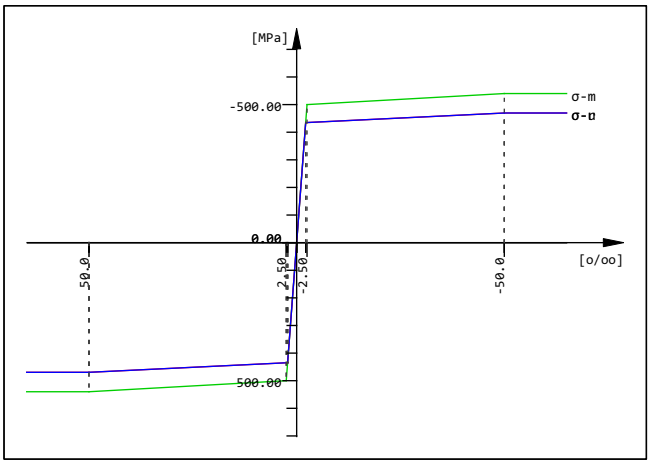
Stress-Strain for serviceability	**ε[o/oo]**	**σ-m[MPa]**	**E-t[N/mm2]**
Is also extended beyond the	1000.000	540.00	0
defined stress range	50.000	540.00	0
	2.500	500.00	842
	0.000	0.00	200000
	-2.500	-500.00	842
	-50.000	-540.00	0
	-1000.000	-540.00	0
	Safetyfactor		1.15

Stress-Strain for ultimate load	**ε[o/oo]**	**σ-u[MPa]**	**E-t[N/mm2]**
Is also extended beyond the	1000.000	469.57	0
defined stress range	50.000	469.57	0
	2.174	434.78	727
	0.000	0.00	200000
	-2.174	-434.78	727
	-50.000	-469.57	0
	-1000.000	-469.57	0
	Safetyfactor		(1.15)

Stress-Strain of calc. mean values	**ε[o/oo]**	**σ-r[MPa]**	**E-t[N/mm2]**
Is also extended beyond the	1000.000	469.57	0
defined stress range	50.000	469.57	0
	2.174	434.78	727
	0.000	0.00	200000
	-2.174	-434.78	727
	-50.000	-469.57	0
	-1000.000	-469.57	0
	Safetyfactor		(1.15)

SOFiSTiK AG - www.sofistik.de

SNG zunanji avditorij



B 500 B (EN 1992)

Mat 3 S 355 (EN 1993)

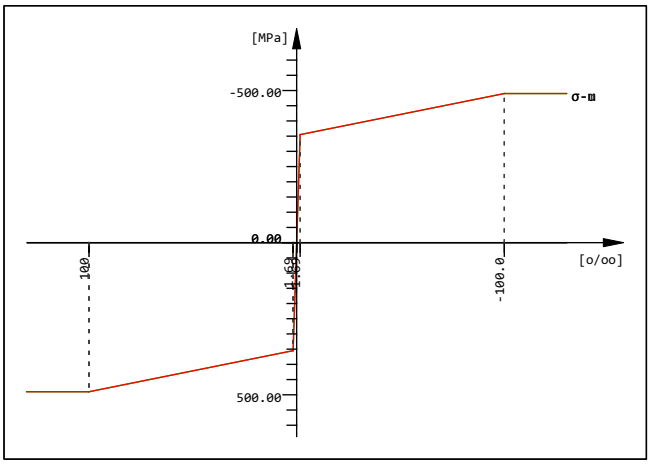
Young's modulus	E	210000	[N/mm2]	Safetyfactor		1.00	[-]
Poisson's ratio	μ	0.30	[-]	Yield stress	fy	355.00	[MPa]
Shear modulus	G	80769	[N/mm2]	Compressive yield	fyc	355.00	[MPa]
Compression modulus	K	175000	[N/mm2]	Tensile strength	ft	490.00	[MPa]
Nominal Weight	γ	78.5	[kN/m3]	Compressive strength	fc	490.00	[MPa]
Mean density	ρ	7850.0	[kg/m3]	Ultimate strain		100.00	[o/oo]
Elongation coefficient	α	1.20E-05	[1/K]	relative bond coeff.		0.00	[-]
max. thickness	t-max	40.00	[mm]	EN 1992 bond coeff.	k1	0.00	[-]
Safety sectional design	γ-M0	1.00	[-]	Hardening modulus	Eh	0.00	[MPa]
Safety stability design	γ-M1	1.00	[-]	Proportional limit	fp	355.00	[MPa]
Safety rupture	γ-M2	1.25	[-]	Dynamic allowance	σ-dyn	0.00	[MPa]

Stress-Strain for serviceability	**ε[o/oo]**	**σ-m[MPa]**	**E-t[N/mm2]**
Is also extended beyond the	1000.000	490.00	0
defined stress range	100.000	490.00	0
	1.690	355.00	1373
	0.000	0.00	210000
	-1.690	-355.00	1373
	-100.000	-490.00	0
	-1000.000	-490.00	0
	Safetyfactor		1.00

Stress-Strain for ultimate load	**ε[o/oo]**	**σ-u[MPa]**	**E-t[N/mm2]**
Is also extended beyond the	1000.000	490.00	0
defined stress range	100.000	490.00	0
	1.690	355.00	1373
	0.000	0.00	210000
	-1.690	-355.00	1373
	-100.000	-490.00	0
	-1000.000	-490.00	0
	Safetyfactor		1.00

SOFiSTiK AG - www.sofistik.de

SNG zunanji avditorij



S 355 (EN 1993)

Mat 4 S 355 (EN 1993) - y=0

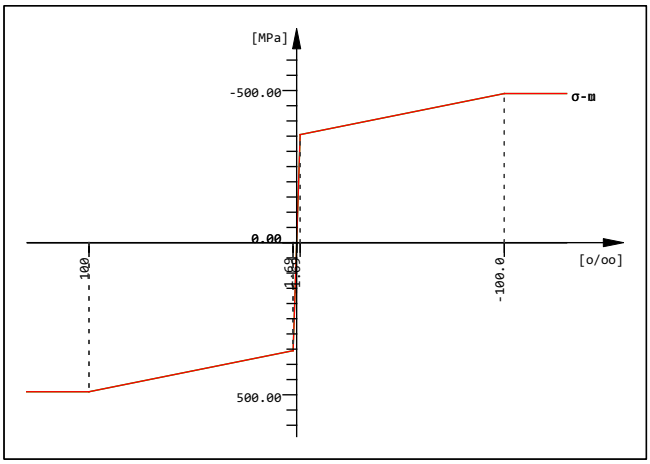
Young's modulus	E	210000	[N/mm2]	Safetyfactor		1.00	[-]
Poisson's ratio	μ	0.30	[-]	Yield stress	fy	355.00	[MPa]
Shear modulus	G	80769	[N/mm2]	Compressive yield	fyc	355.00	[MPa]
Compression modulus	K	175000	[N/mm2]	Tensile strength	ft	490.00	[MPa]
Nominal Weight	γ	0.0	[kN/m3]	Compressive strength	fc	490.00	[MPa]
Mean density	ρ	0.0	[kg/m3]	Ultimate strain		100.00	[o/oo]
Elongation coefficient	α	1.20E-05	[1/K]	relative bond coeff.		0.00	[-]
max. thickness	t-max	40.00	[mm]	EN 1992 bond coeff.	k1	0.00	[-]
Safety sectional design	γ-M0	1.00	[-]	Hardening modulus	Eh	0.00	[MPa]
Safety stability design	γ-M1	1.00	[-]	Proportional limit	fp	355.00	[MPa]
Safety rupture	γ-M2	1.25	[-]	Dynamic allowance	σ-dyn	0.00	[MPa]

Stress-Strain for serviceability	**ε[o/oo]**	**σ-m[MPa]**	**E-t[N/mm2]**
Is also extended beyond the	1000.000	490.00	0
defined stress range	100.000	490.00	0
	1.690	355.00	1373
	0.000	0.00	210000
	-1.690	-355.00	1373
	-100.000	-490.00	0
	-1000.000	-490.00	0
	Safetyfactor		1.00

Stress-Strain for ultimate load	**ε[o/oo]**	**σ-u[MPa]**	**E-t[N/mm2]**
Is also extended beyond the	1000.000	490.00	0
defined stress range	100.000	490.00	0
	1.690	355.00	1373
	0.000	0.00	210000
	-1.690	-355.00	1373
	-100.000	-490.00	0
	-1000.000	-490.00	0
	Safetyfactor		1.00

SOFiSTiK AG - www.sofistik.de

SNG zunanji avditorij



S 355 (EN 1993) - y=0

Thermal material constants

Mat	T[°C]	S[kJ/K/m3]	Kxx[W/K/m]	Kyy[W/K/m]	Kzz[W/K/m]	
1	AUTO	2.16E+03	1.951E+00			C 30/37 (EN 1992)
2	AUTO	3.45E+03	5.333E+01			B 500 B (EN 1992)
3	AUTO	3.45E+03	5.333E+01			S 355 (EN 1993)
4	AUTO	3.45E+03	5.333E+01			S 355 (EN 1993) - y=0

Mat material number S[kJ/K/m3] Heat capacity
T[°C] Temperature Kxx[W/K/m],Kyy[W/K/m],Kzz[W/K/m] Heat conductivity

Sectional Values

SNo	Mat	A[m2]	Ay[m2]	Iy[m4]	yc[mm]	ysc[mm]	E[N/mm2]	g[kg/m]	I-1[m4]
	MRf	It[m4]	Az[m2]	Iz[m4]	zc[mm]	zsc[mm]	G[N/mm2]		I-2[m4]
			Ayz[m2]	Iyz[m4]					α[°]
1	3	2.6997E-02	1.600E-02	1.710E-03	0.0	0.0	210000	211.9	
		6.814E-06	9.058E-03	1.353E-04	0.0	0.0	80769	(BEAM)	
	=	HEB 600							
	=	HEB 600							
2	3	3.7847E-02	1.605E-02	9.958E-03	0.0	0.0	210000	297.1	9.958E-03
		7.683E-06	1.958E-02	1.355E-04	-350.0	-350.0	80769	(BEAM)	1.355E-04
				-4.243E-13					0.00
	=	HEB 600 - 1300 mm							
3	3	1.1254E-02	7.665E-03	1.826E-04	0.0	0.0	210000	88.3	
		8.450E-07	2.432E-03	6.310E-05	0.0	0.0	80769	(BEAM)	
	=	HE 300 A (EN 10365)							
4	1	2.5000E-01	2.083E-01	2.083E-02	0.0	0.0	32837	625.0	
	2¹	4.388E-03	2.083E-01	1.302E-03	0.0	0.0	13682	(CENTR)	
	=	B/H = 250 / 1000 mm							
	=	B/H = 250 / 1000 mm							
5	1	2.0000E-01	1.667E-01	1.067E-02	0.0	0.0	32837	500.0	
	2¹	3.346E-03	1.667E-01	1.042E-03	0.0	0.0	13682	(CENTR)	
	=	B/H = 250 / 800 mm							
	=	B/H = 250 / 800 mm							
6	1	2.2000E-01	1.833E-01	5.546E-03	0.0	0.0	32837	550.0	
	2¹	6.496E-03	1.833E-01	2.933E-03	-175.0	-175.0	13682	(BEAM)	
	=	B/H = 400 / 550 mm							
	=	B/H = 400 / 550 mm							
7	1	5.0265E-01	4.524E-01	2.011E-02	0.0	0.0	32837	1256.6	
	2¹	4.021E-02	4.524E-01	2.011E-02	0.0	0.0	13682	(COMPR)	
	=	D 800 mm							
	=	D 800 mm							
8	4	2.0106E-04	1.810E-04	3.217E-09	0.0	0.0	210000	0.0	
		6.434E-09	1.810E-04	3.217E-09	0.0	0.0	80769	(COMPR)	
	=	D 16 mm							
	=	D 16 mm							

¹ Reinforcements are not considered in the sectional values

SNo section number yc[mm],zc[mm] ordinate of elastic centroid

SOFiSTiK AG - www.sofistik.de

SNG zunanji avditorij

Mat	material number	ysc[mm],zsc[mm]	ordinate of shear centre
A[m2]	sectional area	E[N/mm2]	Young's modulus
Ay[m2],Az[m2],Ayz[m2]	transverse shear deformation area	g[kg/m]	mass per length
Iy[m4],Iz[m4],Iyz[m4]	bending moment of inertia		
I-1[m4],I-2[m4],α[°]	principal moments of inertia and angle of the principal axes		
MRf	reinforcement material number		
It[m4]	torsional moment of inertia		
G[N/mm2]	Shear modulus		

Structural Elements

Structural Points

Number	X[m]	Y[m]	Z[m]	Support Conditions	Designation
1	-3.706	22.959	12.580		Point
2	-3.842	23.133	12.580		Point
3	3.706	22.959	12.580		Point
4	3.719	23.153	12.580		Point
6	-5.287	-4.636	12.580	PP	Point
7	5.288	-4.335	12.580	PP	Point
8	-8.449	-4.726	12.580	PPMY	Point
9	8.573	-4.241	12.580	PPMY	Point
10	-5.784	-4.650	12.580	PPMY	Point
11	-6.534	-4.650	12.580	PPMY	Point
12	-9.344	21.288	8.150	PP	Point
13	-3.706	22.959	8.150	PP	Point
14	3.706	22.959	8.150	PP	Point
15	9.342	21.289	8.150	PP	Point
1001	-9.344	21.288	12.580		
1002	-2.027	-4.543	12.580		
1003	2.034	-4.428	12.580		
1004	-14.334	18.286	12.580		
1005	9.342	21.289	12.580		
1006	14.334	18.286	12.580		
1007	-13.353	14.450	12.580		
1008	-8.274	14.450	12.580		
1009	-3.186	14.450	12.580		
1010	3.186	14.450	12.580		
1011	8.260	14.450	12.580		
1012	13.353	14.450	12.580		
1013	-10.271	2.400	12.580		
1014	-6.388	2.400	12.580		
1015	12.074	9.450	12.580		
1016	7.469	9.450	12.580		
1017	2.881	9.450	12.580		
1018	-2.881	9.450	12.580		
1019	-7.491	9.450	12.580		
1020	-12.074	9.450	12.580		
1021	-5.840	-1.100	12.580		
1022	-2.238	-1.100	12.580		
1023	-10.796	4.450	12.580		
1024	-6.709	4.450	12.580		
1025	-2.576	4.450	12.580		
1026	2.576	4.450	12.580		
1027	6.678	4.450	12.580		
1028	10.796	4.450	12.580		
1029	2.238	-1.100	12.580		
1030	5.800	-1.100	12.580		
1031	6.077	0.650	12.580		
1032	9.824	0.650	12.580		
1033	6.354	2.400	12.580		
1034	10.271	2.400	12.580		
1035	9.376	-1.100	12.580		
1036	5.523	-2.850	12.580		
1037	8.929	-2.850	12.580		
1038	-9.824	0.650	12.580		

SOFiSTiK AG - www.sofistik.de

SNG zunanji avditorij

Structural Points

Number	X[m]	Y[m]	Z[m]	Support Conditions	Designation
1039	-6.114	0.650	12.580		
1040	-9.376	-1.100	12.580		
1041	-8.929	-2.850	12.580		
1042	-5.566	-2.850	12.580		
1043	-7.209	4.450	12.580		
1044	-7.959	4.450	12.580		
1045	-6.888	2.400	12.580		
1046	-7.638	2.400	12.580		
1047	-6.614	0.650	12.580		
1048	-7.364	0.650	12.580		
1049	-6.340	-1.100	12.580		
1050	-7.090	-1.100	12.580		
1051	-6.066	-2.850	12.580		
1052	-6.816	-2.850	12.580		
1053	0.000	18.384	12.580		
1054	0.000	11.824	12.580		
1055	0.000	6.810	12.580		
1056	0.000	1.480	12.580		
1057	0.040	-2.874	12.580		

Structural Points - Column Head Properties

Number	Kind	dx[m]	dy[m]	A[m2]	t[mm]	SNo	Designation
6	Column	0.000	circular	0.000			Point
7	Column	0.000	circular	0.000			Point
8	Column	0.000	circular	0.000			Point
9	Column	0.000	circular	0.000			Point
10	Column	0.000	circular	0.000			Point
11	Column	0.000	circular	0.000			Point
12	Column	0.000	circular	0.000			Point
13	Column	0.000	circular	0.000			Point
14	Column	0.000	circular	0.000			Point
15	Column	0.000	circular	0.000			Point

dx[m],dy[m] local dimensions t[mm] thickness of column head
A[m2] area of column head SNo section number

Structural Lines

Number	SPt-a	SPt-e	Ref	Type	SNo	Grp	Hinges-a	Hinges-e	Designation
1	1001	1008		BEAM	1:2	1			Line
	1008	1019		BEAM	1:2	1			Line
	1019	1024		BEAM	1:2	1			Line
	1024	1014		BEAM	1:2	1			Line
	1014	1039		BEAM	1:2	1			Line
	1039	1021		BEAM	1:2	1			Line
	1021	1042		BEAM	1:2	1			Line
	1042	6		BEAM	1:2	1			Line
2	1	1009		BEAM	1:2	1			Line
	1009	1018		BEAM	1:2	1			Line
	1018	1025		BEAM	1:2	1			Line
	1025	1022		BEAM	1:2	1			Line
	1022	1002		BEAM	1:2	1			Line
3	6	1002		BEAM	2	7			Line
	1002	1003		BEAM	2	7			Line
	1003	7		BEAM	2	7			Line
4	3	1010		BEAM	1:2	1			Line
	1010	1017		BEAM	1:2	1			Line
	1017	1026		BEAM	1:2	1			Line
	1026	1029		BEAM	1:2	1			Line
	1029	1003		BEAM	1:2	1			Line
5	1004	1001		BEAM	1	2			Line
6	1005	1011		BEAM	1:2	1			Line

SOFiSTiK AG - www.sofistik.de

SNG zunanji avditorij

Structural Lines

Number	SPt-a	SPt-e	Ref	Type	SNo	Grp	Hinges-a	Hinges-e	Designation
	1011	1016		BEAM	1:2	1			Line
	1016	1027		BEAM	1:2	1			Line
	1027	1033		BEAM	1:2	1			Line
	1033	1031		BEAM	1:2	1			Line
	1031	1030		BEAM	1:2	1			Line
	1030	1036		BEAM	1:2	1			Line
	1036	7		BEAM	1:2	1			Line
7	1001	1		BEAM	1	2			Line
8	1	3		BEAM	1	2			Line
9	3	1005		BEAM	1	2			Line
10	1005	1006		BEAM	1	2			Line
11	1004	1007		BEAM	1	1			Line
	1007	1020		BEAM	1	1			Line
	1020	1023		BEAM	1	1			Line
	1023	1013		BEAM	1	1			Line
	1013	1038		BEAM	1	1			Line
	1038	1040		BEAM	1	1			Line
	1040	1041		BEAM	1	1			Line
	1041	8		BEAM	1	1			Line
12	1006	1012		BEAM	1	1			Line
	1012	1015		BEAM	1	1			Line
	1015	1028		BEAM	1	1			Line
	1028	1034		BEAM	1	1			Line
	1034	1032		BEAM	1	1			Line
	1032	1035		BEAM	1	1			Line
	1035	1037		BEAM	1	1			Line
	1037	9		BEAM	1	1			Line
13	1007	1008		CENT	3	3			Line
14	1008	1009		CENT	3	3	My	My	Line
15	1009	1010		CENT	3	3	My	My	Line
16	1010	1011		CENT	3	3	My	My	Line
17	1011	1012		CENT	3	3			Line
18	1013	1046		BEAM	3	6	My		Line
	1046	1045		BEAM	3	6			Line
	1045	1014		BEAM	3	6		My	Line
19	1015	1016		CENT	3	4			Line
20	1016	1017		CENT	3	4	My	My	Line
21	1017	1018		CENT	3	4	My	My	Line
22	1018	1019		CENT	3	4	My	My	Line
23	1019	1020		CENT	3	4			Line
24	1021	1022		BEAM	3	6		My	Line
25	1023	1044		CENT	3	5			Line
	1044	1043		CENT	3	5			Line
	1043	1024		CENT	3	5			Line
26	1024	1025		CENT	3	5	My	My	Line
27	1025	1026		CENT	3	5	My	My	Line
28	1026	1027		CENT	3	5	My	My	Line
29	1027	1028		CENT	3	5			Line
30	1022	1029		BEAM	3	6	My	My	Line
31	1029	1030		BEAM	3	6	My		Line
32	1031	1032		BEAM	3	6	My	My	Line
33	1033	1034		BEAM	3	6	My	My	Line
34	1030	1035		BEAM	3	6			Line
35	1036	1037		BEAM	3	6	My	My	Line
36	1038	1048		BEAM	3	6	My		Line
	1048	1047		BEAM	3	6			Line
	1047	1039		BEAM	3	6		My	Line
37	1040	1050		BEAM	3	6			Line
	1050	1049		BEAM	3	6			Line

SOFiSTiK AG - www.sofistik.de

SNG zunanji avditorij

Structural Lines

Number	SPt-a	SPt-e	Ref	Type	SNo	Grp	Hinges-a	Hinges-e	Designation
	1049	1021		BEAM	3	6			Line
38	1041	1052		BEAM	3	6	My		Line
	1052	1051		BEAM	3	6			Line
	1051	1042		BEAM	3	6		My	Line
39	1043	1045		BEAM	3	6	My		Line
	1045	1047		BEAM	3	6			Line
	1047	1049		BEAM	3	6			Line
	1049	1051		BEAM	3	6			Line
	1051	10		BEAM	3	6		My	Line
40	1044	1046		BEAM	3	6	My		Line
	1046	1048		BEAM	3	6			Line
	1048	1050		BEAM	3	6			Line
	1050	1052		BEAM	3	6			Line
	1052	11		BEAM	3	6		My	Line
73	1001	12		CENT	3	1			Line
74	1	13		CENT	3	1			Line
75	3	14		CENT	3	1			Line
76	1005	15		CENT	3	1			Line
79	1	1053		CENT	8	50	MyMz		Line
	1053	1010		CENT	8	50		MyMz	Line
80	1010	1054		CENT	8	50	MyMz		Line
	1054	1018		CENT	8	50		MyMz	Line
81	1018	1055		CENT	8	50	MyMz		Line
	1055	1026		CENT	8	50		MyMz	Line
82	1026	1056		CENT	8	50	MyMz		Line
	1056	1022		CENT	8	50		MyMz	Line
83	1022	1057		CENT	8	50	MyMz		Line
	1057	1003		CENT	8	50		MyMz	Line
84	3	1053		CENT	8	50	MyMz		Line
	1053	1009		CENT	8	50		MyMz	Line
85	1017	1055		CENT	8	50	MyMz		Line
	1055	1025		CENT	8	50		MyMz	Line
86	1002	1057		CENT	8	50	MyMz		Line
	1057	1029		CENT	8	50		MyMz	Line
87	1029	1056		CENT	8	50	MyMz		Line
	1056	1025		CENT	8	50		MyMz	Line
88	1017	1054		CENT	8	50	MyMz		Line
	1054	1009		CENT	8	50		MyMz	Line

SPt-a,SPt-e structural point start / end — SNo section number
Ref reference line, reference axis — Grp primary group number
Type element type

Groups

Grp	Number	Type	min-no	max-no	Designation
1	196	BEAM	10001	10196	
2	36	BEAM	20001	20036	
3	31	BEAM	30001	30031	
4	27	BEAM	40001	40027	
5	26	BEAM	50001	50026	
6	68	BEAM	60001	60068	
7	13	BEAM	70001	70013	
50	156	BEAM	500001	500156	

Grp primary group number — Type element type
Number number of elements within group — min-no,max-no minimum/maximum element number

Summary of beam elements

Groups

Grp	TotLength [m]	Max.Length [m]	TotVolume [m3]	TotMass [t]	Surface [m2]	Designation
1	171.899	1.058	4.943	38.804	463.627	
2	30.819	0.926	0.832	6.531	71.597	

SOFiSTiK AG - www.sofistik.de

SNG zunanji avditorij

Groups

Grp	TotLength [m]	Max.Length [m]	TotVolume [m3]	TotMass [t]	Surface [m2]	Designation
3	26.706	0.910	0.301	2.359	45.857	
4	24.149	0.922	0.272	2.133	41.466	
5	21.591	0.946	0.243	1.907	37.075	
6	59.202	1.056	0.666	5.230	101.657	
7	10.579	0.815	0.400	3.143	39.388	
50	78.019	0.533	0.016	0.000	3.922	
Sum	422.964		7.673	60.108	804.589	

Grp	primary group number	TotVolume	Total volume
TotLength	Total length	TotMass	Total mass
Max.Length	Maximum length in an element	Surface	Total surface

SOFiSTiK AG - www.sofistik.de

SNG zunanji avditorij

Actions

type	part	sup	Designation	γ-u	γ-f	γ-a	ψ_0	ψ_1	ψ_2	$\psi_1$inf
G	G	perm	dead load	1.35	1.00	1.00	1.00	1.00	1.00	1.00
G_1	G	perm	dead load g1	1.35	1.00	1.00	1.00	1.00	1.00	1.00
		1	Lastna konstrukcija							
G_2	G	perm	dead load g2	1.35	1.00	1.00	1.00	1.00	1.00	1.00
		2	Stalna - fix streha							
		3	Stalna - odrska tehnika							
		4	Stalna - premična streha							
R	G	perm	earth pressure	1.35	1.00	1.00	1.00	1.00	1.00	1.00
Q	Q	cond	variable load	1.50	0.00	1.00	0.70	0.50	0.30	1.00
Q_C	Q	cond	Pay load assembling cat. C	1.50	0.00	1.00	0.70	0.70	0.60	1.00
Q_H	Q	excl	Live load on roofs cat. H	1.50	0.00	1.00	0.00	0.00	0.00	0.00
S	Q	cond	snow loading	1.50	0.00	1.00	0.50	0.20	0.00	0.20
		5	Sneg							
T	Q	excl	temperature loading	1.50	0.00	1.00	0.60	0.50	0.00	1.00
E	E	excl	Potres	1.00	0.00	1.00	1.00	1.00	1.00	1.00
			Reliability factor Kfi	1.000						
			Reduction factor xsi	0.850						

type action γ-u,γ-f,γ-a partial safety factors for unfavourable/favourable/accidental
part partition of the action $\psi_0,\psi_1,\psi_2,\psi_1$inf combination coefficients
sup superposition type

Load Case 1 (G_1) Lastna konstrukcija

Factor forces and moments		1.000
Factor dead weight	DL-ZZ	-1.000
unfavourable partial safety factor		1.350
favourable partial safety factor		1.000
Combination coefficient	ψ_0	1.000 (rare)
Combination coefficient	$\psi_1$inf	1.000 (infrequent)
Combination coefficient	ψ_1	1.000 (frequent)
Combination coefficient	ψ_2	1.000 (permanent)

Load Case 2 (G_2) Stalna - fix streha

Factor forces and moments		1.000
unfavourable partial safety factor		1.350
favourable partial safety factor		1.000
Combination coefficient	ψ_0	1.000 (rare)
Combination coefficient	$\psi_1$inf	1.000 (infrequent)
Combination coefficient	ψ_1	1.000 (frequent)
Combination coefficient	ψ_2	1.000 (permanent)

Loads

Kind	Reference to	Projection Designation	W[m]	Coordinates X[m]	Y[m]	Z[m]	Type	Load value
Area	LAR 1			-10.796	4.450	12.580	PG	0.30 [kN/m2]
				10.796	4.450	12.580		0.30 [kN/m2]
				8.573	-4.241	12.580		0.30 [kN/m2]
				-8.449	-4.726	12.580		0.30 [kN/m2]
						activated		100.00 percent

Loads acting on Beam elements

Number	Type	a[m]	l[m]	Load value	Load value	Unit	ya[mm]	za[mm]	ye[mm]	ze[mm]	Ref
10021	PZZ	0.000	1.037	-1.53	-1.43	[kN/m]	0.0	0.0	0.0	0.0	
10022	PZZ	0.000	1.037	-1.43	-1.35	[kN/m]	0.0	0.0	0.0	0.0	
10023	PZZ	0.000	0.886	-1.35	-1.23	[kN/m]	0.0	0.0	0.0	0.0	
10024	PZZ	0.000	0.886	-1.23	-1.14	[kN/m]	0.0	0.0	0.0	0.0	
10025	PZZ	0.000	0.886	-1.14	-1.13	[kN/m]	0.0	0.0	0.0	0.0	
10026	PZZ	0.000	0.886	-1.13	-1.14	[kN/m]	0.0	0.0	0.0	0.0	
10027	PZZ	0.000	0.886	-1.14	-1.15	[kN/m]	0.0	0.0	0.0	0.0	
10028	PZZ	0.000	0.886	-1.15	-1.15	[kN/m]	0.0	0.0	0.0	0.0	
10029	PZZ	0.000	0.904	-1.15	-1.12	[kN/m]	0.0	0.0	0.0	0.0	

SOFiSTiK AG - www.sofistik.de

SNG zunanji avditorij

Loads acting on Beam elements

Number	Type	a[m]	l[m]	Load value	Load value	Unit	ya[mm]	za[mm]	ye[mm]	ze[mm]	Ref
10030	PZZ	0.000	0.904	-1.12	-1.18	[kN/m]	0.0	0.0	0.0	0.0	
10053	PZZ	0.000	0.927	-1.47	-1.36	[kN/m]	0.0	0.0	0.0	0.0	
10054	PZZ	0.000	0.927	-1.36	-1.27	[kN/m]	0.0	0.0	0.0	0.0	
10055	PZZ	0.000	0.927	-1.27	-1.13	[kN/m]	0.0	0.0	0.0	0.0	
10056	PZZ	0.000	0.927	-1.13	-1.01	[kN/m]	0.0	0.0	0.0	0.0	
10057	PZZ	0.000	0.927	-1.01	-0.98	[kN/m]	0.0	0.0	0.0	0.0	
10058	PZZ	0.000	0.927	-0.98	-1.00	[kN/m]	0.0	0.0	0.0	0.0	
10059	PZZ	0.000	0.862	-1.00	-1.04	[kN/m]	0.0	0.0	0.0	0.0	
10060	PZZ	0.000	0.862	-1.04	-1.10	[kN/m]	0.0	0.0	0.0	0.0	
10061	PZZ	0.000	0.862	-1.10	-1.15	[kN/m]	0.0	0.0	0.0	0.0	
10062	PZZ	0.000	0.862	-1.15	-1.26	[kN/m]	0.0	0.0	0.0	0.0	
10085	PZZ	0.000	0.927	-1.45	-1.36	[kN/m]	0.0	0.0	0.0	0.0	
10086	PZZ	0.000	0.927	-1.36	-1.27	[kN/m]	0.0	0.0	0.0	0.0	
10087	PZZ	0.000	0.927	-1.27	-1.13	[kN/m]	0.0	0.0	0.0	0.0	
10088	PZZ	0.000	0.927	-1.13	-1.02	[kN/m]	0.0	0.0	0.0	0.0	
10089	PZZ	0.000	0.927	-1.02	-1.03	[kN/m]	0.0	0.0	0.0	0.0	
10090	PZZ	0.000	0.927	-1.03	-1.04	[kN/m]	0.0	0.0	0.0	0.0	
10091	PZZ	0.000	0.833	-1.04	-1.06	[kN/m]	0.0	0.0	0.0	0.0	
10092	PZZ	0.000	0.833	-1.06	-1.10	[kN/m]	0.0	0.0	0.0	0.0	
10093	PZZ	0.000	0.833	-1.10	-1.15	[kN/m]	0.0	0.0	0.0	0.0	
10094	PZZ	0.000	0.833	-1.15	-1.31	[kN/m]	0.0	0.0	0.0	0.0	
10115	PZZ	0.000	1.038	-1.54	-1.43	[kN/m]	0.0	0.0	0.0	0.0	
10116	PZZ	0.000	1.038	-1.43	-1.31	[kN/m]	0.0	0.0	0.0	0.0	
10117	PZZ	0.000	0.886	-1.31	-1.21	[kN/m]	0.0	0.0	0.0	0.0	
10118	PZZ	0.000	0.886	-1.21	-1.16	[kN/m]	0.0	0.0	0.0	0.0	
10119	PZZ	0.000	0.886	-1.16	-1.16	[kN/m]	0.0	0.0	0.0	0.0	
10120	PZZ	0.000	0.886	-1.16	-1.16	[kN/m]	0.0	0.0	0.0	0.0	
10121	PZZ	0.000	0.886	-1.16	-1.14	[kN/m]	0.0	0.0	0.0	0.0	
10122	PZZ	0.000	0.886	-1.14	-1.12	[kN/m]	0.0	0.0	0.0	0.0	
10123	PZZ	0.000	0.752	-1.12	-1.12	[kN/m]	0.0	0.0	0.0	0.0	
10124	PZZ	0.000	0.752	-1.12	-1.23	[kN/m]	0.0	0.0	0.0	0.0	
10141	PZZ	0.000	1.058	-0.45	-0.50	[kN/m]	0.0	0.0	0.0	0.0	
10142	PZZ	0.000	1.058	-0.50	-0.52	[kN/m]	0.0	0.0	0.0	0.0	
10143	PZZ	0.000	0.903	-0.52	-0.50	[kN/m]	0.0	0.0	0.0	0.0	
10144	PZZ	0.000	0.903	-0.50	-0.47	[kN/m]	0.0	0.0	0.0	0.0	
10145	PZZ	0.000	0.903	-0.47	-0.46	[kN/m]	0.0	0.0	0.0	0.0	
10146	PZZ	0.000	0.903	-0.46	-0.46	[kN/m]	0.0	0.0	0.0	0.0	
10147	PZZ	0.000	0.903	-0.46	-0.47	[kN/m]	0.0	0.0	0.0	0.0	
10148	PZZ	0.000	0.903	-0.47	-0.47	[kN/m]	0.0	0.0	0.0	0.0	
10149	PZZ	0.000	0.968	-0.47	-0.48	[kN/m]	0.0	0.0	0.0	0.0	
10150	PZZ	0.000	0.968	-0.48	-0.53	[kN/m]	0.0	0.0	0.0	0.0	
10167	PZZ	0.000	1.058	-0.46	-0.51	[kN/m]	0.0	0.0	0.0	0.0	
10168	PZZ	0.000	1.058	-0.51	-0.50	[kN/m]	0.0	0.0	0.0	0.0	
10169	PZZ	0.000	0.903	-0.50	-0.48	[kN/m]	0.0	0.0	0.0	0.0	
10170	PZZ	0.000	0.903	-0.48	-0.49	[kN/m]	0.0	0.0	0.0	0.0	
10171	PZZ	0.000	0.903	-0.49	-0.49	[kN/m]	0.0	0.0	0.0	0.0	
10172	PZZ	0.000	0.903	-0.49	-0.48	[kN/m]	0.0	0.0	0.0	0.0	
10173	PZZ	0.000	0.903	-0.48	-0.46	[kN/m]	0.0	0.0	0.0	0.0	
10174	PZZ	0.000	0.903	-0.46	-0.46	[kN/m]	0.0	0.0	0.0	0.0	
10175	PZZ	0.000	0.718	-0.46	-0.50	[kN/m]	0.0	0.0	0.0	0.0	
10176	PZZ	0.000	0.718	-0.50	-0.61	[kN/m]	0.0	0.0	0.0	0.0	

