5.2.10. Gelžbetoninių monolitinių perdangų armavimas (koncertų pastatas parteris alt 2,2 iki 4,9) .

Reikalingas armatūros kiekis gelžbetoninėms perdangoms, įskaitant pleišėtumą iki 0,3mm, toliau pateikti grafiniu pavidalu pagal atliktus skaičiavimus. Ataskaitose pateiktas *papildomas* reikalingas armatūros kiekis.

Išeities duomenys:

–perdanga: 250, 300, 350, 400, 500 mm

– apsauginis armatūros sluoksnis – 35 mm;

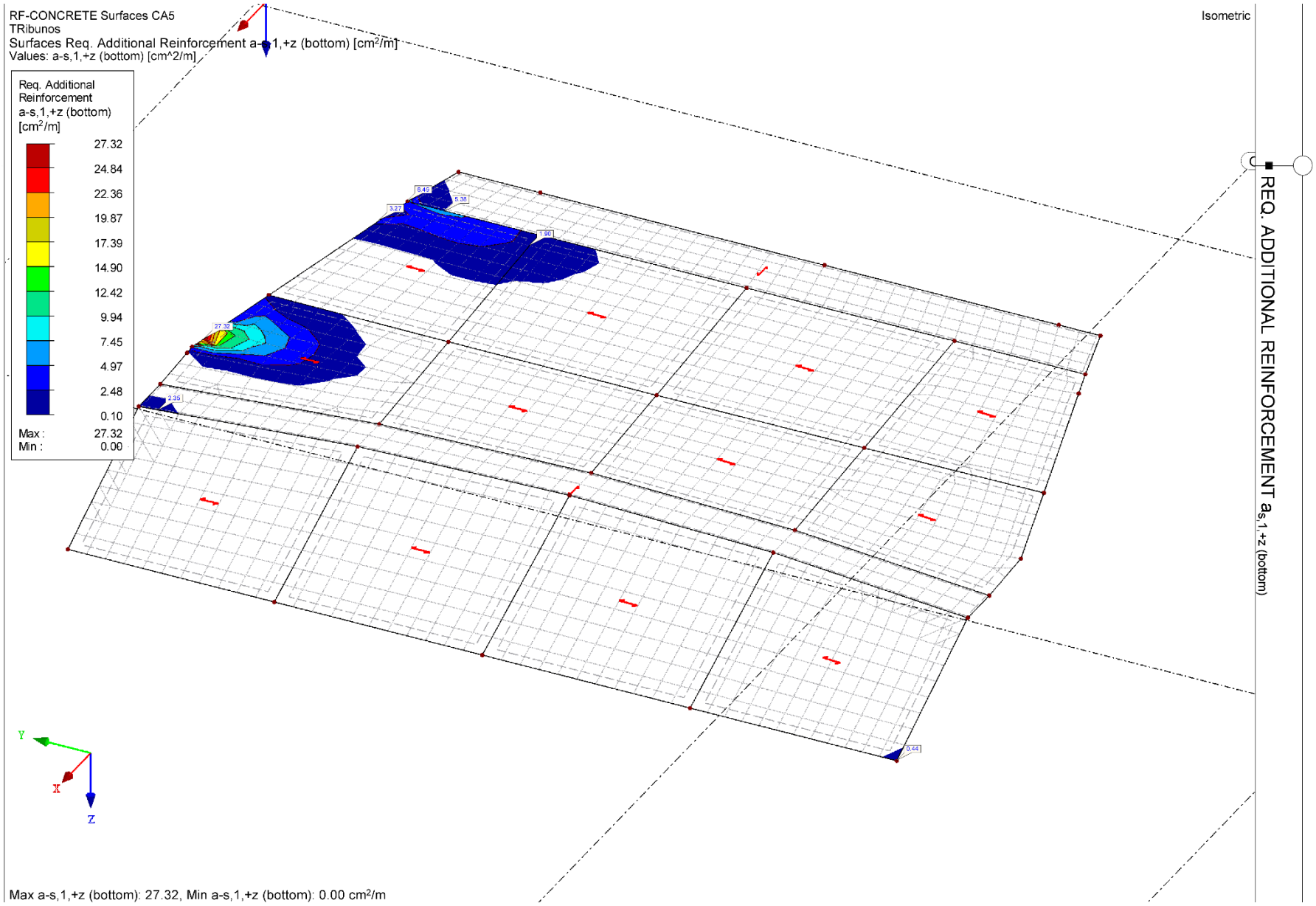
– betono klasė įvairi nuo C35/45;

– armatūros klasė:

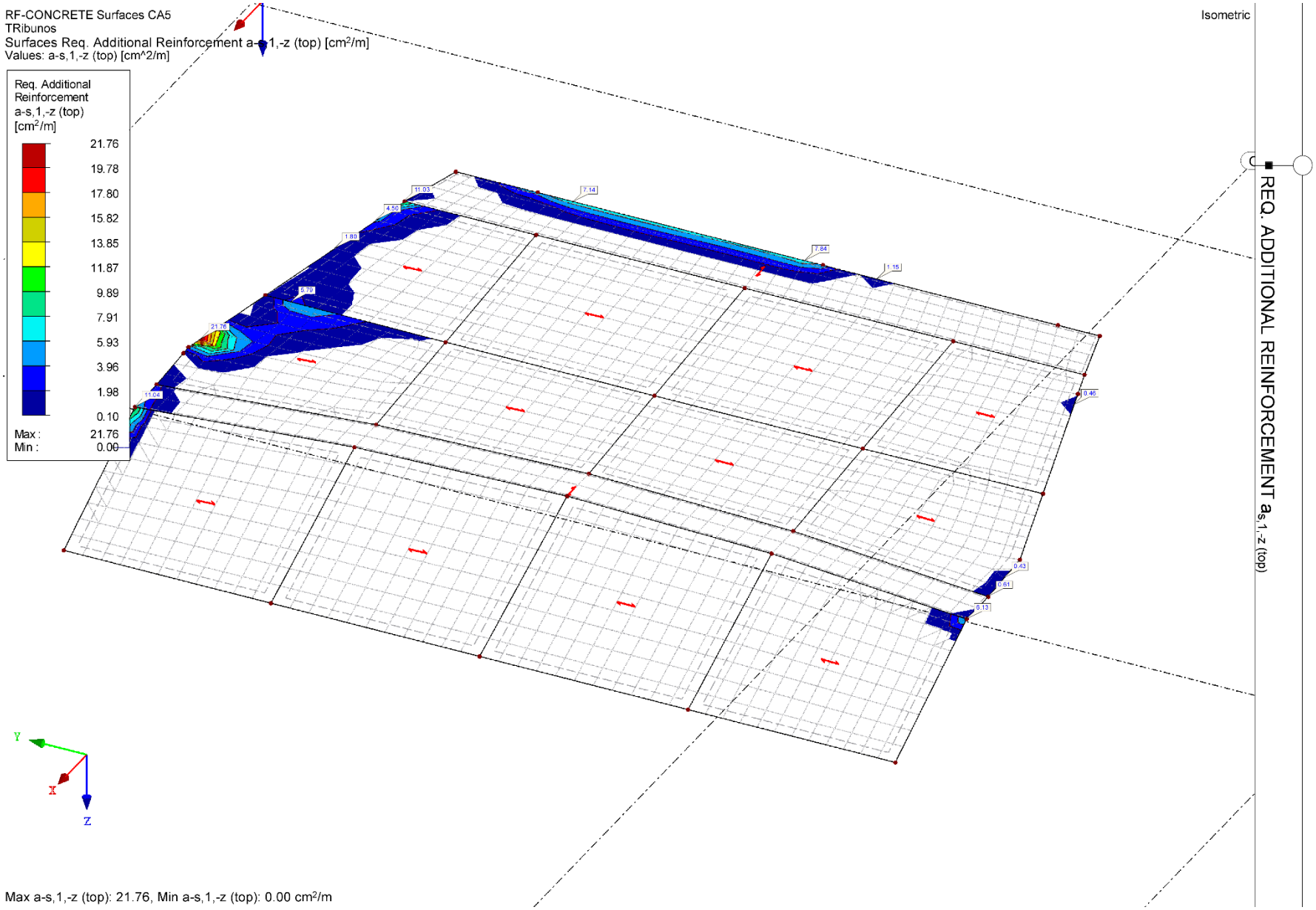
išilginė – B500B;

skersinė – B500B.

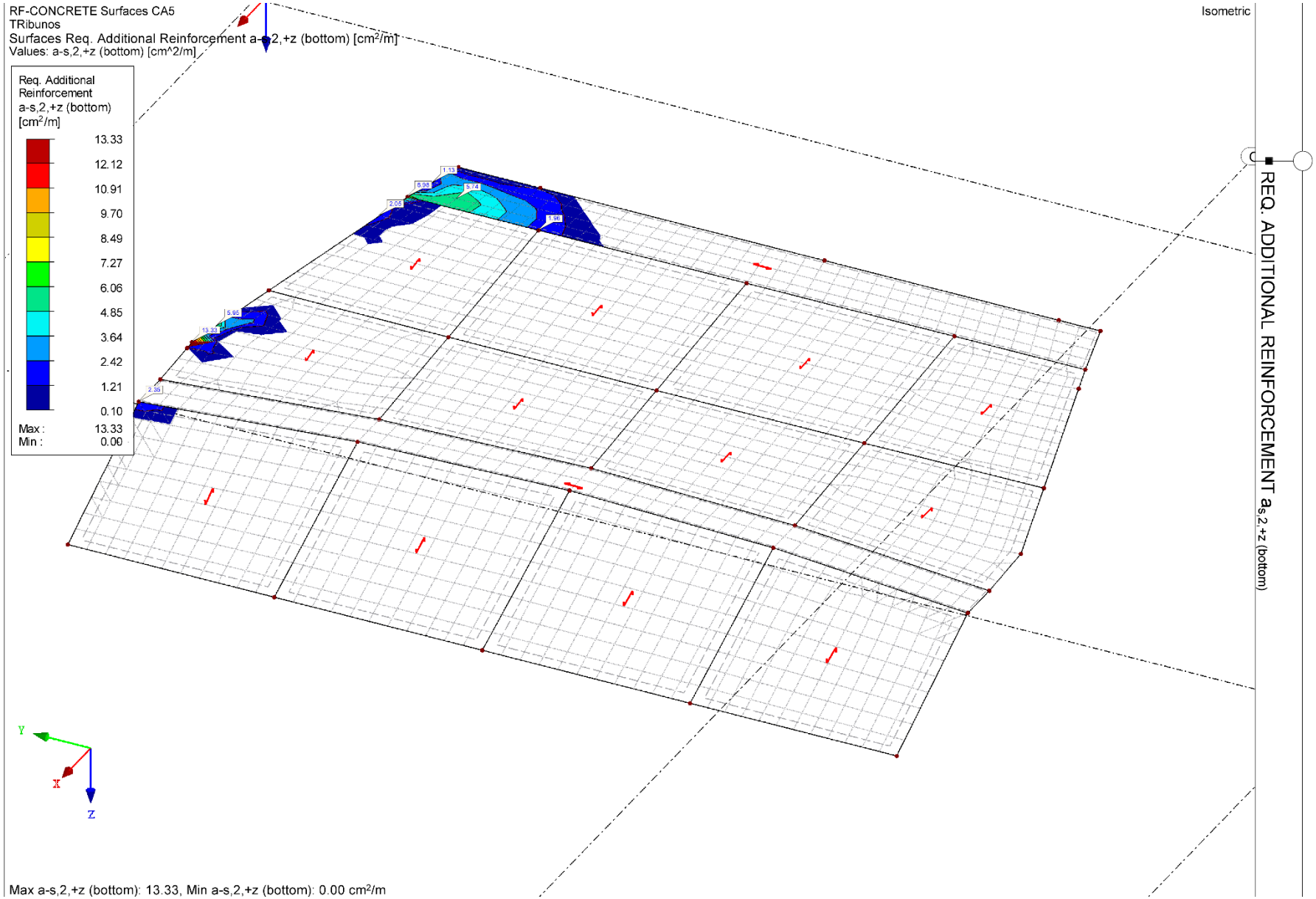
Pagrindinis armavimas ∅10 kas 200 / ∅10 kas 200.



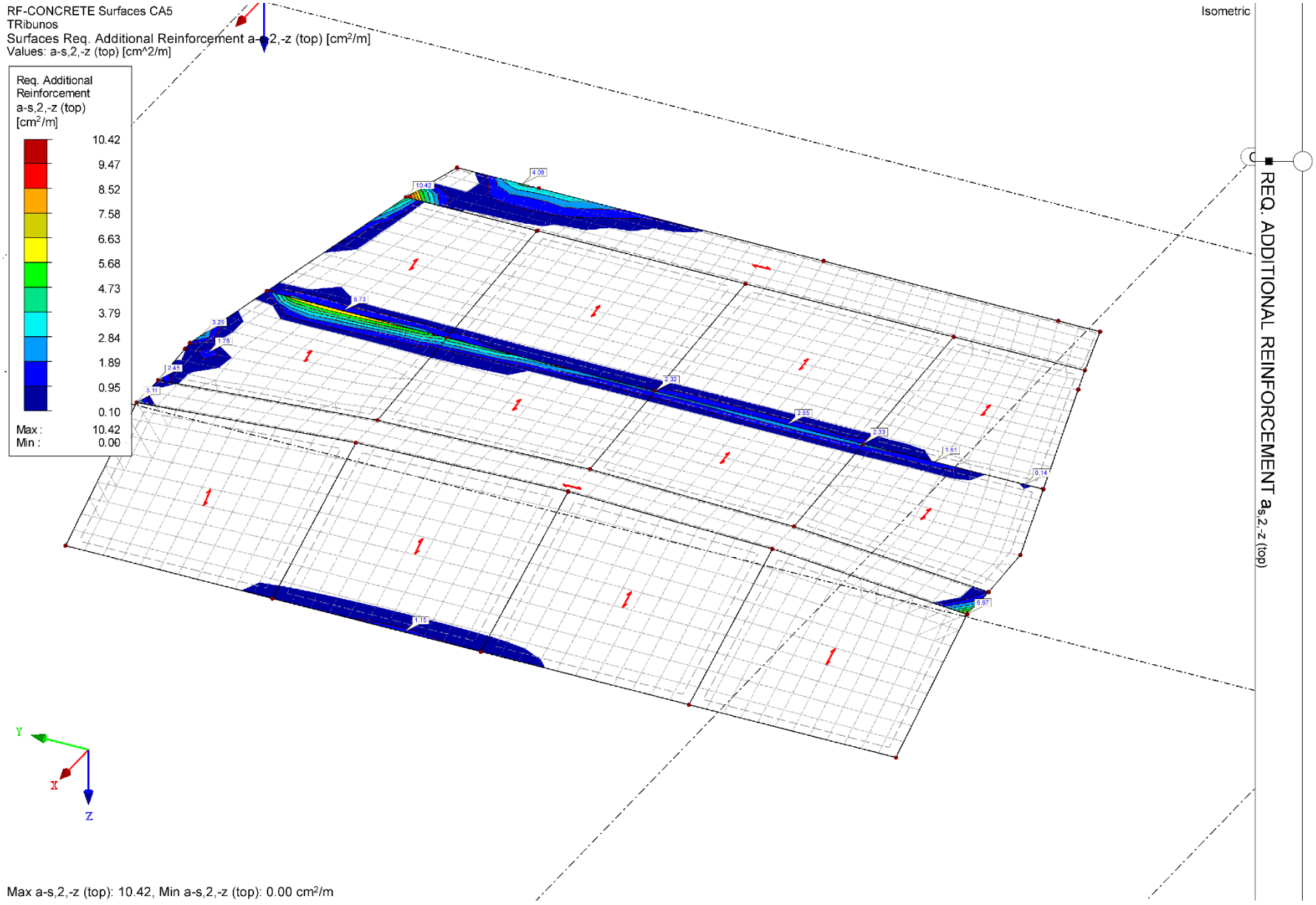
5.2.10.1 pav. Perdangos (koncertų pastatas parteris alt 2,2 iki 4,9) armavimas as1 (apatinis).



5.2.10.2 pav. Perdangos (koncertų pastatas parteris alt 2,2 iki 4,9) armavimas as1 (viršutinis)



5.2.10.3 pav. Perdangos (koncertų pastatas parteris alt 2,2 iki 4,9) armavimas as2 (apatinis)



5.2.10.4 pav. Perdangos (koncertų pastatas parteris alt 2,2 iki 4,9) armavimas as2 (viršutinis)

5.2.11. Gelžbetoninių monolitinių perdangų armavimas (koncertų pastatas balkonai alt. 6,0 iki 10,0) .

Reikalingas armatūros kiekis gelžbetoninėms perdangoms, įskaitant pleišėtumą iki 0,3mm, toliau pateikti grafiniu pavidalu pagal atliktus skaičiavimus. Ataskaitose pateiktas ***papildomas*** reikalingas armatūros kiekis.