Load Case 3 (G_2) Stalna - odrska tehnika

Factor forces and moments 1.000
unfavourable partial safety factor 1.350
favourable partial safety factor 1.000
Combination coefficient ψ_0 1.000 (rare)
Combination coefficient $\psi_1$inf 1.000 (infrequent)
Combination coefficient ψ_1 1.000 (frequent)

SOFiSTiK AG - www.sofistik.de

SNG zunanji avditorij

Load Case 3 (G_2) Stalna - odrska tehnika

Combination coefficient ψ_2 1.000 (permanent)

Loads

Kind	Reference to	Projection Designation	W[m]	Coordinates X[m]	Y[m]	Z[m]	Type	Load value
Point	lar 2			14.206	17.786	12.580	PG	6.5 [kN]
						activated		100.00 percent
Point	lar 2			-14.206	17.786	12.580	PG	6.5 [kN]
						activated		100.00 percent
Point	lar 2			-8.796	17.786	12.580	PG	13.0 [kN]
						activated		100.00 percent
Point	lar 2			-3.390	17.786	12.580	PG	13.0 [kN]
						activated		100.00 percent
Point	lar 2			3.390	17.786	12.580	PG	13.0 [kN]
						activated		100.00 percent
Point	lar 2			8.788	17.786	12.580	PG	13.0 [kN]
						activated		100.00 percent
Point	lar 2			11.905	8.786	12.580	PG	6.5 [kN]
						activated		100.00 percent
Point	lar 2			-11.905	8.786	12.580	PG	6.5 [kN]
						activated		100.00 percent
Point	lar 2			-7.387	8.786	12.580	PG	13.0 [kN]
						activated		100.00 percent
Point	lar 2			-2.841	8.786	12.580	PG	13.0 [kN]
						activated		100.00 percent
Point	lar 2			2.841	8.786	12.580	PG	13.0 [kN]
						activated		100.00 percent
Point	lar 2			7.364	8.786	12.580	PG	13.0 [kN]
						activated		100.00 percent
Line	lar 1			6.678	4.450	12.580	PG	3.30 [kN/m]
				5.288	-4.335	12.580		3.30 [kN/m]
						activated		100.00 percent
Line	lar 1			-6.709	4.450	12.580	PG	3.30 [kN/m]
				-5.287	-4.636	12.580		3.30 [kN/m]
						activated		100.00 percent
Line	lar 1			-2.576	4.450	12.580	PG	4.95 [kN/m]
				-2.027	-4.543	12.580		4.95 [kN/m]
						activated		100.00 percent
Line	lar 1			2.576	4.450	12.580	PG	4.95 [kN/m]
				2.034	-4.428	12.580		4.95 [kN/m]
						activated		100.00 percent
Point	lar 1			7.154	2.400	12.580	PG	1.5 [kN]
						activated		100.00 percent
Point	lar 1			6.877	0.650	12.580	PG	1.5 [kN]
						activated		100.00 percent
Point	lar 1			6.600	-1.100	12.580	PG	1.5 [kN]
						activated		100.00 percent
Point	lar 1			6.323	-2.850	12.580	PG	1.5 [kN]
						activated		100.00 percent
Point	lar 1			-7.188	2.400	12.580	PG	1.5 [kN]
						activated		100.00 percent
Point	lar 1			-6.914	0.650	12.580	PG	1.5 [kN]
						activated		100.00 percent
Point	lar 1			-6.640	-1.100	12.580	PG	1.5 [kN]
						activated		100.00 percent
Point	lar 1			-6.366	-2.850	12.580	PG	1.5 [kN]
						activated		100.00 percent
Point	lar 1			-7.988	2.400	12.580	PG	2.0 [kN]
						activated		100.00 percent
Point	lar 1			-7.714	0.650	12.580	PG	2.0 [kN]

SOFiSTiK AG - www.sofistik.de

SNG zunanji avditorij

Loads

Kind	Reference to	Projection Designation	W[m]	Coordinates X[m]	Y[m]	Z[m]	Type	Load value
						activated		100.00 percent
Point	lar 1			-7.440	-1.100	12.580	PG	2.0 [kN]
						activated		100.00 percent
Point	lar 1			-7.166	-2.850	12.580	PG	2.0 [kN]
						activated		100.00 percent
Point	lar 1			7.954	2.400	12.580	PG	2.0 [kN]
						activated		100.00 percent
Point	lar 1			7.677	0.650	12.580	PG	2.0 [kN]
						activated		100.00 percent
Point	lar 1			7.400	-1.100	12.580	PG	2.0 [kN]
						activated		100.00 percent
Point	lar 1			7.123	-2.850	12.580	PG	2.0 [kN]
						activated		100.00 percent
Line	lar 1			-7.209	4.450	12.580	PG	8.00 [kN/m]
				-5.784	-4.650	12.580		8.00 [kN/m]
						activated		100.00 percent
Line	lar 1			-7.959	4.450	12.580	PG	8.00 [kN/m]
				-6.534	-4.650	12.580		8.00 [kN/m]
						activated		100.00 percent

Loads acting on Beam elements

Number	Type	a[m]	l[m]	Load value	Load value	Unit	ya[mm]	za[mm]	ye[mm]	ze[mm]	Ref
10001	PZZ	0.000	0.865	-1.00	-1.39	[kN/m]	0.0	0.0	0.0	0.0	
10002	PZZ	0.000	0.865	-1.39	-2.01	[kN/m]	0.0	0.0	0.0	0.0	
10003	PZZ	0.000	0.865	-2.01	-2.63	[kN/m]	0.0	0.0	0.0	0.0	
10004	PZZ	0.000	0.865	-2.63	-2.86	[kN/m]	0.0	0.0	0.0	0.0	
10005	PZZ	0.000	0.865	-2.86	-2.64	[kN/m]	0.0	0.0	0.0	0.0	
10006	PZZ	0.000	0.865	-2.64	-1.84	[kN/m]	0.0	0.0	0.0	0.0	
10007	PZZ	0.000	0.865	-1.84	-1.09	[kN/m]	0.0	0.0	0.0	0.0	
10008	PZZ	0.000	0.865	-1.09	-0.52	[kN/m]	0.0	0.0	0.0	0.0	
10009	PZZ	0.000	0.843	-0.52	-0.19	[kN/m]	0.0	0.0	0.0	0.0	
10010	PZZ	0.000	0.843	-0.19	-0.22	[kN/m]	0.0	0.0	0.0	0.0	
10011	PZZ	0.000	0.843	-0.22	-0.57	[kN/m]	0.0	0.0	0.0	0.0	
10012	PZZ	0.000	0.843	-0.57	-1.15	[kN/m]	0.0	0.0	0.0	0.0	
10013	PZZ	0.000	0.843	-1.15	-2.09	[kN/m]	0.0	0.0	0.0	0.0	
10014	PZZ	0.000	0.843	-2.09	-2.70	[kN/m]	0.0	0.0	0.0	0.0	
10015	PZZ	0.000	0.843	-2.70	-2.89	[kN/m]	0.0	0.0	0.0	0.0	
10016	PZZ	0.000	0.843	-2.89	-2.55	[kN/m]	0.0	0.0	0.0	0.0	
10017	PZZ	0.000	0.843	-2.55	-1.73	[kN/m]	0.0	0.0	0.0	0.0	
10018	PZZ	0.000	0.843	-1.73	-0.95	[kN/m]	0.0	0.0	0.0	0.0	
10019	PZZ	0.000	0.843	-0.95	-0.30	[kN/m]	0.0	0.0	0.0	0.0	
10020	PZZ	0.000	0.843	-0.18	0.10	[kN/m]	0.0	0.0	0.0	0.0	
10021	PZZ	0.000	1.037	-20.54	-19.93	[kN/m]	0.0	0.0	0.0	0.0	
10022	PZZ	0.000	1.037	-19.93	-19.53	[kN/m]	0.0	0.0	0.0	0.0	
10023	PZZ	0.000	0.886	-19.53	-18.57	[kN/m]	0.0	0.0	0.0	0.0	
10024	PZZ	0.000	0.886	-18.57	-17.80	[kN/m]	0.0	0.0	0.0	0.0	
10025	PZZ	0.000	0.886	-17.80	-17.67	[kN/m]	0.0	0.0	0.0	0.0	
10026	PZZ	0.000	0.886	-17.67	-18.03	[kN/m]	0.0	0.0	0.0	0.0	
10027	PZZ	0.000	0.886	-18.03	-18.40	[kN/m]	0.0	0.0	0.0	0.0	
10028	PZZ	0.000	0.886	-18.40	-18.33	[kN/m]	0.0	0.0	0.0	0.0	
10029	PZZ	0.000	0.904	-18.33	-17.23	[kN/m]	0.0	0.0	0.0	0.0	
10030	PZZ	0.000	0.904	-17.23	-16.78	[kN/m]	0.0	0.0	0.0	0.0	
10031	PZZ	0.000	0.852	0.10	-0.02	[kN/m]	0.0	0.0	0.0	0.0	
10032	PZZ	0.000	0.852	-0.03	-0.46	[kN/m]	0.0	0.0	0.0	0.0	
10033	PZZ	0.000	0.852	-0.46	-1.09	[kN/m]	0.0	0.0	0.0	0.0	
10034	PZZ	0.000	0.852	-1.09	-1.87	[kN/m]	0.0	0.0	0.0	0.0	
10035	PZZ	0.000	0.852	-1.87	-2.53	[kN/m]	0.0	0.0	0.0	0.0	
10036	PZZ	0.000	0.852	-2.53	-2.77	[kN/m]	0.0	0.0	0.0	0.0	

SOFiSTiK AG - www.sofistik.de

SNG zunanji avditorij

Loads acting on Beam elements

Number	Type	a[m]	l[m]	Load value	Load value	Unit	ya[mm]	za[mm]	ye[mm]	ze[mm]	Ref
10037	PZZ	0.000	0.852	-2.77	-2.56	[kN/m]	0.0	0.0	0.0	0.0	
10038	PZZ	0.000	0.852	-2.56	-1.82	[kN/m]	0.0	0.0	0.0	0.0	
10039	PZZ	0.000	0.852	-1.82	-1.05	[kN/m]	0.0	0.0	0.0	0.0	
10040	PZZ	0.000	0.852	-1.05	-0.43	[kN/m]	0.0	0.0	0.0	0.0	
10041	PZZ	0.000	0.835	-0.43	-0.04	[kN/m]	0.0	0.0	0.0	0.0	
10042	PZZ	0.000	0.835	-0.04	-0.09	[kN/m]	0.0	0.0	0.0	0.0	
10043	PZZ	0.000	0.835	-0.09	-0.47	[kN/m]	0.0	0.0	0.0	0.0	
10044	PZZ	0.000	0.835	-0.47	-1.13	[kN/m]	0.0	0.0	0.0	0.0	
10045	PZZ	0.000	0.835	-1.13	-2.08	[kN/m]	0.0	0.0	0.0	0.0	
10046	PZZ	0.000	0.835	-2.08	-2.76	[kN/m]	0.0	0.0	0.0	0.0	
10047	PZZ	0.000	0.835	-2.76	-2.93	[kN/m]	0.0	0.0	0.0	0.0	
10048	PZZ	0.000	0.835	-2.93	-2.59	[kN/m]	0.0	0.0	0.0	0.0	
10049	PZZ	0.000	0.835	-2.59	-1.74	[kN/m]	0.0	0.0	0.0	0.0	
10050	PZZ	0.000	0.835	-1.74	-0.96	[kN/m]	0.0	0.0	0.0	0.0	
10051	PZZ	0.000	0.835	-0.96	-0.33	[kN/m]	0.0	0.0	0.0	0.0	
10052	PZZ	0.000	0.835	-0.20	0.05	[kN/m]	0.0	0.0	0.0	0.0	
10053	PZZ	0.000	0.927	-4.35	-3.92	[kN/m]	0.0	0.0	0.0	0.0	
10054	PZZ	0.000	0.927	-3.92	-3.67	[kN/m]	0.0	0.0	0.0	0.0	
10055	PZZ	0.000	0.927	-3.67	-3.25	[kN/m]	0.0	0.0	0.0	0.0	
10056	PZZ	0.000	0.927	-3.25	-2.64	[kN/m]	0.0	0.0	0.0	0.0	
10057	PZZ	0.000	0.927	-2.64	-2.61	[kN/m]	0.0	0.0	0.0	0.0	
10058	PZZ	0.000	0.927	-2.61	-2.96	[kN/m]	0.0	0.0	0.0	0.0	
10059	PZZ	0.000	0.862	-2.96	-3.52	[kN/m]	0.0	0.0	0.0	0.0	
10060	PZZ	0.000	0.862	-3.52	-3.99	[kN/m]	0.0	0.0	0.0	0.0	
10061	PZZ	0.000	0.862	-3.99	-4.43	[kN/m]	0.0	0.0	0.0	0.0	
10062	PZZ	0.000	0.862	-4.43	-5.31	[kN/m]	0.0	0.0	0.0	0.0	
10063	PZZ	0.000	0.852	0.10	-0.02	[kN/m]	0.0	0.0	0.0	0.0	
10064	PZZ	0.000	0.852	-0.03	-0.46	[kN/m]	0.0	0.0	0.0	0.0	
10065	PZZ	0.000	0.852	-0.46	-1.09	[kN/m]	0.0	0.0	0.0	0.0	
10066	PZZ	0.000	0.852	-1.09	-1.87	[kN/m]	0.0	0.0	0.0	0.0	
10067	PZZ	0.000	0.852	-1.87	-2.53	[kN/m]	0.0	0.0	0.0	0.0	
10068	PZZ	0.000	0.852	-2.53	-2.77	[kN/m]	0.0	0.0	0.0	0.0	
10069	PZZ	0.000	0.852	-2.77	-2.56	[kN/m]	0.0	0.0	0.0	0.0	
10070	PZZ	0.000	0.852	-2.56	-1.82	[kN/m]	0.0	0.0	0.0	0.0	
10071	PZZ	0.000	0.852	-1.82	-1.05	[kN/m]	0.0	0.0	0.0	0.0	
10072	PZZ	0.000	0.852	-1.05	-0.43	[kN/m]	0.0	0.0	0.0	0.0	
10073	PZZ	0.000	0.835	-0.43	-0.03	[kN/m]	0.0	0.0	0.0	0.0	
10074	PZZ	0.000	0.835	-0.03	-0.09	[kN/m]	0.0	0.0	0.0	0.0	
10075	PZZ	0.000	0.835	-0.09	-0.47	[kN/m]	0.0	0.0	0.0	0.0	
10076	PZZ	0.000	0.835	-0.47	-1.12	[kN/m]	0.0	0.0	0.0	0.0	
10077	PZZ	0.000	0.835	-1.12	-2.06	[kN/m]	0.0	0.0	0.0	0.0	
10078	PZZ	0.000	0.835	-2.06	-2.75	[kN/m]	0.0	0.0	0.0	0.0	
10079	PZZ	0.000	0.835	-2.75	-2.91	[kN/m]	0.0	0.0	0.0	0.0	
10080	PZZ	0.000	0.835	-2.91	-2.57	[kN/m]	0.0	0.0	0.0	0.0	
10081	PZZ	0.000	0.835	-2.57	-1.73	[kN/m]	0.0	0.0	0.0	0.0	
10082	PZZ	0.000	0.835	-1.73	-0.95	[kN/m]	0.0	0.0	0.0	0.0	
10083	PZZ	0.000	0.835	-0.95	-0.33	[kN/m]	0.0	0.0	0.0	0.0	
10084	PZZ	0.000	0.835	-0.20	0.05	[kN/m]	0.0	0.0	0.0	0.0	
10085	PZZ	0.000	0.927	-5.18	-4.97	[kN/m]	0.0	0.0	0.0	0.0	
10086	PZZ	0.000	0.927	-4.97	-4.86	[kN/m]	0.0	0.0	0.0	0.0	
10087	PZZ	0.000	0.927	-4.86	-4.54	[kN/m]	0.0	0.0	0.0	0.0	
10088	PZZ	0.000	0.927	-4.54	-4.22	[kN/m]	0.0	0.0	0.0	0.0	
10089	PZZ	0.000	0.927	-4.22	-4.31	[kN/m]	0.0	0.0	0.0	0.0	
10090	PZZ	0.000	0.927	-4.31	-4.45	[kN/m]	0.0	0.0	0.0	0.0	
10091	PZZ	0.000	0.833	-4.45	-4.58	[kN/m]	0.0	0.0	0.0	0.0	
10092	PZZ	0.000	0.833	-4.58	-4.71	[kN/m]	0.0	0.0	0.0	0.0	
10093	PZZ	0.000	0.833	-4.71	-4.88	[kN/m]	0.0	0.0	0.0	0.0	
10094	PZZ	0.000	0.833	-4.88	-5.35	[kN/m]	0.0	0.0	0.0	0.0	
10095	PZZ	0.000	0.866	-1.00	-1.38	[kN/m]	0.0	0.0	0.0	0.0	

SOFiSTiK AG - www.sofistik.de

SNG zunanji avditorij

Loads acting on Beam elements

Number	Type	a[m]	l[m]	Load value	Load value	Unit	ya[mm]	za[mm]	ye[mm]	ze[mm]	Ref
10096	PZZ	0.000	0.866	-1.38	-2.00	[kN/m]	0.0	0.0	0.0	0.0	
10097	PZZ	0.000	0.866	-2.00	-2.62	[kN/m]	0.0	0.0	0.0	0.0	
10098	PZZ	0.000	0.866	-2.62	-2.86	[kN/m]	0.0	0.0	0.0	0.0	
10099	PZZ	0.000	0.866	-2.86	-2.63	[kN/m]	0.0	0.0	0.0	0.0	
10100	PZZ	0.000	0.866	-2.63	-1.85	[kN/m]	0.0	0.0	0.0	0.0	
10101	PZZ	0.000	0.866	-1.85	-1.09	[kN/m]	0.0	0.0	0.0	0.0	
10102	PZZ	0.000	0.866	-1.09	-0.52	[kN/m]	0.0	0.0	0.0	0.0	
10103	PZZ	0.000	0.844	-0.52	-0.19	[kN/m]	0.0	0.0	0.0	0.0	
10104	PZZ	0.000	0.844	-0.19	-0.23	[kN/m]	0.0	0.0	0.0	0.0	
10105	PZZ	0.000	0.844	-0.23	-0.58	[kN/m]	0.0	0.0	0.0	0.0	
10106	PZZ	0.000	0.844	-0.58	-1.19	[kN/m]	0.0	0.0	0.0	0.0	
10107	PZZ	0.000	0.844	-1.19	-2.05	[kN/m]	0.0	0.0	0.0	0.0	
10108	PZZ	0.000	0.844	-2.05	-2.73	[kN/m]	0.0	0.0	0.0	0.0	
10109	PZZ	0.000	0.844	-2.73	-2.90	[kN/m]	0.0	0.0	0.0	0.0	
10110	PZZ	0.000	0.844	-2.90	-2.57	[kN/m]	0.0	0.0	0.0	0.0	
10111	PZZ	0.000	0.844	-2.57	-1.75	[kN/m]	0.0	0.0	0.0	0.0	
10112	PZZ	0.000	0.844	-1.75	-0.95	[kN/m]	0.0	0.0	0.0	0.0	
10113	PZZ	0.000	0.844	-0.95	-0.29	[kN/m]	0.0	0.0	0.0	0.0	
10114	PZZ	0.000	0.844	-0.18	0.09	[kN/m]	0.0	0.0	0.0	0.0	
10115	PZZ	0.000	1.038	-3.94	-4.36	[kN/m]	0.0	0.0	0.0	0.0	
10116	PZZ	0.000	1.038	-4.36	-4.70	[kN/m]	0.0	0.0	0.0	0.0	
10117	PZZ	0.000	0.886	-4.70	-4.73	[kN/m]	0.0	0.0	0.0	0.0	
10118	PZZ	0.000	0.886	-4.73	-4.73	[kN/m]	0.0	0.0	0.0	0.0	
10119	PZZ	0.000	0.886	-4.73	-4.77	[kN/m]	0.0	0.0	0.0	0.0	
10120	PZZ	0.000	0.886	-4.77	-4.80	[kN/m]	0.0	0.0	0.0	0.0	
10121	PZZ	0.000	0.886	-4.80	-4.75	[kN/m]	0.0	0.0	0.0	0.0	
10122	PZZ	0.000	0.886	-4.75	-4.61	[kN/m]	0.0	0.0	0.0	0.0	
10123	PZZ	0.000	0.752	-4.61	-4.29	[kN/m]	0.0	0.0	0.0	0.0	
10124	PZZ	0.000	0.752	-4.29	-4.31	[kN/m]	0.0	0.0	0.0	0.0	
10125	PZZ	0.000	0.990	-3.59	-2.60	[kN/m]	0.0	0.0	0.0	0.0	
10126	PZZ	0.000	0.990	-2.60	-1.57	[kN/m]	0.0	0.0	0.0	0.0	
10127	PZZ	0.000	0.990	-1.57	-0.75	[kN/m]	0.0	0.0	0.0	0.0	
10128	PZZ	0.000	0.990	-0.75	-0.23	[kN/m]	0.0	0.0	0.0	0.0	
10129	PZZ	0.000	0.860	-0.23	-0.01	[kN/m]	0.0	0.0	0.0	0.0	
10130	PZZ	0.000	0.860	-0.01	-0.01	[kN/m]	0.0	0.0	0.0	0.0	
10131	PZZ	0.000	0.860	-0.01	-0.18	[kN/m]	0.0	0.0	0.0	0.0	
10132	PZZ	0.000	0.860	-0.18	-0.52	[kN/m]	0.0	0.0	0.0	0.0	
10133	PZZ	0.000	0.860	-0.52	-1.09	[kN/m]	0.0	0.0	0.0	0.0	
10134	PZZ	0.000	0.860	-1.09	-1.56	[kN/m]	0.0	0.0	0.0	0.0	
10135	PZZ	0.000	0.860	-1.56	-1.69	[kN/m]	0.0	0.0	0.0	0.0	
10136	PZZ	0.000	0.860	-1.69	-1.48	[kN/m]	0.0	0.0	0.0	0.0	
10137	PZZ	0.000	0.860	-1.48	-0.96	[kN/m]	0.0	0.0	0.0	0.0	
10138	PZZ	0.000	0.860	-0.96	-0.51	[kN/m]	0.0	0.0	0.0	0.0	
10139	PZZ	0.000	0.860	-0.51	-0.15	[kN/m]	0.0	0.0	0.0	0.0	
10140	PZZ	0.000	0.860	-0.15	0.11	[kN/m]	0.0	0.0	0.0	0.0	
10141	PZZ	0.000	1.058	-2.23	-2.43	[kN/m]	0.0	0.0	0.0	0.0	
10142	PZZ	0.000	1.058	-2.43	-3.03	[kN/m]	0.0	0.0	0.0	0.0	
10143	PZZ	0.000	0.903	-3.03	-3.27	[kN/m]	0.0	0.0	0.0	0.0	
10144	PZZ	0.000	0.903	-3.27	-3.39	[kN/m]	0.0	0.0	0.0	0.0	
10145	PZZ	0.000	0.903	-3.39	-3.62	[kN/m]	0.0	0.0	0.0	0.0	
10146	PZZ	0.000	0.903	-3.62	-3.91	[kN/m]	0.0	0.0	0.0	0.0	
10147	PZZ	0.000	0.903	-3.91	-4.07	[kN/m]	0.0	0.0	0.0	0.0	
10148	PZZ	0.000	0.903	-4.07	-4.23	[kN/m]	0.0	0.0	0.0	0.0	
10149	PZZ	0.000	0.968	-4.23	-4.53	[kN/m]	0.0	0.0	0.0	0.0	
10150	PZZ	0.000	0.968	-4.53	-5.71	[kN/m]	0.0	0.0	0.0	0.0	
10151	PZZ	0.000	0.990	-3.58	-2.60	[kN/m]	0.0	0.0	0.0	0.0	
10152	PZZ	0.000	0.990	-2.60	-1.57	[kN/m]	0.0	0.0	0.0	0.0	
10153	PZZ	0.000	0.990	-1.57	-0.74	[kN/m]	0.0	0.0	0.0	0.0	
10154	PZZ	0.000	0.990	-0.74	-0.23	[kN/m]	0.0	0.0	0.0	0.0	

SOFiSTiK AG - www.sofistik.de

SNG zunanji avditorij

Loads acting on Beam elements

Number	Type	a[m]	l[m]	Load value	Load value	Unit	ya[mm]	za[mm]	ye[mm]	ze[mm]	Ref
10155	PZZ	0.000	0.860	-0.23	-0.01	[kN/m]	0.0	0.0	0.0	0.0	
10156	PZZ	0.000	0.860	-0.01	-0.01	[kN/m]	0.0	0.0	0.0	0.0	
10157	PZZ	0.000	0.860	-0.01	-0.18	[kN/m]	0.0	0.0	0.0	0.0	
10158	PZZ	0.000	0.860	-0.18	-0.52	[kN/m]	0.0	0.0	0.0	0.0	
10159	PZZ	0.000	0.860	-0.52	-1.10	[kN/m]	0.0	0.0	0.0	0.0	
10160	PZZ	0.000	0.860	-1.10	-1.56	[kN/m]	0.0	0.0	0.0	0.0	
10161	PZZ	0.000	0.860	-1.56	-1.69	[kN/m]	0.0	0.0	0.0	0.0	
10162	PZZ	0.000	0.860	-1.69	-1.48	[kN/m]	0.0	0.0	0.0	0.0	
10163	PZZ	0.000	0.860	-1.48	-0.96	[kN/m]	0.0	0.0	0.0	0.0	
10164	PZZ	0.000	0.860	-0.96	-0.51	[kN/m]	0.0	0.0	0.0	0.0	
10165	PZZ	0.000	0.860	-0.51	-0.15	[kN/m]	0.0	0.0	0.0	0.0	
10166	PZZ	0.000	0.860	-0.15	0.11	[kN/m]	0.0	0.0	0.0	0.0	
10167	PZZ	0.000	1.058	-0.13	-0.25	[kN/m]	0.0	0.0	0.0	0.0	
10168	PZZ	0.000	1.058	-0.25	-0.39	[kN/m]	0.0	0.0	0.0	0.0	
10169	PZZ	0.000	0.903	-0.39	-0.53	[kN/m]	0.0	0.0	0.0	0.0	
10170	PZZ	0.000	0.903	-0.53	-0.64	[kN/m]	0.0	0.0	0.0	0.0	
10171	PZZ	0.000	0.903	-0.64	-0.70	[kN/m]	0.0	0.0	0.0	0.0	
10172	PZZ	0.000	0.903	-0.70	-0.72	[kN/m]	0.0	0.0	0.0	0.0	
10173	PZZ	0.000	0.903	-0.72	-0.70	[kN/m]	0.0	0.0	0.0	0.0	
10174	PZZ	0.000	0.903	-0.70	-0.70	[kN/m]	0.0	0.0	0.0	0.0	
10175	PZZ	0.000	0.718	-0.70	-0.71	[kN/m]	0.0	0.0	0.0	0.0	
10176	PZZ	0.000	0.718	-0.71	-0.87	[kN/m]	0.0	0.0	0.0	0.0	

Load Case 4 (G_2) Stalna - premična streha

Factor forces and moments		1.000
unfavourable partial safety factor		1.350
favourable partial safety factor		1.000
Combination coefficient	ψ_0	1.000 (rare)
Combination coefficient	$\psi_1$inf	1.000 (infrequent)
Combination coefficient	ψ_1	1.000 (frequent)
Combination coefficient	ψ_2	1.000 (permanent)

Loads

Kind	Reference to	Projection Designation	W[m]	Coordinates X[m]	Y[m]	Z[m]	Type	Load value
Area	LAR 2			-15.529	22.959	12.580	PG	0.15 [kN/m2]
				15.529	22.959	12.580		0.15 [kN/m2]
				10.796	4.450	12.580		0.15 [kN/m2]
				-10.796	4.450	12.580		0.15 [kN/m2]
						activated		100.00 percent

Loads acting on Beam elements

Number	Type	a[m]	l[m]	Load value	Load value	Unit	ya[mm]	za[mm]	ye[mm]	ze[mm]	Ref
10001	PZZ	0.000	0.865	-3.64	-2.41	[kN/m]	0.0	0.0	0.0	0.0	
10002	PZZ	0.000	0.865	-2.41	-1.53	[kN/m]	0.0	0.0	0.0	0.0	
10003	PZZ	0.000	0.865	-1.53	-1.05	[kN/m]	0.0	0.0	0.0	0.0	
10004	PZZ	0.000	0.865	-1.05	-0.77	[kN/m]	0.0	0.0	0.0	0.0	
10005	PZZ	0.000	0.865	-0.77	-0.64	[kN/m]	0.0	0.0	0.0	0.0	
10006	PZZ	0.000	0.865	-0.64	-0.62	[kN/m]	0.0	0.0	0.0	0.0	
10007	PZZ	0.000	0.865	-0.62	-0.63	[kN/m]	0.0	0.0	0.0	0.0	
10008	PZZ	0.000	0.865	-0.63	-0.66	[kN/m]	0.0	0.0	0.0	0.0	
10009	PZZ	0.000	0.843	-0.66	-0.69	[kN/m]	0.0	0.0	0.0	0.0	
10010	PZZ	0.000	0.843	-0.69	-0.71	[kN/m]	0.0	0.0	0.0	0.0	
10011	PZZ	0.000	0.843	-0.71	-0.72	[kN/m]	0.0	0.0	0.0	0.0	
10012	PZZ	0.000	0.843	-0.72	-0.72	[kN/m]	0.0	0.0	0.0	0.0	
10013	PZZ	0.000	0.843	-0.72	-0.72	[kN/m]	0.0	0.0	0.0	0.0	
10014	PZZ	0.000	0.843	-0.72	-0.71	[kN/m]	0.0	0.0	0.0	0.0	
10015	PZZ	0.000	0.843	-0.71	-0.72	[kN/m]	0.0	0.0	0.0	0.0	
10016	PZZ	0.000	0.843	-0.72	-0.73	[kN/m]	0.0	0.0	0.0	0.0	