Išeities duomenys:

–perdanga: 250, 300, 350, 400, 500 mm

– apsauginis armatūros sluoksnis – 35 mm;

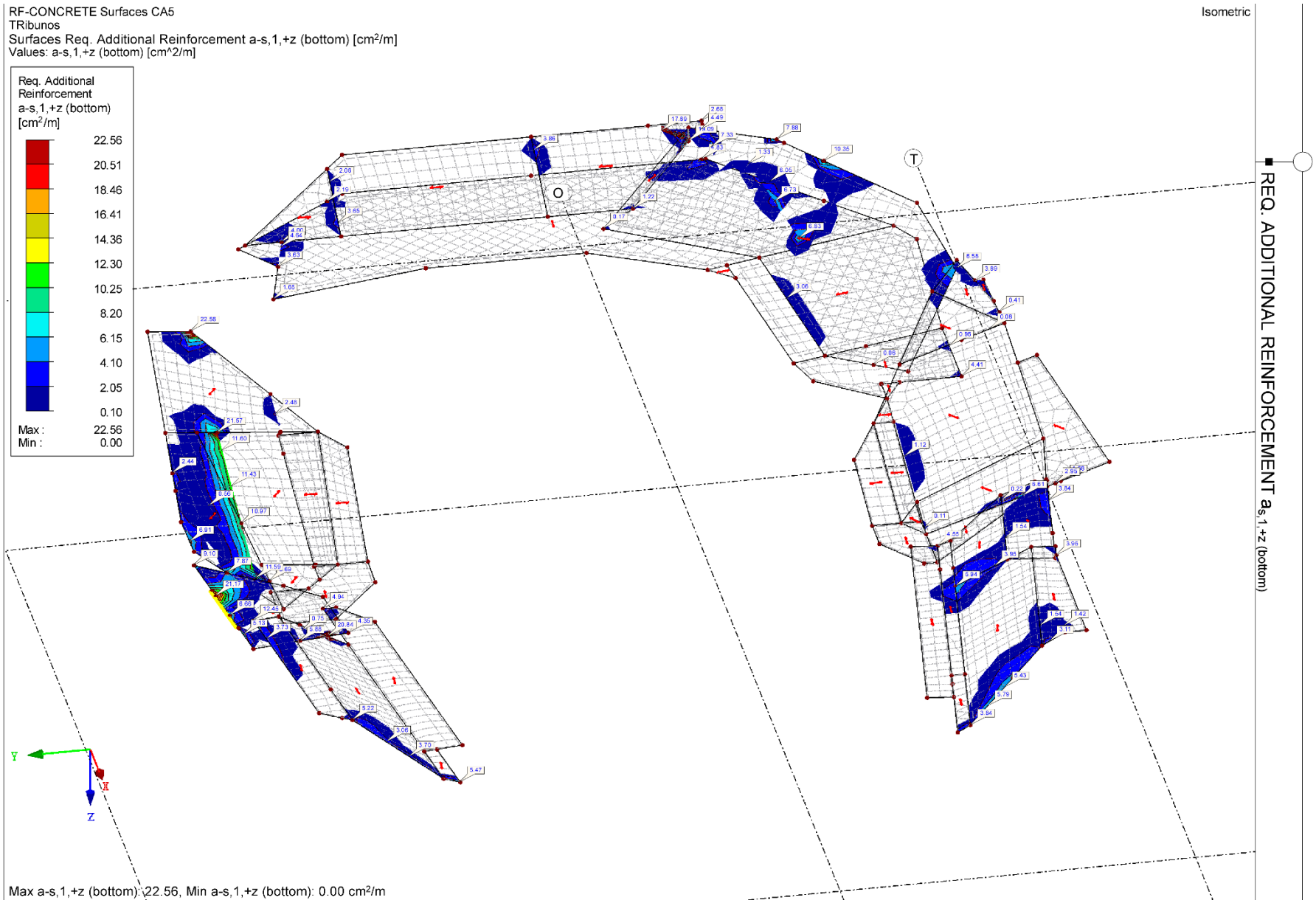
– betono klasė įvairi nuo C35/45;

– armatūros klasė:

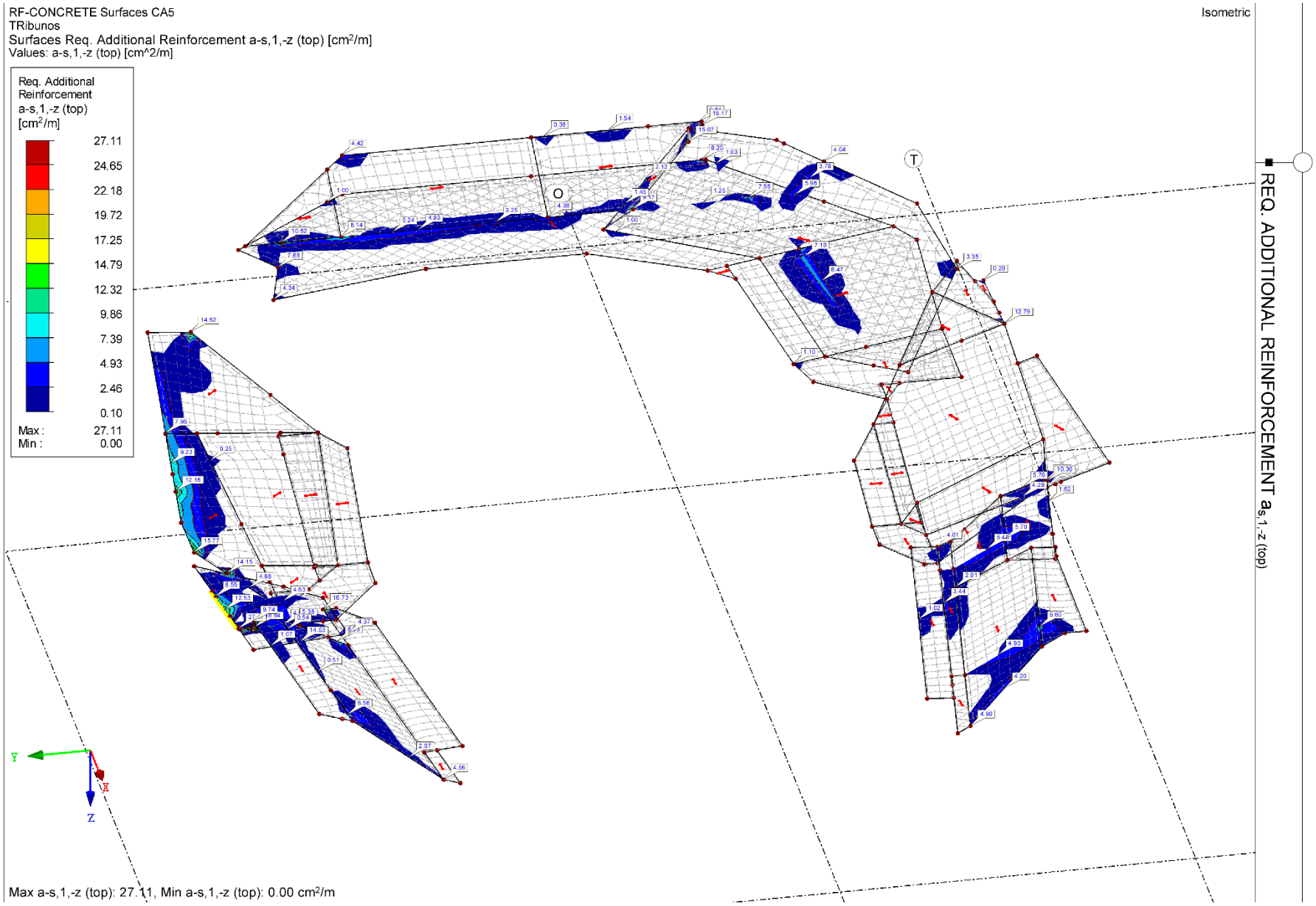
išilginė – B500B;

skersinė – B500B.

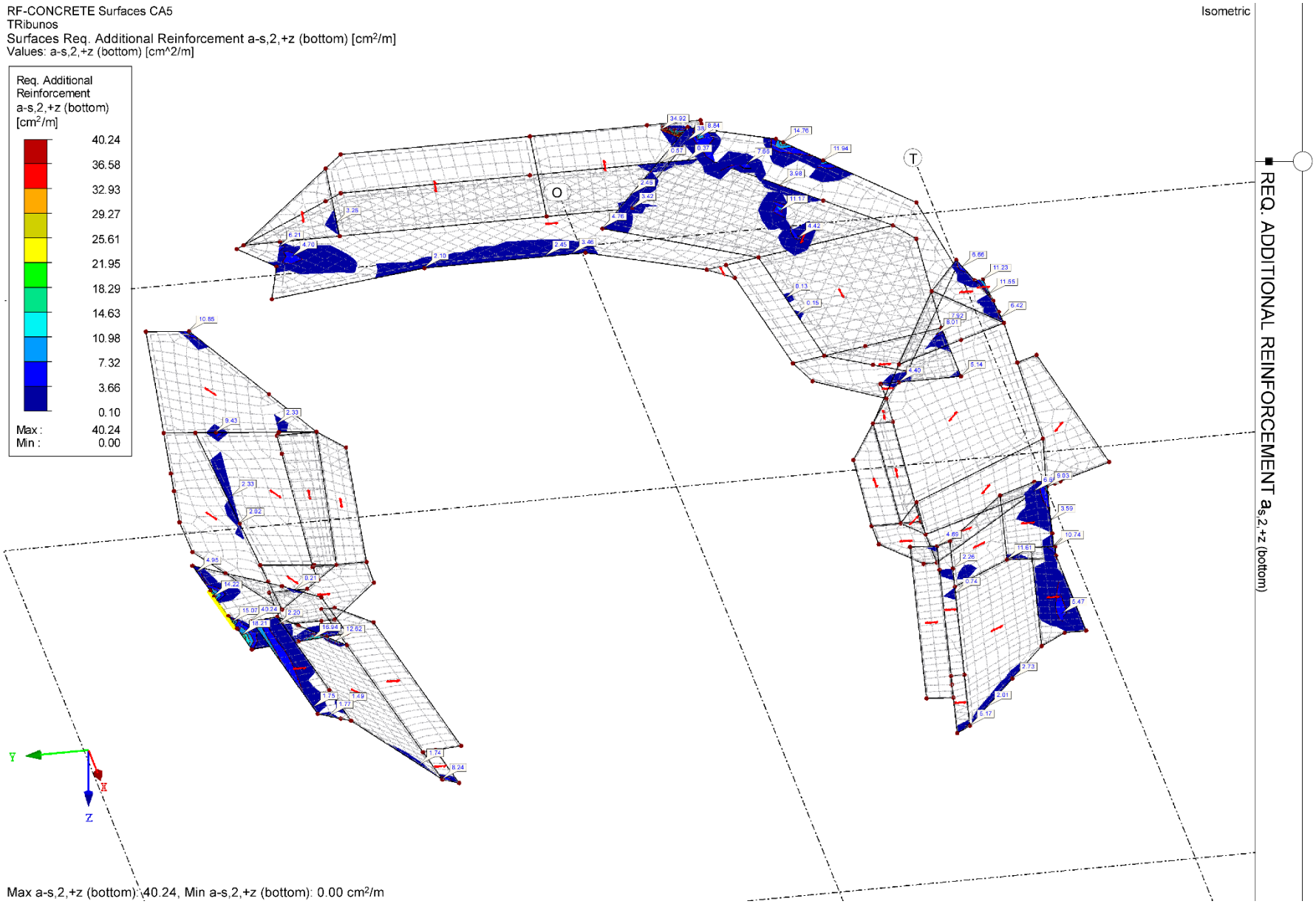
Pagrindinis armavimas ∅10 kas 200 / ∅10 kas 200.



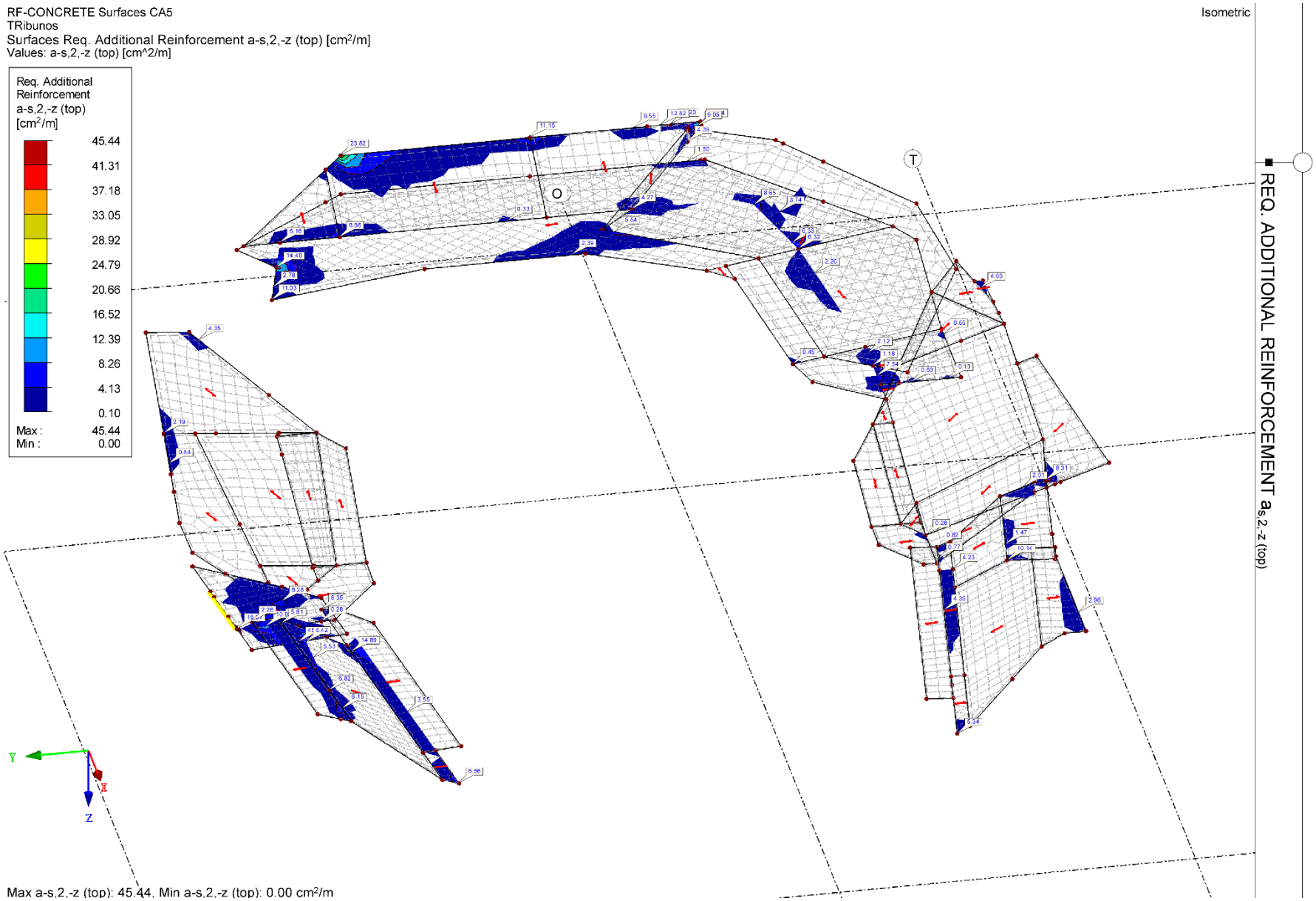
5.2.11.1 pav. Perdangos (koncertų pastatas balkonai alt. 6,0 iki 10,0) armavimas as1 (apatinis).



5.2.11.2 pav. Perdangos (koncertų pastatas balkonai alt. 6,0 iki 10,0) armavimas as1 (viršutinis)



5.2.11.3 pav. Perdangos (koncertų pastatas balkonai alt. 6,0 iki 10,0) armavimas as2 (apatinis)



5.2.11.4 pav. Perdangos (koncertų pastatas balkonai alt. 6,0 iki 10,0) armavimas as2 (viršutinis)

5.2.12. Gelžbetoninių monolitinių perdangų armavimas (koncertų pastatas balkonai alt. 9,0 iki 16,0) .

Reikalingas armatūros kiekis gelžbetoninėms perdangoms, įskaitant pleišėtumą iki 0,3mm, toliau pateikti grafiniu pavidalu pagal atliktus skaičiavimus. Ataskaitose pateiktas *papildomas* reikalingas armatūros kiekis.