SOFiSTiK AG - www.sofistik.de

SNG zunanji avditorij

Loads acting on Beam elements

Number	Type	a[m]	l[m]	Load value	Load value	Unit	ya[mm]	za[mm]	ye[mm]	ze[mm]	Ref
10017	PZZ	0.000	0.843	-0.73	-0.75	[kN/m]	0.0	0.0	0.0	0.0	
10018	PZZ	0.000	0.843	-0.75	-0.80	[kN/m]	0.0	0.0	0.0	0.0	
10019	PZZ	0.000	0.843	-0.80	-0.85	[kN/m]	0.0	0.0	0.0	0.0	
10020	PZZ	0.000	0.843	-0.52	-0.57	[kN/m]	0.0	0.0	0.0	0.0	
10031	PZZ	0.000	0.852	-1.07	-0.88	[kN/m]	0.0	0.0	0.0	0.0	
10032	PZZ	0.000	0.852	-1.42	-1.16	[kN/m]	0.0	0.0	0.0	0.0	
10033	PZZ	0.000	0.852	-1.16	-0.96	[kN/m]	0.0	0.0	0.0	0.0	
10034	PZZ	0.000	0.852	-0.96	-0.82	[kN/m]	0.0	0.0	0.0	0.0	
10035	PZZ	0.000	0.852	-0.82	-0.75	[kN/m]	0.0	0.0	0.0	0.0	
10036	PZZ	0.000	0.852	-0.75	-0.70	[kN/m]	0.0	0.0	0.0	0.0	
10037	PZZ	0.000	0.852	-0.70	-0.68	[kN/m]	0.0	0.0	0.0	0.0	
10038	PZZ	0.000	0.852	-0.68	-0.68	[kN/m]	0.0	0.0	0.0	0.0	
10039	PZZ	0.000	0.852	-0.68	-0.69	[kN/m]	0.0	0.0	0.0	0.0	
10040	PZZ	0.000	0.852	-0.69	-0.69	[kN/m]	0.0	0.0	0.0	0.0	
10041	PZZ	0.000	0.835	-0.69	-0.69	[kN/m]	0.0	0.0	0.0	0.0	
10042	PZZ	0.000	0.835	-0.69	-0.70	[kN/m]	0.0	0.0	0.0	0.0	
10043	PZZ	0.000	0.835	-0.70	-0.69	[kN/m]	0.0	0.0	0.0	0.0	
10044	PZZ	0.000	0.835	-0.69	-0.68	[kN/m]	0.0	0.0	0.0	0.0	
10045	PZZ	0.000	0.835	-0.68	-0.68	[kN/m]	0.0	0.0	0.0	0.0	
10046	PZZ	0.000	0.835	-0.68	-0.68	[kN/m]	0.0	0.0	0.0	0.0	
10047	PZZ	0.000	0.835	-0.68	-0.70	[kN/m]	0.0	0.0	0.0	0.0	
10048	PZZ	0.000	0.835	-0.70	-0.73	[kN/m]	0.0	0.0	0.0	0.0	
10049	PZZ	0.000	0.835	-0.73	-0.78	[kN/m]	0.0	0.0	0.0	0.0	
10050	PZZ	0.000	0.835	-0.78	-0.85	[kN/m]	0.0	0.0	0.0	0.0	
10051	PZZ	0.000	0.835	-0.85	-0.95	[kN/m]	0.0	0.0	0.0	0.0	
10052	PZZ	0.000	0.835	-0.58	-0.66	[kN/m]	0.0	0.0	0.0	0.0	
10063	PZZ	0.000	0.852	-1.07	-0.88	[kN/m]	0.0	0.0	0.0	0.0	
10064	PZZ	0.000	0.852	-1.43	-1.16	[kN/m]	0.0	0.0	0.0	0.0	
10065	PZZ	0.000	0.852	-1.16	-0.96	[kN/m]	0.0	0.0	0.0	0.0	
10066	PZZ	0.000	0.852	-0.96	-0.82	[kN/m]	0.0	0.0	0.0	0.0	
10067	PZZ	0.000	0.852	-0.82	-0.75	[kN/m]	0.0	0.0	0.0	0.0	
10068	PZZ	0.000	0.852	-0.75	-0.70	[kN/m]	0.0	0.0	0.0	0.0	
10069	PZZ	0.000	0.852	-0.70	-0.68	[kN/m]	0.0	0.0	0.0	0.0	
10070	PZZ	0.000	0.852	-0.68	-0.67	[kN/m]	0.0	0.0	0.0	0.0	
10071	PZZ	0.000	0.852	-0.67	-0.68	[kN/m]	0.0	0.0	0.0	0.0	
10072	PZZ	0.000	0.852	-0.68	-0.69	[kN/m]	0.0	0.0	0.0	0.0	
10073	PZZ	0.000	0.835	-0.69	-0.69	[kN/m]	0.0	0.0	0.0	0.0	
10074	PZZ	0.000	0.835	-0.69	-0.70	[kN/m]	0.0	0.0	0.0	0.0	
10075	PZZ	0.000	0.835	-0.70	-0.69	[kN/m]	0.0	0.0	0.0	0.0	
10076	PZZ	0.000	0.835	-0.69	-0.67	[kN/m]	0.0	0.0	0.0	0.0	
10077	PZZ	0.000	0.835	-0.67	-0.67	[kN/m]	0.0	0.0	0.0	0.0	
10078	PZZ	0.000	0.835	-0.67	-0.68	[kN/m]	0.0	0.0	0.0	0.0	
10079	PZZ	0.000	0.835	-0.68	-0.69	[kN/m]	0.0	0.0	0.0	0.0	
10080	PZZ	0.000	0.835	-0.69	-0.72	[kN/m]	0.0	0.0	0.0	0.0	
10081	PZZ	0.000	0.835	-0.72	-0.77	[kN/m]	0.0	0.0	0.0	0.0	
10082	PZZ	0.000	0.835	-0.77	-0.85	[kN/m]	0.0	0.0	0.0	0.0	
10083	PZZ	0.000	0.835	-0.85	-0.94	[kN/m]	0.0	0.0	0.0	0.0	
10084	PZZ	0.000	0.835	-0.58	-0.65	[kN/m]	0.0	0.0	0.0	0.0	
10095	PZZ	0.000	0.866	-3.63	-2.41	[kN/m]	0.0	0.0	0.0	0.0	
10096	PZZ	0.000	0.866	-2.41	-1.53	[kN/m]	0.0	0.0	0.0	0.0	
10097	PZZ	0.000	0.866	-1.53	-1.05	[kN/m]	0.0	0.0	0.0	0.0	
10098	PZZ	0.000	0.866	-1.05	-0.77	[kN/m]	0.0	0.0	0.0	0.0	
10099	PZZ	0.000	0.866	-0.77	-0.64	[kN/m]	0.0	0.0	0.0	0.0	
10100	PZZ	0.000	0.866	-0.64	-0.62	[kN/m]	0.0	0.0	0.0	0.0	
10101	PZZ	0.000	0.866	-0.62	-0.64	[kN/m]	0.0	0.0	0.0	0.0	
10102	PZZ	0.000	0.866	-0.64	-0.66	[kN/m]	0.0	0.0	0.0	0.0	
10103	PZZ	0.000	0.844	-0.66	-0.69	[kN/m]	0.0	0.0	0.0	0.0	
10104	PZZ	0.000	0.844	-0.69	-0.71	[kN/m]	0.0	0.0	0.0	0.0	
10105	PZZ	0.000	0.844	-0.71	-0.73	[kN/m]	0.0	0.0	0.0	0.0	

SOFiSTiK AG - www.sofistik.de

SNG zunanji avditorij

Loads acting on Beam elements

Number	Type	a[m]	l[m]	Load value	Load value	Unit	ya[mm]	za[mm]	ye[mm]	ze[mm]	Ref
10106	PZZ	0.000	0.844	-0.73	-0.73	[kN/m]	0.0	0.0	0.0	0.0	
10107	PZZ	0.000	0.844	-0.73	-0.72	[kN/m]	0.0	0.0	0.0	0.0	
10108	PZZ	0.000	0.844	-0.72	-0.72	[kN/m]	0.0	0.0	0.0	0.0	
10109	PZZ	0.000	0.844	-0.72	-0.72	[kN/m]	0.0	0.0	0.0	0.0	
10110	PZZ	0.000	0.844	-0.72	-0.73	[kN/m]	0.0	0.0	0.0	0.0	
10111	PZZ	0.000	0.844	-0.73	-0.75	[kN/m]	0.0	0.0	0.0	0.0	
10112	PZZ	0.000	0.844	-0.75	-0.80	[kN/m]	0.0	0.0	0.0	0.0	
10113	PZZ	0.000	0.844	-0.80	-0.85	[kN/m]	0.0	0.0	0.0	0.0	
10114	PZZ	0.000	0.844	-0.52	-0.57	[kN/m]	0.0	0.0	0.0	0.0	
10125	PZZ	0.000	0.990	-2.40	-1.18	[kN/m]	0.0	0.0	0.0	0.0	
10126	PZZ	0.000	0.990	-1.18	-0.56	[kN/m]	0.0	0.0	0.0	0.0	
10127	PZZ	0.000	0.990	-0.56	-0.28	[kN/m]	0.0	0.0	0.0	0.0	
10128	PZZ	0.000	0.990	-0.28	-0.21	[kN/m]	0.0	0.0	0.0	0.0	
10129	PZZ	0.000	0.860	-0.21	-0.23	[kN/m]	0.0	0.0	0.0	0.0	
10130	PZZ	0.000	0.860	-0.23	-0.27	[kN/m]	0.0	0.0	0.0	0.0	
10131	PZZ	0.000	0.860	-0.27	-0.31	[kN/m]	0.0	0.0	0.0	0.0	
10132	PZZ	0.000	0.860	-0.31	-0.33	[kN/m]	0.0	0.0	0.0	0.0	
10133	PZZ	0.000	0.860	-0.33	-0.32	[kN/m]	0.0	0.0	0.0	0.0	
10134	PZZ	0.000	0.860	-0.32	-0.32	[kN/m]	0.0	0.0	0.0	0.0	
10135	PZZ	0.000	0.860	-0.32	-0.31	[kN/m]	0.0	0.0	0.0	0.0	
10136	PZZ	0.000	0.860	-0.31	-0.31	[kN/m]	0.0	0.0	0.0	0.0	
10137	PZZ	0.000	0.860	-0.31	-0.31	[kN/m]	0.0	0.0	0.0	0.0	
10138	PZZ	0.000	0.860	-0.31	-0.32	[kN/m]	0.0	0.0	0.0	0.0	
10139	PZZ	0.000	0.860	-0.32	-0.34	[kN/m]	0.0	0.0	0.0	0.0	
10140	PZZ	0.000	0.860	-0.34	-0.38	[kN/m]	0.0	0.0	0.0	0.0	
10151	PZZ	0.000	0.990	-2.40	-1.18	[kN/m]	0.0	0.0	0.0	0.0	
10152	PZZ	0.000	0.990	-1.18	-0.56	[kN/m]	0.0	0.0	0.0	0.0	
10153	PZZ	0.000	0.990	-0.56	-0.28	[kN/m]	0.0	0.0	0.0	0.0	
10154	PZZ	0.000	0.990	-0.28	-0.21	[kN/m]	0.0	0.0	0.0	0.0	
10155	PZZ	0.000	0.860	-0.21	-0.23	[kN/m]	0.0	0.0	0.0	0.0	
10156	PZZ	0.000	0.860	-0.23	-0.27	[kN/m]	0.0	0.0	0.0	0.0	
10157	PZZ	0.000	0.860	-0.27	-0.30	[kN/m]	0.0	0.0	0.0	0.0	
10158	PZZ	0.000	0.860	-0.30	-0.33	[kN/m]	0.0	0.0	0.0	0.0	
10159	PZZ	0.000	0.860	-0.33	-0.32	[kN/m]	0.0	0.0	0.0	0.0	
10160	PZZ	0.000	0.860	-0.32	-0.32	[kN/m]	0.0	0.0	0.0	0.0	
10161	PZZ	0.000	0.860	-0.32	-0.31	[kN/m]	0.0	0.0	0.0	0.0	
10162	PZZ	0.000	0.860	-0.31	-0.31	[kN/m]	0.0	0.0	0.0	0.0	
10163	PZZ	0.000	0.860	-0.31	-0.31	[kN/m]	0.0	0.0	0.0	0.0	
10164	PZZ	0.000	0.860	-0.31	-0.32	[kN/m]	0.0	0.0	0.0	0.0	
10165	PZZ	0.000	0.860	-0.32	-0.34	[kN/m]	0.0	0.0	0.0	0.0	
10166	PZZ	0.000	0.860	-0.34	-0.38	[kN/m]	0.0	0.0	0.0	0.0	

Load Case 5 (S) Sneg

Factor forces and moments 1.000
unfavourable partial safety factor 1.500
favourable partial safety factor 0.000
Combination coefficient ψ_0 0.500 (rare)
Combination coefficient $\psi_1$inf 0.200 (infrequent)
Combination coefficient ψ_1 0.200 (frequent)
Combination coefficient ψ_2 0.000 (permanent)

Loads

Kind	Reference to	Projection Designation	W[m]	Coordinates X[m]	Y[m]	Z[m]	Type	Load value
Area	LAR 1			-10.796	4.450	12.580	PG	0.24 [kN/m2]
				10.796	4.450	12.580		0.24 [kN/m2]
				8.573	-4.241	12.580		0.24 [kN/m2]
				-8.449	-4.726	12.580		0.24 [kN/m2]
						activated		100.00 percent

SOFiSTiK AG - www.sofistik.de

SNG zunanji avditorij

Loads acting on Beam elements

Number	Type	a[m]	l[m]	Load value	Load value	Unit	ya[mm]	za[mm]	ye[mm]	ze[mm]	Ref
10021	PZZ	0.000	1.037	-1.22	-1.15	[kN/m]	0.0	0.0	0.0	0.0	
10022	PZZ	0.000	1.037	-1.15	-1.08	[kN/m]	0.0	0.0	0.0	0.0	
10023	PZZ	0.000	0.886	-1.08	-0.98	[kN/m]	0.0	0.0	0.0	0.0	
10024	PZZ	0.000	0.886	-0.98	-0.91	[kN/m]	0.0	0.0	0.0	0.0	
10025	PZZ	0.000	0.886	-0.91	-0.90	[kN/m]	0.0	0.0	0.0	0.0	
10026	PZZ	0.000	0.886	-0.90	-0.91	[kN/m]	0.0	0.0	0.0	0.0	
10027	PZZ	0.000	0.886	-0.91	-0.92	[kN/m]	0.0	0.0	0.0	0.0	
10028	PZZ	0.000	0.886	-0.92	-0.92	[kN/m]	0.0	0.0	0.0	0.0	
10029	PZZ	0.000	0.904	-0.92	-0.90	[kN/m]	0.0	0.0	0.0	0.0	
10030	PZZ	0.000	0.904	-0.90	-0.95	[kN/m]	0.0	0.0	0.0	0.0	
10053	PZZ	0.000	0.927	-1.18	-1.09	[kN/m]	0.0	0.0	0.0	0.0	
10054	PZZ	0.000	0.927	-1.09	-1.01	[kN/m]	0.0	0.0	0.0	0.0	
10055	PZZ	0.000	0.927	-1.01	-0.90	[kN/m]	0.0	0.0	0.0	0.0	
10056	PZZ	0.000	0.927	-0.90	-0.81	[kN/m]	0.0	0.0	0.0	0.0	
10057	PZZ	0.000	0.927	-0.81	-0.79	[kN/m]	0.0	0.0	0.0	0.0	
10058	PZZ	0.000	0.927	-0.79	-0.80	[kN/m]	0.0	0.0	0.0	0.0	
10059	PZZ	0.000	0.862	-0.80	-0.84	[kN/m]	0.0	0.0	0.0	0.0	
10060	PZZ	0.000	0.862	-0.84	-0.88	[kN/m]	0.0	0.0	0.0	0.0	
10061	PZZ	0.000	0.862	-0.88	-0.92	[kN/m]	0.0	0.0	0.0	0.0	
10062	PZZ	0.000	0.862	-0.92	-1.01	[kN/m]	0.0	0.0	0.0	0.0	
10085	PZZ	0.000	0.927	-1.16	-1.09	[kN/m]	0.0	0.0	0.0	0.0	
10086	PZZ	0.000	0.927	-1.09	-1.02	[kN/m]	0.0	0.0	0.0	0.0	
10087	PZZ	0.000	0.927	-1.02	-0.90	[kN/m]	0.0	0.0	0.0	0.0	
10088	PZZ	0.000	0.927	-0.90	-0.81	[kN/m]	0.0	0.0	0.0	0.0	
10089	PZZ	0.000	0.927	-0.81	-0.83	[kN/m]	0.0	0.0	0.0	0.0	
10090	PZZ	0.000	0.927	-0.83	-0.83	[kN/m]	0.0	0.0	0.0	0.0	
10091	PZZ	0.000	0.833	-0.83	-0.85	[kN/m]	0.0	0.0	0.0	0.0	
10092	PZZ	0.000	0.833	-0.85	-0.88	[kN/m]	0.0	0.0	0.0	0.0	
10093	PZZ	0.000	0.833	-0.88	-0.92	[kN/m]	0.0	0.0	0.0	0.0	
10094	PZZ	0.000	0.833	-0.92	-1.04	[kN/m]	0.0	0.0	0.0	0.0	
10115	PZZ	0.000	1.038	-1.23	-1.14	[kN/m]	0.0	0.0	0.0	0.0	
10116	PZZ	0.000	1.038	-1.14	-1.05	[kN/m]	0.0	0.0	0.0	0.0	
10117	PZZ	0.000	0.886	-1.05	-0.97	[kN/m]	0.0	0.0	0.0	0.0	
10118	PZZ	0.000	0.886	-0.97	-0.93	[kN/m]	0.0	0.0	0.0	0.0	
10119	PZZ	0.000	0.886	-0.93	-0.93	[kN/m]	0.0	0.0	0.0	0.0	
10120	PZZ	0.000	0.886	-0.93	-0.93	[kN/m]	0.0	0.0	0.0	0.0	
10121	PZZ	0.000	0.886	-0.93	-0.91	[kN/m]	0.0	0.0	0.0	0.0	
10122	PZZ	0.000	0.886	-0.91	-0.90	[kN/m]	0.0	0.0	0.0	0.0	
10123	PZZ	0.000	0.752	-0.90	-0.90	[kN/m]	0.0	0.0	0.0	0.0	
10124	PZZ	0.000	0.752	-0.90	-0.98	[kN/m]	0.0	0.0	0.0	0.0	
10141	PZZ	0.000	1.058	-0.36	-0.40	[kN/m]	0.0	0.0	0.0	0.0	
10142	PZZ	0.000	1.058	-0.40	-0.42	[kN/m]	0.0	0.0	0.0	0.0	
10143	PZZ	0.000	0.903	-0.42	-0.40	[kN/m]	0.0	0.0	0.0	0.0	
10144	PZZ	0.000	0.903	-0.40	-0.38	[kN/m]	0.0	0.0	0.0	0.0	
10145	PZZ	0.000	0.903	-0.38	-0.37	[kN/m]	0.0	0.0	0.0	0.0	
10146	PZZ	0.000	0.903	-0.37	-0.37	[kN/m]	0.0	0.0	0.0	0.0	
10147	PZZ	0.000	0.903	-0.37	-0.37	[kN/m]	0.0	0.0	0.0	0.0	
10148	PZZ	0.000	0.903	-0.37	-0.38	[kN/m]	0.0	0.0	0.0	0.0	
10149	PZZ	0.000	0.968	-0.38	-0.38	[kN/m]	0.0	0.0	0.0	0.0	
10150	PZZ	0.000	0.968	-0.38	-0.43	[kN/m]	0.0	0.0	0.0	0.0	
10167	PZZ	0.000	1.058	-0.37	-0.41	[kN/m]	0.0	0.0	0.0	0.0	
10168	PZZ	0.000	1.058	-0.41	-0.40	[kN/m]	0.0	0.0	0.0	0.0	
10169	PZZ	0.000	0.903	-0.40	-0.39	[kN/m]	0.0	0.0	0.0	0.0	
10170	PZZ	0.000	0.903	-0.39	-0.39	[kN/m]	0.0	0.0	0.0	0.0	
10171	PZZ	0.000	0.903	-0.39	-0.40	[kN/m]	0.0	0.0	0.0	0.0	
10172	PZZ	0.000	0.903	-0.40	-0.39	[kN/m]	0.0	0.0	0.0	0.0	
10173	PZZ	0.000	0.903	-0.39	-0.37	[kN/m]	0.0	0.0	0.0	0.0	
10174	PZZ	0.000	0.903	-0.37	-0.37	[kN/m]	0.0	0.0	0.0	0.0	
10175	PZZ	0.000	0.718	-0.37	-0.40	[kN/m]	0.0	0.0	0.0	0.0	

SOFiSTiK AG - www.sofistik.de

SNG zunanji avditorij

Loads acting on Beam elements

Number	Type	a[m]	l[m]	Load value	Load value	Unit	ya[mm]	za[mm]	ye[mm]	ze[mm]	Ref
10176	PZZ	0.000	0.718	-0.40	-0.49	[kN/m]	0.0	0.0	0.0	0.0	

SOFiSTiK AG - www.sofistik.de

SNG zunanji avditorij
Calculation of forces and moments

Load Case 1 (G_1) Lastna konstrukcija

Factor forces and moments		1.000	
Factor dead weight	DL-ZZ	-1.000	
unfavourable partial safety factor		1.350	
favourable partial safety factor		1.000	
Combination coefficient	ψ_0	1.000	(rare)
Combination coefficient	$\psi_1$inf	1.000	(infrequent)
Combination coefficient	ψ_1	1.000	(frequent)
Combination coefficient	ψ_2	1.000	(permanent)

Load Case 2 (G_2) Stalna - fix streha

Factor forces and moments		1.000	
unfavourable partial safety factor		1.350	
favourable partial safety factor		1.000	
Combination coefficient	ψ_0	1.000	(rare)
Combination coefficient	$\psi_1$inf	1.000	(infrequent)
Combination coefficient	ψ_1	1.000	(frequent)
Combination coefficient	ψ_2	1.000	(permanent)

Loads

Kind	Reference to	Projection Designation	W[m]	Coordinates X[m]	Y[m]	Z[m]	Type	Load value
Area	LAR 1			-10.796	4.450	12.580	PG	0.30 [kN/m2]
				10.796	4.450	12.580		0.30 [kN/m2]
				8.573	-4.241	12.580		0.30 [kN/m2]
				-8.449	-4.726	12.580		0.30 [kN/m2]
						activated		100.00 percent

Load Case 3 (G_2) Stalna - odrska tehnika

Factor forces and moments		1.000	
unfavourable partial safety factor		1.350	
favourable partial safety factor		1.000	
Combination coefficient	ψ_0	1.000	(rare)
Combination coefficient	$\psi_1$inf	1.000	(infrequent)
Combination coefficient	ψ_1	1.000	(frequent)
Combination coefficient	ψ_2	1.000	(permanent)

Loads

Kind	Reference to	Projection Designation	W[m]	Coordinates X[m]	Y[m]	Z[m]	Type	Load value
Point	lar 2			14.206	17.786	12.580	PG	6.5 [kN]
						activated		100.00 percent
Point	lar 2			-14.206	17.786	12.580	PG	6.5 [kN]
						activated		100.00 percent
Point	lar 2			-8.796	17.786	12.580	PG	13.0 [kN]
						activated		100.00 percent
Point	lar 2			-3.390	17.786	12.580	PG	13.0 [kN]
						activated		100.00 percent
Point	lar 2			3.390	17.786	12.580	PG	13.0 [kN]
						activated		100.00 percent
Point	lar 2			8.788	17.786	12.580	PG	13.0 [kN]
						activated		100.00 percent
Point	lar 2			11.905	8.786	12.580	PG	6.5 [kN]
						activated		100.00 percent
Point	lar 2			-11.905	8.786	12.580	PG	6.5 [kN]
						activated		100.00 percent
Point	lar 2			-7.387	8.786	12.580	PG	13.0 [kN]
						activated		100.00 percent
Point	lar 2			-2.841	8.786	12.580	PG	13.0 [kN]
						activated		100.00 percent

SOFiSTiK AG - www.sofistik.de

SNG zunanji avditorij
Calculation of forces and moments

Loads

Kind	Reference to	Projection Designation	W[m]	Coordinates X[m]	Y[m]	Z[m]	Type	Load value
Point	lar 2			2.841	8.786	12.580	PG	13.0 [kN]
						activated		100.00 percent
Point	lar 2			7.364	8.786	12.580	PG	13.0 [kN]
						activated		100.00 percent
Line	lar 1			6.678	4.450	12.580	PG	3.30 [kN/m]
				5.288	-4.335	12.580		3.30 [kN/m]
						activated		100.00 percent
Line	lar 1			-6.709	4.450	12.580	PG	3.30 [kN/m]
				-5.287	-4.636	12.580		3.30 [kN/m]
						activated		100.00 percent
Line	lar 1			-2.576	4.450	12.580	PG	4.95 [kN/m]
				-2.027	-4.543	12.580		4.95 [kN/m]
						activated		100.00 percent
Line	lar 1			2.576	4.450	12.580	PG	4.95 [kN/m]
				2.034	-4.428	12.580		4.95 [kN/m]
						activated		100.00 percent
Point	lar 1			7.154	2.400	12.580	PG	1.5 [kN]
						activated		100.00 percent
Point	lar 1			6.877	0.650	12.580	PG	1.5 [kN]
						activated		100.00 percent
Point	lar 1			6.600	-1.100	12.580	PG	1.5 [kN]
						activated		100.00 percent
Point	lar 1			6.323	-2.850	12.580	PG	1.5 [kN]
						activated		100.00 percent
Point	lar 1			-7.188	2.400	12.580	PG	1.5 [kN]
						activated		100.00 percent
Point	lar 1			-6.914	0.650	12.580	PG	1.5 [kN]
						activated		100.00 percent
Point	lar 1			-6.640	-1.100	12.580	PG	1.5 [kN]
						activated		100.00 percent
Point	lar 1			-6.366	-2.850	12.580	PG	1.5 [kN]
						activated		100.00 percent
Point	lar 1			-7.988	2.400	12.580	PG	2.0 [kN]
						activated		100.00 percent
Point	lar 1			-7.714	0.650	12.580	PG	2.0 [kN]
						activated		100.00 percent
Point	lar 1			-7.440	-1.100	12.580	PG	2.0 [kN]
						activated		100.00 percent
Point	lar 1			-7.166	-2.850	12.580	PG	2.0 [kN]
						activated		100.00 percent
Point	lar 1			7.954	2.400	12.580	PG	2.0 [kN]
						activated		100.00 percent
Point	lar 1			7.677	0.650	12.580	PG	2.0 [kN]
						activated		100.00 percent
Point	lar 1			7.400	-1.100	12.580	PG	2.0 [kN]
						activated		100.00 percent
Point	lar 1			7.123	-2.850	12.580	PG	2.0 [kN]
						activated		100.00 percent
Line	lar 1			-7.209	4.450	12.580	PG	8.00 [kN/m]
				-5.784	-4.650	12.580		8.00 [kN/m]
						activated		100.00 percent
Line	lar 1			-7.959	4.450	12.580	PG	8.00 [kN/m]
				-6.534	-4.650	12.580		8.00 [kN/m]
						activated		100.00 percent

SOFiSTiK AG - www.sofistik.de

SNG zunanji avditorij
Calculation of forces and moments

Load Case 4 (G_2) Stalna - premična streha

Factor forces and moments		1.000
unfavourable partial safety factor		1.350
favourable partial safety factor		1.000
Combination coefficient	ψ_0	1.000 (rare)
Combination coefficient	$\psi_1$inf	1.000 (infrequent)
Combination coefficient	ψ_1	1.000 (frequent)
Combination coefficient	ψ_2	1.000 (permanent)

Loads

Kind	Reference to	Projection Designation	W[m]	Coordinates X[m]	Y[m]	Z[m]	Type	Load value
Area	LAR 2			-15.529	22.959	12.580	PG	0.15 [kN/m2]
				15.529	22.959	12.580		0.15 [kN/m2]
				10.796	4.450	12.580		0.15 [kN/m2]
				-10.796	4.450	12.580		0.15 [kN/m2]
						activated		100.00 percent

Load Case 5 (S) Sneg

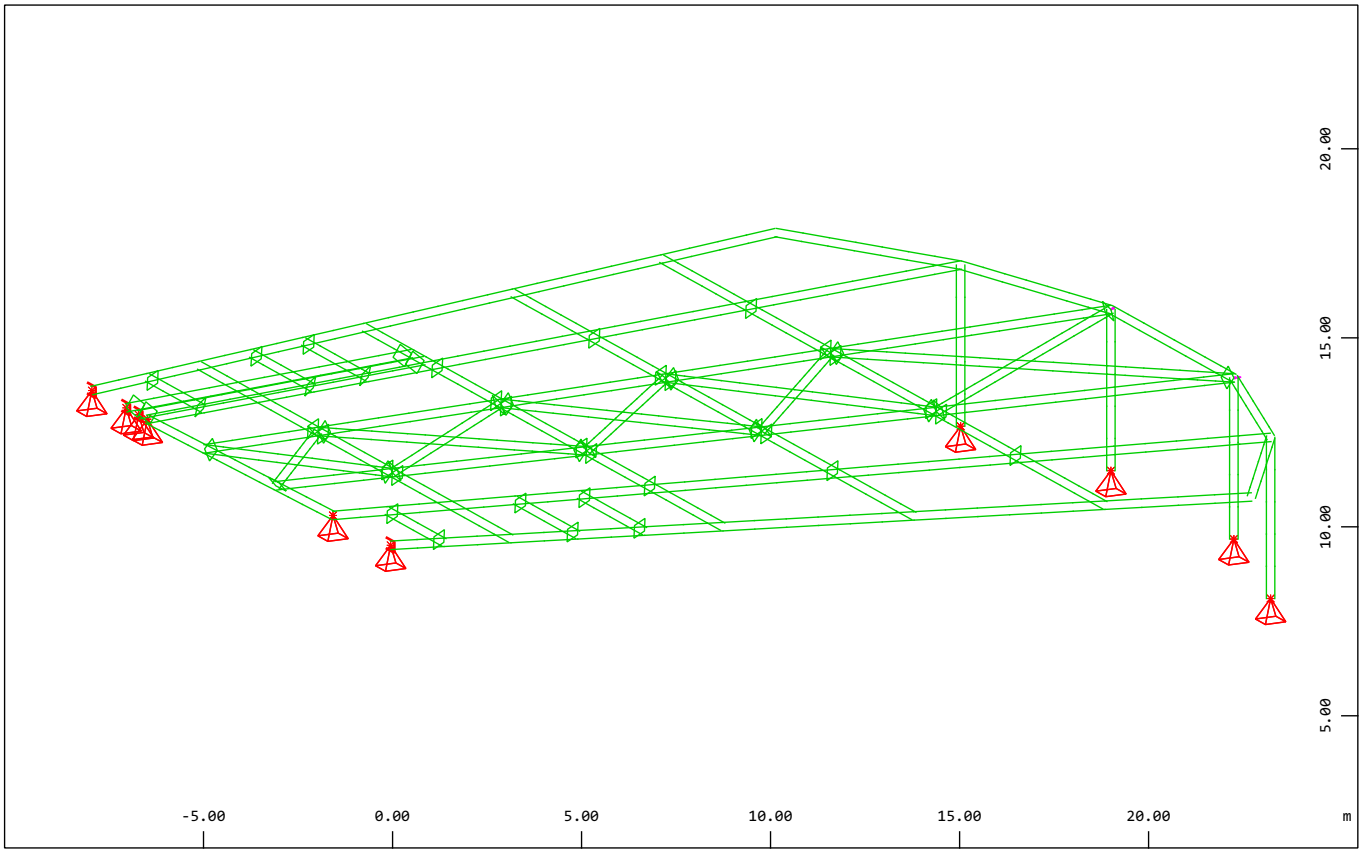
Factor forces and moments		1.000
unfavourable partial safety factor		1.500
favourable partial safety factor		0.000
Combination coefficient	ψ_0	0.500 (rare)
Combination coefficient	$\psi_1$inf	0.200 (infrequent)
Combination coefficient	ψ_1	0.200 (frequent)
Combination coefficient	ψ_2	0.000 (permanent)

Loads

Kind	Reference to	Projection Designation	W[m]	Coordinates X[m]	Y[m]	Z[m]	Type	Load value
Area	LAR 1			-10.796	4.450	12.580	PG	0.24 [kN/m2]
				10.796	4.450	12.580		0.24 [kN/m2]
				8.573	-4.241	12.580		0.24 [kN/m2]
				-8.449	-4.726	12.580		0.24 [kN/m2]
						activated		100.00 percent

SOFiSTiK AG - www.sofistik.de

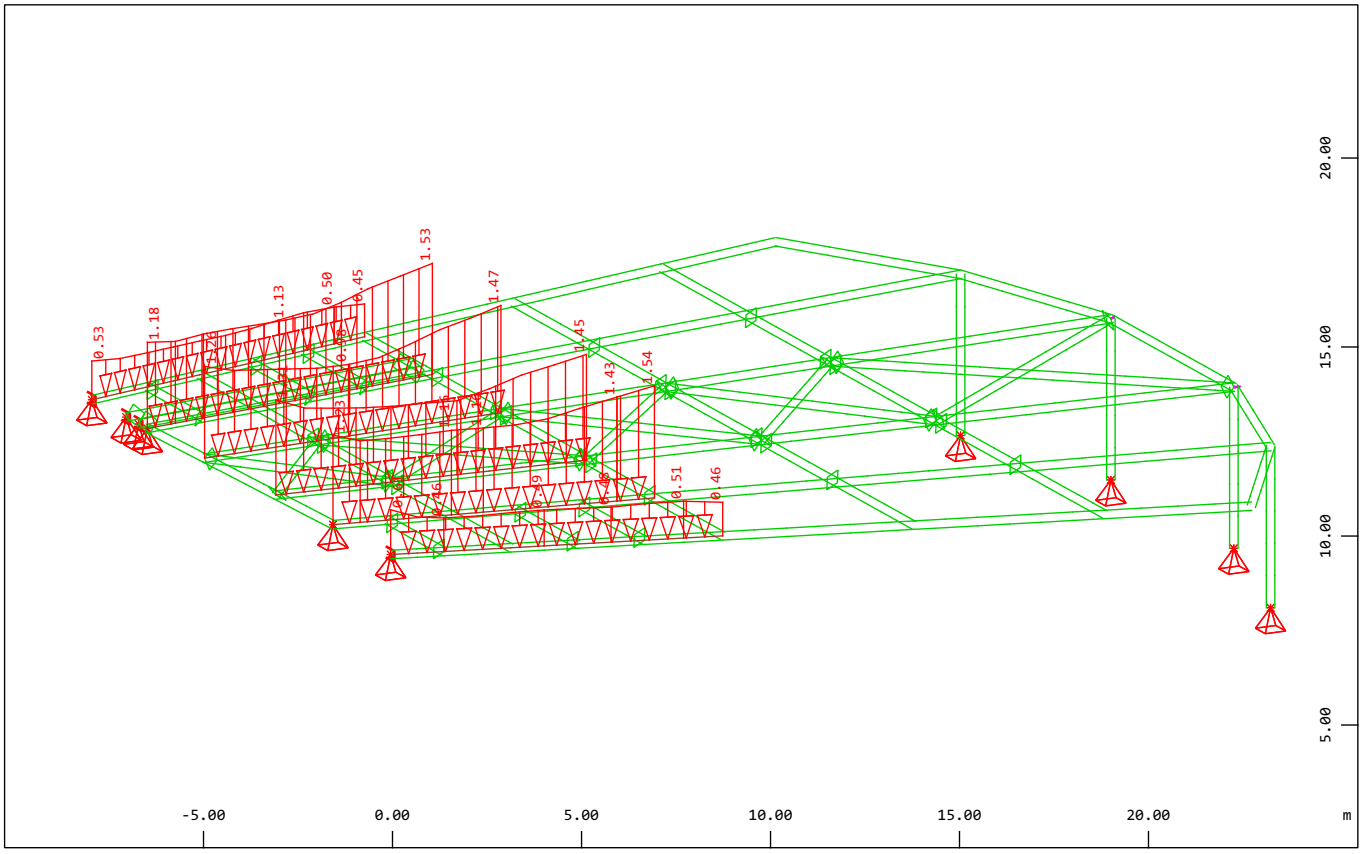
SNG zunanji avditorij
Graphical Output



Z
Y
X

All loads (in components) LC 1: NO values found

M 1 : 200
X * 0.502
Y * 0.906
Z * 0.962



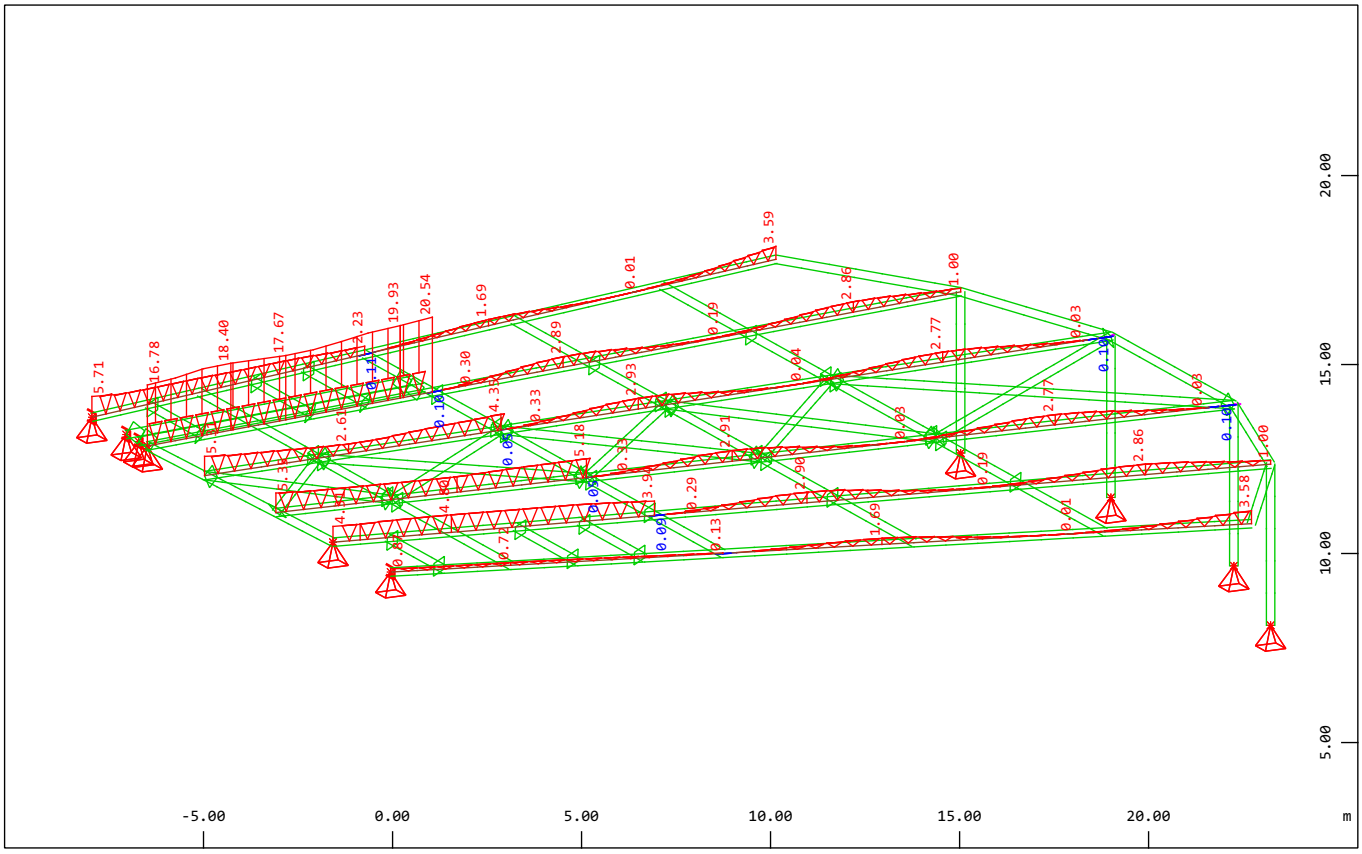
Z
Y
X

All loads (in components), Loadcase 2 Stalna - fix streha , (1 cm 3D = unit) Beam line
load (force) in global Z (Unit=1.00 kN/m) (Min=-1.54) (Max=-0.45)

M 1 : 200
X * 0.502
Y * 0.906
Z * 0.962

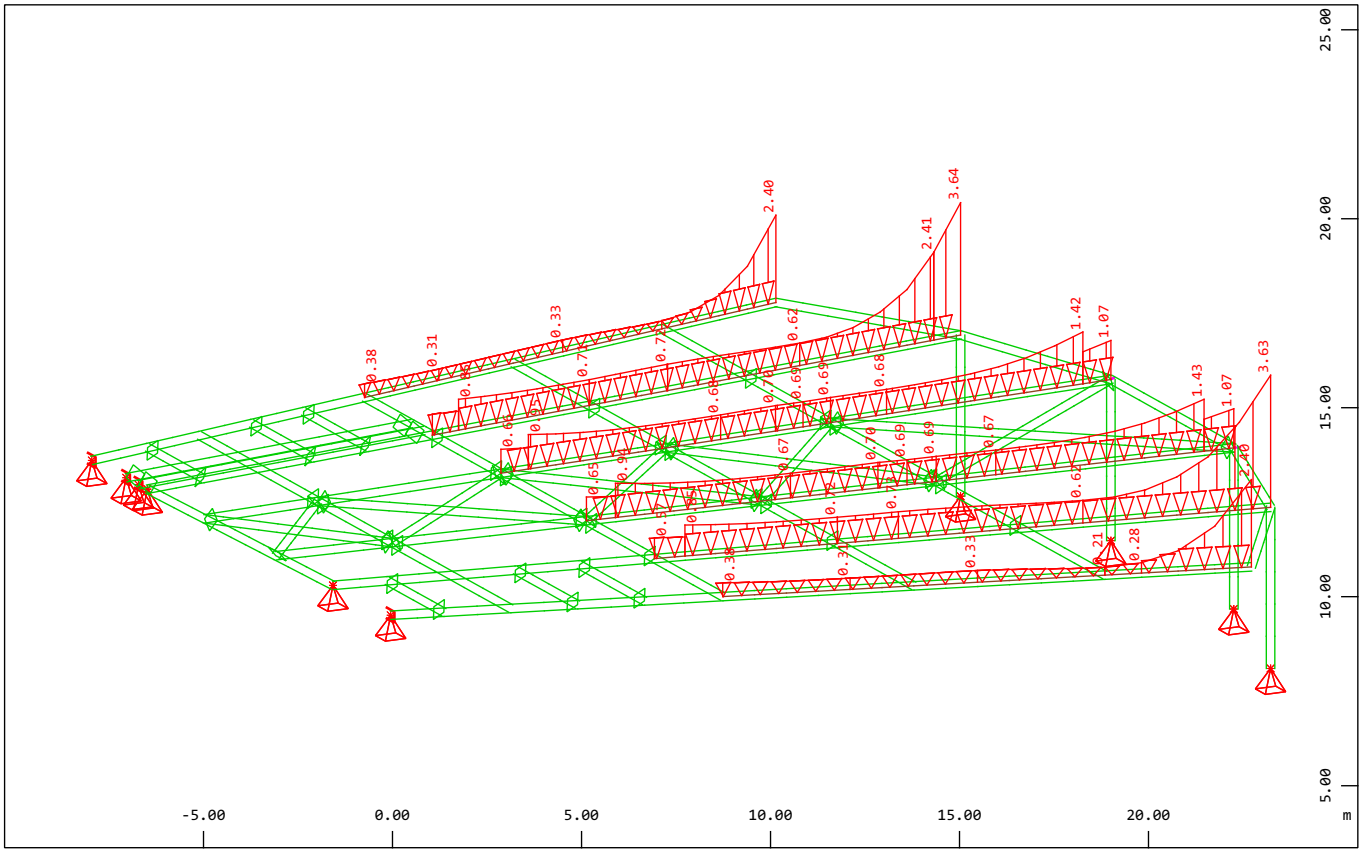
SOFiSTiK AG - www.sofistik.de

SNG zunanji avditorij
Graphical Output



Z
Y X
All loads (in components), Loadcase 3 Stalna - odrska tehnika , (1 cm 3D = unit) Beam
line load (force) in global Z (Unit=20.00 kN/m) (Min=-20.54) (Max=0.11)

M 1 : 200
X * 0.502
Y * 0.906
Z * 0.962

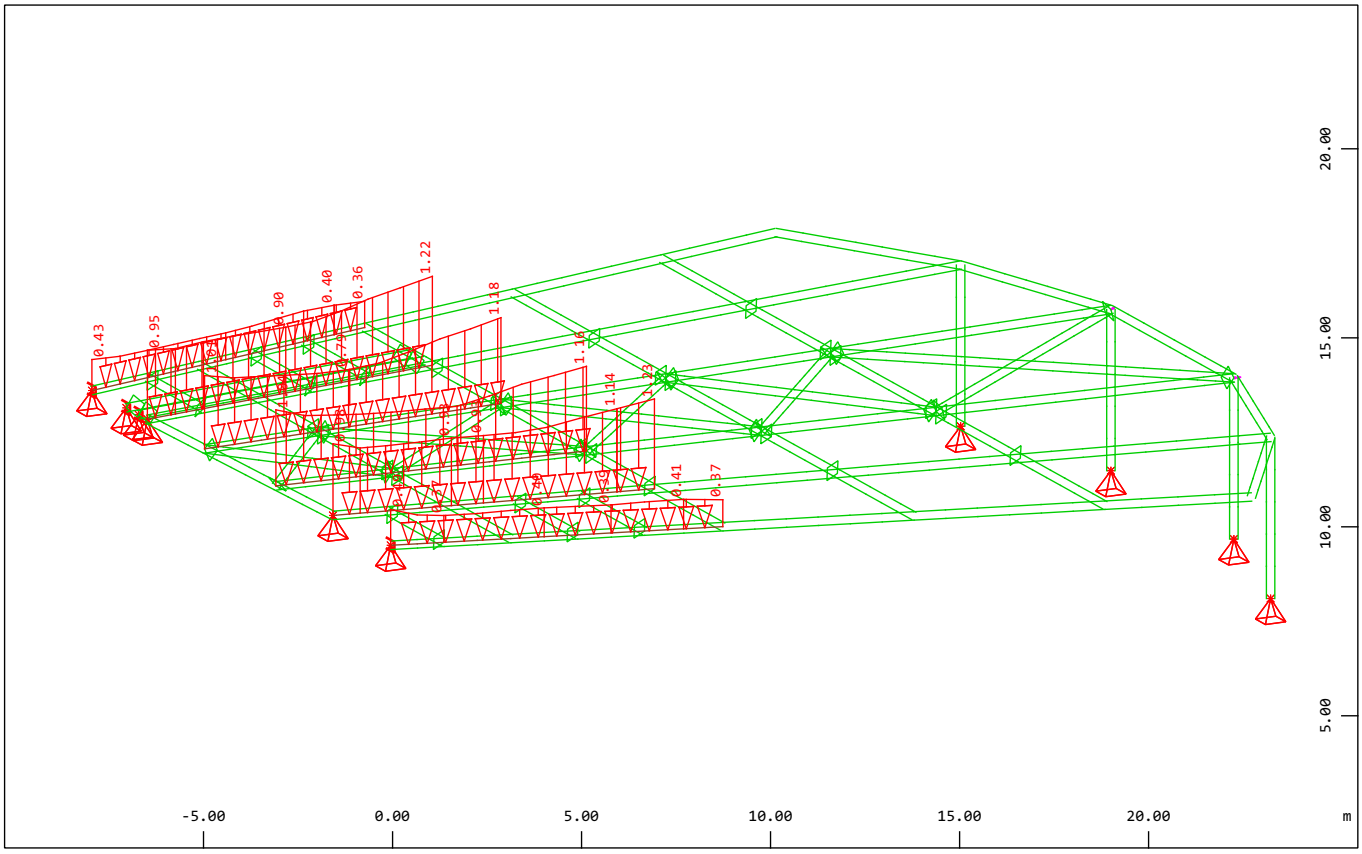


Z
Y X
All loads (in components), Loadcase 4 Stalna - premična streha , (1 cm 3D = unit) Beam
line load (force) in global Z (Unit=2.00 kN/m) (Min=-3.64) (Max=-0.21)

M 1 : 200
X * 0.502
Y * 0.906
Z * 0.962

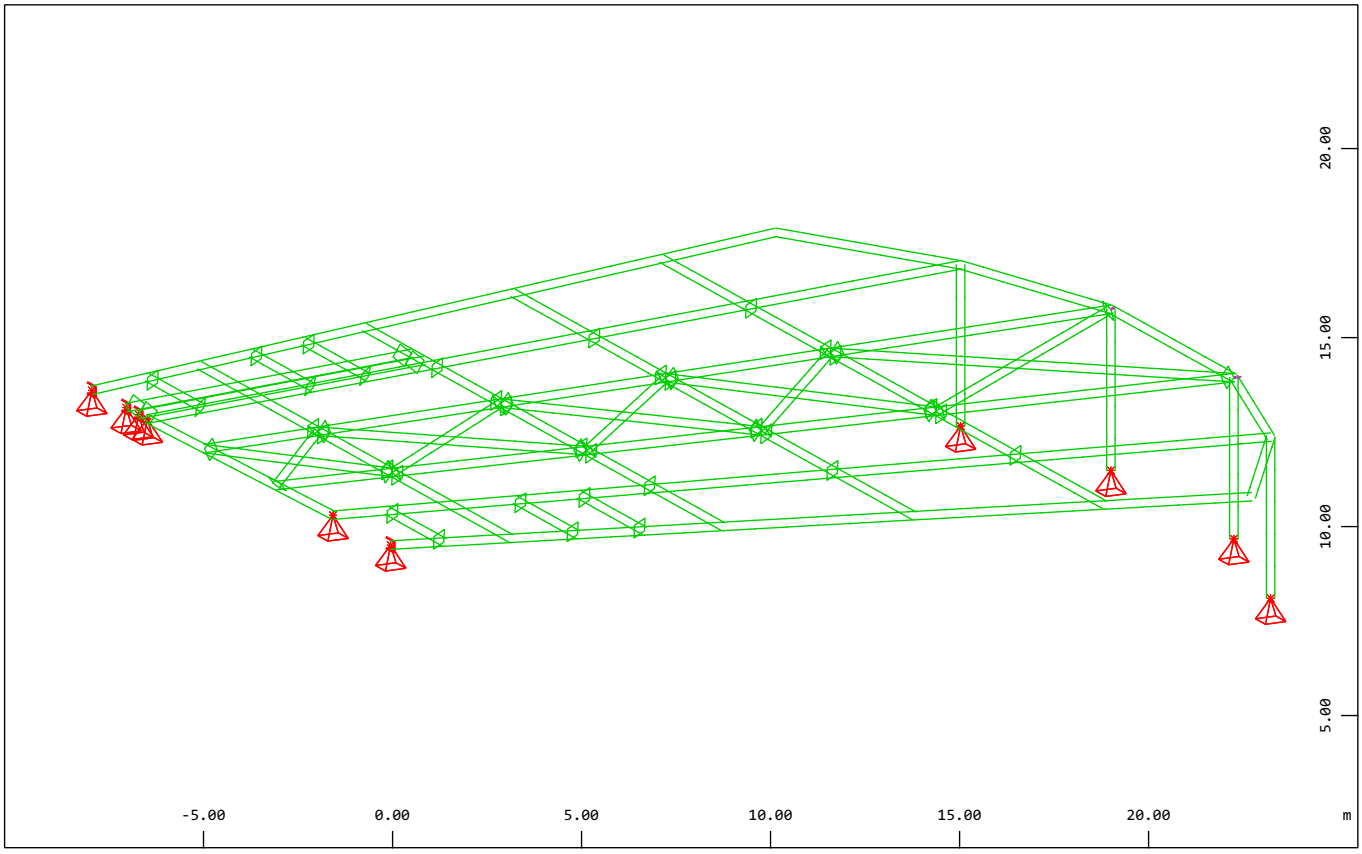
SOFiSTiK AG - www.sofistik.de

SNG zunanji avditorij
Graphical Output



Z
Y X
All loads (in components), Loadcase 5 Sneg , (1 cm 3D = unit) Beam line load (force) in global Z (Unit=1.00 kN/m) (Min=-1.23) (Max=-0.36)

M 1 : 200
X * 0.502
Y * 0.906
Z * 0.962

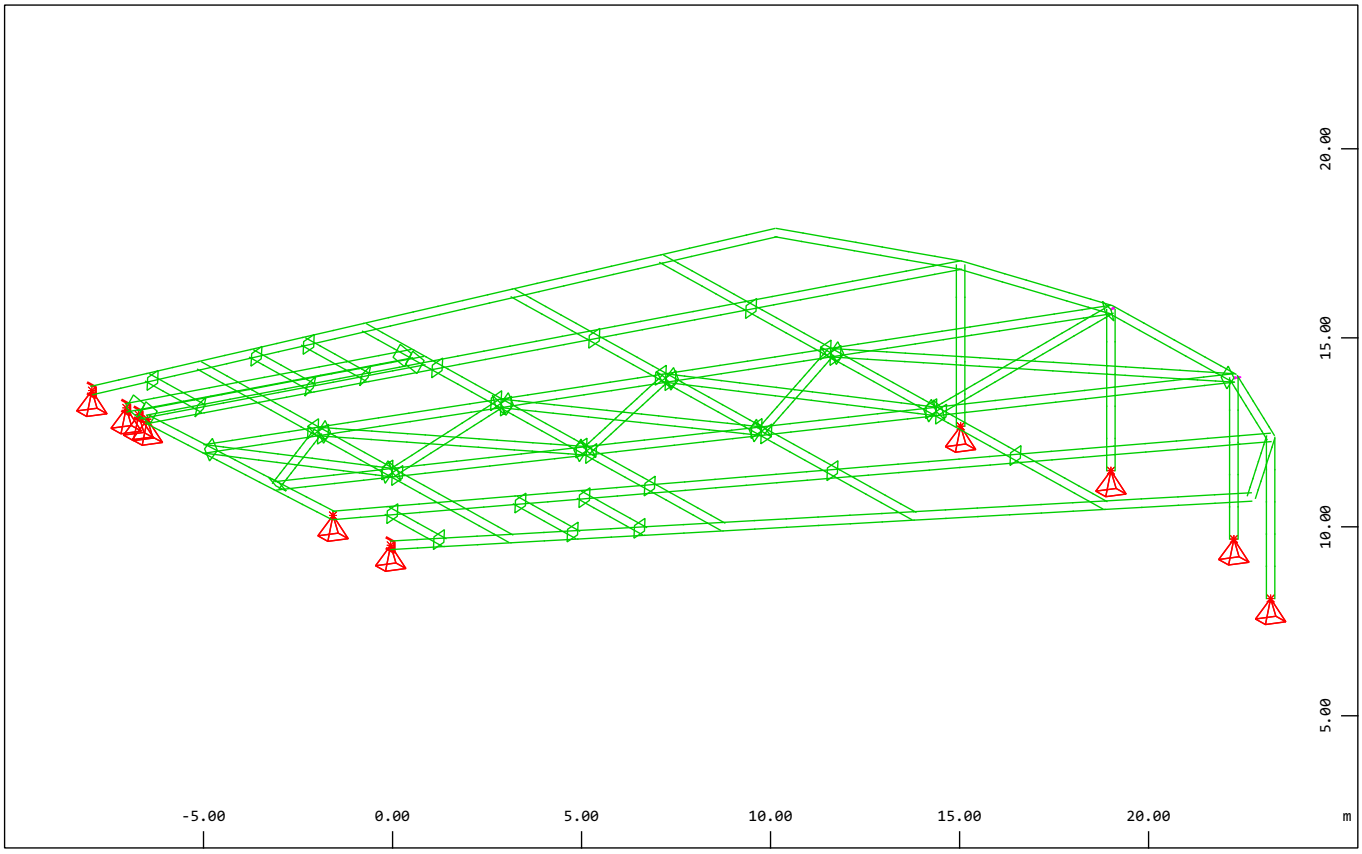


Z
Y X
Nodes , Support force vector LC 1: NO values found

M 1 : 200
X * 0.502
Y * 0.906
Z * 0.962

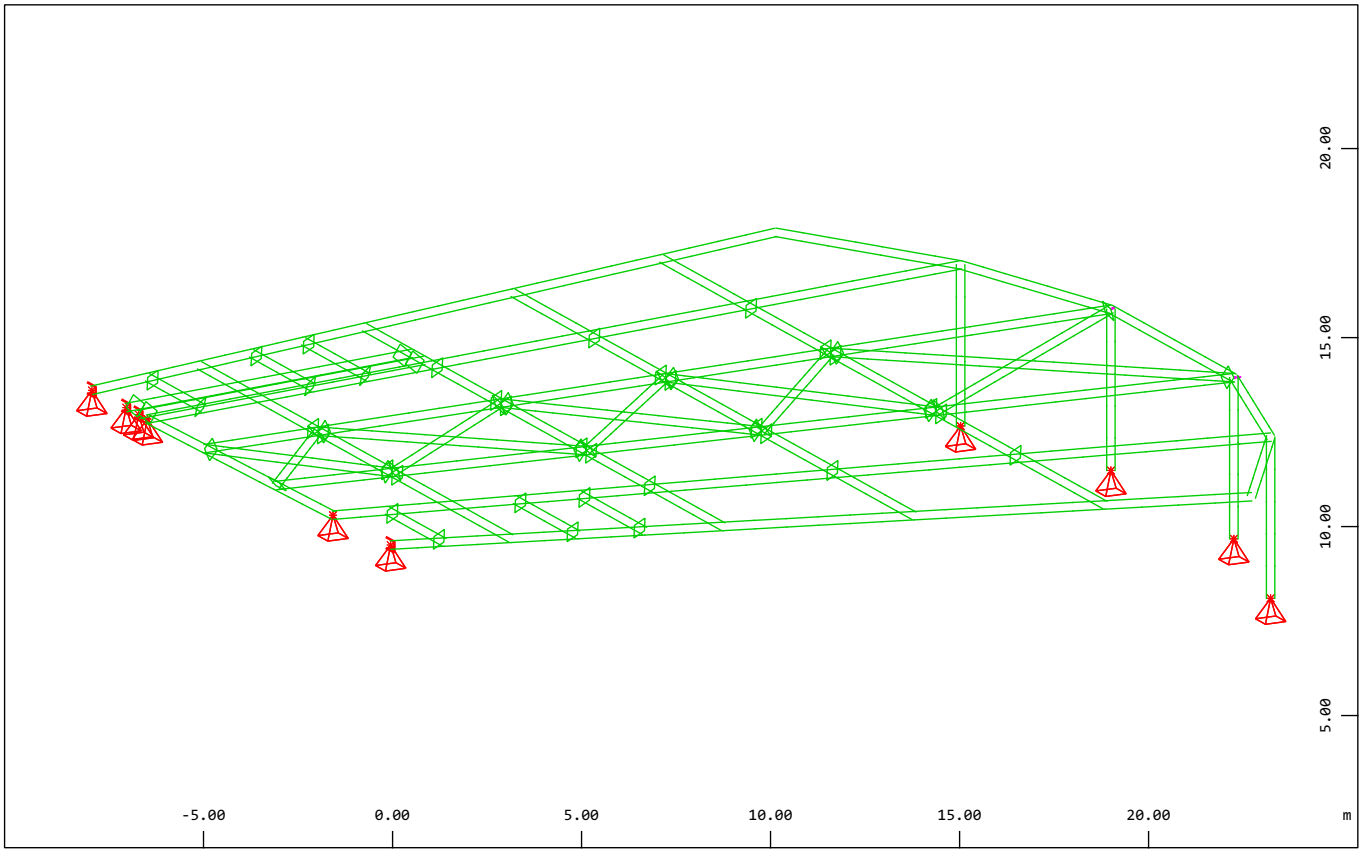
SOFiSTiK AG - www.sofistik.de

SNG zunanji avditorij
Graphical Output



Structure

M 1 : 200
X * 0.502
Y * 0.906
Z * 0.962

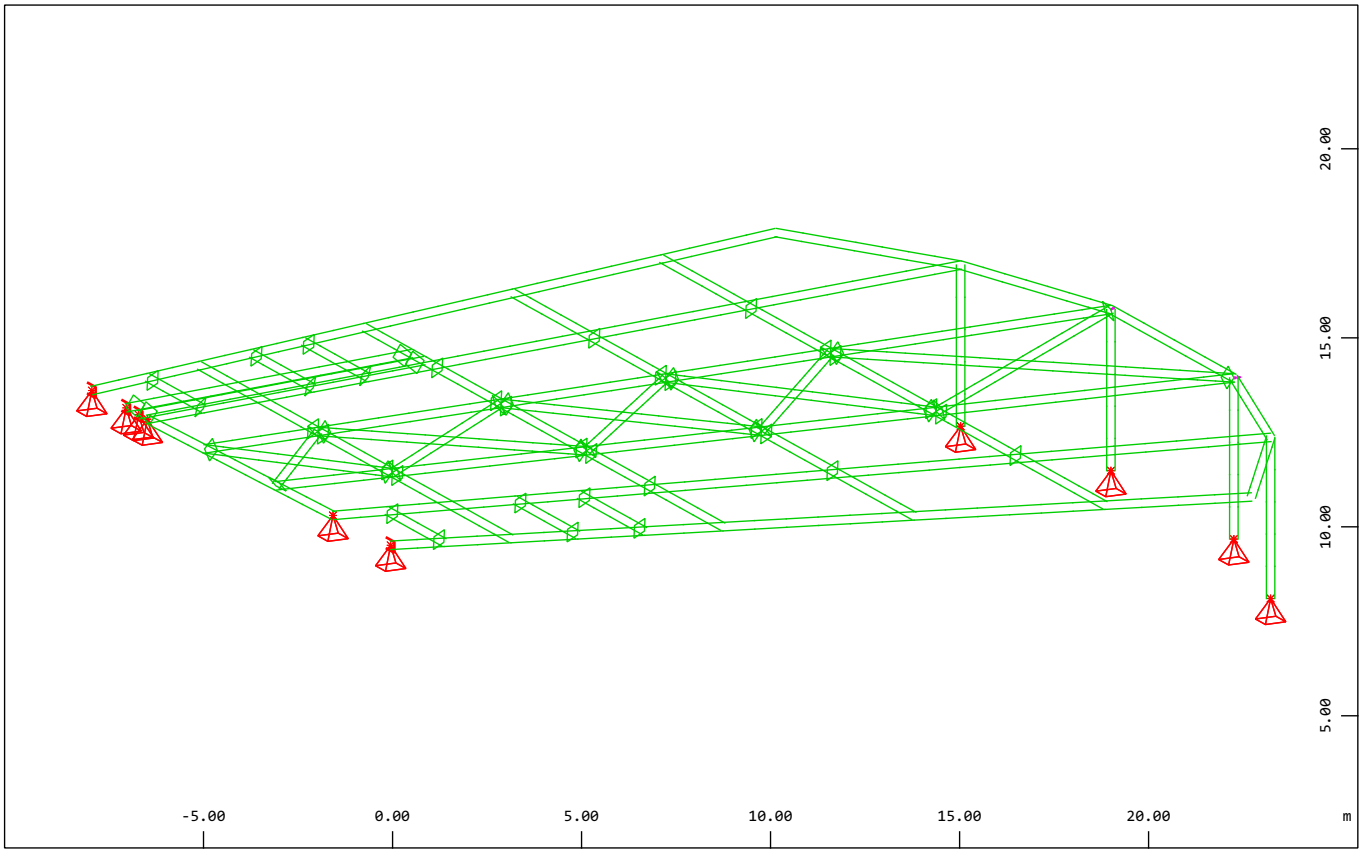


Beam Elements , Bending moment My LC 1: NO values found

M 1 : 200
X * 0.502
Y * 0.906
Z * 0.962

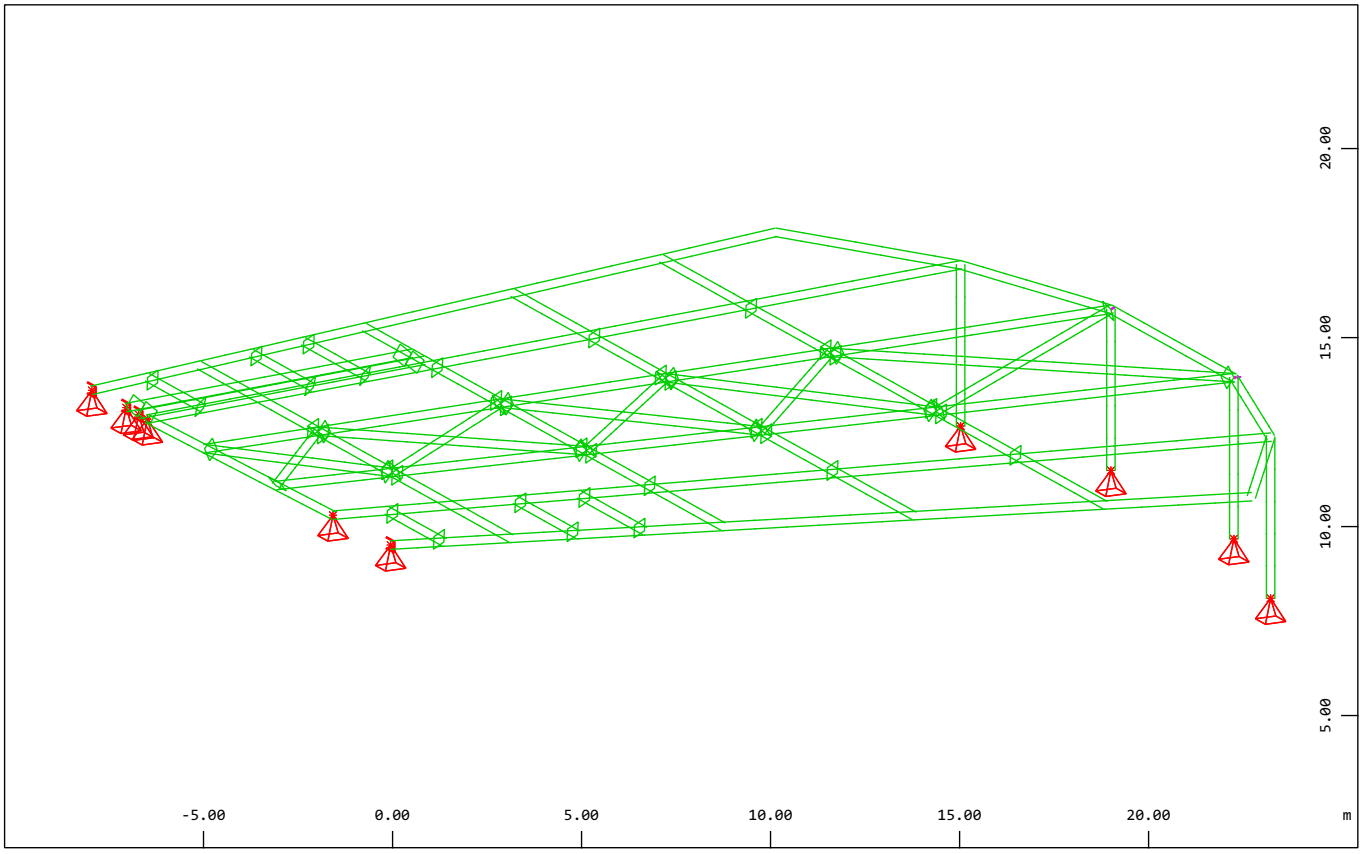
SOFiSTiK AG - www.sofistik.de

SNG zunanji avditorij
Graphical Output



Beam Elements , Shear force Vz LC 1: NO values found

M 1 : 200
X * 0.502
Y * 0.906
Z * 0.962



Beam Elements , Normal force Nx LC 1: NO values found

M 1 : 200
X * 0.502
Y * 0.906
Z * 0.962

SOFiSTiK AG - www.sofistik.de

SNG zunanji avditorij
Steel Cross Sections Resistance (Beams)