Išeities duomenys:

–perdanga: 250, 300, 350, 400, 500 mm

– apsauginis armatūros sluoksnis – 35 mm;

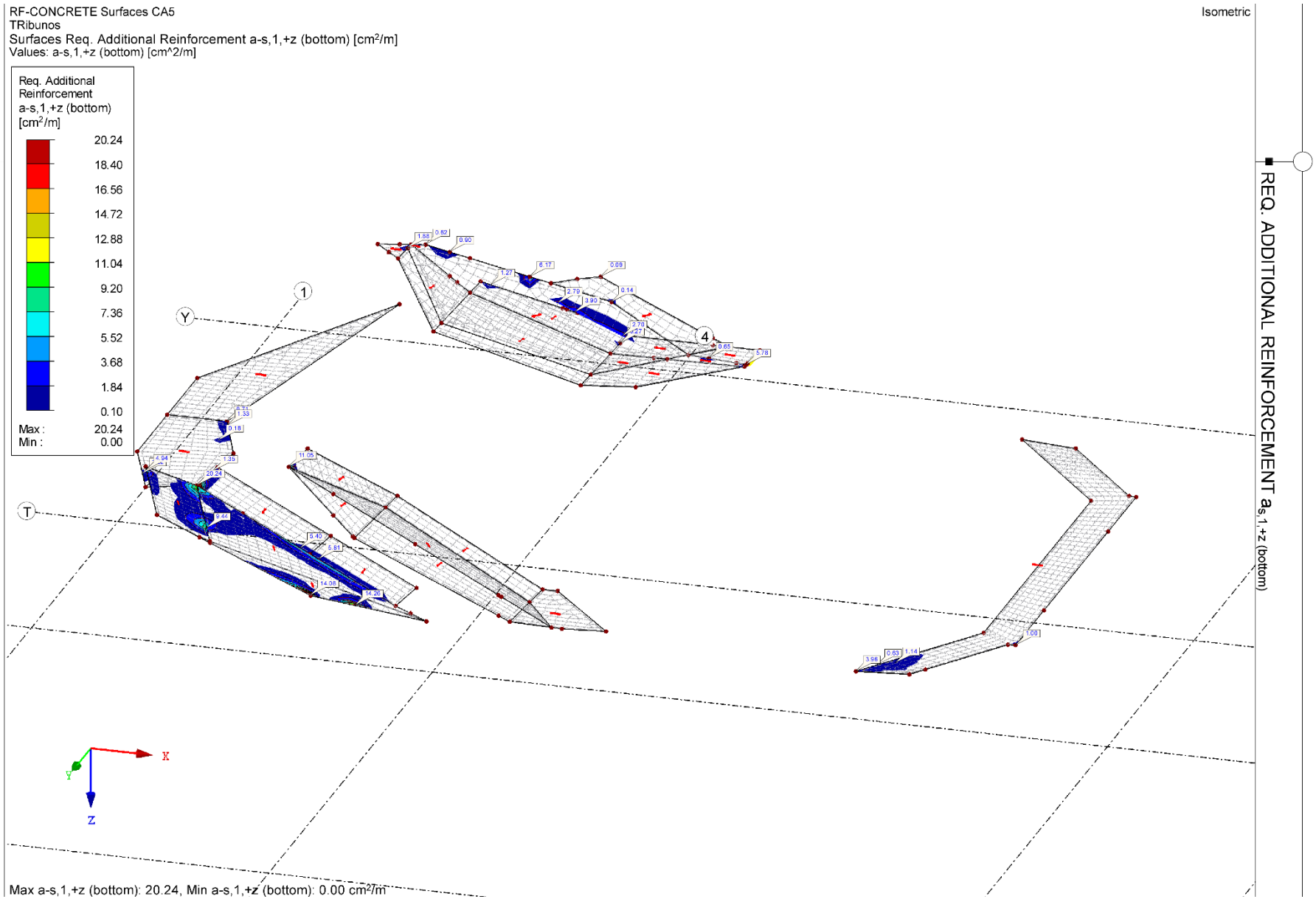
– betono klasė įvairi nuo C35/45;

– armatūros klasė:

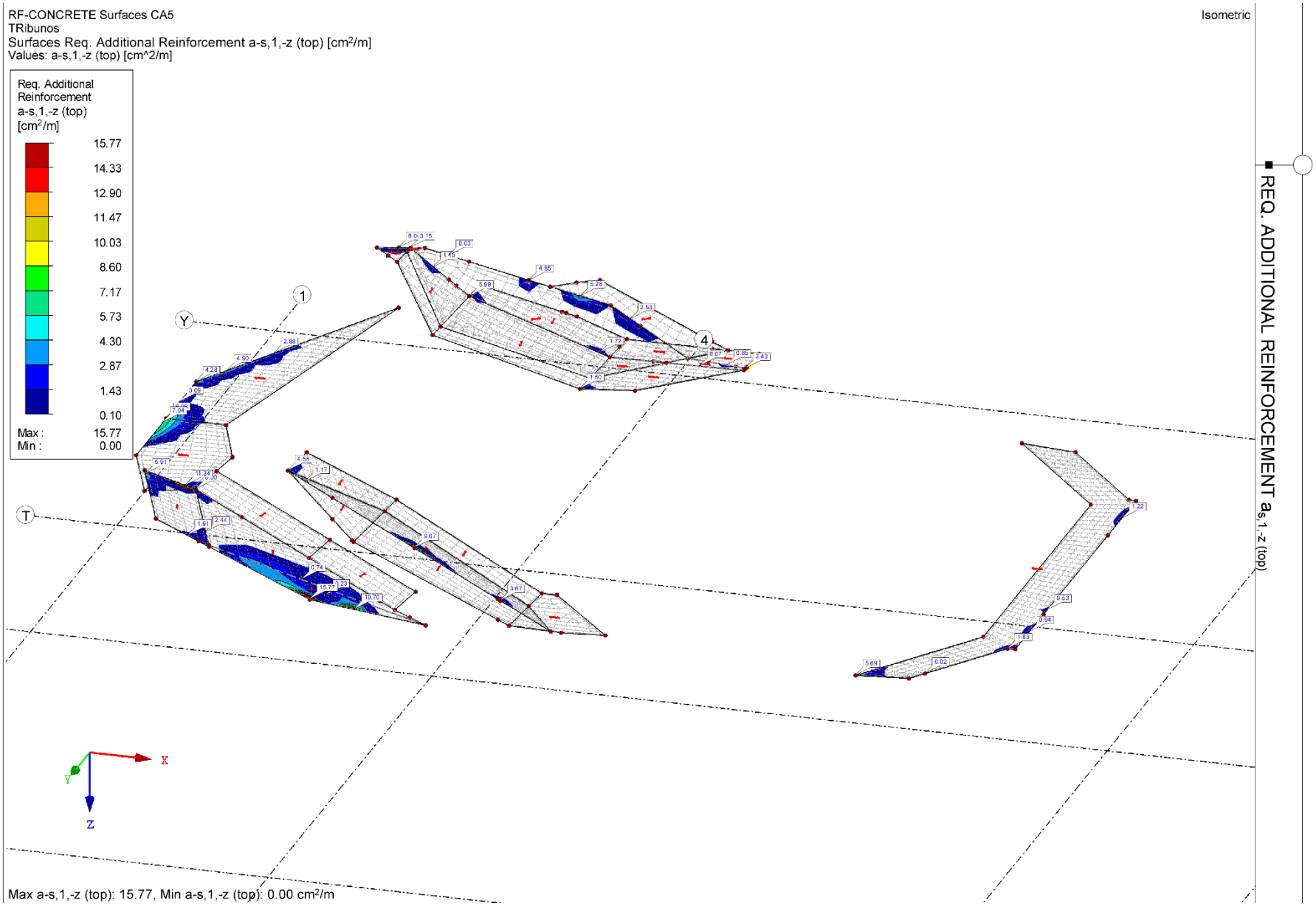
išilginė – B500B;

skersinė – B500B.

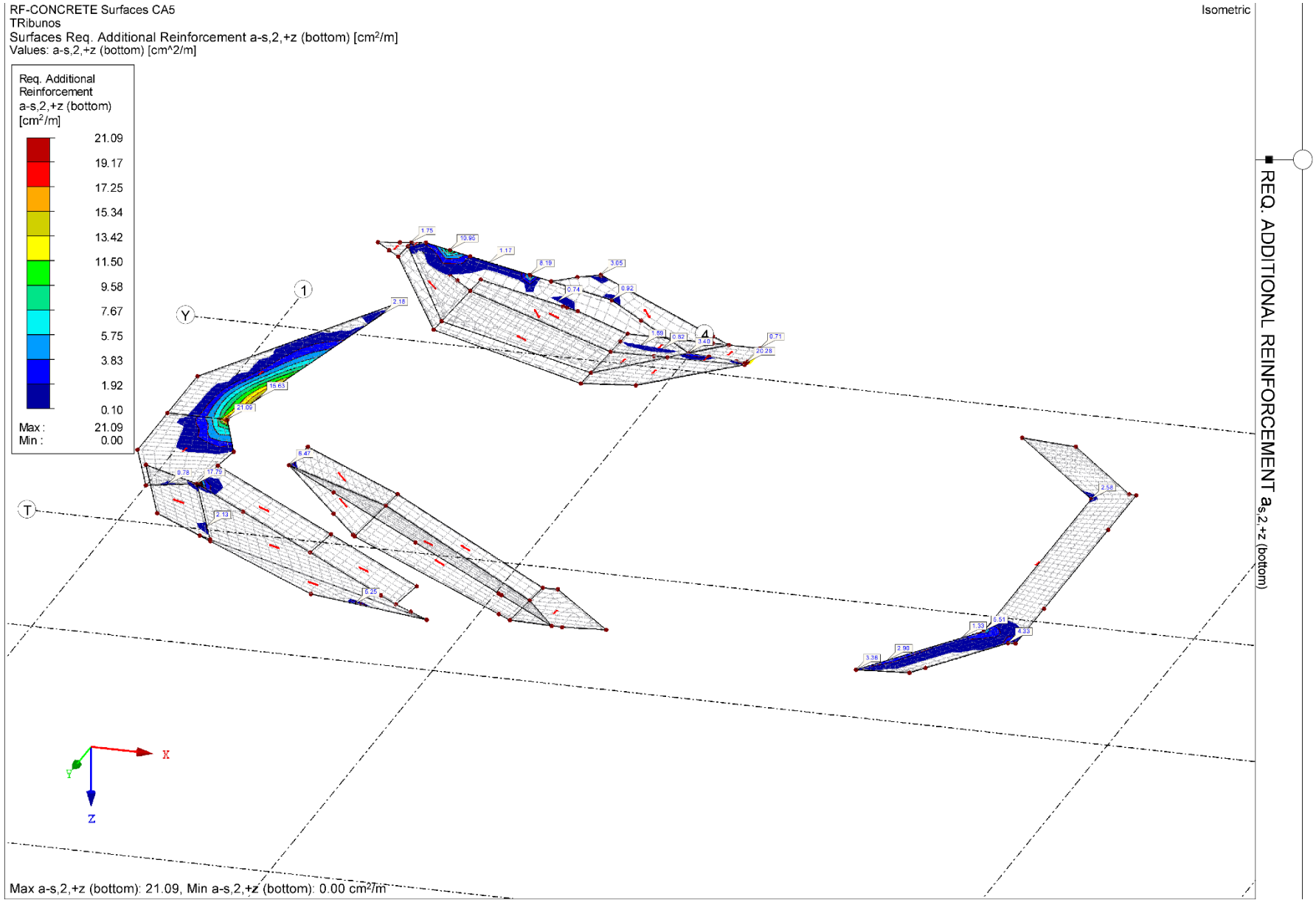
Pagrindinis armavimas ∅10 kas 200 / ∅10 kas 200.



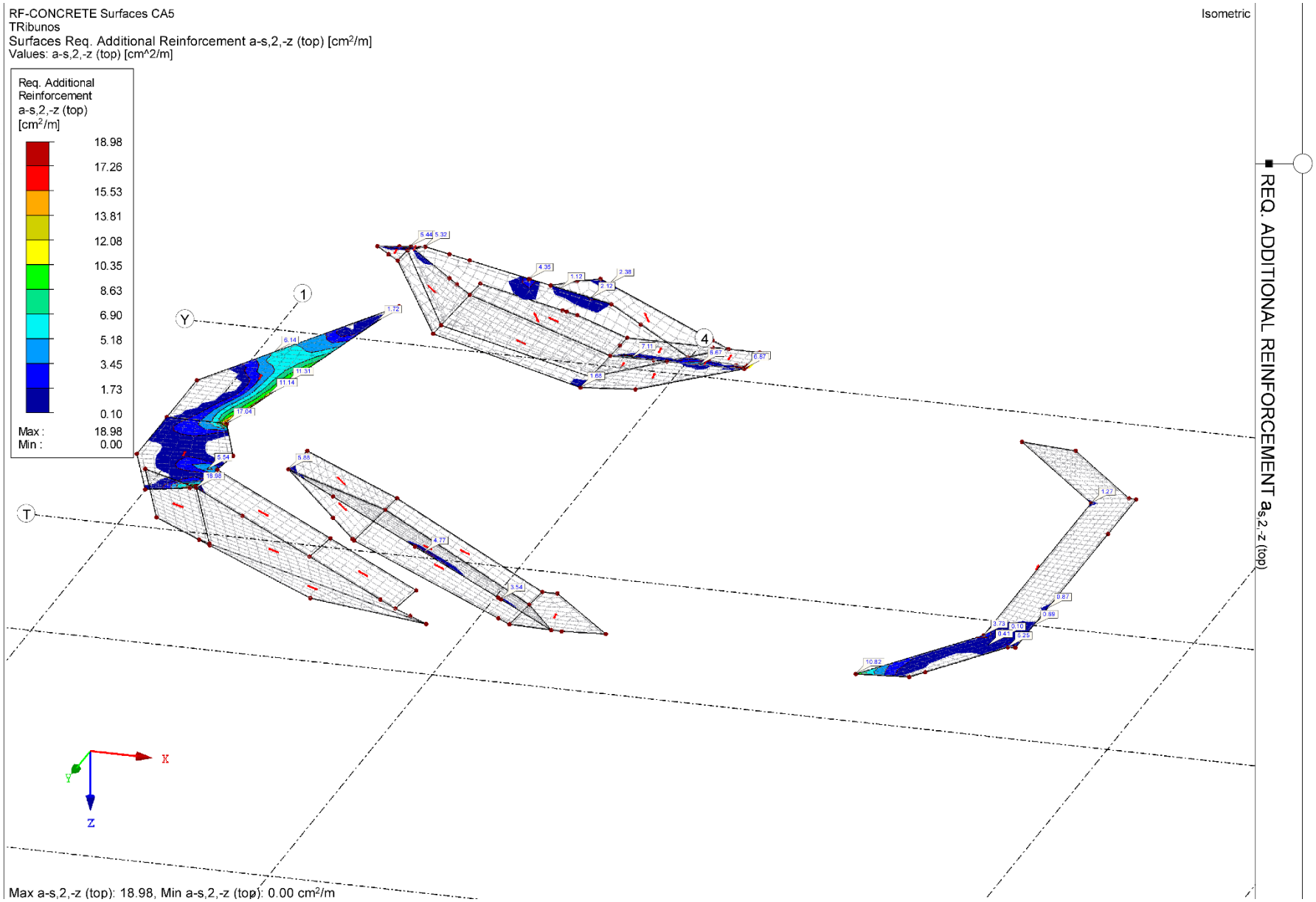
5.2.12.1 pav. Perdangos (koncertų pastatas balkonai alt. 9,0 iki 16,0) armavimas as1 (apatinis).



5.2.12.2 pav. Perdangos (koncertų pastatas balkonai alt. 9,0 iki 16,0) armavimas as1 (viršutinis)



5.2.12.3 pav. Perdangos (koncertų pastatas balkonai alt. 9,0 iki 16,0) armavimas as2 (apatinis)



5.2.12.4 pav. Perdangos (koncertų pastatas balkonai alt. 9,0 iki 16,0) armavimas as2 (viršutinis)

5.3. GELŽBETONINIŲ MONOLITINIŲ SIJŲ ARMAVIMAS .

Reikalingas armatūros kiekis gelžbetoninėms sijoms, įskaitant pleišėtumą iki 0.3mm, toliau pateikti grafiniu pavidalu pagal atliktus skaičiavimus. Ataskaitose pateiktas *pilnas* reikalingas armatūros kiekis.

Išeities duomenys:

–sijos: 600x1000, 960x1200, 400x400 mm

– apsauginis armatūros sluoksnis – 50 mm (iki arm. centro);

– betono klasė C35/45;

– armatūros klasė:

išilginė – B500B;

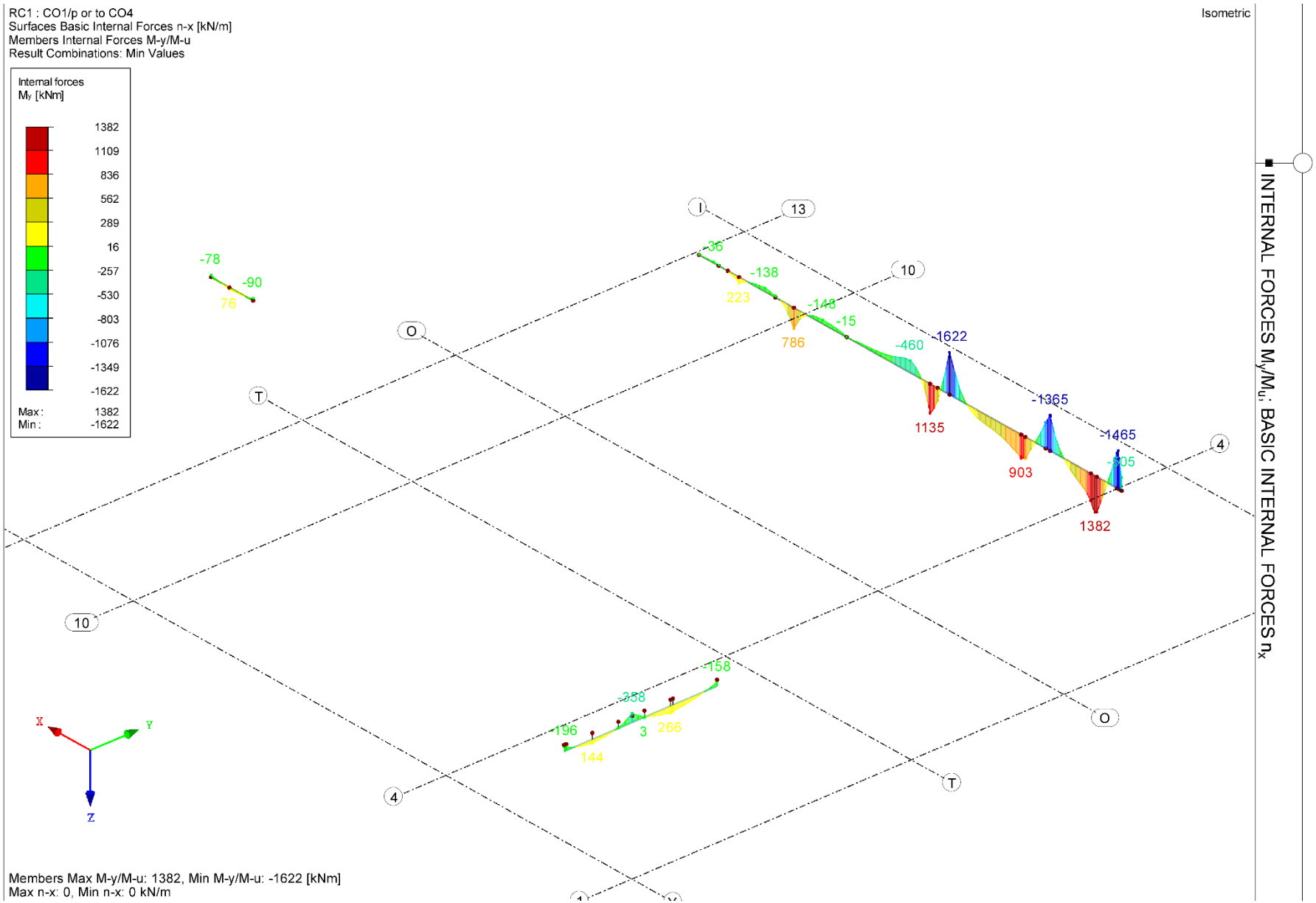
skersinė – B500A.