Design Code

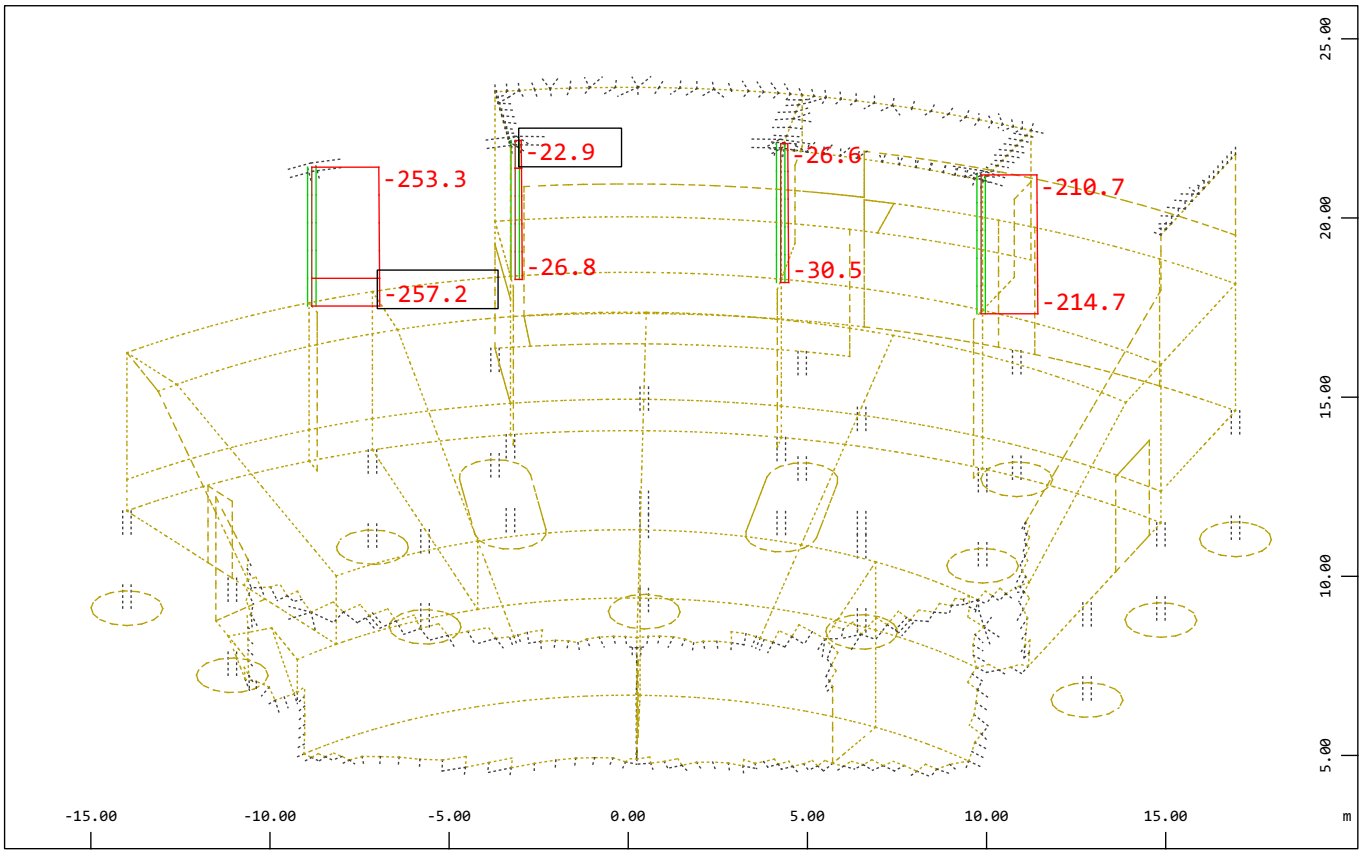
EuroNorm: EN 1993-1-1:2005 Design of steel structures (Slowenija) V 2024

Materials

Mat	Classification
1	C 30/37 (EN 1992)
2	B 500 B (EN 1992)
3	S 355 (EN 1993)
4	S 355 (EN 1993) - y=0

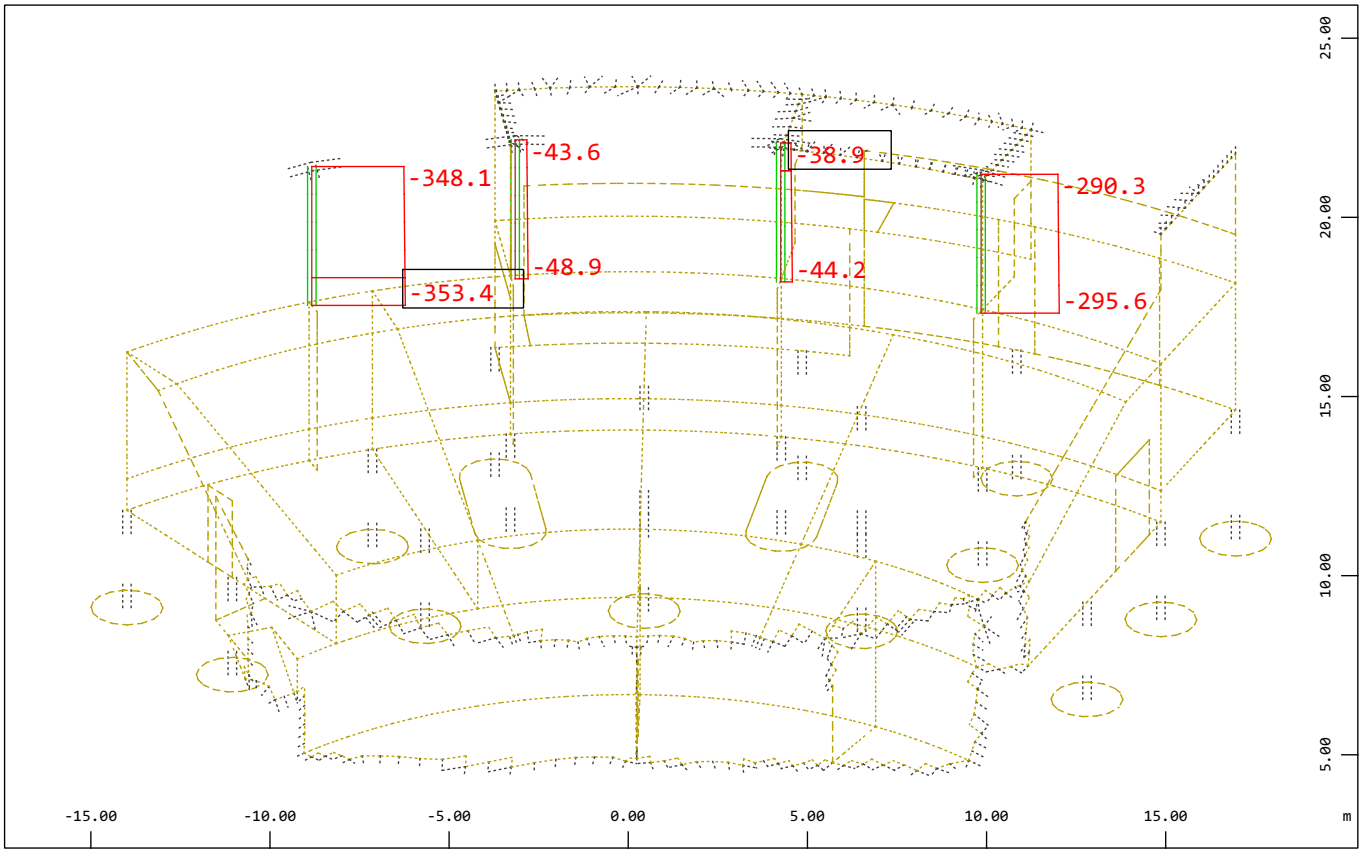
SOFiSTiK AG - www.sofistik.de

SNG zunanji avditorij



Sector of system Group 1...8 21...31 50 100...103 200 201 300 400 401
Beam Elements , Normal force Nx, Loadcase 7021 MAX-N BEAM , 1 cm 3D = 285.9 kN
(Min=-257.2) (Max=-22.9)

M 1 : 211
X * 1.000
Y * 0.485
Z * 0.875

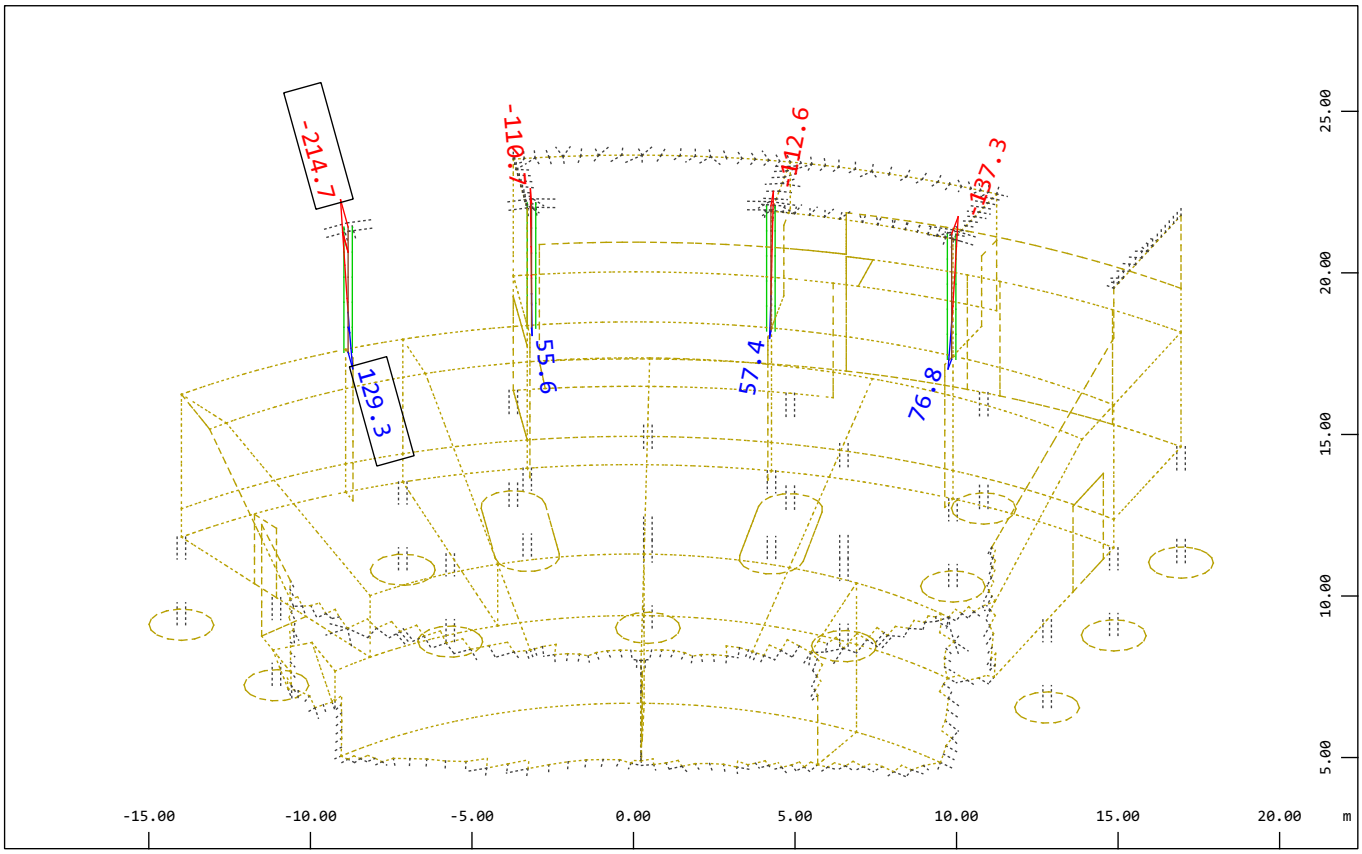


Sector of system Group 1...8 21...31 50 100...103 200 201 300 400 401
Beam Elements , Normal force Nx, Loadcase 7022 MIN-N BEAM , 1 cm 3D = 285.9 kN
(Min=-353.4) (Max=-38.9)

M 1 : 211
X * 1.000
Y * 0.485
Z * 0.875

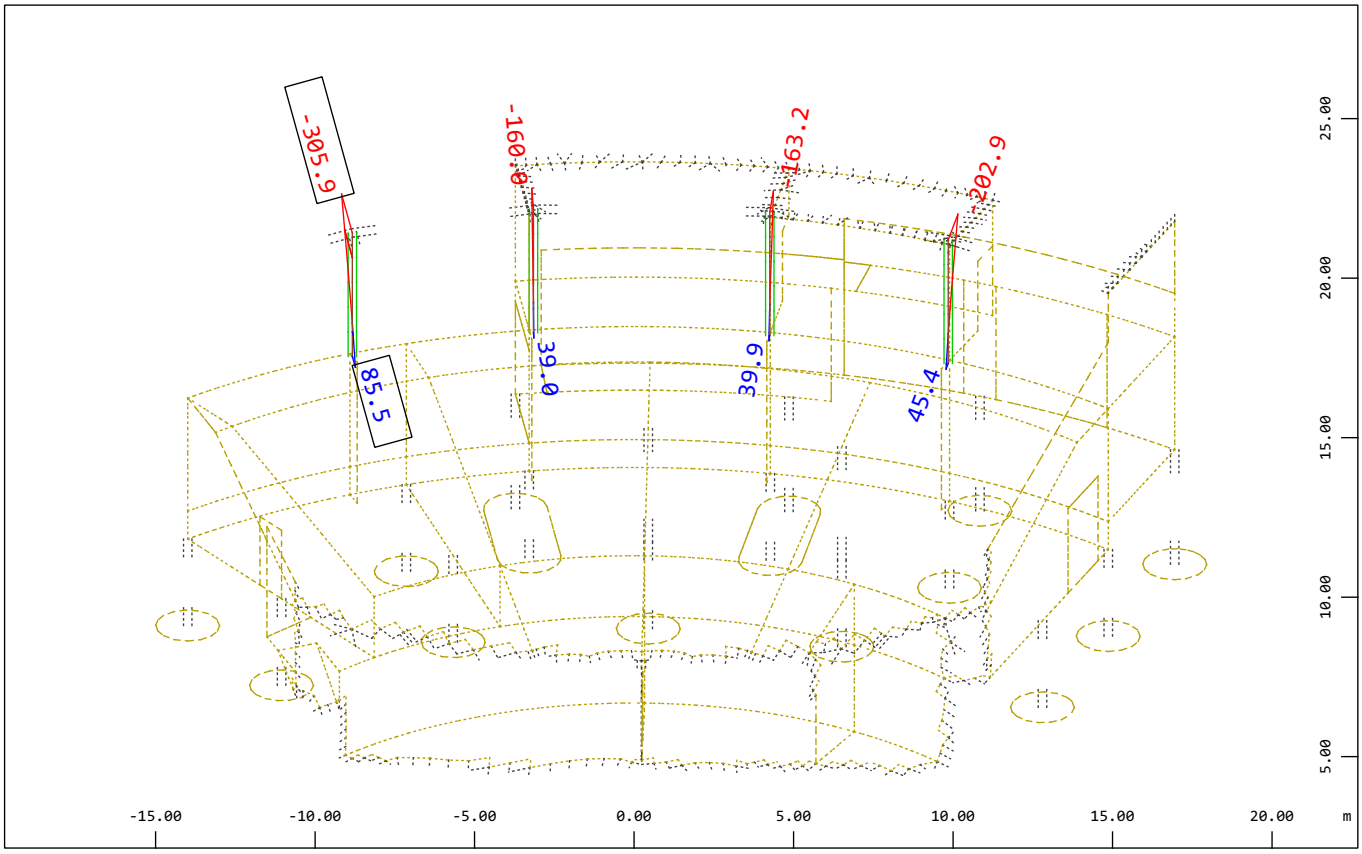
SOFiSTiK AG - www.sofistik.de

SNG zunanji avditorij



Sector of system Group 1...8 21...31 50 100...103 200 201 300 400 401
Beam Elements , Bending moment My, Loadcase 7029 MAX-MY BEAM , 1 cm 3D = 285.9 kNm
(Min=-214.7) (Max=129.3)

M 1 : 234
X * 1.000
Y * 0.485
Z * 0.875

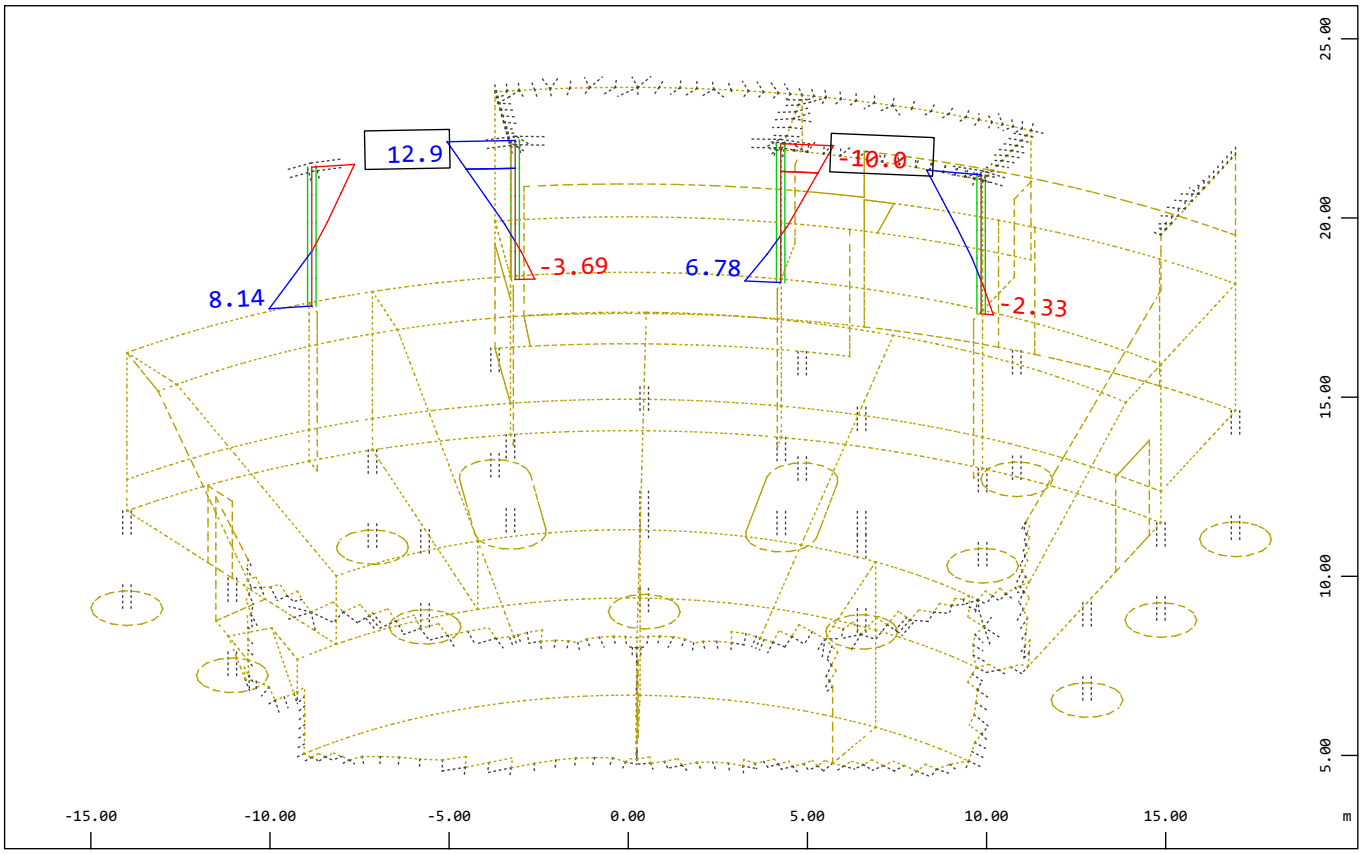


Sector of system Group 1...8 21...31 50 100...103 200 201 300 400 401
Beam Elements , Bending moment My, Loadcase 7030 MIN-MY BEAM , 1 cm 3D = 285.9 kNm
(Min=-305.9) (Max=85.5)

M 1 : 237
X * 1.000
Y * 0.485
Z * 0.875

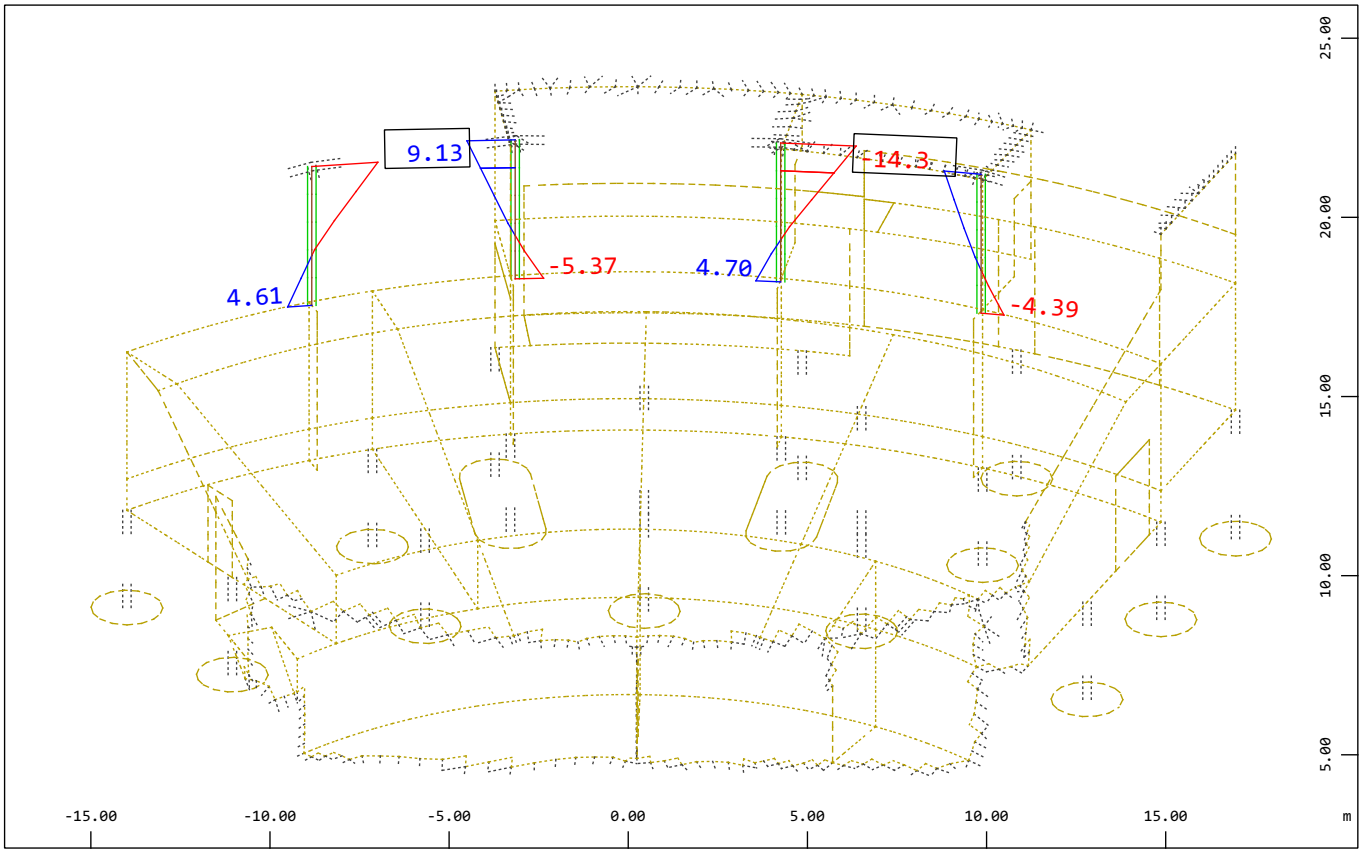
SOFiSTiK AG - www.sofistik.de

SNG zunanji avditorij



Sector of system Group 1...8 21...31 50 100...103 200 201 300 400 401
Beam Elements , Bending moment Mz, Loadcase 7031 MAX-MZ BEAM , 1 cm 3D = 14.3 kNm
(Min=-10.0) (Max=12.9)

M 1 : 211
X * 1.000
Y * 0.485
Z * 0.875

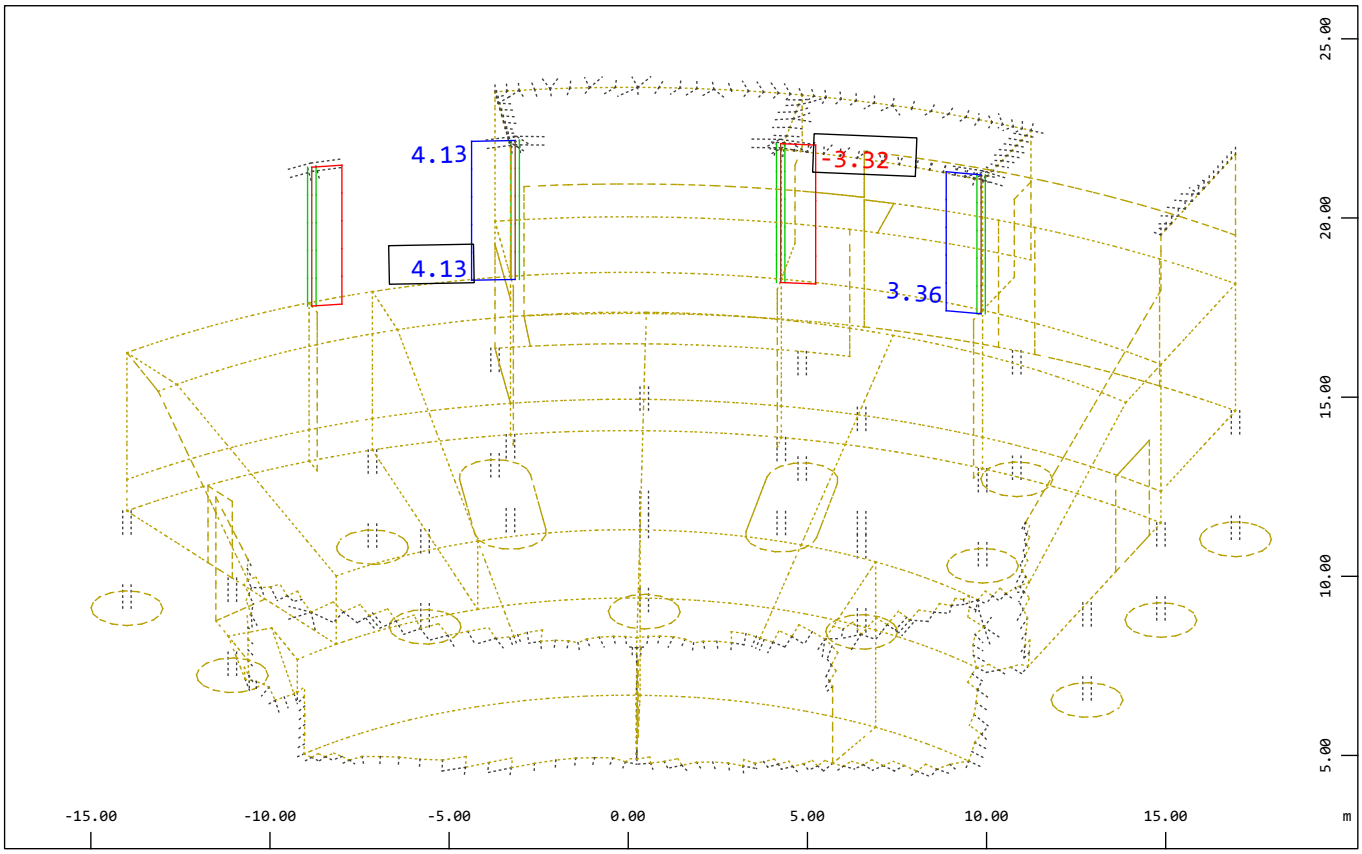


Sector of system Group 1...8 21...31 50 100...103 200 201 300 400 401
Beam Elements , Bending moment Mz, Loadcase 7032 MIN-MZ BEAM , 1 cm 3D = 14.3 kNm
(Min=-14.3) (Max=9.13)

M 1 : 211
X * 1.000
Y * 0.485
Z * 0.875

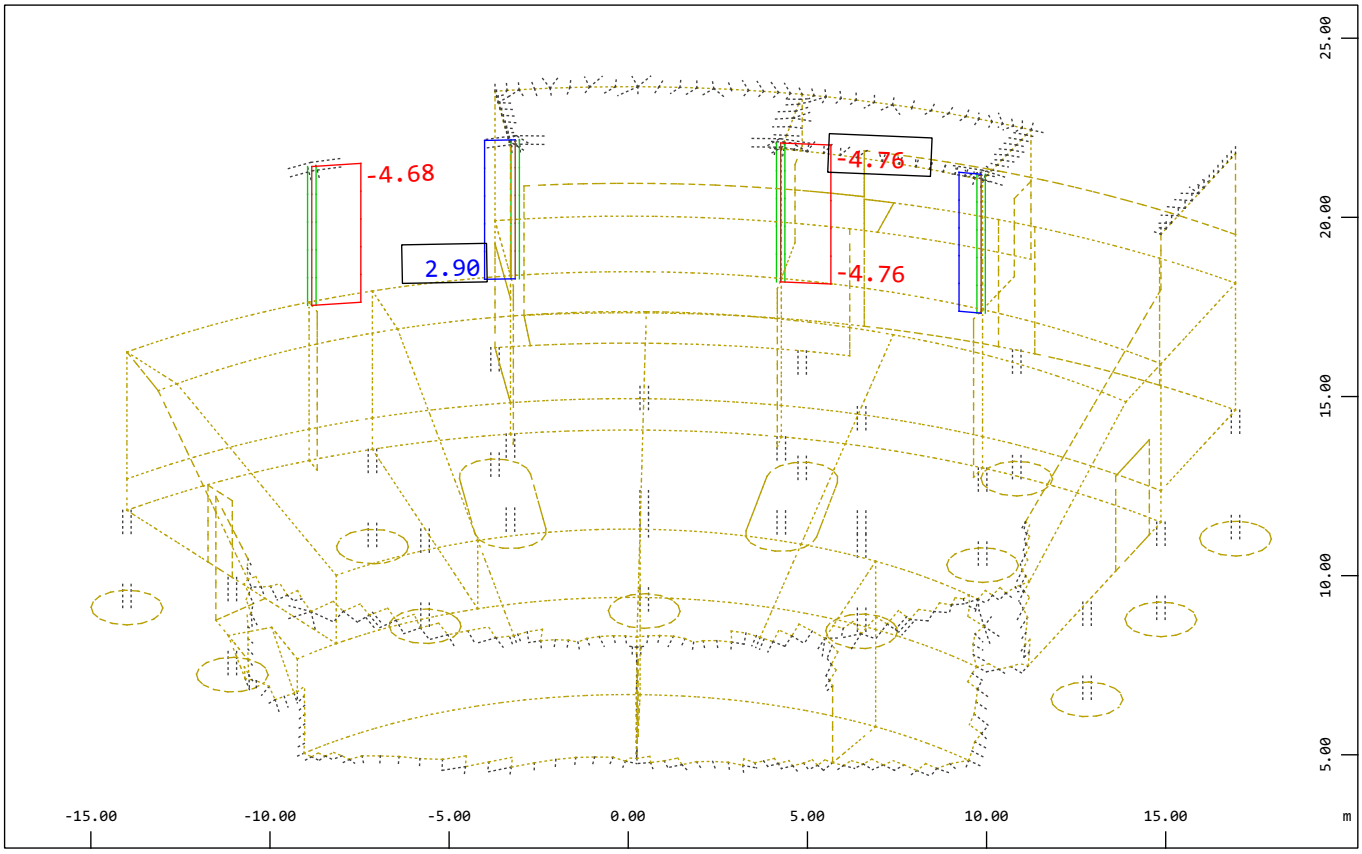
SOFiSTiK AG - www.sofistik.de

SNG zunanji avditorij



Sector of system Group 1...8 21...31 50 100...103 200 201 300 400 401
Beam Elements , Shear force Vy, Loadcase 7023 MAX-VY BEAM , 1 cm 3D = 7.15 kN
(Min=-3.32) (Max=4.13)

M 1 : 211
X * 1.000
Y * 0.485
Z * 0.875

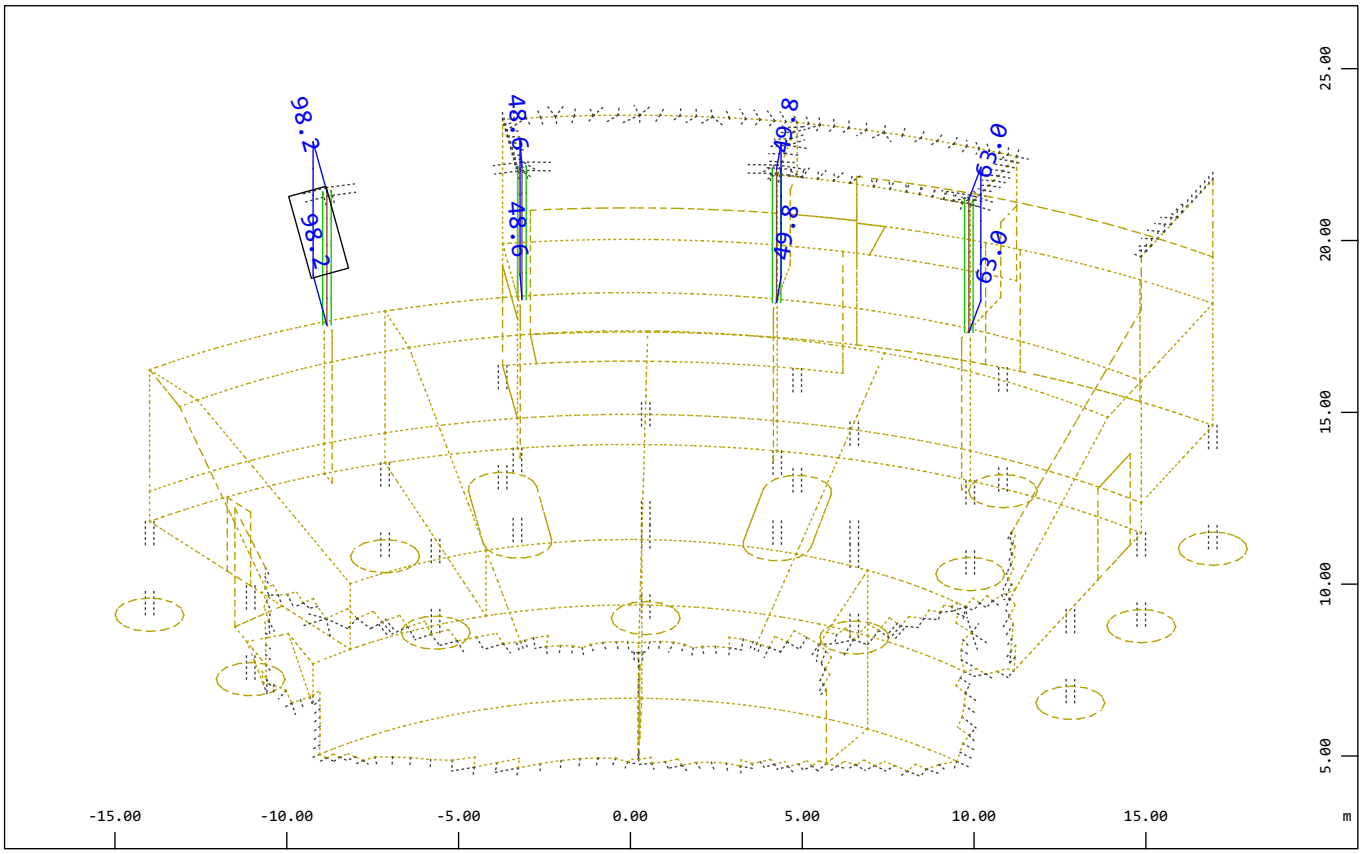


Sector of system Group 1...8 21...31 50 100...103 200 201 300 400 401
Beam Elements , Shear force Vy, Loadcase 7024 MIN-VY BEAM , 1 cm 3D = 7.15 kN
(Min=-4.76) (Max=2.90)

M 1 : 211
X * 1.000
Y * 0.485
Z * 0.875

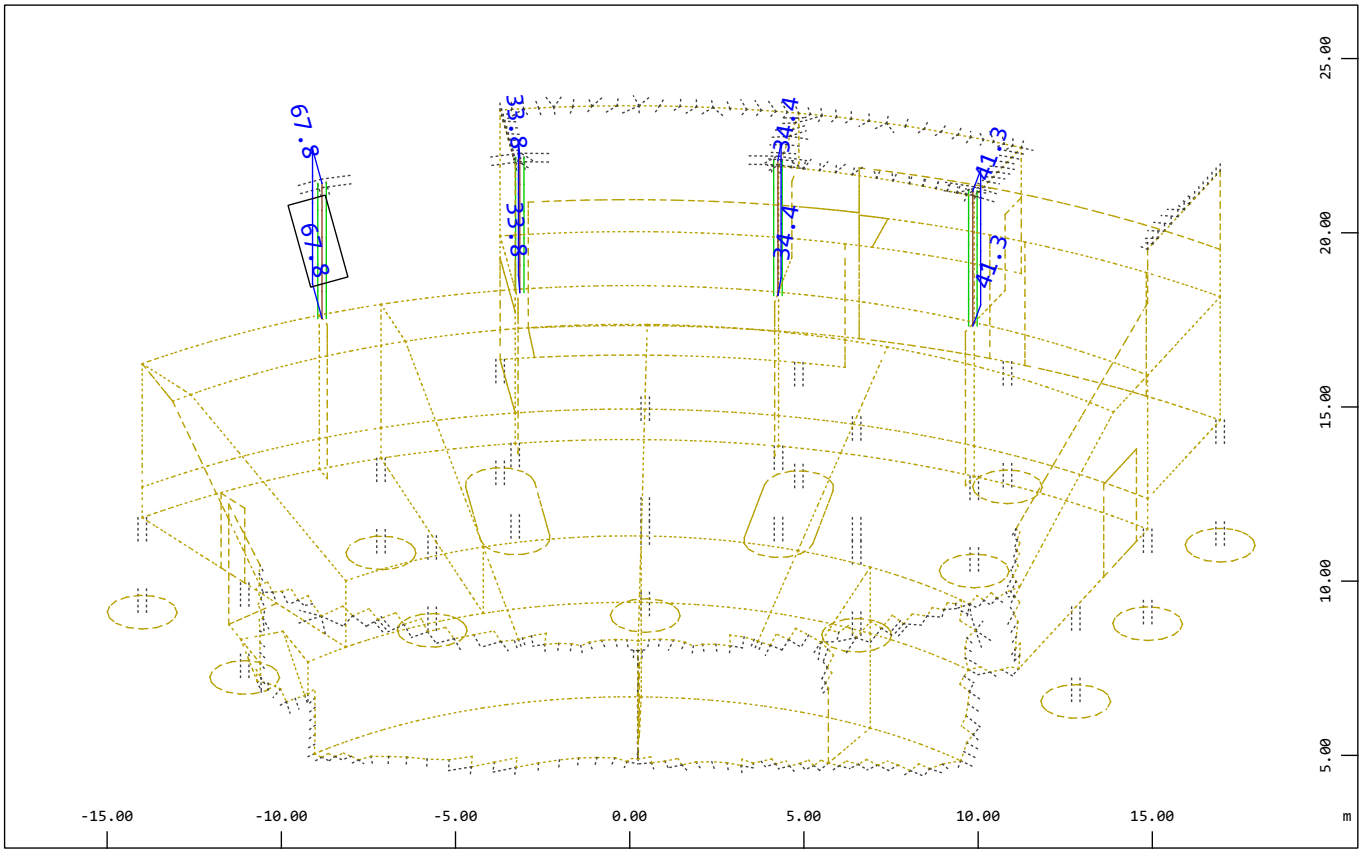
SOFiSTiK AG - www.sofistik.de

SNG zunanji avditorij



Sector of system Group 1...8 21...31 50 100...103 200 201 300 400 401
Beam Elements , Shear force Vz, Loadcase 7025 MAX-VZ BEAM , 1 cm 3D = 71.5 kN
(Max=98.2)

M 1 : 220
X * 1.000
Y * 0.485
Z * 0.875

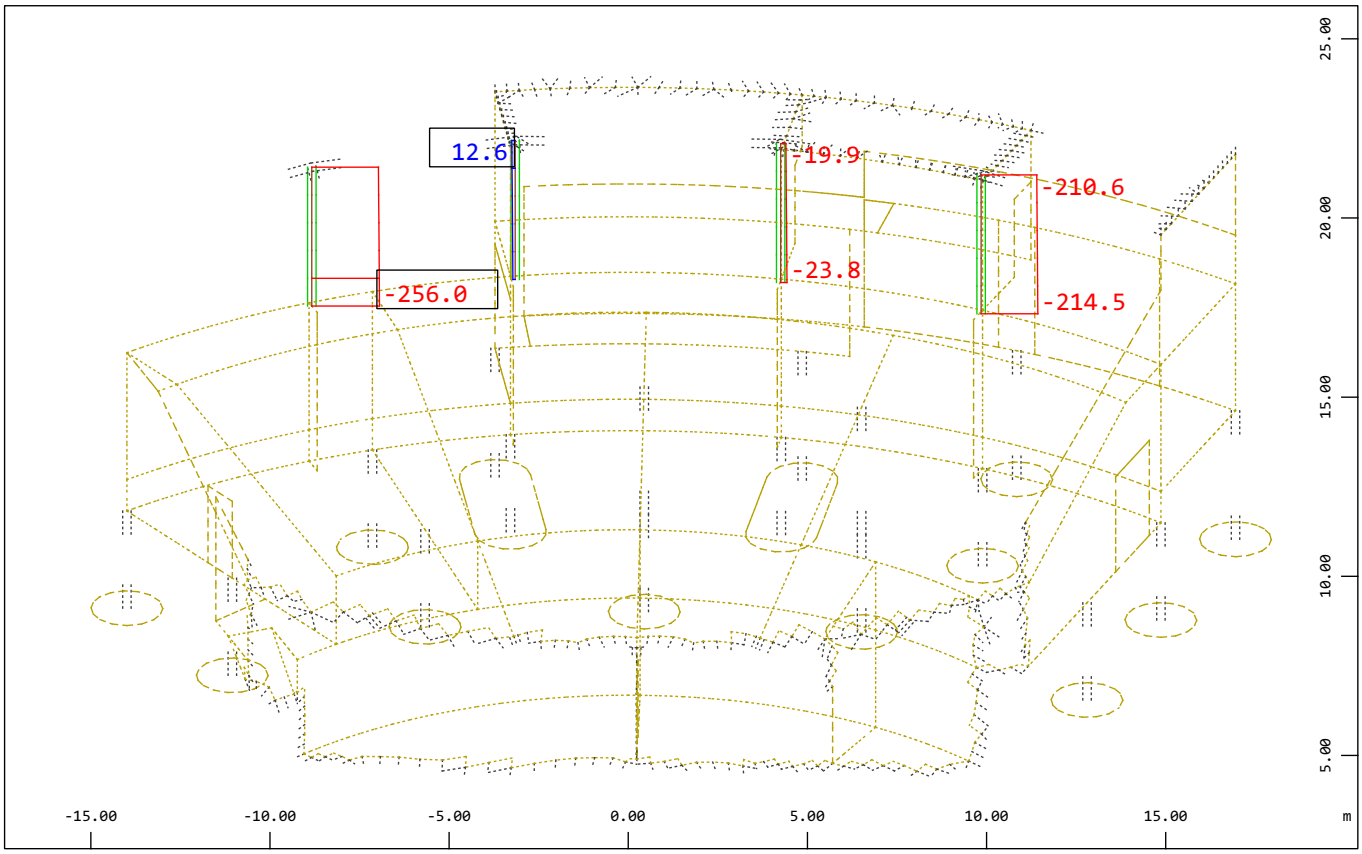


Sector of system Group 1...8 21...31 50 100...103 200 201 300 400 401
Beam Elements , Shear force Vz, Loadcase 7026 MIN-VZ BEAM , 1 cm 3D = 71.5 kN
(Max=67.8)

M 1 : 217
X * 1.000
Y * 0.485
Z * 0.875

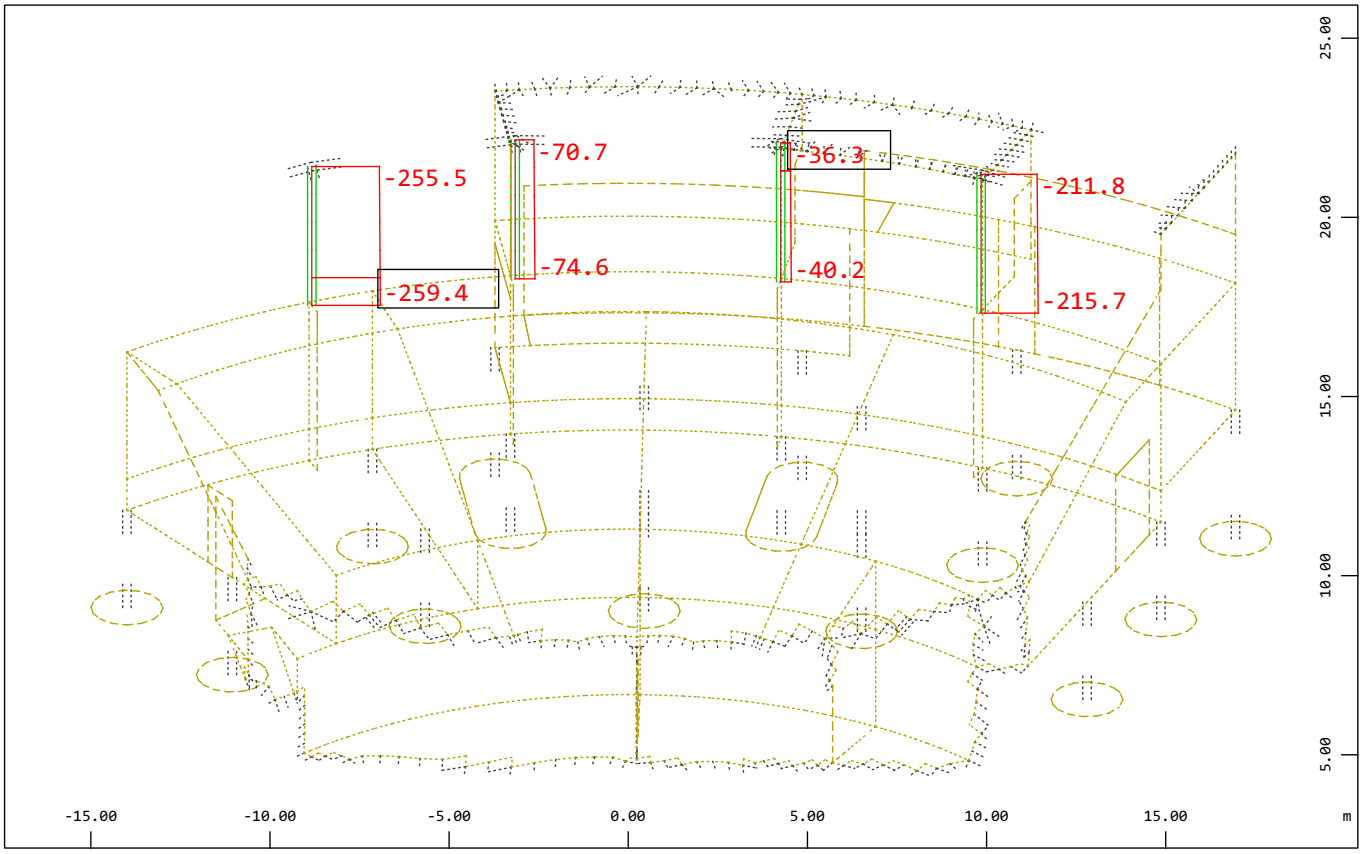
SOFiSTiK AG - www.sofistik.de

SNG zunanji avditorij



Sector of system Group 1...8 21...31 50 100...103 200 201 300 400 401
Beam Elements , Normal force Nx, Loadcase 7121 MAXE-N BEAM , 1 cm 3D = 285.9 kN
(Min=-256.0) (Max=12.6)

M 1 : 211
X * 1.000
Y * 0.485
Z * 0.875

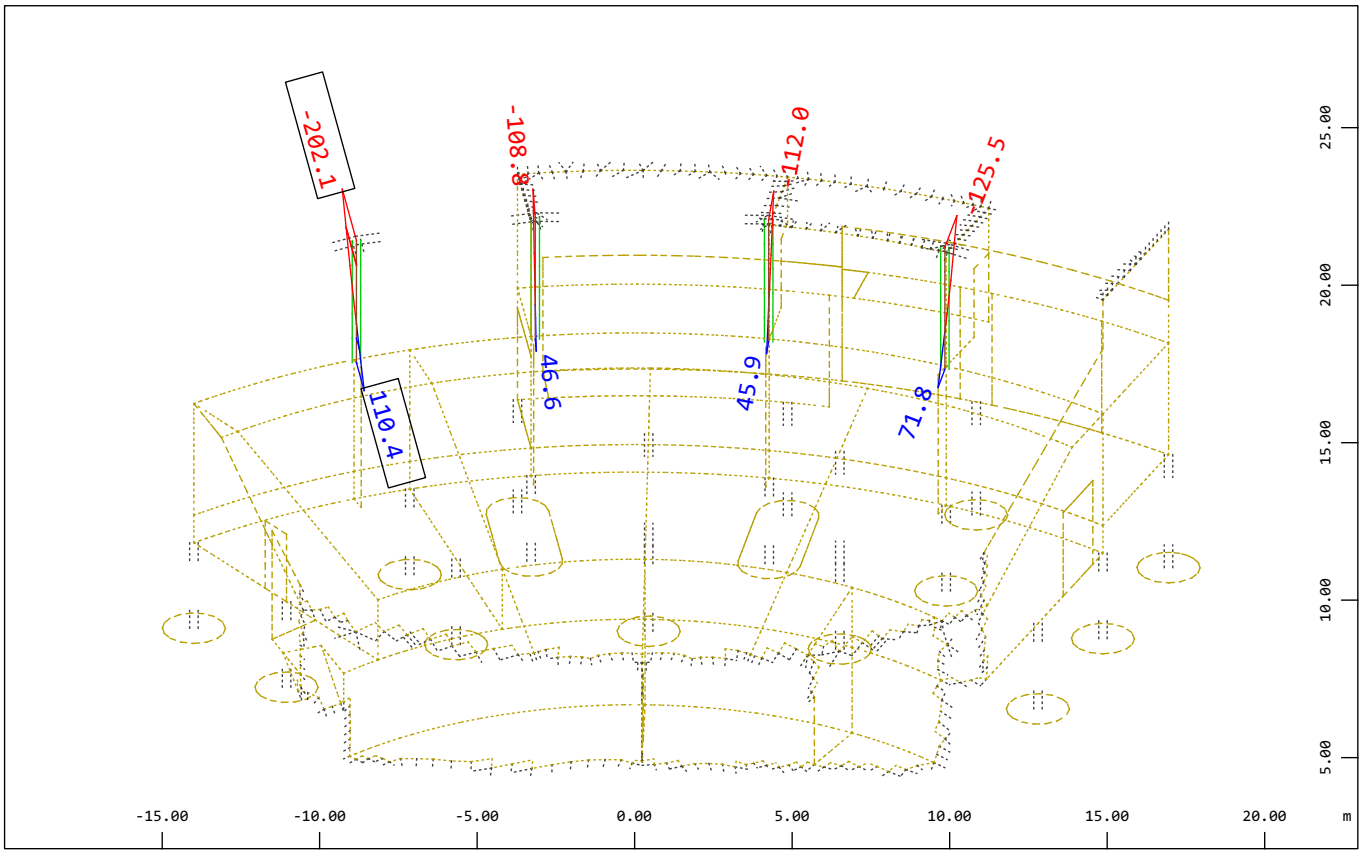


Sector of system Group 1...8 21...31 50 100...103 200 201 300 400 401
Beam Elements , Normal force Nx, Loadcase 7122 MINE-N BEAM , 1 cm 3D = 285.9 kN
(Min=-259.4) (Max=-36.3)

M 1 : 211
X * 1.000
Y * 0.485
Z * 0.875

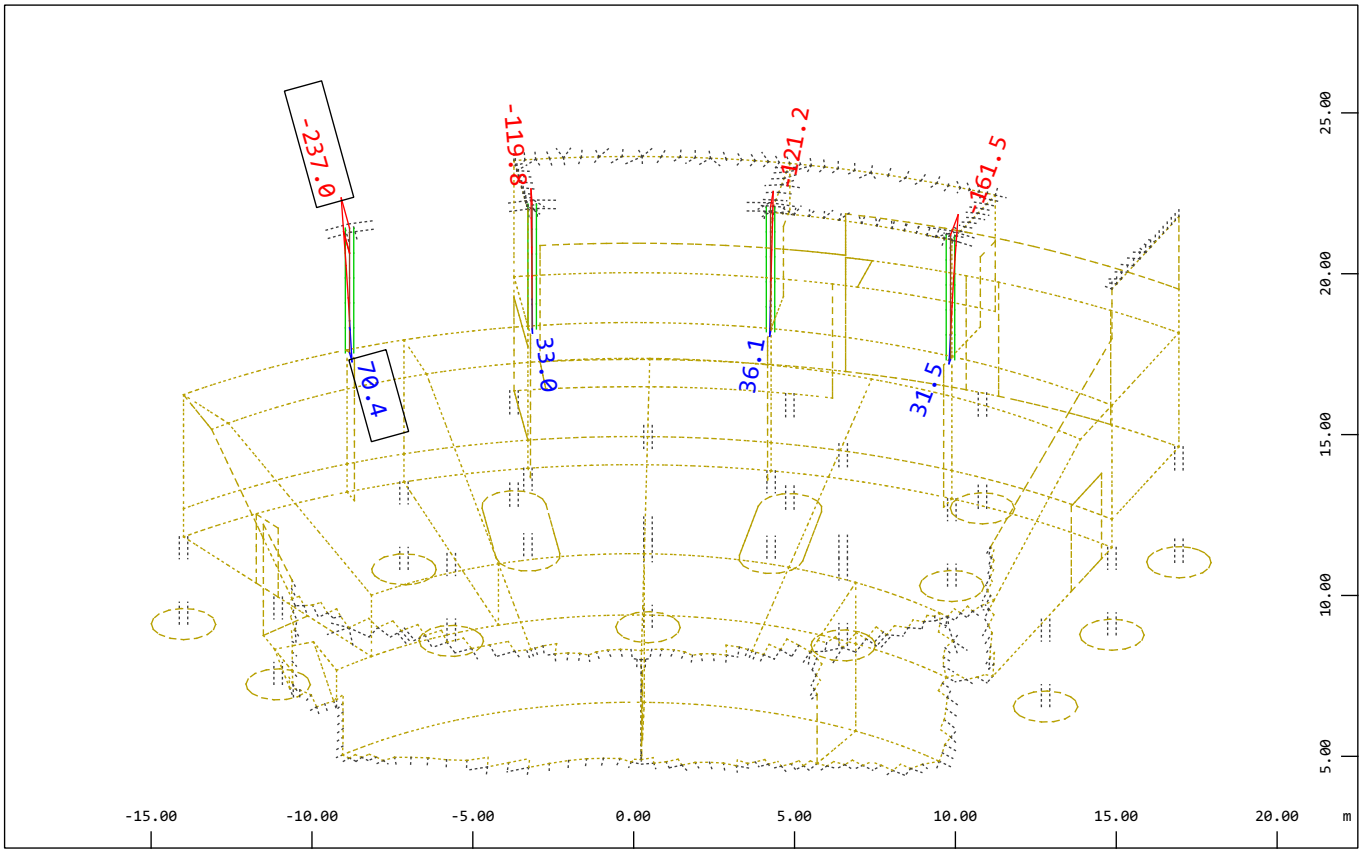
SOFiSTiK AG - www.sofistik.de

SNG zunanji avditorij



Sector of system Group 1...8 21...31 50 100...103 200 201 300 400 401
Beam Elements , Bending moment My, Loadcase 7129 MAXE-MY BEAM , 1 cm 3D = 143.0 kNm
(Min=-202.1) (Max=110.4)

M 1 : 240
X * 1.000
Y * 0.485
Z * 0.875

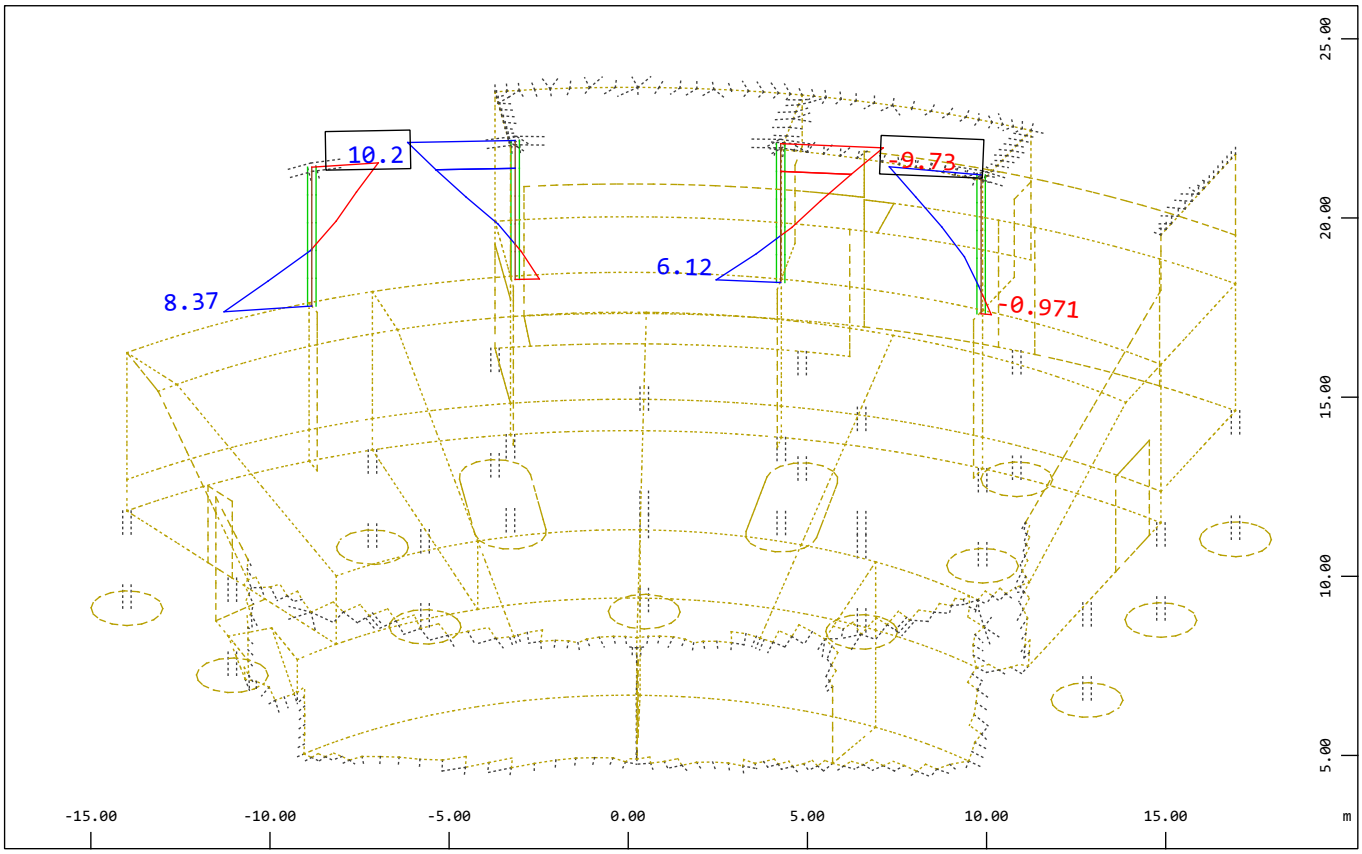


Sector of system Group 1...8 21...31 50 100...103 200 201 300 400 401
Beam Elements , Bending moment My, Loadcase 7130 MINE-MY BEAM , 1 cm 3D = 285.9 kNm
(Min=-237.0) (Max=70.4)

M 1 : 235
X * 1.000
Y * 0.485
Z * 0.875

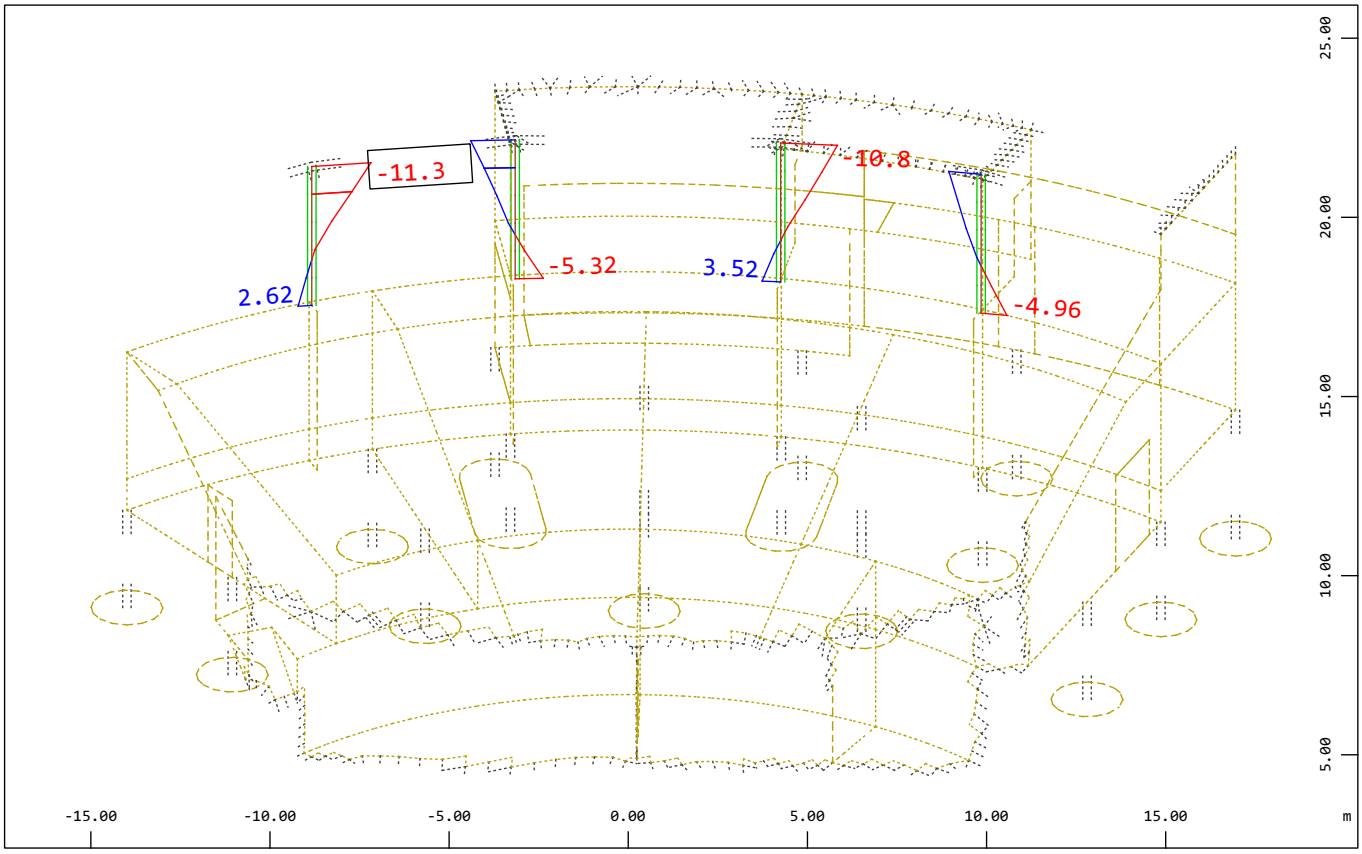
SOFiSTiK AG - www.sofistik.de

SNG zunanji avditorij



Sector of system Group 1...8 21...31 50 100...103 200 201 300 400 401
Beam Elements , Bending moment Mz, Loadcase 7131 MAXE-MZ BEAM , 1 cm 3D = 7.15 kNm
(Min=-9.73) (Max=10.2)