Maksimalios įrąžos veikiančios skerspjūvyje

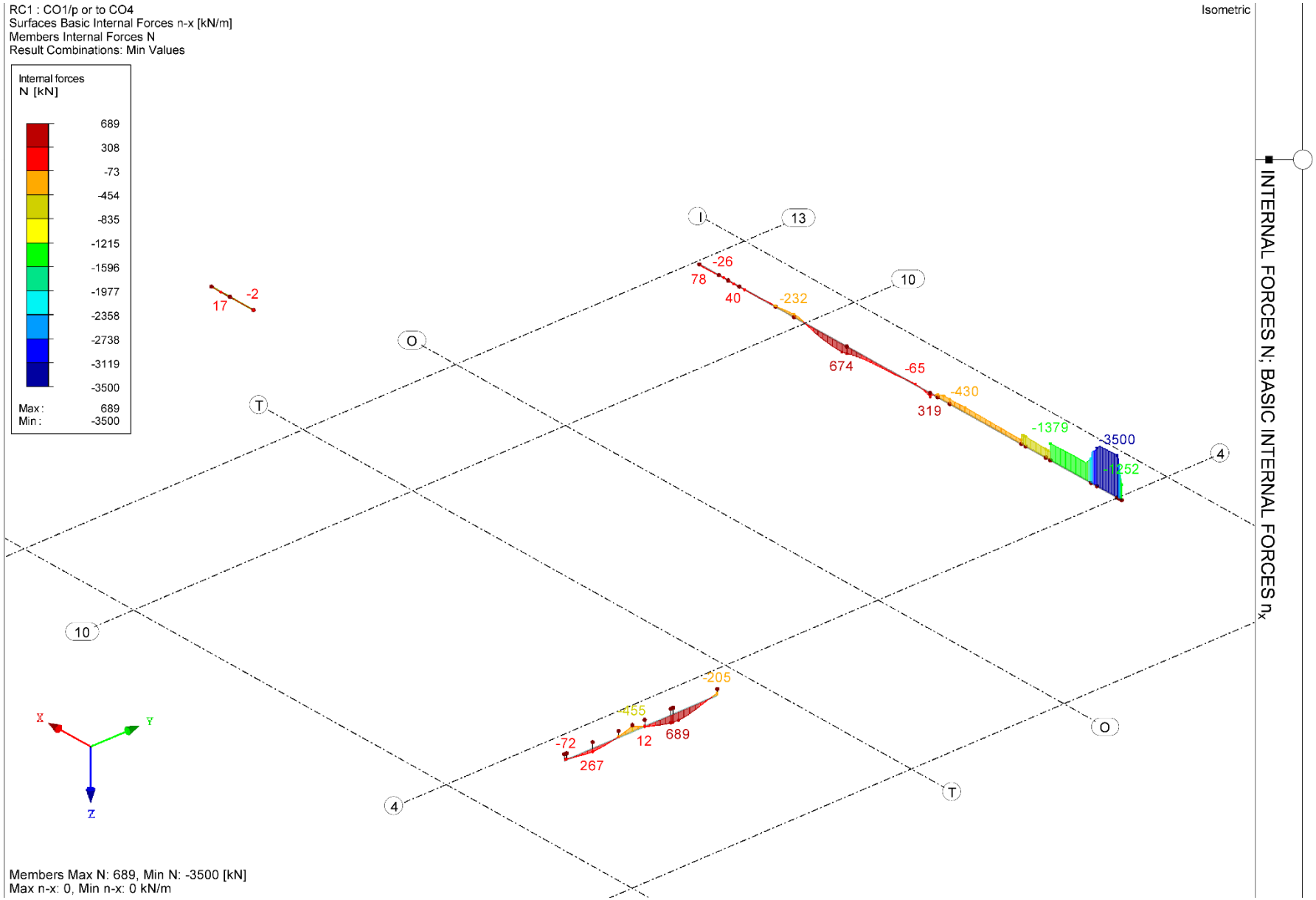
4.12 Cross-Sections - Internal Forces

Result Combinations

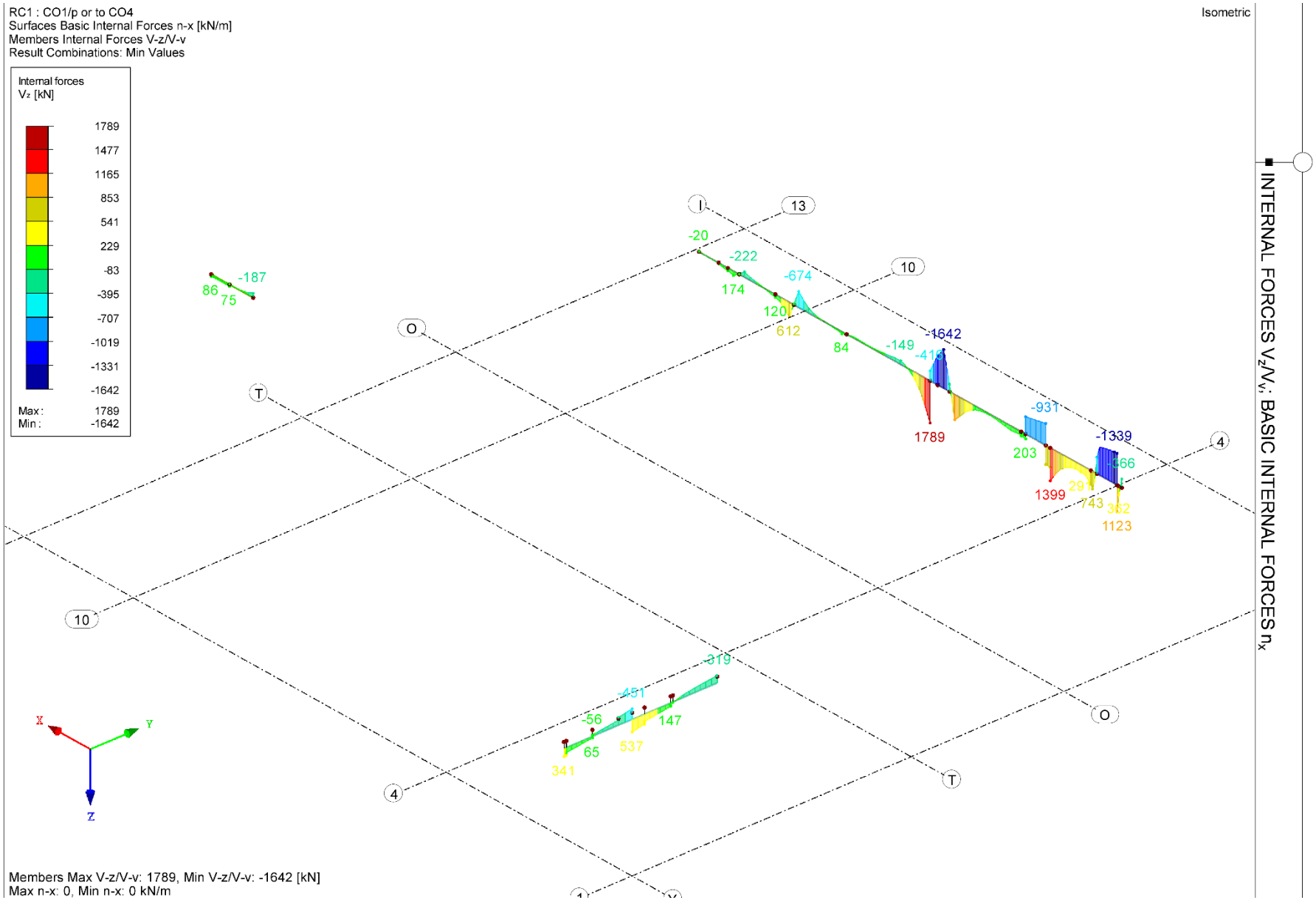
Member No.	RC	Node No.	Location x [m]		Forces [kN] N	V_y	V_z	Moments [kNm] M_T	M_y	M_z	Corresponding Load Cases
	Section No. 10: Rectangle 600/1000										
2192	RC1		0.488	MAX N	> 759	-3	-59	-41	219	-4	CO 2
2193	RC1	54	0.000	MIN N	> -455	-19	540	8	-358	19	CO 3
2222	RC1	5584	0.000	MAX V_y	664	> 23	84	-70	271	-15	CO 1
2193	RC1	54	0.000	MIN V_y	-355	> -22	537	9	-357	18	CO 1
2193	RC1	54	0.000	MAX V_z	-455	-19	> 540	8	-358	19	CO 3
2220	RC1	54	1.211	MIN V_z	-450	17	> -451	-18	-349	18	CO 3
2222	RC1	5584	0.000	MAX M_y	577	14	89	-73	> 275	-17	CO 3
2193	RC1	54	0.000	MIN M_y	-455	-19	540	8	> -358	19	CO 3
2193	RC1	54	0.000	MAX M_z	-368	-18	539	6	-357	> 20	CO 2
2222	RC1	5584	0.000	MIN M_z	577	14	89	-73	275	> -17	CO 3
	Section No. 35: Rectangle 960/1200										
2577	RC1		4.842	MAX N	> 697	-27	85	39	-83	-97	CO 3
244	RC1	422	2.040	MIN N	> -3500	-20	-1336	-28	-1346	14	CO 2
2574	RC1	3867	0.000	MAX V_y	229	> 611	-416	105	1179	155	CO 2
2582	RC1	3867	8.419	MIN V_y	337	> -588	1854	38	1135	138	CO 2
2582	RC1	3867	8.419	MAX V_z	337	-588	> 1854	38	1135	138	CO 2
2579	RC1		0.603	MIN V_z	-397	18	> -1642	-52	-452	-141	CO 2
2183	RC1		0.451	MAX M_y	-2879	78	47	12	> 1427	-162	CO 2
2185	RC1	1795	0.000	MIN M_y	-400	-28	-316	-68	> -1622	-139	CO 2
2577	RC1	1751	0.000	MAX M_z	-228	114	-34	-53	814	> 421	CO 3
244	RC1	420	0.000	MIN M_z	-3166	-146	-699	13	1388	> -170	CO 2



5.3.1 pav. Sijose veikiančios įrąžos (lenkimo momentas My) (Koncertų pastatas)



5.3.2 pav. Sijose veikiančios įrąžos (ašinė jėga N) (Koncertų pastatas)



5.3.3 pav. Sijose veikiančios įrąžos (skersinė jėga Vz) (Koncertų pastatas)

Armavimo skaičiavimas

1.1 General Data

Design according to Standard:	EN 1992-1-1:2004/A1:2014	
ULTIMATE LIMIT STATES		
Load combinations to design:	CO1	1.35G + 1.35Gq1 + 1.35Gq2 + 1.3QiC + 1.3Qs + 1.3Qw1
		Persistent and Transient
SERVICEABILITY LIMIT STATES		
Load combinations to design:	CO5	SLS - Quasi-permanent
		Quasi-permanent, k-t: 0.600
	CO7	G + Gq1 + Gq2 + QiC + Qs + Qw1
		Characteristic with direct load, k-t: 0.567
Design Situation Settings for Serviceability Limit State Checks		
Load combination:		
Characteristic with direct load	Checks: k_1*f_{ck}, k_3*f_{yk}	
Characteristic with imposed deformation	Checks: k_1*f_{ck}, k_4*f_{yk}	
Frequent	Checks: w_k	
Quasi-permanent	Checks: k_2*f_{ck}, w_k, u_l	
Deformation Relative to:	Undeformed system	

1.2 Materials

Matl. No.	Material Description		Comment
	Concrete Strength Class	Reinforcing Steel	
1	Concrete C35/45	B 500 S (A)	
3	Concrete C35/45	B 500 S (A)	

1.2.1 Material Parameters

Matl. No.	Description	Name	Size	Unit
1	Concrete Strength Class: Concrete C35/45			
	Characteristic Cylinder Compressive Strength	f_{ck}	35.000	N/mm^2
	Mean Cylinder Compressive Strength	f_{cm}	43.000	N/mm^2
	Mean Axial Tensile Strength	f_{ctm}	3.200	N/mm^2
	5 % Fractile of Axial Tensile Strength	$f_{ctk,0.05}$	2.200	N/mm^2
	95 % Fractile of Axial Tensile Strength	$f_{ctk,0.95}$	4.200	N/mm^2
	Mean Secant Modulus of Elasticity	E_{cm}	34000.000	N/mm^2
	Characteristic Strains for Nonlinear Calculations			
	Ultimate Strain for Pure Compression	ε_{c1}	-2.250	‰
	Ultimate Strain at Failure	ε_{cu1}	-3.500	‰
	Characteristic Strains for Parabolic-Rectangular Diagram			
	Ultimate Strain for Pure Compression	ε_{c2}	-2.000	‰
	Ultimate Strain at Failure	ε_{cu2}	-3.500	‰
	Parabola Exponent	n	2	
	Specific Weight	γ	25.00	kN/m^3
	Reinforcing Steel: B 500 S (A)			
	Modulus of Elasticity	E_s	200000	N/mm^2
	Characteristic Yield Stress	f_{yk}	500	N/mm^2
	Characteristic Tensile Strength	f_{tk}	525	N/mm^2
	Limiting Strain	ε_{uk}	25.000	‰
3	Concrete Strength Class: Concrete C35/45			
	Characteristic Cylinder Compressive Strength	f_{ck}	35.000	N/mm^2
	Mean Cylinder Compressive Strength	f_{cm}	43.000	N/mm^2
	Mean Axial Tensile Strength	f_{ctm}	3.200	N/mm^2
	5 % Fractile of Axial Tensile Strength	$f_{ctk,0.05}$	2.200	N/mm^2
	95 % Fractile of Axial Tensile Strength	$f_{ctk,0.95}$	4.200	N/mm^2
	Mean Secant Modulus of Elasticity	E_{cm}	34000.000	N/mm^2
	Characteristic Strains for Nonlinear Calculations			

1.2.1 Material Parameters

Matl. No.	Description	Name	Size	Unit
	Ultimate Strain for Pure Compression	ε_{c1}	-2.250	‰
	Ultimate Strain at Failure	ε_{cu1}	-3.500	‰
	Characteristic Strains for Parabolic-Rectangular Diagram			
	Ultimate Strain for Pure Compression	ε_{c2}	-2.000	‰
	Ultimate Strain at Failure	ε_{cu2}	-3.500	‰
	Parabola Exponent	n	2	
	Specific Weight	γ	25.00	kN/m^3
	Reinforcing Steel: B 500 S (A)			
	Modulus of Elasticity	E_s	200000	N/mm^2
	Characteristic Yield Stress	f_{yk}	500	N/mm^2
	Characteristic Tensile Strength	f_{tk}	525	N/mm^2
	Limiting Strain	ε_{uk}	25.000	‰

1.3 Cross-Sections

Section No.	Matl. No.	Cross-Section Description	Notes	Comment
10	3	Rectangle 600/1000		
35	3	Rectangle 960/1200		

1.3 Creep / Shrinkage

Cross. No.	Material No.	- Description	- Name	- Size	- Unit
4	1	Rectangle 400/400			
Counting Form					
		Determination of creep coefficient		Age	
		Determination of the shrinkage strain		Age	
Input Data					
		Considered age of concrete (creep)	t_k	27393	Days
		Considered age of concrete (shrinkage)	t_s	27393	Days
		Effective component thickness			
		Cross-section surface	A_c	0.160	m^2
		Air Exposed Perimeter	u	1.600	m
		Effective component thickness	h_0	0.200	m
		Type of Cement	Cem. Type	N	
		Relative humidity	RH	50	%
		Age of concrete at beginning of shrinkage	t_s	28	Days
		Age of concrete at beginning of creep		Determine	
		Consider Temperature		No	
		Effective age (temperature)	t_T	7.000	Days
		Consider the type of cement		Yes	
		Age of concrete at beginning of creep	t_0	7.000	Days
Result					
		Defined creep coefficient	$\varphi(t,t_0)$	2.700	
		Defined shrinkage strain	$\varepsilon(t,t_s)$	-0.447	‰
10	3	Rectangle 600/1000			
Counting Form					
		Determination of creep coefficient		Age	
		Determination of the shrinkage strain		Age	
Input Data					
		Considered age of concrete (creep)	t_k	27393	Days
		Considered age of concrete (shrinkage)	t_s	27393	Days
		Effective component thickness			
		Cross-section surface	A_c	0.600	m^2
		Air Exposed Perimeter	u	3.200	m
		Effective component thickness	h_0	0.375	m
		Type of Cement	Cem. Type	N	
		Relative humidity	RH	50	%
		Age of concrete at beginning of shrinkage	t_s	28	Days
		Age of concrete at beginning of creep		Determine	
		Consider Temperature		No	
		Effective age (temperature)	t_T	7.000	Days
		Consider the type of cement		Yes	
		Age of concrete at beginning of creep	t_0	7.000	Days
Result					

1.3 Creep / Shrinkage

Cross. No.	Material No.	- Description	- Name	- Size	- Unit
		Defined creep coefficient	$\varphi(t,t_0)$	2.476	
		Defined shrinkage strain	$\varepsilon(t,t_s)$	-0.391	‰
35	3	Rectangle 960/1200			
Counting Form					
		Determination of creep coefficient		Age	
		Determination of the shrinkage strain		Age	
Input Data					
		Considered age of concrete (creep)	t_k	27393	Days
		Considered age of concrete (shrinkage)	t_s	27393	Days
		Effective component thickness			
		Cross-section surface	A_c	1.152	m^2
		Air Exposed Perimeter	u	4.320	m
		Effective component thickness	h_0	0.533	m
		Type of Cement	Cem. Type	N	
		Relative humidity	RH	50	%
		Age of concrete at beginning of shrinkage	t_s	28	Days
		Age of concrete at beginning of creep		Determine	
		Consider Temperature		No	
		Effective age (temperature)	t_T	7.000	Days
		Consider the type of cement		Yes	
		Age of concrete at beginning of creep	t_0	7.000	Days
Result					
		Defined creep coefficient	$\varphi(t,t_0)$	2.367	
		Defined shrinkage strain	$\varepsilon(t,t_s)$	-0.375	‰

1.6 Reinforcement Group No. 1

Applied to members:	176,244,256,257,2170,2178,2179,2181-2185,2191-2193,2219-2222,2574-2577,2579-2583
LONGITUDINAL REINFORCEMENT	
Possible diameters:	16.0, 20.0, 25.0 mm
Max. number of layers:	1
Min. spacing for first layer:	50.0 mm
Type of anchorage:	Straight
Steel surface:	Ribbed
Reduction of reinforcement:	None
SHEAR REINFORCEMENT	
Possible diameters:	6.0, 8.0 mm
No. of stirrup legs:	2
Inclination:	90°
Type of anchorage:	Hook
Stirrup layout:	Uniform spacing throughout
REINFORCEMENT LAYOUT	
Concrete cover acc. to Standard	-
Concrete cover c-top:	38.0 mm
Concrete cover c-bottom:	38.0 mm
Concrete cover c-side:	38.0 mm
Reinforcement layout:	-z (top) - +z (bottom) (optimized distribution)
Torsional reinforcement distributed circumferentially:	x
Relevant internal forces:	N, V-y, V-z, M-T, M-y, M-z
MINIMUM REINFORCEMENT	
Min. reinforcement area (min. A-s,top):	0.00 cm^2
Min. reinforcement area (min. A-s,bottom):	0.00 cm^2
Min. longitudinal reinforcement acc. to Standard:	x
Min. shear reinforcement acc. to Standard:	x
Longitudinal reinforcement for shear force design:	Use required longitudinal reinforcement
SHEAR JOINT	
Shear joint available:	-
Design of flange connections on segmented cross-sections	-
OPTIONS FOR EN 1992-1-1:2004/A1:2014	

1.6 Reinforcement Group No. 1

Max. percentage of reinforcement:	8.00 %
Neutral axis depth limitation	x
Partial safety factor Gamma-c	PT 1.50, AC 1.20, SLS 1.00
Partial safety factor Gamma-s	PT 1.15, AC 1.00, SLS 1.00
Reduction factor Alpha-cc	PT 0.90, AC 0.90, SLS 0.90
Reduction factor Alpha-ct	PT 1.00, AC 1.00, SLS 1.00
Min. inclination of concrete strut	21.80 °
Max. inclination of concrete strut	45.00 °
SERVICEABILITY	
Crack Analysis	
Limit values of allowable crack width $w_{k,max,-z\ (top)}$:	0.3 mm
Limit values of allowable crack width $w_{k,max,+z\ (bottom)}$:	0.3 mm
Design without direct crack width calculation:	x
Calculation of limit diameter lim d_s:	x
Calculation of maximum rebar spacing lim s_l:	x
Design with direct crack width calculation:	x
Use Eq. (7.14) for $s_{r,\ max}$:	-
Effective concrete tensile strength at time of cracking:	1.000 * f_{ctm}
$A_{s,min}$ for effects due to restraint:	-
Stress Analysis	
Limitation of concrete Compressive stress σ_c:	x
According to the design situation with k_1*f_{ck} and k_2*f_{ck} acc. to EN 1992-1-1, NDP(7.2)	
Factor k_1 for limitation of compressive stress in concrete k_1:	0.600
Factor k_2 for limitation of compressive stress in concrete k_2:	0.450
Limitation of steel stress σ_s:	x
According to the design situation with k_3*f_{yk} and k_4*f_{yk} acc. to EN 1992-1-1, NDP(7.2)	
Factor k_3 for stress limitation in steel k_3:	0.800
Factor k_4 for stress limitation in steel k_4:	1.000
Deflection Analysis	
Deflection $u_{l,z}$:	-
Determination of Longitudinal Reinforcement	
Increase the required longitudinal reinforcement automatically for serviceability limit state design:	x

2.1 Required Reinforcement by Cross-Section (10,35)

Reinforcement	Member No.	Location x [m]	Loading	Reinforcement Area	Unit	Error Message or Note
Cross-Section No.10 - Rectangle 600/1000						
$A_{s,-z\ (top)}$	2191	0.000	CO1	9.53	cm^2	26)
$A_{s,+z\ (bottom)}$	2222	0.000	CO1	14.61	cm^2	
$A_{s,T}$	2191	0.000	CO1	19.61	cm^2	
$a_{sw,V,stirrup}$	2193	0.000	CO1	5.85	cm^2/m	58)
$a_{sw,T,stirrup}$	2191	0.000	CO1	1.28	cm^2/m	
Cross-Section No.35 - Rectangle 960/1200						
$A_{s,-z\ (top)}$	2185	0.000	CO1	27.88	cm^2	
$A_{s,+z\ (bottom)}$	2582	8.419	CO1	25.81	cm^2	
$A_{s,T}$	2582	6.933	CO1	28.90	cm^2	
$a_{sw,V,stirrup}$	2582	8.419	CO1	18.07	cm^2/m	58)
$a_{sw,T,stirrup}$	2582	6.933	CO1	1.42	cm^2/m	

Detailed Results for 2.1 Required Reinforcement by Cross-Section (10,35)

Description	Name	Size	Unit
Cross-Section No.10 - Rectangle 600/1000, Member No. 2191 - x: 0.000, $A_{s,-z\ (top)}$, CO1,			
Cross-Section No.10 - Rectangle 600/1000, Member No. 2191 - x: 0.000, $A_{s,T}$, CO1,			
Cross-Section No.10 - Rectangle 600/1000, Member No. 2191 - x: 0.000, $a_{sw,T,stirrup}$, CO1:			
Reinforcement			
Longitudinal Reinforcement - Top	$A_{s,-z\ (top)}$	9.53	cm^2
Longitudinal Reinforcement - Bottom	$A_{s,+z\ (bottom)}$	0.00	cm^2
Longitudinal Torsion Reinforcement	$A_{s,T}$	19.61	cm^2
Stirrups (Shear Reinforcement)	$a_{sw,V,stirrup}$	5.68	cm^2/m
Stirrups (Torsion Reinforcement)	$a_{sw,T,stirrup}$	1.28	cm^2/m
Percentage of Reinforcement - Top	$\rho_{-z\ (top)}$	0.159	%
Percentage of Reinforcement - Bottom	$\rho_{+z\ (bottom)}$	0.000	%

Detailed Results for 2.1 Required Reinforcement by Cross-Section (10,35)

Description	Name	Size	Unit
Percentage of Shear Reinforcement	ρ_w	0.095	%
Design Internal Forces			
Design Bending Moment	$M_{y,Ed}$	-196.4	kNm
Design Bending Moment	$M_{z,Ed}$	2.0	kNm
Design Torsional Moment	T_{Ed}	93.3	kNm
Design Axial Force	N_{Ed}	11.1	kN
Design Shear Force	$V_{y,Ed}$	-9.2	kN
Design Shear Force	$V_{z,Ed}$	355.6	kN
Reduced Design Shear Force	$V_{z,Ed,red}$	355.6	kN
State of Strain			
Prov. Stress			
Steel Stress - Top	$\sigma_{s,-z\ (top)}$	454.1	N/mm²
Steel Stress - Bottom	$\sigma_{s,+z\ (bottom)}$	-	
Concrete Stress - Top Edge	$\sigma_{c,-z\ (top)}$	0.0	N/mm²
Concrete Stress - Bottom Edge	$\sigma_{c,+z\ (bottom)}$	-15.5	N/mm²
Prov. Strain			
Strain in Reinforcement - Top	$\varepsilon_{s,-z\ (top)}$	22.500	‰
Strain in Reinforcement - Bottom	$\varepsilon_{s,+z\ (bottom)}$	-	
Concrete Strain - Top Edge	$\varepsilon_{c,-z\ (top)}$	23.632	‰
Concrete Strain - Bottom Edge	$\varepsilon_{c,+z\ (bottom)}$	-0.974	‰
Strain at Centroidal Axis	ε_0	12.303	‰
The Inner Lever z for the Shear Dimensioning	z	849.6	mm
Neutral Axis Depth	x	0.0	mm
Neutral Axis Depth/Effective Depth	x/d	0.0000	
Effective Depth	d	0.0	mm
Curvature	1/r	0.0246	1/m
Neutral Axis Inclination	α_0	0.00	°
Shear and Torsional Capacity			
Shear Capacity Without Reinforcement	$V_{Rd,c}$	207.5	kN
Inclined Concrete Strut Capacity	$V_{Rd,max}$	1955.3	kN
Design Shear Capacity - Stirrups	$V_{Rd,s}$	355.7	kN
Ultimate Limit State of Inclined Compressive Struts	$T_{Rd,max}$	469.6	kNm
Design Torsional Capacity - Stirrups	$T_{Rd,s}$	93.3	kNm
Inclination of Compression Strut	Θ	21.80	°
Cross-Section No.10 - Rectangle 600/1000, Member No. 2222 - x: 0.000, $A_{s,+z\ (bottom)}$, CO1:			
Reinforcement			
Longitudinal Reinforcement - Top	$A_{s,-z\ (top)}$	1.40	cm²
Longitudinal Reinforcement - Bottom	$A_{s,+z\ (bottom)}$	14.61	cm²
Longitudinal Torsion Reinforcement	$A_{s,T}$	14.75	cm²
Stirrups (Shear Reinforcement)	$a_{sw,V,stirrup}$	5.68	cm²/m
Stirrups (Torsion Reinforcement)	$a_{sw,T,stirrup}$	0.96	cm²/m
Percentage of Reinforcement - Top	$\rho_{-z\ (top)}$	0.023	%
Percentage of Reinforcement - Bottom	$\rho_{+z\ (bottom)}$	0.243	%
Percentage of Shear Reinforcement	ρ_w	0.095	%
Design Internal Forces			
Design Bending Moment	$M_{y,Ed}$	270.8	kNm
Design Bending Moment	$M_{z,Ed}$	-15.2	kNm
Design Torsional Moment	T_{Ed}	-70.2	kNm
Design Axial Force	N_{Ed}	663.6	kN
Design Shear Force	$V_{y,Ed}$	22.6	kN
Design Shear Force	$V_{z,Ed}$	84.0	kN
Reduced Design Shear Force	$V_{z,Ed,red}$	84.0	kN
State of Strain			
Prov. Stress			
Steel Stress - Top	$\sigma_{s,-z\ (top)}$	111.8	N/mm²
Steel Stress - Bottom	$\sigma_{s,+z\ (bottom)}$	454.1	N/mm²
Concrete Stress - Top Edge	$\sigma_{c,-z\ (top)}$	-10.6	N/mm²
Concrete Stress - Bottom Edge	$\sigma_{c,+z\ (bottom)}$	0.0	N/mm²
Prov. Strain			
Strain in Reinforcement - Top	$\varepsilon_{s,-z\ (top)}$	0.559	‰
Strain in Reinforcement - Bottom	$\varepsilon_{s,+z\ (bottom)}$	22.500	‰
Concrete Strain - Top Edge	$\varepsilon_{c,-z\ (top)}$	-0.591	‰
Concrete Strain - Bottom Edge	$\varepsilon_{c,+z\ (bottom)}$	24.406	‰
Strain at Centroidal Axis	ε_0	11.908	‰
The Inner Lever z for the Shear Dimensioning	z	782.4	mm

Detailed Results for 2.1 Required Reinforcement by Cross-Section (10,35)

Description	Name	Size	Unit
Neutral Axis Depth	x	23.6	mm
Neutral Axis Depth/Effective Depth	x/d	0.0248	
Effective Depth	d	954.0	mm
Curvature	1/r	0.3339	1/m
Neutral Axis Inclination	α_0	90.47	°
Shear and Torsional Capacity			
Shear Capacity Without Reinforcement	$V_{Rd,c}$	117.8	kN
Inclined Concrete Strut Capacity	$V_{Rd,max}$	2129.4	kN
Design Shear Capacity - Stirrups	$V_{Rd,s}$	-	
Ultimate Limit State of Inclined Compressive Struts	$T_{Rd,max}$	469.6	kNm
Design Torsional Capacity - Stirrups	$T_{Rd,s}$	70.2	kNm
Inclination of Compression Strut	Θ	21.80	°
Cross-Section No.10 - Rectangle 600/1000, Member No. 2193 - x: 0.000, $a_{sw,V,stirrup}$, CO1:			
Reinforcement			
Longitudinal Reinforcement - Top	$A_{s,-z\ (top)}$	6.00	cm^2
Longitudinal Reinforcement - Bottom	$A_{s,+z\ (bottom)}$	6.00	cm^2
Longitudinal Torsion Reinforcement	$A_{s,T}$	1.95	cm^2
Stirrups (Shear Reinforcement)	$a_{sw,V,stirrup}$	5.85	cm^2/m
Stirrups (Torsion Reinforcement)	$a_{sw,T,stirrup}$	0.13	cm^2/m
Percentage of Reinforcement - Top	$\rho_{-z\ (top)}$	0.100	%
Percentage of Reinforcement - Bottom	$\rho_{+z\ (bottom)}$	0.100	%
Percentage of Shear Reinforcement	ρ_w	0.098	%
Design Internal Forces			
Design Bending Moment	$M_{y,Ed}$	-356.6	kNm
Design Bending Moment	$M_{z,Ed}$	17.7	kNm
Design Torsional Moment	T_{Ed}	9.3	kNm
Design Axial Force	N_{Ed}	-354.7	kN
Design Shear Force	$V_{y,Ed}$	-21.8	kN
Design Shear Force	$V_{z,Ed}$	536.6	kN
Reduced Design Shear Force	$V_{z,Ed,red}$	536.6	kN
State of Strain			
Prov. Stress			
Steel Stress - Top	$\sigma_{s,-z\ (top)}$	454.1	N/mm^2
Steel Stress - Bottom	$\sigma_{s,+z\ (bottom)}$	-124.4	N/mm^2
Concrete Stress - Top Edge	$\sigma_{c,-z\ (top)}$	0.0	N/mm^2
Concrete Stress - Bottom Edge	$\sigma_{c,+z\ (bottom)}$	-20.8	N/mm^2
Prov. Strain			
Strain in Reinforcement - Top	$\varepsilon_{s,-z\ (top)}$	22.500	‰
Strain in Reinforcement - Bottom	$\varepsilon_{s,+z\ (bottom)}$	-0.622	‰
Concrete Strain - Top Edge	$\varepsilon_{c,-z\ (top)}$	23.671	‰
Concrete Strain - Bottom Edge	$\varepsilon_{c,+z\ (bottom)}$	-1.793	‰
Strain at Centroidal Axis	ε_0	10.852	‰
The Inner Lever z for the Shear Dimensioning	z	844.5	mm
Neutral Axis Depth	x	67.0	mm
Neutral Axis Depth/Effective Depth	x/d	0.0703	
Effective Depth	d	954.0	mm
Curvature	1/r	-0.0250	1/m
Neutral Axis Inclination	α_0	177.57	°
Shear and Torsional Capacity			
Shear Capacity Without Reinforcement	$V_{Rd,c}$	260.0	kN
Inclined Concrete Strut Capacity	$V_{Rd,max}$	1971.4	kN
Design Shear Capacity - Stirrups	$V_{Rd,s}$	537.1	kN
Ultimate Limit State of Inclined Compressive Struts	$T_{Rd,max}$	469.6	kNm
Design Torsional Capacity - Stirrups	$T_{Rd,s}$	9.3	kNm
Inclination of Compression Strut	Θ	21.80	°
Cross-Section No.35 - Rectangle 960/1200, Member No. 2185 - x: 0.000, $A_{s,-z\ (top)}$, CO1:			
Reinforcement			
Longitudinal Reinforcement - Top	$A_{s,-z\ (top)}$	27.88	cm^2
Longitudinal Reinforcement - Bottom	$A_{s,+z\ (bottom)}$	0.29	cm^2
Longitudinal Torsion Reinforcement	$A_{s,T}$	9.90	cm^2
Stirrups (Shear Reinforcement)	$a_{sw,V,stirrup}$	9.09	cm^2/m
Stirrups (Torsion Reinforcement)	$a_{sw,T,stirrup}$	0.49	cm^2/m
Percentage of Reinforcement - Top	$\rho_{-z\ (top)}$	0.242	%
Percentage of Reinforcement - Bottom	$\rho_{+z\ (bottom)}$	0.003	%
Percentage of Shear Reinforcement	ρ_w	0.095	%