M 1 : 211
X * 1.000
Y * 0.485
Z * 0.875

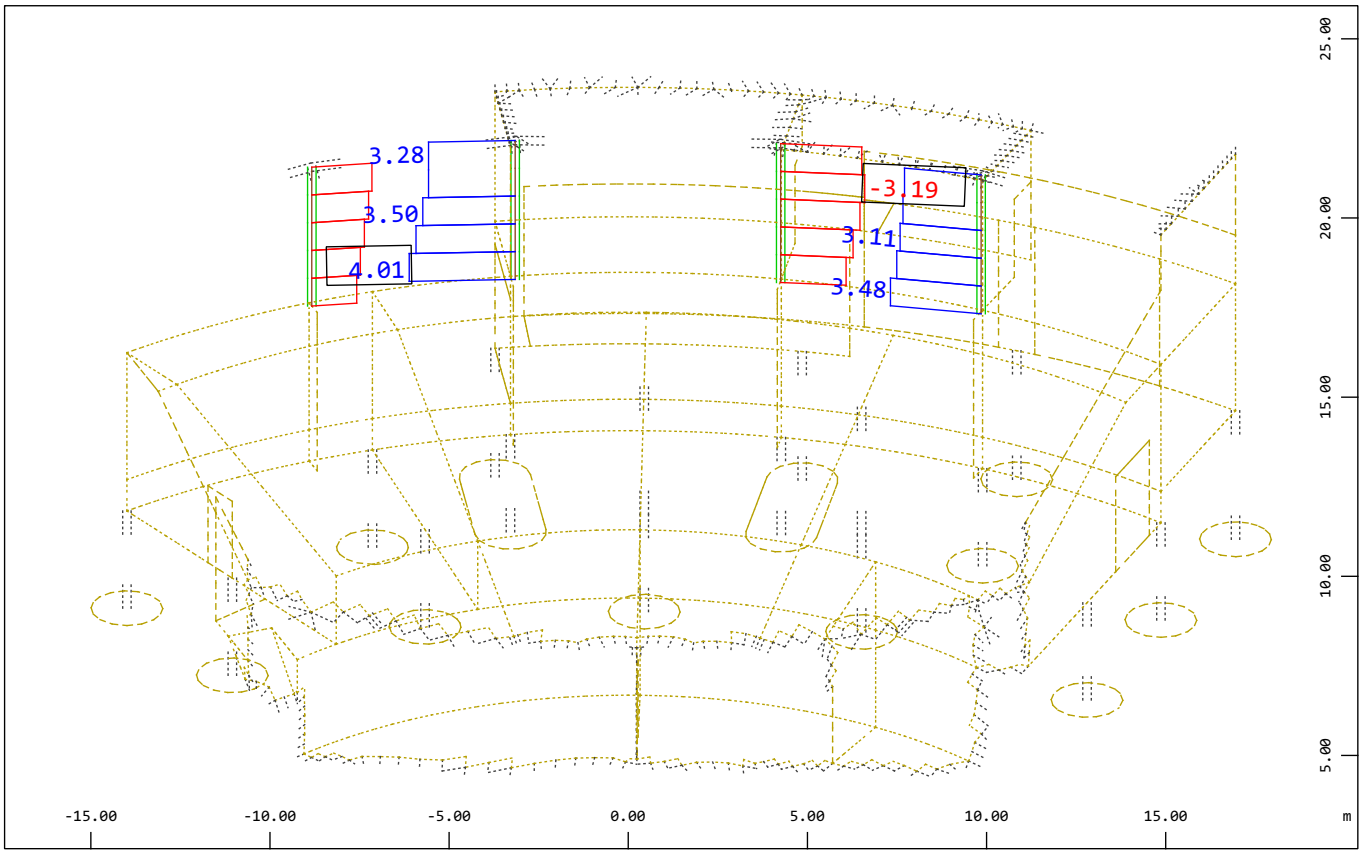


Sector of system Group 1...8 21...31 50 100...103 200 201 300 400 401
Beam Elements , Bending moment Mz, Loadcase 7132 MINE-MZ BEAM , 1 cm 3D = 14.3 kNm
(Min=-11.3) (Max=8.43)

M 1 : 211
X * 1.000
Y * 0.485
Z * 0.875

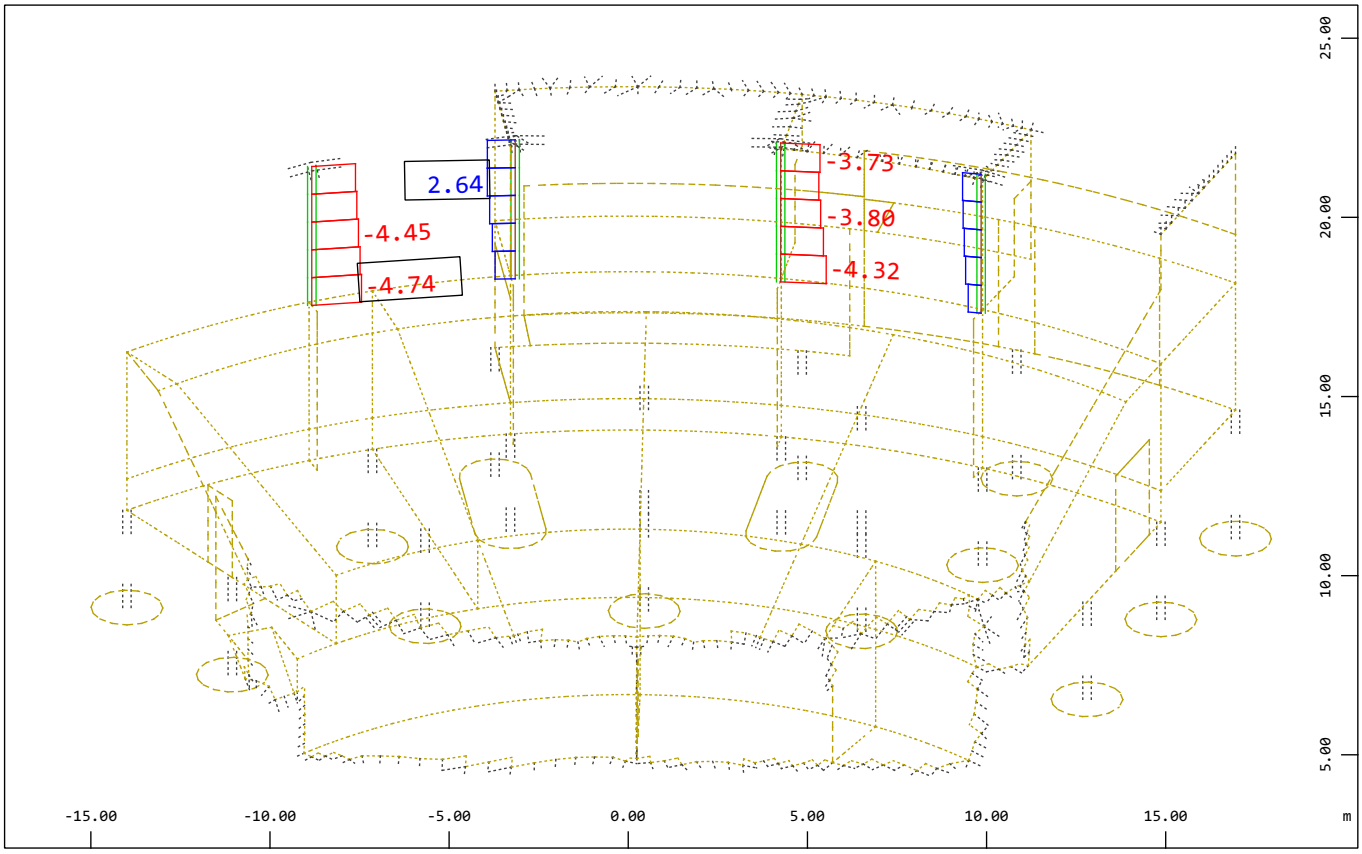
SOFiSTiK AG - www.sofistik.de

SNG zunanji avditorij



Sector of system Group 1...8 21...31 50 100...103 200 201 300 400 401
Beam Elements , Shear force Vy, Loadcase 7123 MAXE-VY BEAM , 1 cm 3D = 2.86 kN
(Min=-3.19) (Max=4.01)

M 1 : 211
X * 1.000
Y * 0.485
Z * 0.875

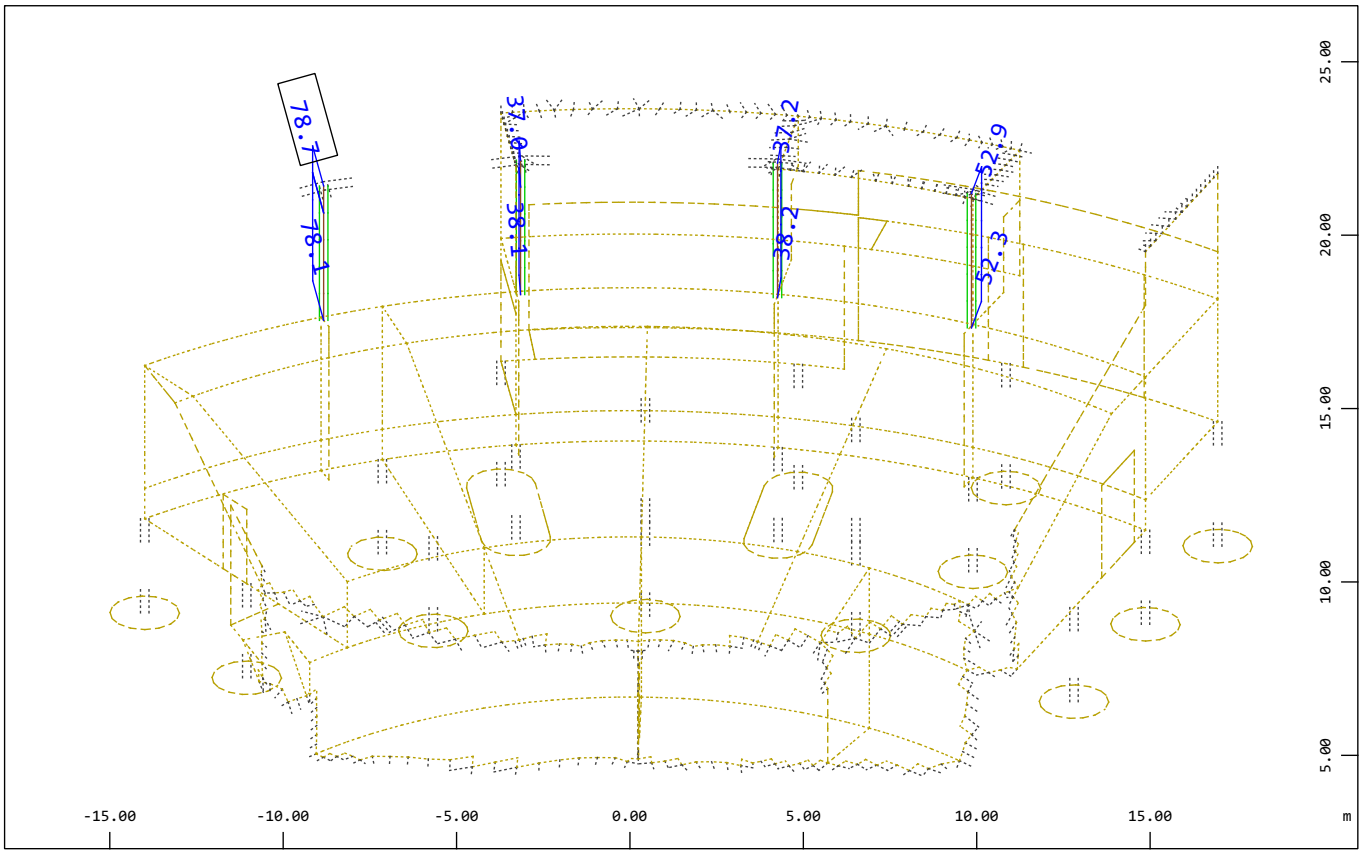


Sector of system Group 1...8 21...31 50 100...103 200 201 300 400 401
Beam Elements , Shear force Vy, Loadcase 7124 MINE-VY BEAM , 1 cm 3D = 7.15 kN
(Min=-4.74) (Max=2.64)

M 1 : 211
X * 1.000
Y * 0.485
Z * 0.875

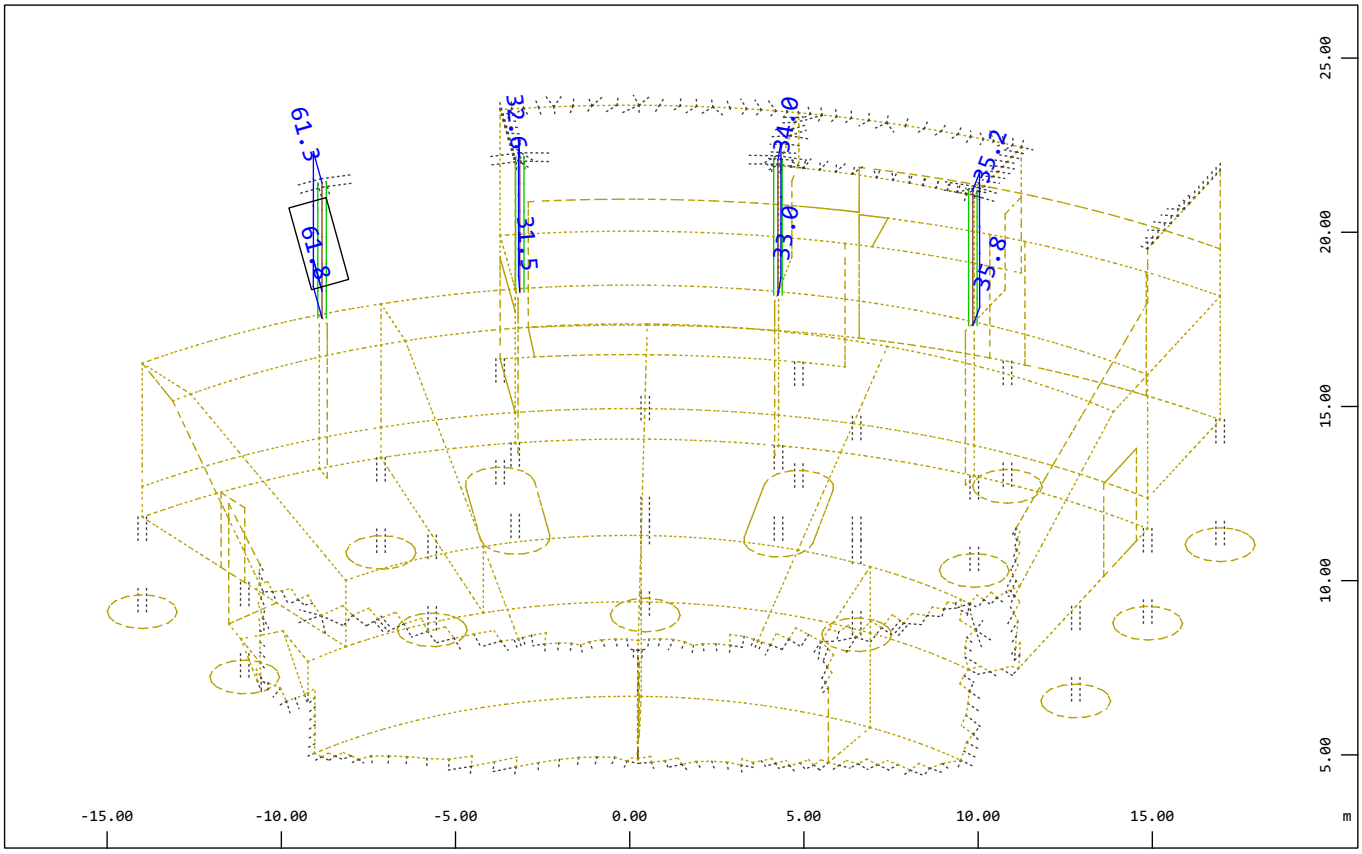
SOFiSTiK AG - www.sofistik.de

SNG zunanji avditorij



Sector of system Group 1...8 21...31 50 100...103 200 201 300 400 401
Beam Elements , Shear force Vz, Loadcase 7125 MAXE-VZ BEAM , 1 cm 3D = 71.5 kN
(Max=78.7)

M 1 : 218
X * 1.000
Y * 0.485
Z * 0.875

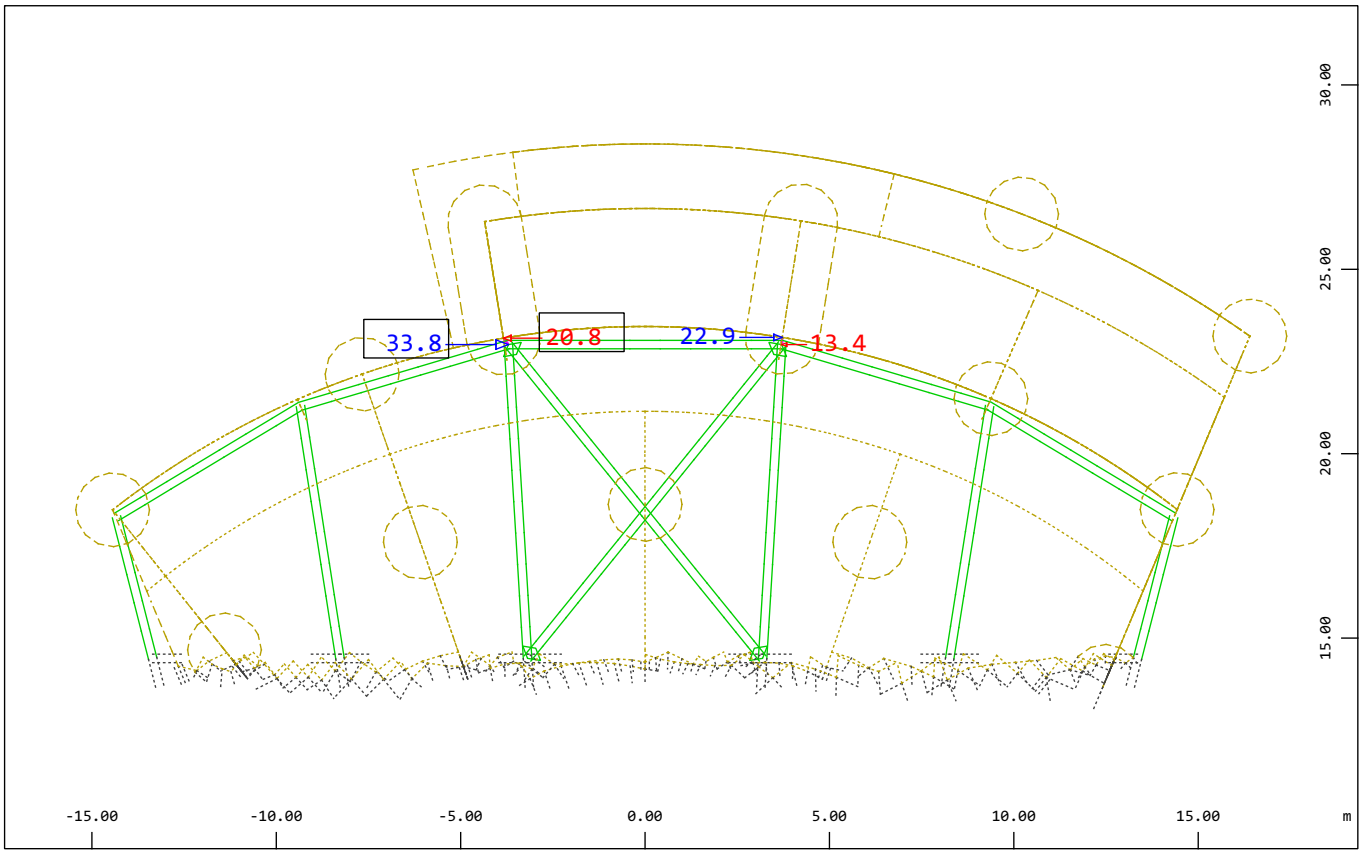


Sector of system Group 1...8 21...31 50 100...103 200 201 300 400 401
Beam Elements , Shear force Vz, Loadcase 7126 MINE-VZ BEAM , 1 cm 3D = 71.5 kN
(Max=61.8)

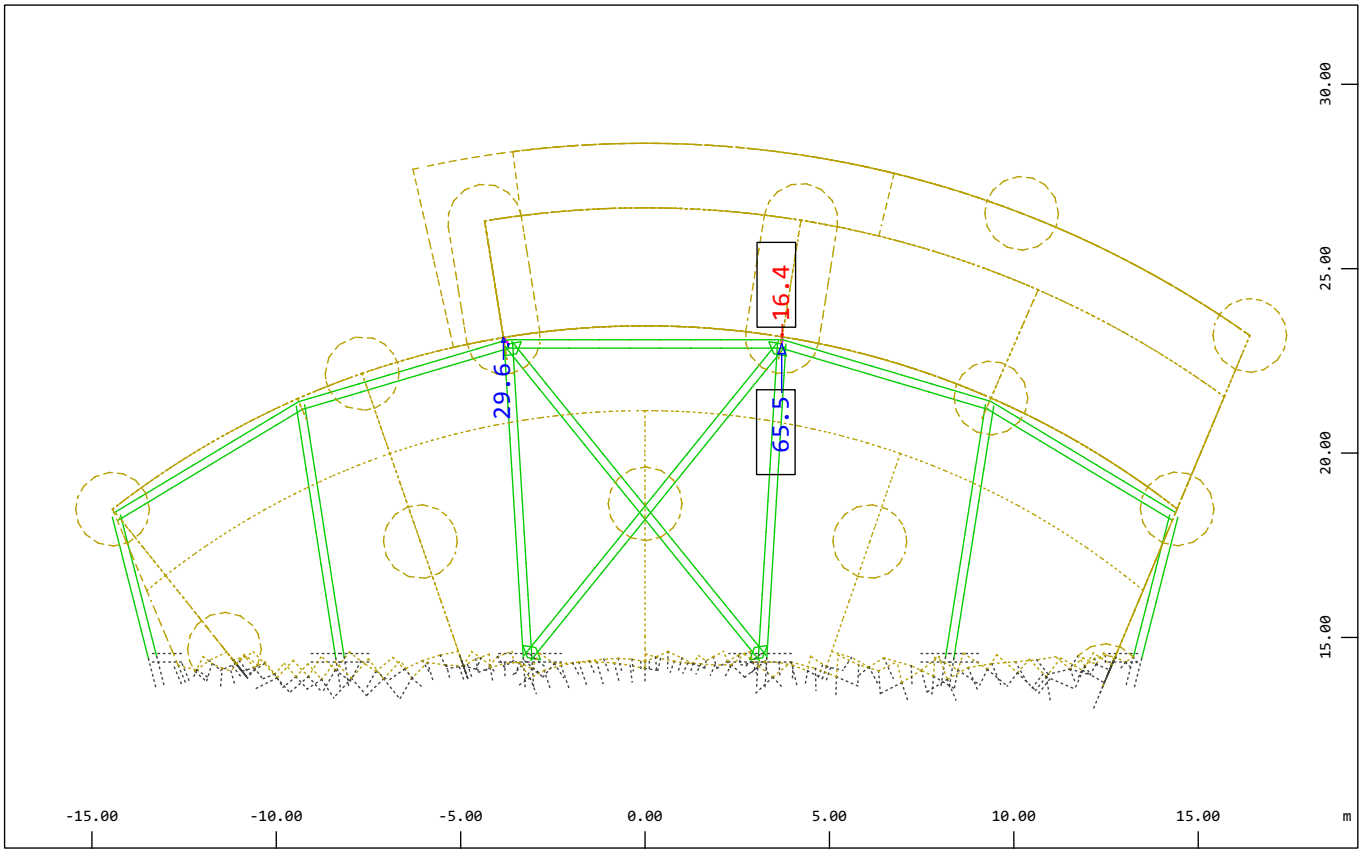
M 1 : 217
X * 1.000
Y * 0.485
Z * 0.875

SOFiSTiK AG - www.sofistik.de

SNG zunanji avditorij



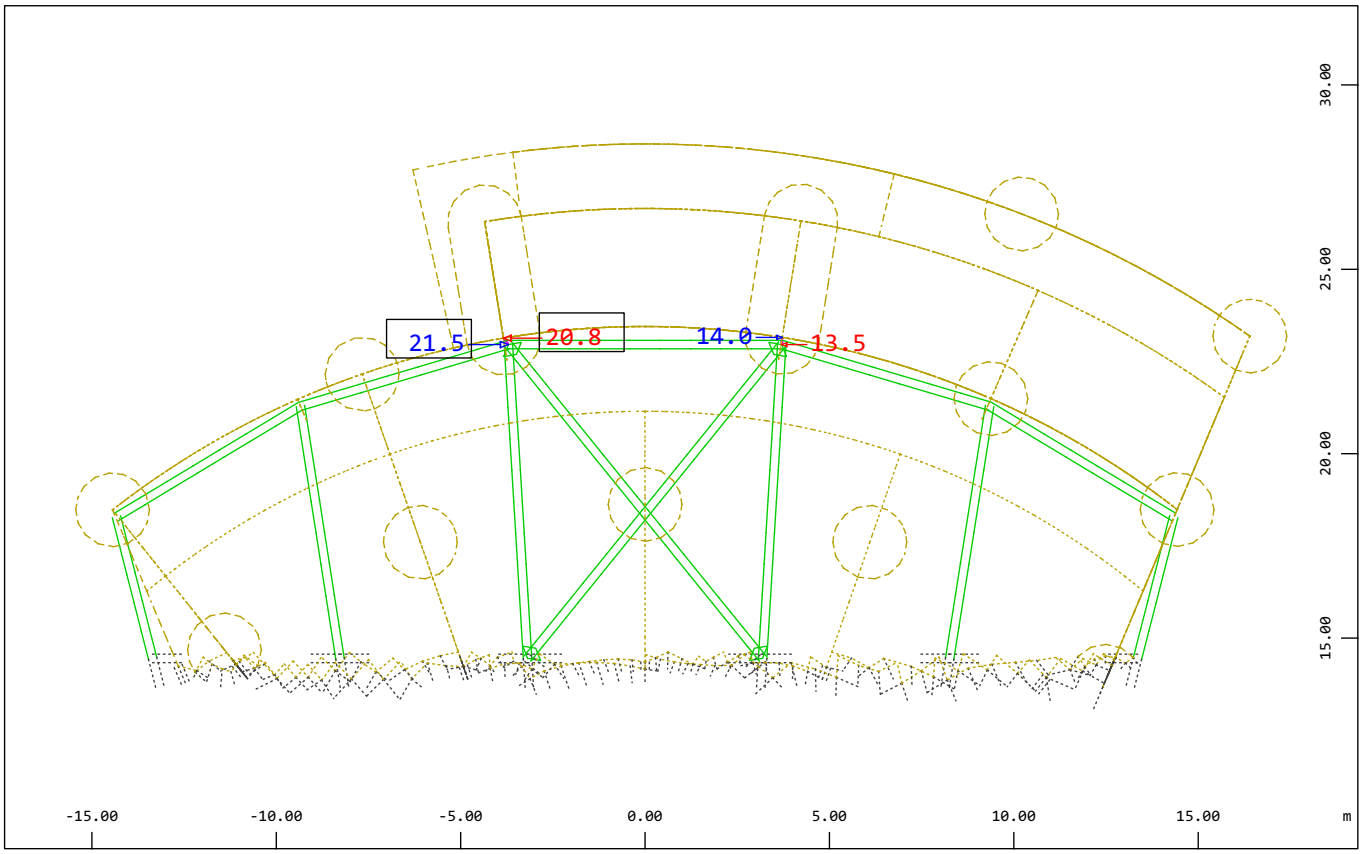
Sector of system Group 1...8 21...31 50 100...103 200 201 300 400 401 M 1 : 205
Constraining force in global X, Loadcase 7051 MAX-PX KINE , 1 cm 3D = 40.9 kN
(Min=-20.8) (Max=33.8) (total: 22.5)



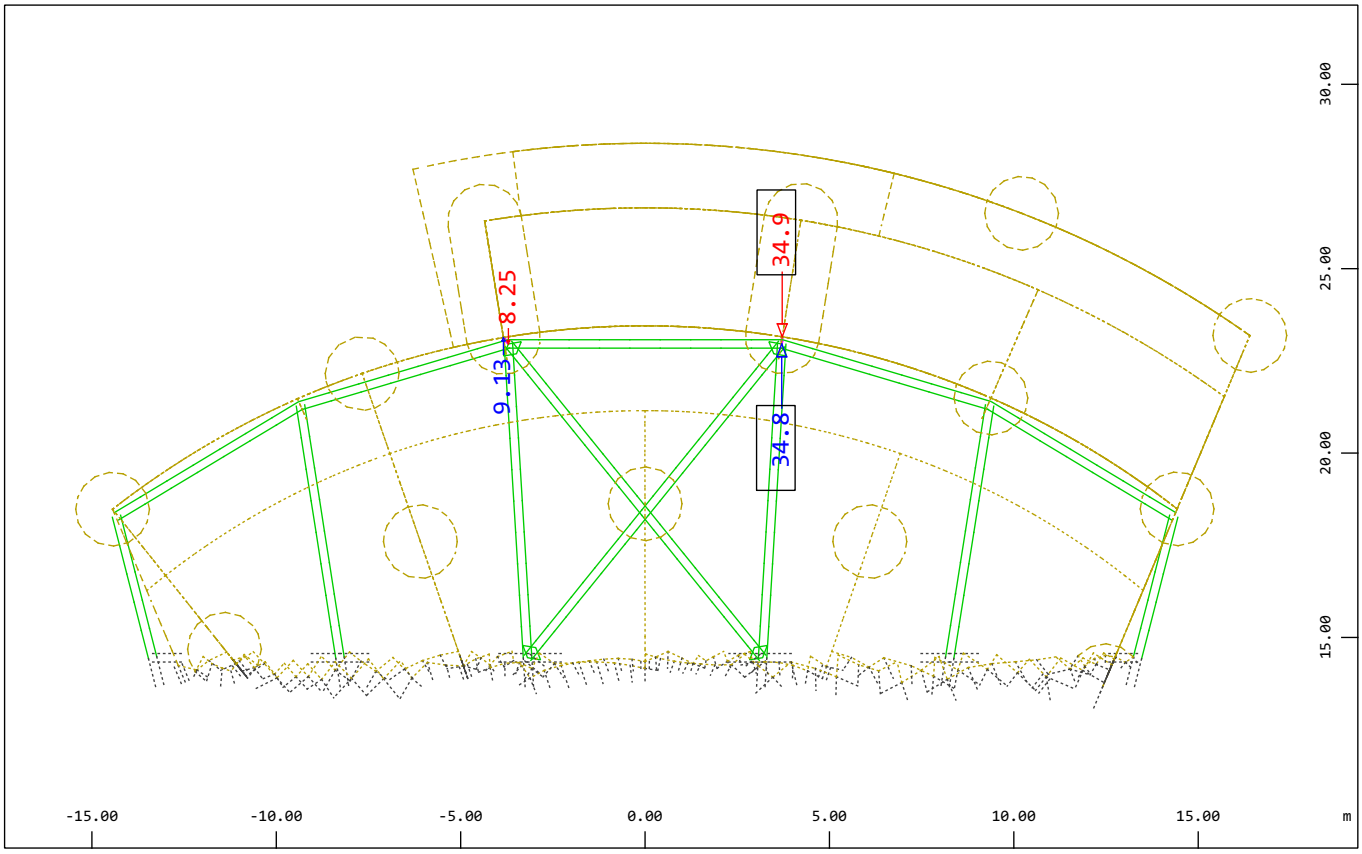
Sector of system Group 1...8 21...31 50 100...103 200 201 300 400 401 M 1 : 205
Constraining force in global Y, Loadcase 7053 MAX-PY KINE , 1 cm 3D = 102.3 kN
(Min=-16.4) (Max=65.5) (total: 82.5)

SOFiSTiK AG - www.sofistik.de

SNG zunanji avditorij



Sector of system Group 1...8 21...31 50 100...103 200 201 300 400 401 M 1 : 205
Constraining force in global X, Loadcase 7151 MAXE-PX KINE , 1 cm 3D = 40.9 kN
(Min=-20.8) (Max=21.5) (total: 1.13)



Sector of system Group 1...8 21...31 50 100...103 200 201 300 400 401 M 1 : 205
Constraining force in global Y, Loadcase 7152 MINE-PX KINE , 1 cm 3D = 40.9 kN
(Min=-34.9) (Max=34.8) (total: 0.699)

SOFiSTiK AG - www.sofistik.de

Vsebina

Osnovni podatki o modelu 2

Vhodni podatki

Vhodni podatki - Konstrukcija 3

Vhodni podatki - Obtežba 5

Rezultati

Statični preračun 6

Dimenzioniranje (jeklo) 8

Osnovni podatki o modelu

Datoteka:	Terciarci.twp
Datum preračuna:	18.11.2024

Način preračuna: 3D model

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

Velikost modela

Število vozlišč:	54
Število ploskovnih elementov:	0
Število grednih elementov	51
Število robnih elementov	54
Število osnovnih obtežnih primerov:	2
Število kombinacij obtežb:	2

Enote mer

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

Vhodni podatki - Konstrukcija

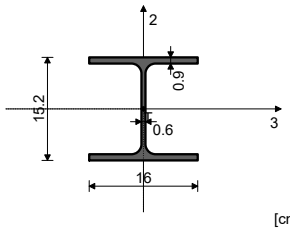
Tabele materialov

No	Naziv materiala	E[kN/m2]	μ	γ[kN/m3]	αt[1/C]	Em[kN/m2]	μm
1	Jeklo	2.100e+8	0.30	78.50	1.000e-5	2.100e+8	0.30

Seti gred

Set: 1 Prerez: IPBl 160, Fiktivna ekscentričnost

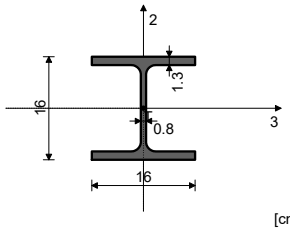
Mat.	A1	A2	A3	I1	I2	I3
1 - Jeklo	3.880e-3	1.324e-3	2.556e-3	1.230e-7	6.160e-6	1.670e-5