Detailed Results for 2.1 Required Reinforcement by Cross-Section (10,35)

Description	Name	Size	Unit
Design Internal Forces			
Design Bending Moment	$M_{y,Ed}$	-1620.2	kNm
Design Bending Moment	$M_{z,Ed}$	-138.3	kNm
Design Torsional Moment	T_{Ed}	-68.5	kNm
Design Axial Force	N_{Ed}	-405.0	kN
Design Shear Force	$V_{y,Ed}$	-28.6	kN
Design Shear Force	$V_{z,Ed}$	-315.2	kN
Reduced Design Shear Force	$V_{z,Ed,red}$	-315.2	kN
State of Strain			
Prov. Stress			
Steel Stress - Top	$\sigma_{s,-z\ (top)}$	454.1	N/mm²
Steel Stress - Bottom	$\sigma_{s,+z\ (bottom)}$	-434.9	N/mm²
Concrete Stress - Top Edge	$\sigma_{c,-z\ (top)}$	0.0	N/mm²
Concrete Stress - Bottom Edge	$\sigma_{c,+z\ (bottom)}$	-21.0	N/mm²
Prov. Strain			
Strain in Reinforcement - Top	$\varepsilon_{s,-z\ (top)}$	22.500	‰
Strain in Reinforcement - Bottom	$\varepsilon_{s,+z\ (bottom)}$	-2.246	‰
Concrete Strain - Top Edge	$\varepsilon_{c,-z\ (top)}$	23.545	‰
Concrete Strain - Bottom Edge	$\varepsilon_{c,+z\ (bottom)}$	-3.274	‰
Strain at Centroidal Axis	ε_0	10.856	‰
The Inner Lever z for the Shear Dimensioning	z	1020.7	mm
Neutral Axis Depth	x	146.5	mm
Neutral Axis Depth/Effective Depth	x/d	0.1269	
Effective Depth	d	1154.0	mm
Curvature	1/r	-20.8526	1/m
Neutral Axis Inclination	α_0	5.08	°
Shear and Torsional Capacity			
Shear Capacity Without Reinforcement	$V_{Rd,c}$	448.1	kN
Inclined Concrete Strut Capacity	$V_{Rd,max}$	3793.7	kN
Design Shear Capacity - Stirrups	$V_{Rd,s}$	-	
Ultimate Limit State of Inclined Compressive Struts	$T_{Rd,max}$	1289.5	kNm
Design Torsional Capacity - Stirrups	$T_{Rd,s}$	68.5	kNm
Inclination of Compression Strut	Θ	21.80	°
Cross-Section No.35 - Rectangle 960/1200, Member No. 2582 - x: 8.419, $A_{s,+z\ (bottom)}$, CO1,			
Cross-Section No.35 - Rectangle 960/1200, Member No. 2582 - x: 8.419, $a_{sw,V,stirrup}$, CO1:			
Reinforcement			
Longitudinal Reinforcement - Top	$A_{s,-z\ (top)}$	0.27	cm²
Longitudinal Reinforcement - Bottom	$A_{s,+z\ (bottom)}$	25.81	cm²
Longitudinal Torsion Reinforcement	$A_{s,T}$	5.48	cm²
Stirrups (Shear Reinforcement)	$a_{sw,V,stirrup}$	18.07	cm²/m
Stirrups (Torsion Reinforcement)	$a_{sw,T,stirrup}$	0.27	cm²/m
Percentage of Reinforcement - Top	$\rho_{-z\ (top)}$	0.002	%
Percentage of Reinforcement - Bottom	$\rho_{+z\ (bottom)}$	0.224	%
Percentage of Shear Reinforcement	ρ_w	0.188	%
Design Internal Forces			
Design Bending Moment	$M_{y,Ed}$	1129.9	kNm
Design Bending Moment	$M_{z,Ed}$	136.5	kNm
Design Torsional Moment	T_{Ed}	37.9	kNm
Design Axial Force	N_{Ed}	318.8	kN
Design Shear Force	$V_{y,Ed}$	-586.4	kN
Design Shear Force	$V_{z,Ed}$	1846.9	kN
Reduced Design Shear Force	$V_{z,Ed,red}$	1846.9	kN
State of Strain			
Prov. Stress			
Steel Stress - Top	$\sigma_{s,-z\ (top)}$	-282.8	N/mm²
Steel Stress - Bottom	$\sigma_{s,+z\ (bottom)}$	454.1	N/mm²
Concrete Stress - Top Edge	$\sigma_{c,-z\ (top)}$	-21.0	N/mm²
Concrete Stress - Bottom Edge	$\sigma_{c,+z\ (bottom)}$	0.0	N/mm²
Prov. Strain			
Strain in Reinforcement - Top	$\varepsilon_{s,-z\ (top)}$	-1.414	‰
Strain in Reinforcement - Bottom	$\varepsilon_{s,+z\ (bottom)}$	22.500	‰
Concrete Strain - Top Edge	$\varepsilon_{c,-z\ (top)}$	-2.407	‰
Concrete Strain - Bottom Edge	$\varepsilon_{c,+z\ (bottom)}$	23.512	‰
Strain at Centroidal Axis	ε_0	11.392	‰
The Inner Lever z for the Shear Dimensioning	z	986.5	mm

Detailed Results for 2.1 Required Reinforcement by Cross-Section (10,35)

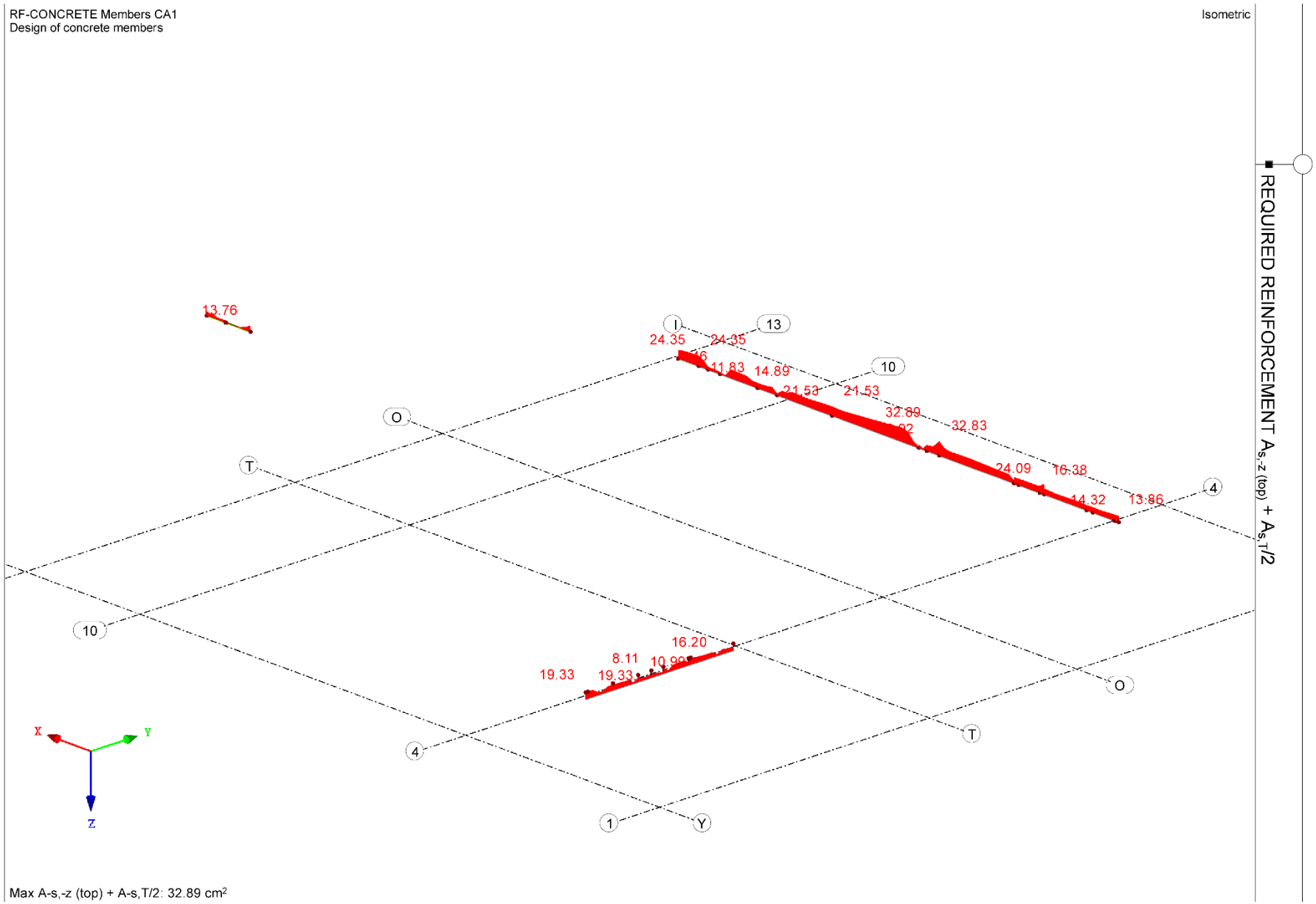
Description	Name	Size	Unit
Neutral Axis Depth	x	111.5	mm
Neutral Axis Depth/Effective Depth	x/d	0.0966	
Effective Depth	d	1154.0	mm
Curvature	1/r	19.9990	1/m
Neutral Axis Inclination	α_0	5.68	°
Shear and Torsional Capacity			
Shear Capacity Without Reinforcement	$V_{Rd,c}$	344.4	kN
Inclined Concrete Strut Capacity	$V_{Rd,max}$	3887.8	kN
Design Shear Capacity - Stirrups	$V_{Rd,s}$	1937.8	kN
Ultimate Limit State of Inclined Compressive Struts	$T_{Rd,max}$	1289.5	kNm
Design Torsional Capacity - Stirrups	$T_{Rd,s}$	37.9	kNm
Inclination of Compression Strut	Θ	21.80	°
Cross-Section No.35 - Rectangle 960/1200, Member No. 2582 - x: 6.933, $A_{s,T}$, CO1,			
Cross-Section No.35 - Rectangle 960/1200, Member No. 2582 - x: 6.933, $a_{sw,T,stirrup}$, CO1:			
Reinforcement			
Longitudinal Reinforcement - Top	$A_{s,-z\ (top)}$	18.44	cm^2
Longitudinal Reinforcement - Bottom	$A_{s,+z\ (bottom)}$	0.00	cm^2
Longitudinal Torsion Reinforcement	$A_{s,T}$	28.90	cm^2
Stirrups (Shear Reinforcement)	$a_{sw,V,stirrup}$	9.09	cm^2/m
Stirrups (Torsion Reinforcement)	$a_{sw,T,stirrup}$	1.42	cm^2/m
Percentage of Reinforcement - Top	$\rho_{-z\ (top)}$	0.160	%
Percentage of Reinforcement - Bottom	$\rho_{+z\ (bottom)}$	0.000	%
Percentage of Shear Reinforcement	ρ_w	0.095	%
Design Internal Forces			
Design Bending Moment	$M_{y,Ed}$	-354.7	kNm
Design Bending Moment	$M_{z,Ed}$	4.8	kNm
Design Torsional Moment	T_{Ed}	200.0	kNm
Design Axial Force	N_{Ed}	-64.6	kN
Design Shear Force	$V_{y,Ed}$	104.4	kN
Design Shear Force	$V_{z,Ed}$	353.2	kN
Reduced Design Shear Force	$V_{z,Ed,red}$	353.2	kN
State of Strain			
Prov. Stress			
Steel Stress - Top	$\sigma_{s,-z\ (top)}$	454.1	N/mm^2
Steel Stress - Bottom	$\sigma_{s,+z\ (bottom)}$	-	
Concrete Stress - Top Edge	$\sigma_{c,-z\ (top)}$	0.0	N/mm^2
Concrete Stress - Bottom Edge	$\sigma_{c,+z\ (bottom)}$	-14.7	N/mm^2
Prov. Strain			
Strain in Reinforcement - Top	$\varepsilon_{s,-z\ (top)}$	22.500	‰
Strain in Reinforcement - Bottom	$\varepsilon_{s,+z\ (bottom)}$	-	
Concrete Strain - Top Edge	$\varepsilon_{c,-z\ (top)}$	23.433	‰
Concrete Strain - Bottom Edge	$\varepsilon_{c,+z\ (bottom)}$	-0.901	‰
Strain at Centroidal Axis	ε_0	12.167	‰
The Inner Lever z for the Shear Dimensioning	z	989.3	mm
Neutral Axis Depth	x	0.0	mm
Neutral Axis Depth/Effective Depth	x/d	0.0000	
Effective Depth	d	0.0	mm
Curvature	1/r	0.0203	1/m
Neutral Axis Inclination	α_0	0.00	°
Shear and Torsional Capacity			
Shear Capacity Without Reinforcement	$V_{Rd,c}$	399.4	kN
Inclined Concrete Strut Capacity	$V_{Rd,max}$	3882.0	kN
Design Shear Capacity - Stirrups	$V_{Rd,s}$	-	
Ultimate Limit State of Inclined Compressive Struts	$T_{Rd,max}$	1289.5	kNm
Design Torsional Capacity - Stirrups	$T_{Rd,s}$	200.0	kNm
Inclination of Compression Strut	Θ	21.80	°

4.1 Serviceability Check by Cross-Section

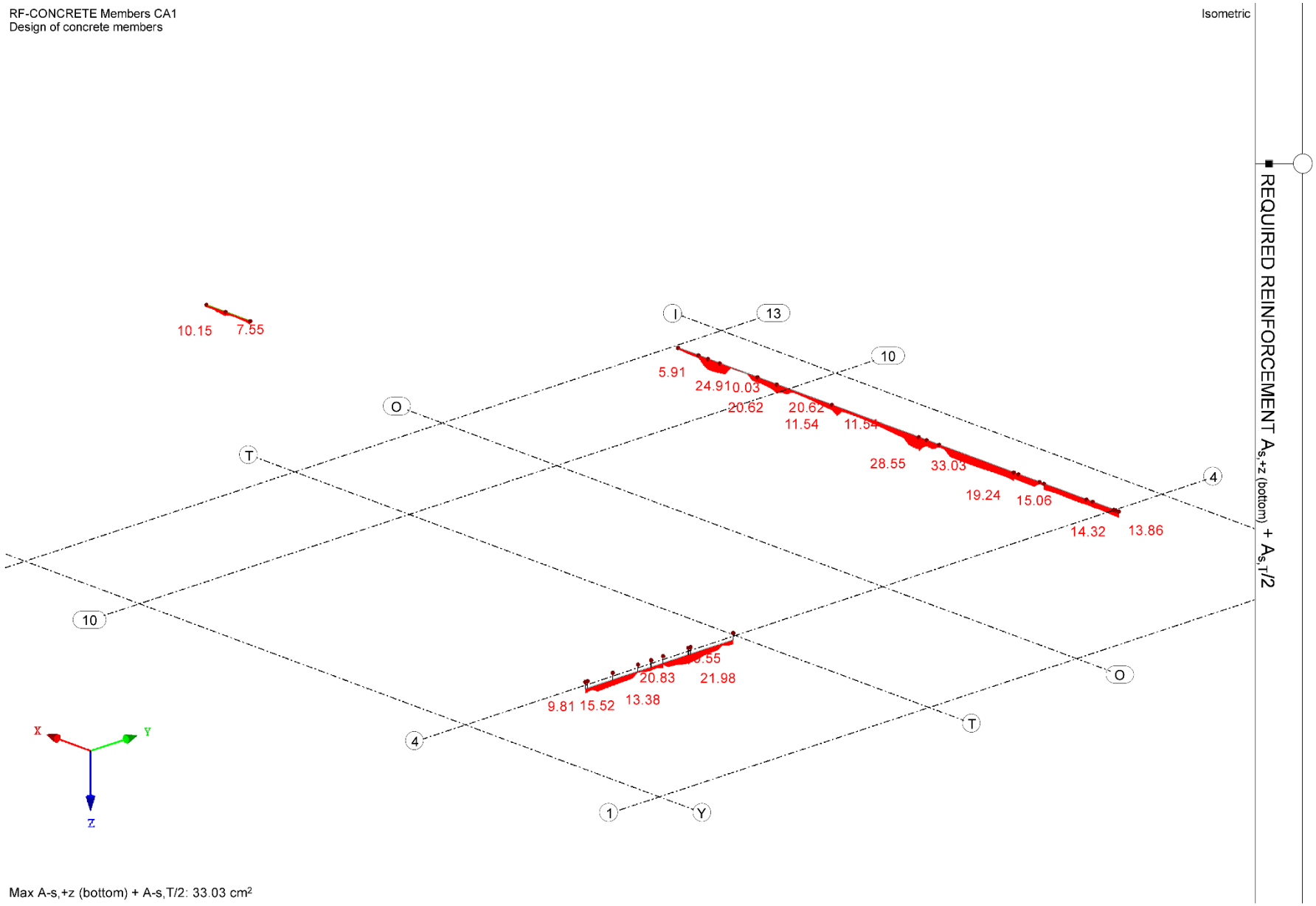
Sect. No.	Location x [m]	Loading	Design Type	Existing Value	Limit Value	Unit	Capacity	Note
Cross-Section No.10 - Rectangle 600/1000								

4.1 Serviceability Check by Cross-Section

Sect. No.	Location x [m]	Loading	Design Type	Existing Value	Limit Value	Unit	Capacity	Note
2193	0.000	CO5	σ_c	-7.9	-15.8	N/mm²	0.51	
2170	0.000	CO7	σ_s	64.8	400.0	N/mm²	0.01	
2170	0.000	CO5	lim d_s	16.0	-	mm	0.00	
2170	0.000	CO5	lim s_l	0.127	-	m	0.01	
2170	0.000	CO5	w_k	0.000	0.300	mm	0.00	
Cross-Section No.35 - Rectangle 960/1200								
2581	1.873	CO5	σ_c	-12.7	-15.7	N/mm²	0.81	
176	0.000	CO7	σ_s	42.9	400.0	N/mm²	0.01	
2579	1.205	CO5	lim d_s	18.9	34.8	mm	0.55	
2182	0.000	CO5	lim s_l	0.145	0.205	m	0.71	
2178	0.000	CO5	w_k	0.268	0.300	mm	0.90	

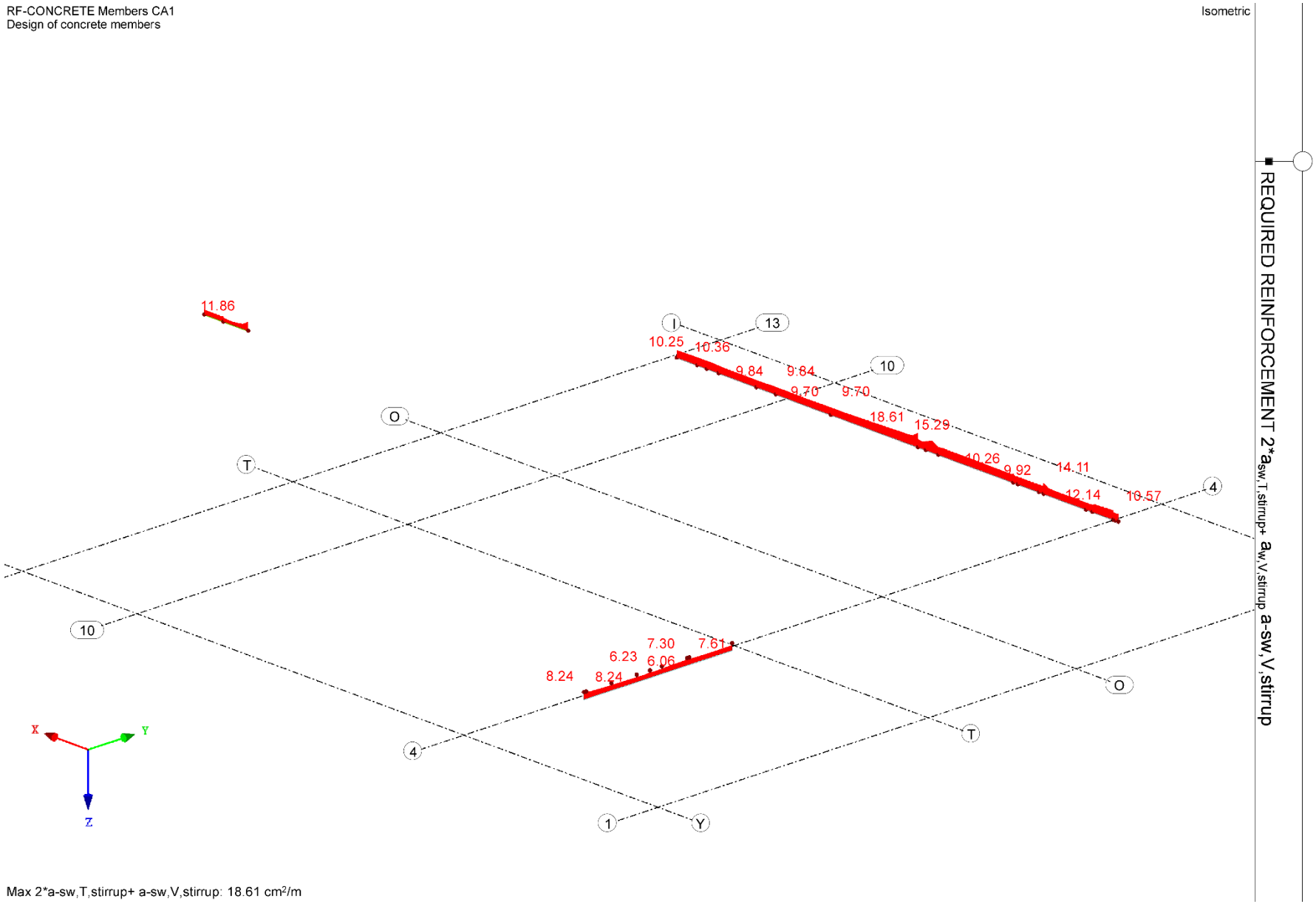


5.3.4 pav. Išilginė armatūra Ast (viršutinė) (Koncertų pastatas)



5.3.5 pav. Išilginė armatūra Asb (apatinė) (Koncertų pastatas)

DOKUMENTO ŽYMUO	LAPAS	LAPŲ	LAIDA
439-MKC-01-TP-SK2-BSPS-01	230	382	0



5.3.6 pav. Skersinė armatūra Asw (Koncertų pastatas)

5.4. GELŽBETONINIŲ MONOLITINIŲ KOLONŲ ARMAVIMAS .

5.4.1. Gelžbetoninių monolitinių kolonų armavimas (Parkingas) .

Reikalingas armatūros kiekis gelžbetoninėms kolonoms, įskaitant pleišėtumą iki 0.3, toliau pateikti grafiniu pavidalu pagal atliktus skaičiavimus. Ataskaitose pateiktas *pilnas* reikalingas armatūros kiekis.

Išeities duomenys:

–kolonos: 500x500, 550x550, ∅500 mm

– apsauginis armatūros sluoksnis – 50 mm;

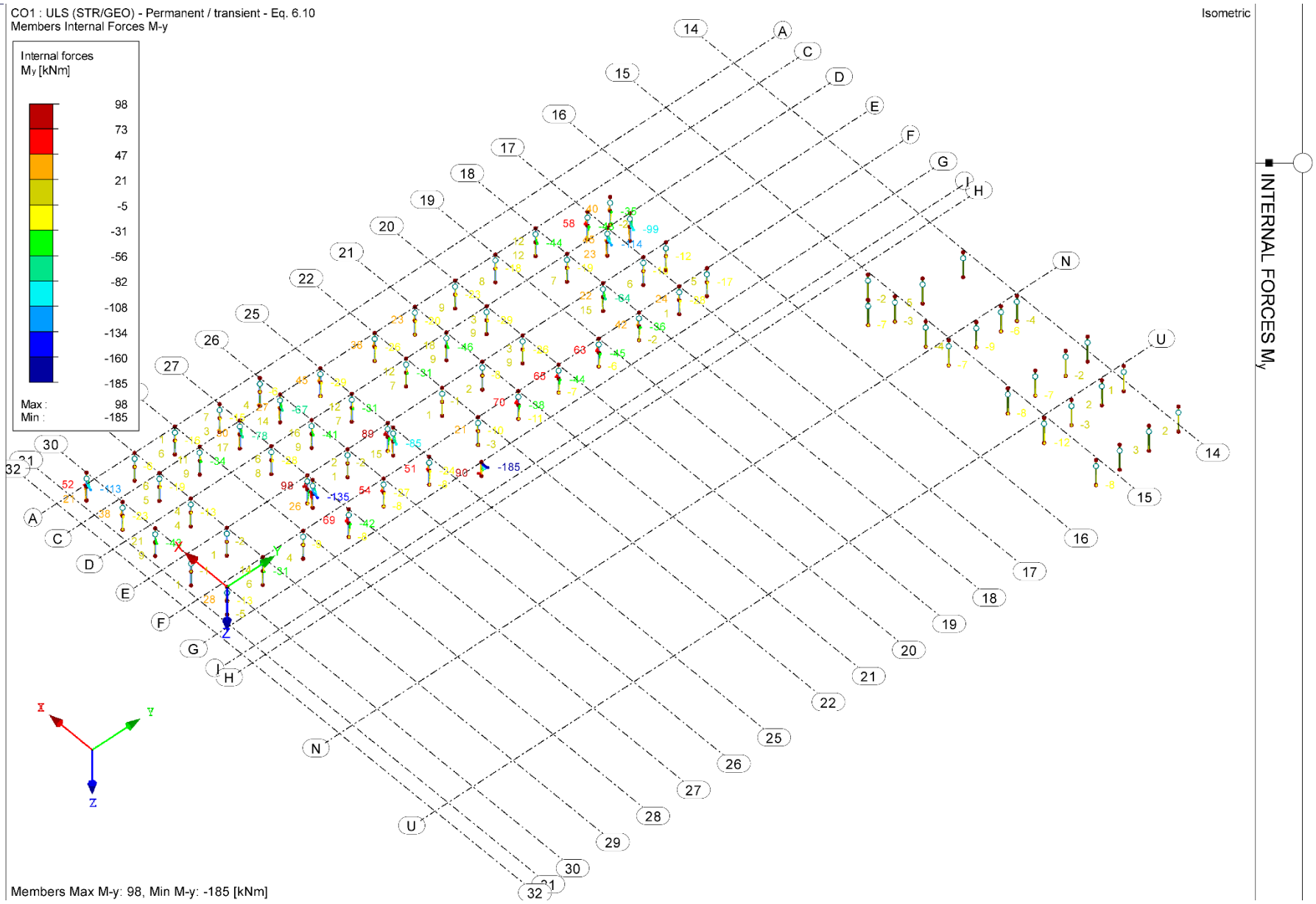
– betono klasė C30/37

– armatūros klasė:

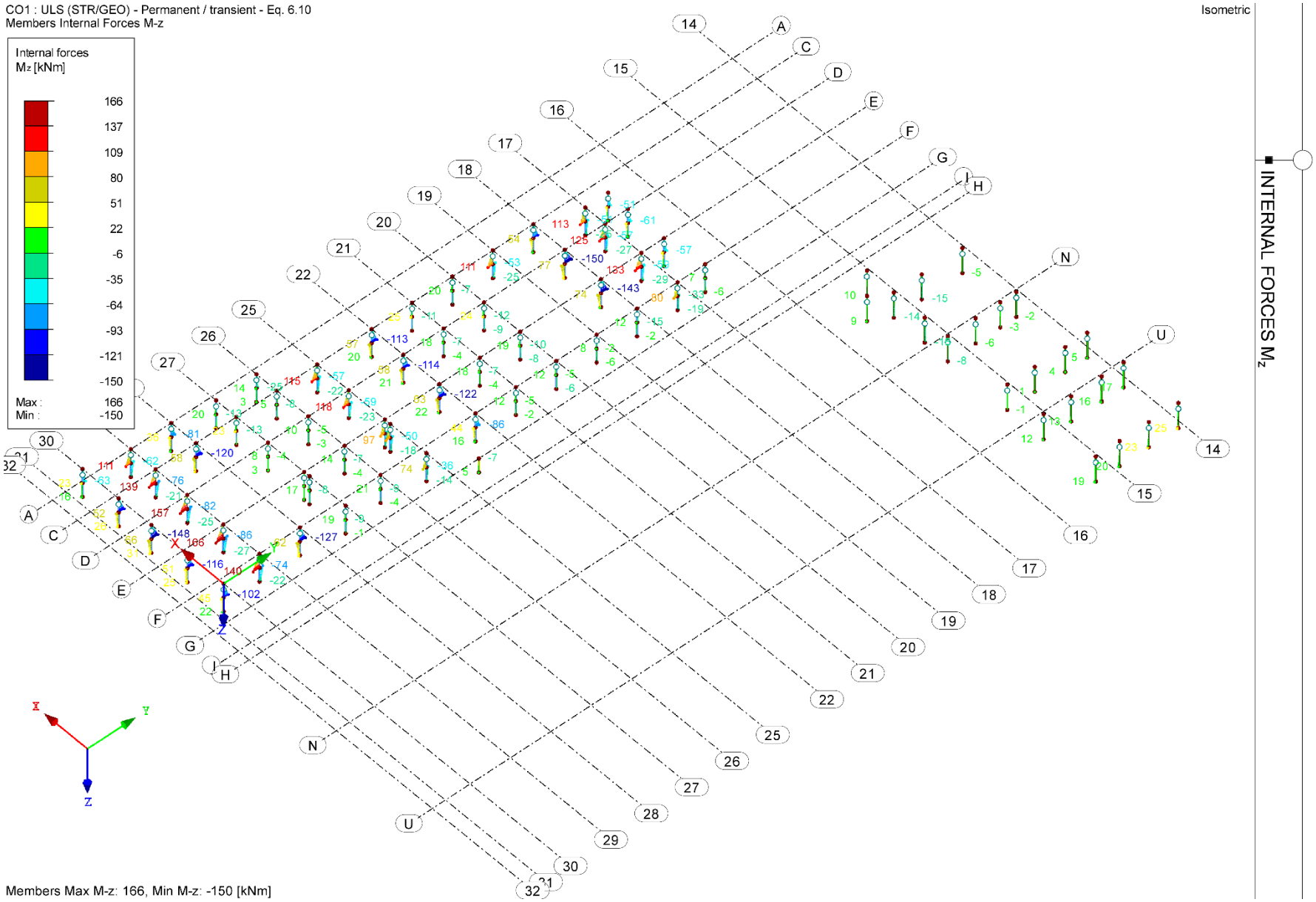
išilginė – B500B;

skersinė – B500A

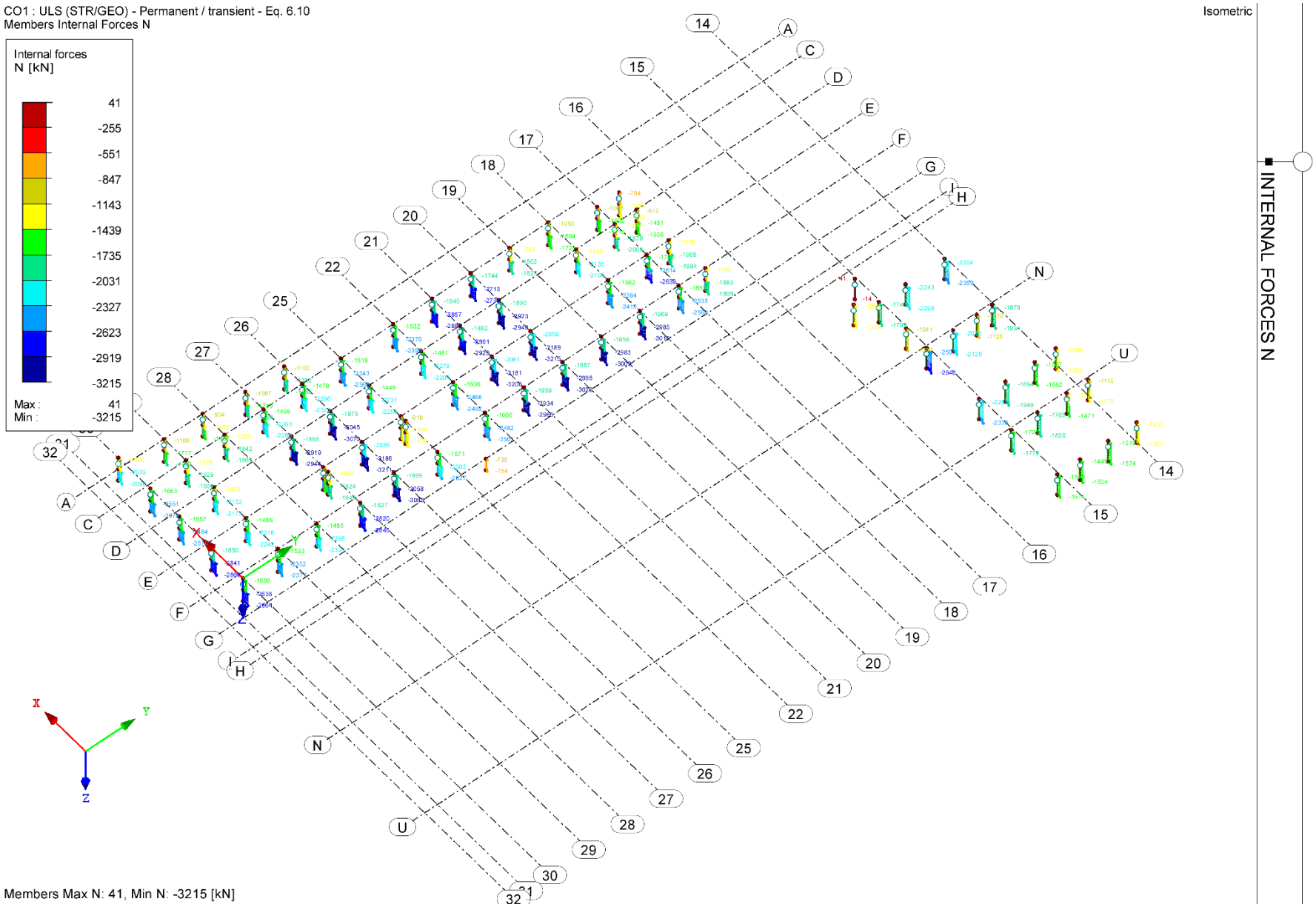
Jėgos veikiančios kolonose (maksimali skerspjūvyje)