[cm]

Set: 2 Prerez: IPB 160, Fiktivna ekscentričnost

Mat.	A1	A2	A3	I1	I2	I3
1 - Jeklo	5.430e-3	1.764e-3	3.666e-3	3.140e-7	8.890e-6	2.490e-5



[cm]

Seti točkovnih podpor

Set	K,R1	K,R2	K,R3	K,M1	K,M2	K,M3
1	1.000e+10	1.000e+10	1.000e+10	1.000e+10	1.000e+10	1.000e+10

Konture gred Set 1. IPBl 160

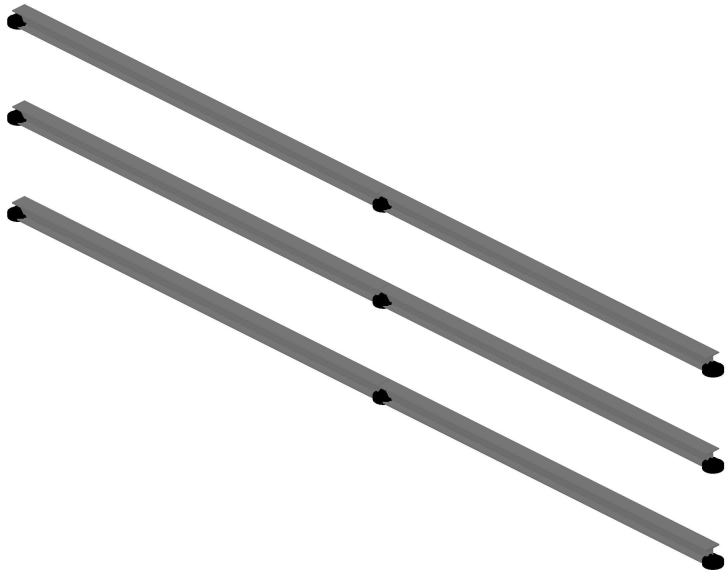
No	Vozlišče I	Vozlišče J	Sprostitev vplivov												N	Ozn. pozicije
			Vozlišče I						Vozlišče J							
			M1	M2	M3	P1	P2	P3	M1	M2	M3	P1	P2	P3		
1	3	29														
2	7	34														
3	29	52														
4	34	54														

Konture gred Set 2. IPB 160

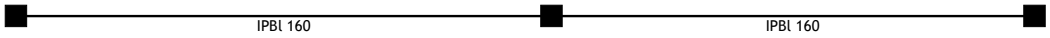
No	Vozlišče I	Vozlišče J	Sprostitev vplivov												N	Ozn. pozicije
			Vozlišče I						Vozlišče J							
			M1	M2	M3	P1	P2	P3	M1	M2	M3	P1	P2	P3		
1	1	24														
2	24	48														

Konture točkovnih podpor

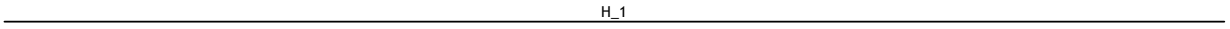
Vozlišča	Set
1, 3, 7, 24, 29, 34, 48, 52, 54	1



Izometrija



Nivo: [0.00 m]

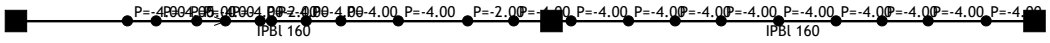


Dispozicija okvirjev

Vhodni podatki - Obtežba

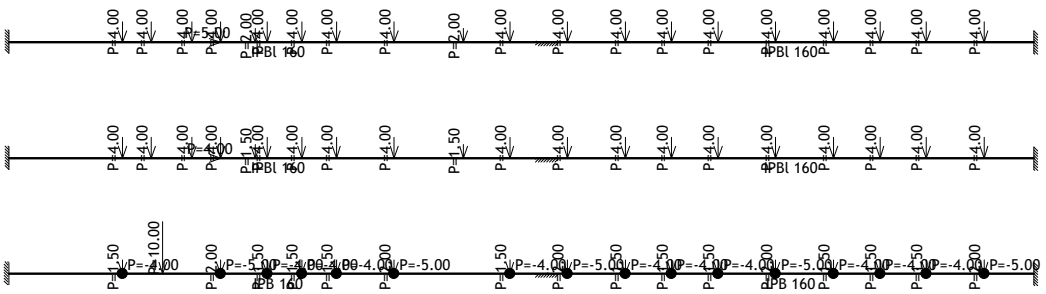
Lista obtežnih primerov				
LC	Naziv	pX [kN]	pY [kN]	pZ [kN]
1	lastna (g)	0.00	0.00	-9.17
2	obtežba oprema	9.00	-69.00	-187.50
3	Komb.: 1.35xI+1.5xII	13.50	-103.50	-293.63
4	Komb.: I+II	9.00	-69.00	-196.67

Obt. 2: obtežba oprema



Nivo: [0.00 m]

Obt. 2: obtežba oprema



Okvir: H_1

Notranje sile v gredah - Ekstremne vrednosti - Obtežba: 1-4

Oznaka	LC	x [m]	N1 [kN]	T2 [kN]	M2 [kNm]	M3 [kNm]
(7 - 34)	3	1.830	**|4.555|**	-11.860	0.000	15.168
(3 - 29)	3	1.830	**|3.644|**	-11.384	0.000	14.848
(7 - 34)	4	1.830	**|3.036|**	-7.919	0.000	10.137
(7 - 34)	2	1.830	**|3.036|**	-7.767	0.000	9.899
(7 - 34)	3	4.660	**|-2.945|**	31.304	0.000	-27.996
(3 - 29)	4	1.830	**|2.429|**	-7.603	0.000	9.923
(3 - 29)	2	1.830	**|2.429|**	-7.451	0.000	9.686
(3 - 29)	3	4.660	**|-2.356|**	30.280	0.000	-27.213
(7 - 34)	4	4.660	**|-1.964|**	20.942	0.000	-18.720
(7 - 34)	2	4.660	**|-1.964|**	20.233	0.000	-18.169
(7 - 34)	3	4.660	-2.945	**|31.304|**	0.000	-27.996
(7 - 34)	3	0.000	4.555	**|-30.612|**	0.000	-29.938
(3 - 29)	3	4.660	-2.356	**|30.280|**	0.000	-27.213
(3 - 29)	3	0.000	3.644	**|-30.136|**	0.000	-29.393
(29 - 52)	3	0.000	0.000	**|-29.609|**	0.000	-20.444
(34 - 54)	3	0.000	0.000	**|-29.609|**	0.000	-20.444
(29 - 52)	3	4.200	0.000	**|26.118|**	0.000	-20.133
(34 - 54)	3	4.200	0.000	**|26.118|**	0.000	-20.133
(7 - 34)	4	4.660	-1.964	**|20.942|**	0.000	-18.720
(1 - 24)	3	0.000	0.000	**|-20.891|**	-20.325	-18.973
(1 - 24)	3	4.660	0.000	14.041	**|-22.205|**	-13.701
(24 - 48)	3	0.000	0.000	-13.167	**|-20.970|**	-8.850
(24 - 48)	3	4.200	0.000	11.750	**|-20.791|**	-8.801
(1 - 24)	3	0.000	0.000	-20.891	**|-20.325|**	-18.973
(1 - 24)	4	4.660	0.000	9.460	**|-14.803|**	-9.211
(1 - 24)	2	4.660	0.000	8.467	**|-14.803|**	-8.440
(24 - 48)	4	0.000	0.000	-8.867	**|-13.980|**	-5.963
(24 - 48)	2	0.000	0.000	-7.972	**|-13.980|**	-5.336
(24 - 48)	4	4.200	0.000	7.923	**|-13.861|**	-5.930
(24 - 48)	2	4.200	0.000	7.028	**|-13.861|**	-5.304
(7 - 34)	3	0.000	4.555	-30.612	0.000	**|-29.938|**
(3 - 29)	3	0.000	3.644	-30.136	0.000	**|-29.393|**
(7 - 34)	3	4.660	-2.945	31.304	0.000	**|-27.996|**
(3 - 29)	3	4.660	-2.356	30.280	0.000	**|-27.213|**
(29 - 52)	3	0.000	0.000	-29.609	0.000	**|-20.444|**
(34 - 54)	3	0.000	0.000	-29.609	0.000	**|-20.444|**
(29 - 52)	3	4.200	0.000	26.118	0.000	**|-20.133|**
(34 - 54)	3	4.200	0.000	26.118	0.000	**|-20.133|**
(7 - 34)	4	0.000	3.036	-20.477	0.000	**|-20.014|**
(3 - 29)	4	0.000	2.429	-20.160	0.000	**|-19.651|**

Deformacija gred L.K.S. - Ekstremne vrednosti - Obtežba: 1-4

Oznaka	LC	x [m]	u2 [mm]
(7 - 34)	3	2.230	**|-6.598|**
(3 - 29)	3	2.230	**|-6.452|**
(7 - 34)	4	2.230	**|-4.410|**
(3 - 29)	4	2.230	**|-4.313|**
(7 - 34)	2	2.230	**|-4.296|**

Oznaka	LC	x [m]	u2 [mm]
(3 - 29)	2	2.230	**|-4.199|**
(29 - 52)	3	2.100	**|-3.469|**
(34 - 54)	3	2.100	**|-3.469|**
(1 - 24)	3	2.230	**|-2.440|**
(29 - 52)	4	2.100	**|-2.320|**

Deformacija gred GLO - Ekstremne vrednosti - Obtežba: 1-4

Oznaka	LC	x [m]	Zp [mm]
(7 - 34)	3	2.230	**|-6.598|**
(3 - 29)	3	2.230	**|-6.452|**
(7 - 34)	4	2.230	**|-4.410|**
(3 - 29)	4	2.230	**|-4.313|**
(7 - 34)	2	2.230	**|-4.296|**

Oznaka	LC	x [m]	Zp [mm]
(3 - 29)	2	2.230	**|-4.199|**
(29 - 52)	3	2.100	**|-3.469|**
(34 - 54)	3	2.100	**|-3.469|**
(1 - 24)	3	2.230	**|-2.440|**
(29 - 52)	4	2.100	**|-2.320|**

Vplivi v točkovnih podporah - Ekstremne vrednosti - Obtežba: 1-4

Oznaka	LC	R1 [kN]	R2 [kN]	R3 [kN]	M1 [kNm]	M2 [kNm]	M3 [kNm]
34	3	-2.945	0.000	**|60.913|**	0.000	7.552	0.000
29	3	-2.356	0.000	**|59.889|**	0.000	6.769	0.000
34	4	-1.963	0.000	**|40.746|**	0.000	5.045	0.000
29	4	-1.571	0.000	**|40.062|**	0.000	4.523	0.000
34	2	-1.963	0.000	**|39.397|**	0.000	4.942	0.000
29	2	-1.571	0.000	**|38.713|**	0.000	4.420	0.000
7	3	-4.555	0.000	**|30.612|**	0.000	-29.938	0.000
3	3	-3.644	0.000	**|30.136|**	0.000	-29.393	0.000
24	3	0.000	56.421	**|27.207|**	0.000	4.851	-1.235
54	3	0.000	0.000	**|26.118|**	0.000	20.133	0.000

Deformacije vozlišč: max. |Yp|

Vozlišče	LC	Xp [mm]	Yp [mm]	Zp [mm]
12	3	0.000	**-8.655**	-2.295
9	3	0.000	**-8.554**	-2.435
15	3	0.000	**-6.969**	-1.767
6	3	0.000	**-6.741**	-2.118
36	3	0.000	**-6.259**	-1.021

Vozlišče	LC	Xp [mm]	Yp [mm]	Zp [mm]
12	4	0.000	**-5.770**	-1.541
12	2	0.000	**-5.770**	-1.435
9	4	0.000	**-5.703**	-1.634
9	2	0.000	**-5.703**	-1.528
39	3	0.000	**-5.513**	-0.903

Deformacije vozlišč: max. |Zp|

Vozlišče	LC	Xp [mm]	Yp [mm]	Zp [mm]
19	3	0.009	0.000	**-6.492**
22	3	0.007	0.000	**-6.368**
14	3	0.007	0.000	**-6.350**
17	3	0.006	0.000	**-6.226**
16	3	0.009	0.000	**-5.330**

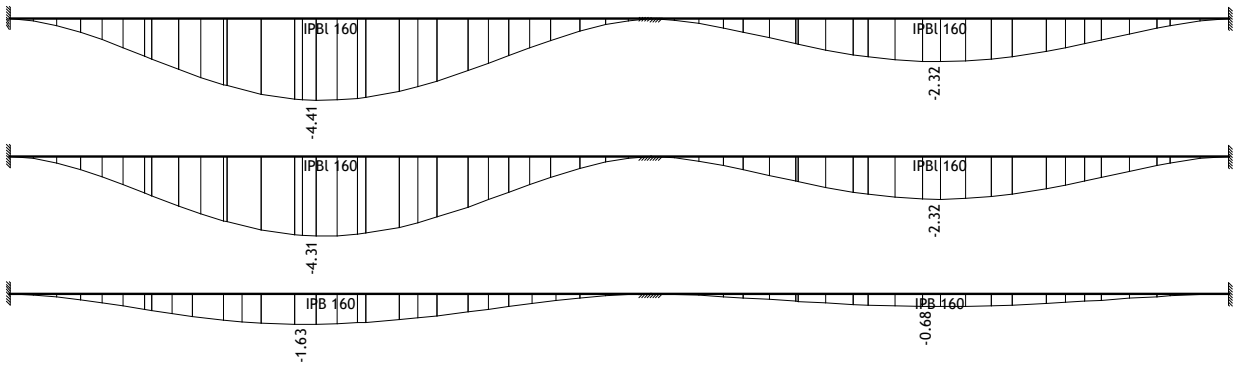
Vozlišče	LC	Xp [mm]	Yp [mm]	Zp [mm]
11	3	0.007	0.000	**-5.220**
25	3	0.006	0.000	**-5.033**
20	3	0.004	0.000	**-4.917**
19	4	0.006	0.000	**-4.340**
22	4	0.005	0.000	**-4.257**

Deformacije vozlišč: max. |Xp|

Vozlišče	LC	Xp [mm]	Yp [mm]	Zp [mm]
19	3	**0.009**	0.000	-6.492
16	3	**0.009**	0.000	-5.330
22	3	**0.007**	0.000	-6.368
14	3	**0.007**	0.000	-6.350
11	3	**0.007**	0.000	-5.220

Vozlišče	LC	Xp [mm]	Yp [mm]	Zp [mm]
19	4	**0.006**	0.000	-4.340
19	2	**0.006**	0.000	-4.228
17	3	**0.006**	0.000	-6.226
13	3	**0.006**	0.000	-3.259
16	4	**0.006**	0.000	-3.562

Obt. 4: I+II



Okvir: H_1
Vplivi v gredi: max Zp= -0.00 / min Zp= -4.41 m / 1000

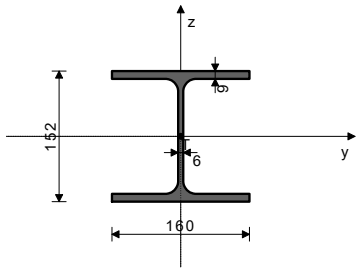
Dimenzioniranje (jeklo)



Okvir: H_1
Kontrola napetosti

PALICA 29-3
PREČNI PREREZ: IPBl 160 [S 355] [Set: 1]
EUROCODE 3 (ENV)

GEOMETRIJSKE KARAKTERISTIKE prereza



Ax =	38.800 cm2
Ay =	25.560 cm2
Az =	13.240 cm2
Ix =	12.300 cm4
Iy =	1670.0 cm4
Iz =	616.00 cm4
Wy =	219.74 cm3
Wz =	77.000 cm3
Wy,pl =	237.43 cm3
Wz,pl =	115.20 cm3
γM0 =	1.000
γM1 =	1.100
γM2 =	1.250
Anet/A =	0.900

(fy = 35.5 kN/cm2, fu = 51.0 kN/cm2)

FAKTORJI IZKORIŠČENOSTI PO KOMBINACIJAH OBTEŽB
3. γ=0.51 4. γ=0.34

PALICA IZPOSTAVLJENA NATEGU IN UPOGIBU
(obtežni primer 3, začetek palice)

Računska osna sila	Nsd =	3.644 kN
Prečna sila v z smeri	Vsd_z =	-30.136 kN
Upogibni moment okoli y osi	Msd_y =	-29.393 kNm
Sistemska dolžina palice	L =	466.00 cm

5.3 KLASIFIKACIJA PREČNIH PREREZOV
Razred prereza 2

5.4 NOSILNOST PREČNIH PREREZOV
5.4.3 Nateg

Plast.rač.nosilnost bruto prereza	Npl.Rd =	1377.4 kN
Mejna rač.nosilnost neto prereza	Nu.Rd =	1282.3 kN
Računska nos. na nateg	Nt.Rd =	1282.3 kN

Prerez ne ustreza duktilnemu obnašanju!
Pogoj 5.13: Nsd <= Nt.Rd (3.64 <= 1282.26)

5.4.5 Upogib y-y

Računski plastični moment	Mpl.Rd =	84.289 kNm
Računska nos.na lokalno izbočitev	Mo.Rd =	70.915 kNm
Računski elastični moment	Mel.Rd =	78.007 kNm
Računska nosilnost na upogib	Mc.Rd =	84.289 kNm

Pogoj 5.17: Msd_y <= Mc.Rd_y (29.39 <= 84.29)

5.4.6 Strig

Računska plast.nos.na strig z-z	Vpl.Rd =	164.79 kN

Pogoj 5.20: Vsd_z <= Vpl.Rd_z (30.14 <= 164.79)

5.4.9 Upogib z osno in prečno silo
Ni potrebno zmanjšanje upogibne nosilnosti
Pogoj: Vsd_z <= 50%Vpl.Rd_z

5.4.8 Upogib in osna sila

Razmerje Msd_y / Mpl.Rd_y		0.349

Pogoj 5.36: (0.35 <= 1)

5.5 NOSILNOST ELEMENTOV
5.5.2 Bočna zvrnitev upogibnih nosilcev

Koeficient	C1 =	1.285
Koeficient	C2 =	1.562
Koeficient	C3 =	0.753
Koef.ukl.dolžine za uklon	k =	1.000
Koef.ukl.dolžine za vbočenje	kw =	1.000
Koordinata	zg =	0.000 cm
Koordinata	zj =	0.000 cm
Razmak med bočnimi podporami	L =	466.00 cm
Sektorski vztrajnostni moment	Iw =	31410 cm6
Krit.moment bočne zvrnitve	Mcr =	112.05 kNm
Koeficient	βw =	1.000
Koeficient imperf.	αLT =	0.210
Brezdimenz.vitkost	λLT_ =	0.867
Koeficient zmanjšanja	χLT =	0.755
Računska uklonska nosilnost	Mb.Rd =	57.858 kNm

5.5.3 Upogib in nateg

Redukcijski koef.za vektorske vplive	ψvec =	0.800
Elast.odp.mom.za krajne tlač.vlakno	Wcom =	219.74 cm3
Efektivni rač.notranji moment	Meff.sd =	29.228 kNm

Pogoj 5.50: Meff.sd <= Mb.Rd (29.23 <= 57.86)

5.6 LOKALNO IZBOČENJE ZARADI STRIGA
za strig v ravnini z-z

Višina stojine	d =	13.400 cm
Debelina stojine	tw =	0.600 cm

Ni prečnih ojačitev v sredini

Koeficient izbočenja pri strigu	kτ =	5.340

Ni potrebna kontrola izbočenja zaradi striga
Pogoj: d / tw <= 69 ε (22.33 <= 56.14)

5.6.7 Interakcija prečne sile, upogiba in osne sile
za strig v ravnini z-z

Računski plastični moment pasnic	Mf.Rd =	64.160 kNm

Pogoji 5.66a in 5.66b so izpolnjeni

5.7 VNOS KONCENTRIRANIH SIL V STOJINO
5.7.7 Uklon pasnice v smeri stojine

Koeficient(razred pasnice 2)	k =	0.400
Površina stojine	Aw =	9.120 cm2
Površina tlač.pasnice	Afc =	14.400 cm2

Preprečen je uklon pasnice v smeri stojine
Pogoj 5.80: (22.33 <= 188.31)

KONTROLA STRIŽNE NOSILNOSTI
(obtežni primer 3, konec palice)

Računska osna sila	Nsd =	-2.356 kN
Prečna sila v z smeri	Vsd_z =	30.280 kN
Upogibni moment okoli y osi	Msd_y =	-27.213 kNm
Sistemska dolžina palice	L =	466.00 cm

5.4 NOSILNOST PREČNIH PREREZOV
5.4.6 Strig

Računska plast.nos.na strig z-z	Vpl.Rd =	164.79 kN

Pogoj 5.20: Vsd_z <= Vpl.Rd_z (30.28 <= 164.79)

5.6 LOKALNO IZBOČENJE ZARADI STRIGA
za strig v ravnini z-z

Višina stojine	d =	13.400 cm
Debelina stojine	tw =	0.600 cm

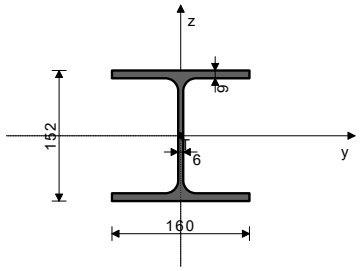
Ni prečnih ojačitev v sredini

Koeficient izbočenja pri strigu	kτ =	5.340

Ni potrebna kontrola izbočenja zaradi striga
Pogoj: d / tw <= 69 ε (22.33 <= 56.14)

PALICA 34-7
PREČNI PREREZ: IPBl 160 [S 355] [Set: 1]
EUROCODE 3 (ENV)

GEOMETRIJSKE KARAKTERISTIKE prereza



Ax =	38.800 cm2
Ay =	25.560 cm2
Az =	13.240 cm2
Ix =	12.300 cm4
Iy =	1670.0 cm4
Iz =	616.00 cm4
Wy =	219.74 cm3
Wz =	77.000 cm3
Wy,pl =	237.43 cm3
Wz,pl =	115.20 cm3
γM0 =	1.000
γM1 =	1.100
γM2 =	1.250
Anet/A =	0.900

(fy = 35.5 kN/cm2, fu = 51.0 kN/cm2)

FAKTORJI IZKORIŠČENOSTI PO KOMBINACIJAH OBTEŽB
3. γ=0.29 4. γ=0.20

PALICA IZPOSTAVLJENA PRITISKU IN UPOGIBU
POROČILO DIMENZIONIRANJA SAMO ENEGA PREREZA
(na 238.0 cm od začetka palice)

Računska osna sila	Nsd =	-2.945 kN
Prečna sila v z smeri	Vsd_z =	3.367 kN
Upogibni moment okoli y osi	Msd_y =	16.677 kNm
Sistemska dolžina palice	L =	466.00 cm

5.3 KLASIFIKACIJA PREČNIH PREREZOV
Razred prereza 2

5.4 NOSILNOST PREČNIH PREREZOV
5.4.4 Tlak

Plastična računska nosilnost	Npl.Rd =	1377.4 kN
Računska nosilnost na tlak	Nc.Rd =	1377.4 kN

Pogoj 5.16: Nsd <= Nc.Rd (2.95 <= 1377.40)

5.4.5 Upogib y-y

Računski plastični moment	Mpl.Rd =	84.289 kNm
Računska nos.na lokalno izbočitev	Mo.Rd =	70.915 kNm
Računski elastični moment	Mel.Rd =	78.007 kNm
Računska nosilnost na upogib	Mc.Rd =	84.289 kNm

Pogoj 5.17: Msd_y <= Mc.Rd_y (16.68 <= 84.29)

5.4.6 Strig

Računska plast.nos.na strig z-z	Vpl.Rd =	164.79 kN

Pogoj 5.20: Vsd_z <= Vpl.Rd_z (3.37 <= 164.79)

5.4.9 Upogib z osno in prečno silo
Ni potrebno zmanjšanje upogibne nosilnosti
Pogoj: Vsd_z <= 50%Vpl.Rd_z

5.4.8 Upogib in osna sila

Razmerje Msd_y / Mpl.Rd_y		0.198

Pogoj 5.36: (0.20 <= 1)

5.5 NOSILNOST ELEMENTOV
5.5.1 Uklonska nosilnost

Uklonska dolžina y-y	l,y =	326.20 cm
Vztrajnostni radij y-y	i,y =	6.561 cm
Vitkost y-y	λ,y =	49.721
Relativna vitkost y-y	λ_y =	0.626
Uklonska krivulja za os y-y: B	α =	0.340
Koeficient nepopolnosti	χ,y =	0.824
Koeficient efektivnega prereza	βA =	0.924
Računska uklonska nosilnost	Nb.Rd_y =	953.27 kN

Pogoj 5.45: Nsd <= Nb.Rd_y (2.95 <= 953.27)

Uklonska dolžina z-z	l,z =	326.20 cm
Vztrajnostni radij z-z	i,z =	3.985 cm
Vitkost z-z	λ,z =	81.867
Relativna vitkost z-z	λ_z =	1.030
Uklonska krivulja za os z-z: C	α =	0.490
Koeficient nepopolnosti	χ,z =	0.523
Koeficient efektivnega prereza	βA =	0.924
Računska uklonska nosilnost	Nb.Rd_z =	604.73 kN

Pogoj 5.45: Nsd <= Nb.Rd_z (2.95 <= 604.73)

5.5.2 Bočna zvrnitev upogibnih nosilcev

Koeficient	C1 =	1.285
Koeficient	C2 =	1.562
Koeficient	C3 =	0.753
Koef.ukl.dolžine za uklon	k =	1.000
Koef.ukl.dolžine za vbočenje	kw =	1.000
Koordinata	zg =	0.000 cm
Koordinata	zj =	0.000 cm
Razmak med bočnimi podporami	L =	466.00 cm
Sektorski vztrajnostni moment	Iw =	31410 cm6
Krit.moment bočne zvrnitve	Mcr =	112.05 kNm
Koeficient	βw =	1.000
Koeficient imperf.	αLT =	0.210
Brezdimenz.vitkost	λLT_ =	0.867
Koeficient zmanjšanja	χLT =	0.755
Računska uklonska nosilnost	Mb.Rd =	57.858 kNm

Pogoj 5.48: Msd_y <= Mb.Rd (16.68 <= 57.86)

5.5.4 Upogib in tlak

Koeficient nepopolnosti	χmin =	0.523
Nsd / ...		0.004
Koeficient oblike momenta	βy =	1.297
Koeficient	μy =	-0.799
Koeficient	ky =	1.002
ky * My / ...		0.218

Pogoj 5.51: (0.22 <= 1)

Koeficient nepopolnosti	χ_z =	0.523
Nsd/ ...		0.004
Koeficient nepopolnosti	χLT =	0.755
Koef.obl.mom.za bočno zvrnitev	βM.LT =	1.297
Koeficient	μLT =	0.050
Koeficient	kLT =	1.000
kLT * My / ...		0.288

Pogoj 5.52: (0.29 <= 1)

5.6 LOKALNO IZBOČENJE ZARADI STRIGA
za strig v ravnini z-z

Višina stojine	d =	13.400 cm
Debelina stojine	tw =	0.600 cm

Ni prečnih ojačitev v sredini

Koeficient izbočenja pri strigu	kτ =	5.340

Ni potrebna kontrola izbočenja zaradi striga
Pogoj: d / tw <= 69 ε (22.33 <= 56.14)

5.6.7 Interakcija prečne sile, upogiba in osne sile
za strig v ravnini z-z

Računski plastični moment pasnic	Mf.Rd =	64.161 kNm

Pogoji 5.66a in 5.66b so izpolnjeni

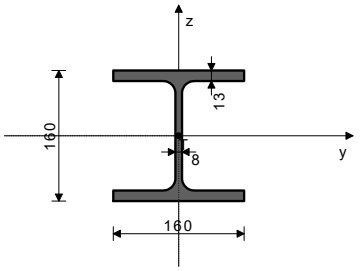
5.7 VNOS KONCENTRIRANIH SIL V STOJINO
5.7.7 Uklon pasnice v smeri stojine

Koeficient(razred pasnice 2)	k =	0.400
Površina stojine	Aw =	9.120 cm2
Površina tlač.pasnice	Afc =	14.400 cm2

Preprečen je uklon pasnice v smeri stojine
Pogoj 5.80: (22.33 <= 188.31)

PALICA 48-24
PREČNI PREREZ: IPB 160 [S 355] [Set: 2]
EUROCODE 3 (ENV)

GEOMETRIJSKE KARAKTERISTIKE prereza



[mm]

Ax =	54.300 cm2
Ay =	36.660 cm2
Az =	17.640 cm2
Ix =	31.400 cm4
Iy =	2490.0 cm4
Iz =	889.00 cm4
Wy =	311.25 cm3
Wz =	111.12 cm3
Wy,pl =	351.16 cm3
Wz,pl =	166.40 cm3
γM0 =	1.000
γM1 =	1.100
γM2 =	1.250
Anet/A =	0.900

(fy = 35.5 kN/cm2, fu = 51.0 kN/cm2)

FAKTORJI IZKORIŠČENOSTI PO KOMBINACIJAH OBTEŽB
3. γ=0.21 4. γ=0.14

PALICA IZPOSTAVLJENA UPOGIBU
POROČILO DIMENZIONIRANJA SAMO ENEGA PREREZA
(na 210.0 cm od začetka palice)

Prečna sila v y smeri	Vsd_y =	-1.897 kN
Prečna sila v z smeri	Vsd_z =	0.792 kN
Upogibni moment okoli y osi	Msd_y =	4.398 kNm
Upogibni moment okoli z osi	Msd_z =	-10.357 kNm
Sistemska dolžina palice	L =	420.00 cm

5.3 KLASIFIKACIJA PREČNIH PREREZOV
Razred prereza 1

5.4 NOSILNOST PREČNIH PREREZOV
5.4.5 Upogib y-y

Računski plastični moment	Mpl.Rd =	124.66 kNm
Računska nos.na lokalno izbočitev	Mo.Rd =	100.45 kNm
Računski elastični moment	Mel.Rd =	110.49 kNm
Računska nosilnost na upogib	Mc.Rd =	124.66 kNm

Pogoj 5.17: Msd_y <= Mc.Rd_y (4.40 <= 124.66)

5.4.5 Upogib z-z

Računski plastični moment	Mpl.Rd =	59.072 kNm
Računska nos.na lokalno izbočitev	Mo.Rd =	35.863 kNm
Računski elastični moment	Mel.Rd =	39.449 kNm
Računska nosilnost na upogib	Mc.Rd =	59.072 kNm

Pogoj 5.17: Msd_z <= Mc.Rd_z (10.36 <= 59.07)

5.4.6 Strig
Računska plast.nos.na strig z-z Vpl.Rd = 219.72 kN
Pogoj 5.20: Vsd_z <= Vpl.Rd_z (0.79 <= 219.72)

Računska plast.nos.na strig y-y Vpl.Rd = 823.19 kN
Pogoj 5.20: Vsd_y <= Vpl.Rd_y (1.90 <= 823.19)

5.4.7 Upogib in strig
Ni potrebno zmanjšanje upogibne nosilnosti
Pogoj: Vsd_z <= 50%Vpl.Rd_z i Vsd_y <= 50%Vpl.Rd_y

5.4.8 Upogib in osna sila

Razmerje Msd_y / Mpl.Rd_y	0.035
Razmerje Msd_z / Mpl.Rd_z	0.175

Pogoj 5.36: (0.21 <= 1)

5.5 NOSILNOST ELEMENTOV
5.5.2 Bočna zvrnitev upogibnih nosilcev

Koeficient	C1 =	1.285
Koeficient	C2 =	1.562
Koeficient	C3 =	0.753
Koef.ukl.dolžine za uklon	k =	1.000
Koef.ukl.dolžine za vbočenje	kw =	1.000
Koordinata	zg =	0.000 cm
Koordinata	zj =	0.000 cm
Razmak med bočnimi podporami	L =	420.00 cm
Sektorski vztrajnostni moment	Iw =	47943 cm6
Krit.moment bočne zvrnitve	Mcr =	231.21 kNm
Koeficient	βw =	1.000
Koeficient imperf.	αLT =	0.210
Brezdimenz.vitkost	λLT_ =	0.734
Koeficient zmanjšanja	χLT =	0.831
Računska uklonska nosilnost	Mb.Rd =	94.182 kNm

Pogoj 5.48: Msd_y <= Mb.Rd (4.40 <= 94.18)

5.6 LOKALNO IZBOČENJE ZARADI STRIGA
za strig v ravnini z-z

Višina stojine	d =	13.400 cm
Debelina stojine	tw =	0.800 cm
Ni prečnih ojačitev v sredini		
Koeficient izbočenja pri strigu	k_τ =	5.340

Ni potrebna kontrola izbočenja zaradi striga
Pogoj: d / tw <= 69 ε (16.75 <= 56.14)

5.6.7 Interakcija prečne sile, upogiba in osne sile
za strig v ravnini z-z
Računski plastični moment pasnic Mf.Rd = 95.269 kNm
Pogoji 5.66a in 5.66b so izpolnjeni