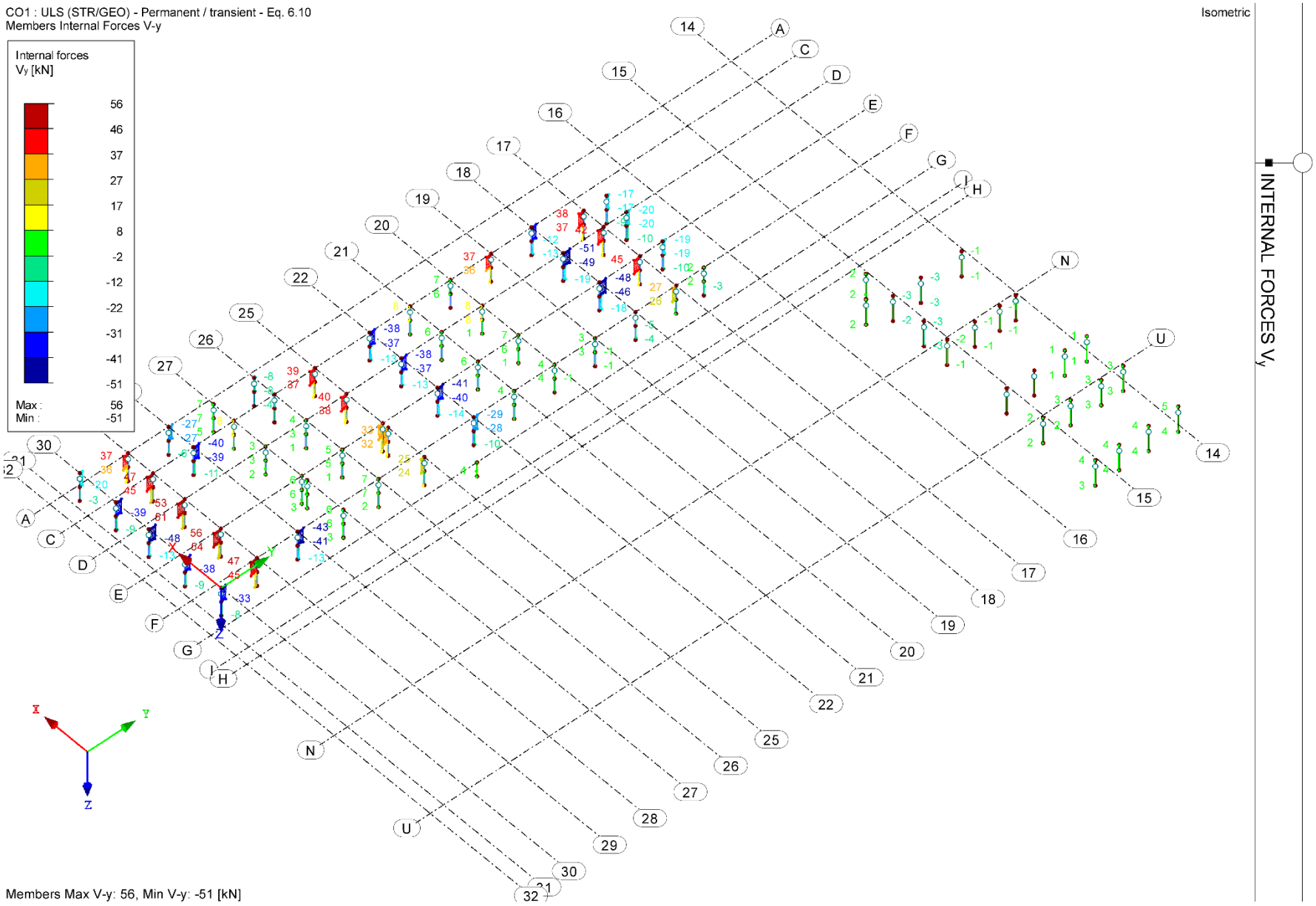
5.4.1.1 pav. Kolonose veikiančios įrąžos (lenkimo momentas My) (Parkingas)



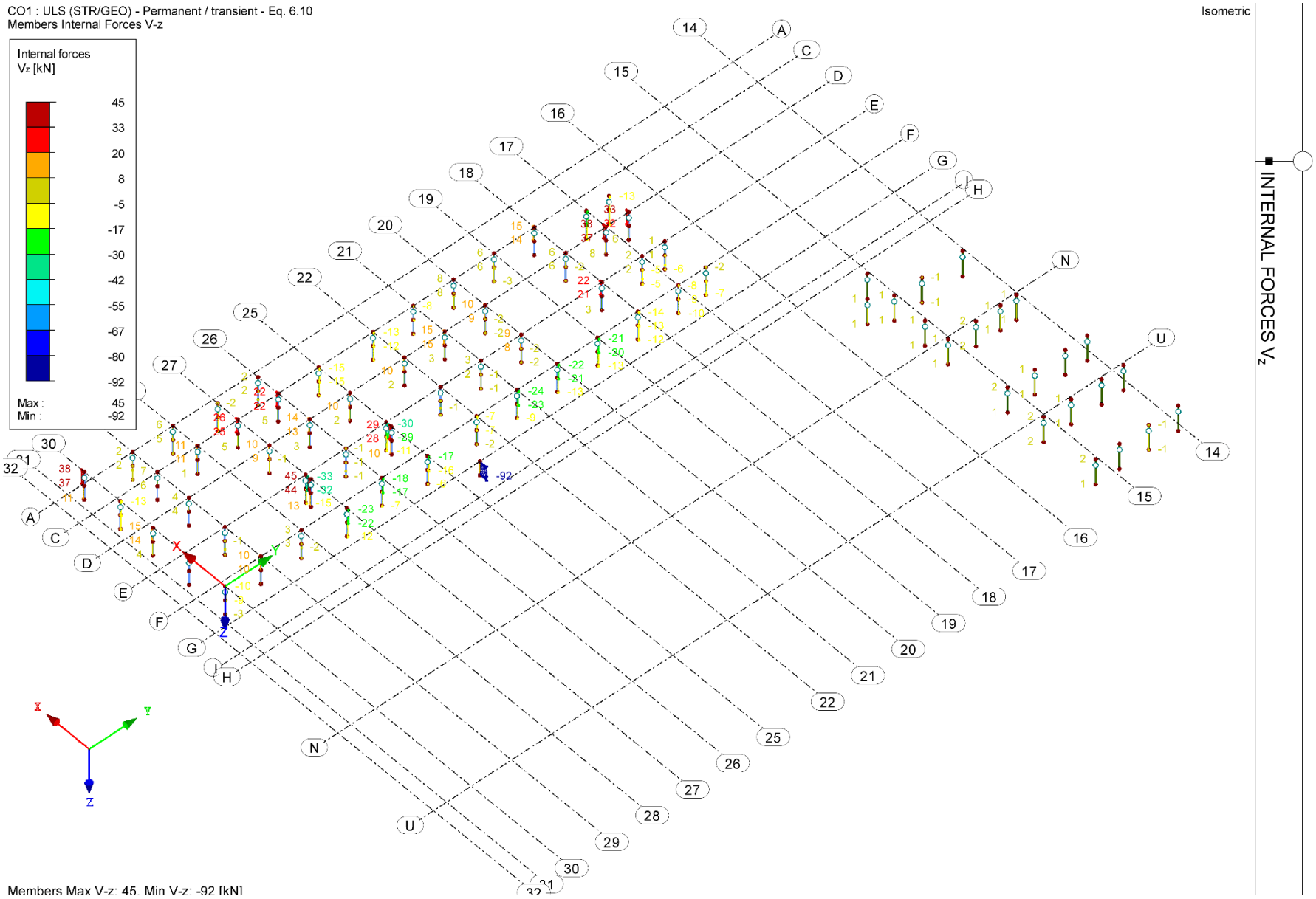
5.4.1.2 pav. Kolonose veikiančios įrąžos (lenkimo momentas Mz) (Parkingas)



5.4.1.3 pav. Kolonose veikiančios įrąžos (ašinė jėga N) (Parkingas)



5.4.1.4 pav. Kolonose veikiančios įrąžos (skersinė jėga Vy) (Parkingas)



5.4.1.5 pav. Kolonose veikiančios įrąžos (skersinė jėga Vz) (Parkingas)

Armavimo skaičiavimas

4.12 Cross-Sections - Internal Forces

Member No.	LC/CO	Node No.	Location x [m]	Forces [kN] N	V_y	V_z	Moments [kNm] M_T	M_y	M_z	
	Section No. 1: Rectangle 500/500									
110	CO1	173	3.000	> -704	-17	-13	0	0	0	
49	CO1	67	0.000	> -3215	1	-2	0	9	-8	
17	CO1	35	3.000	-1466	> 56	0	0	0	0	
148	CO1	214	3.000	-1420	> -51	6	0	0	0	
74	CO1	137	3.000	-1255	6	> 45	0	0	0	
75	CO1	138	3.000	-1043	3	> -33	0	0	0	
75	CO1	93	0.000	-1068	3	-32	0	> 98	10	
74	CO1	92	0.000	-1280	6	44	0	> -135	17	
17	CO1	25	0.000	-1491	54	0	0	0	> 166	
148	CO1	212	0.000	-1445	-49	6	0	-19	> -150	
	Section No. 2: Circle 500									
134	CO1	463	3.000	> -735	4	-91	0	-185	-7	
134	CO1	462	0.000	> -754	4	-92	0	90	5	
134	CO1	MAX V_y	1.200	-746	> 4	-92	0	-21	0	
134	CO1	463	3.000	-735	> 4	-91	0	-185	-7	
134	CO1	463	3.000	-735	4	> -91	0	-185	-7	
134	CO1	MIN V_z	0.900	-748	4	> -92	0	7	2	
134	CO1	462	0.000	-754	4	-92	0	> 90	5	
134	CO1	463	3.000	-735	4	-91	0	> -185	-7	
134	CO1	462	0.000	-754	4	-92	0	90	> 5	
134	CO1	463	3.000	-735	4	-91	0	-185	> -7	
	Section No. 8: Rectangle 550/550									
111	CO1	515	5.400	> 41	2	0	2	0	0	
118	CO1	641	0.000	> -2648	-1	1	2	-7	-8	
129	CO1	532	5.400	-1252	> 5	0	1	0	0	
117	CO1	MIN V_y	5.155	-1044	> -3	1	2	0	-1	
125	CO1	528	5.400	-1723	2	> 2	1	0	0	
116	CO1	520	5.400	-2243	-3	> -1	-1	0	0	
116	CO1	373	0.000	-2298	-3	-1	-1	> 5	-15	
125	CO1	427	0.000	-1778	2	2	1	> -12	12	
129	CO1	432	0.000	-1307	4	0	1	2	> 25	
117	CO1	422	0.000	-1097	-3	1	2	-4	> -16	

RF-CONCRETE
Columns
CA1

1.1 General Data

Design according to Standard:	LST EN 1992-1-1:2005/NA:2011	
ULTIMATE LIMIT STATES		
Load combinations to design:	CO1	ULS (STR/GEO) - Permanent / transient - Eq. 6.10
		Persistent and Transient
CREEP-PRODUCING PERMANENT LOAD		
Load combinations to design:	CO2	SLS - Characteristic
	CO3	SLS - Quasi-permanent

RF-CONCRETE
Columns
CA1

1.2 Materials

Material No.	Material Description: Concrete Strength Class	Reinforcing Steel	Notes	Comment
1	Concrete C35/45	B 500 S (A)		
3	Steel S 355	B 500 S (A)	2)	

Notes:
2) Upper limit of the concrete strength class has been exceeded!

1.3 Cross-Sections

Section No.	Material No.	Cross-Section Description	Notes	Comment
1	1	Rectangle 500/500		
2	1	Circle 500		
8	1	Rectangle 550/550		

RF-CONCRETE
Columns
CA1

1.4 Reinforcement Group No. 1

Applied to members:	All (1-52,55-97,100-134,146,148,185)
LONGITUDINAL REINFORCEMENT	
Possible diameters:	16.0 mm,20.0 mm
Reinforcement layout - Rectangular:	Uniformly surrounding
Reinforcement layout - Circle:	Uniformly surrounding
Min. spacing for first layer:	50.0 mm
Type of anchorage:	Straight
Steel surface:	Ribbed
STIRRUPS	
Possible diameters:	8.0 mm
Number of legs - Rectangular:	2
Number of legs - Circle:	2
Min. shear reinforcement A_{sw}:	According to Standard
Type of anchorage:	Hook
SECONDARY REINFORCEMENT	
Max. secondary reinforcement distance:	300.0 mm
CONCRETE COVER	
Concrete cover acc. to Standard	-
Axial spacing concrete cover - Rectangle C_z:	50.0 mm
Axial spacing concrete cover - Rectangle C_y:	50.0 mm
Axial spacing concrete cover - Circle C:	30.0 mm
Relevant internal forces:	N, V-y, V-z, M-y, M-z
OPTIONS FOR LST EN 1992-1-1:2005/NA:2011	
Maximum longitudinal reinforcement according to Standard	x
Minimum longitudinal reinforcement according to Standard	x
Partial safety factor according to Table 2.1N: γ_c:	1.5000
Partial safety factor according to Table 2.1N: γ_s	1.1500
Factor α_{cc} :	0.9000
Min. inclination of concrete strut:	21.801 °
Max. inclination of concrete strut:	45.000 °

RF-CONCRETE
Columns
CA1

1.5 Parameters - by Member

Member No.	Cross-Section	Direction	Buckling Risk	System Unbraced	System Length [m]	Coefficient β	Effective Length [m] / Slenderness
1	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
2	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
3	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
4	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8

1.5 Parameters - by Member

Member No.	Cross-Section	Direction	Buckling Risk	System Unbraced	System Length [m]	Coefficient β	Effective Length [m] / Slenderness
5	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
6	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
7	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
8	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
9	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
10	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
11	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
12	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
13	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
14	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
15	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
16	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
17	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
18	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
19	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
20	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
21	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
22	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
23	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
24	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
25	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
26	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
27	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
28	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
29	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
30	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
31	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
32	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
33	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
34	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
35	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
36	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
37	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
38	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8

1.5 Parameters - by Member

Member No.	Cross-Section	Direction	Buckling Risk	System Unbraced	System Length [m]	Coefficient β	Effective Length [m] / Slenderness
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
39	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
40	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
41	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
42	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
43	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
44	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
45	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
46	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
47	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
48	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
49	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
50	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
51	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
52	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
55	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
56	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
57	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
58	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
59	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
60	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
61	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
62	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
63	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
64	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
65	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
66	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
67	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
68	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
69	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
70	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
71	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
72	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
73	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8

1.5 Parameters - by Member

Member No.	Cross-Section	Direction	Buckling Risk	System Unbraced	System Length [m]	Coefficient β	Effective Length [m] / Slenderness
74	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
75	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
76	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
77	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
78	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
79	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
80	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
81	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
82	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
83	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
84	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
85	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
86	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
87	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
88	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
89	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
90	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
91	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
92	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
93	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
94	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
95	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
96	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
97	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
100	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
101	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
102	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
103	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
104	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
105	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
106	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
107	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
108	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
109	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8

1.5 Parameters - by Member

Member No.	Cross-Section	Direction	Buckling Risk	System Unbraced	System Length [m]	Coefficient β	Effective Length [m] / Slenderness
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
110	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
111	8 - Rectangle 550/550	about axis y	+	-	5.400	1.0000	5.400 / 34.0
		about axis z	+	-	5.400	1.0000	5.400 / 34.0
112	8 - Rectangle 550/550	about axis y	+	-	5.400	1.0000	5.400 / 34.0
		about axis z	+	-	5.400	1.0000	5.400 / 34.0
113	8 - Rectangle 550/550	about axis y	+	-	5.400	1.0000	5.400 / 34.0
		about axis z	+	-	5.400	1.0000	5.400 / 34.0
114	8 - Rectangle 550/550	about axis y	+	-	5.400	1.0000	5.400 / 34.0
		about axis z	+	-	5.400	1.0000	5.400 / 34.0
115	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
116	8 - Rectangle 550/550	about axis y	+	-	5.400	1.0000	5.400 / 34.0
		about axis z	+	-	5.400	1.0000	5.400 / 34.0
117	8 - Rectangle 550/550	about axis y	+	-	5.400	1.0000	5.400 / 34.0
		about axis z	+	-	5.400	1.0000	5.400 / 34.0
118	8 - Rectangle 550/550	about axis y	+	-	5.400	1.0000	5.400 / 34.0
		about axis z	+	-	5.400	1.0000	5.400 / 34.0
119	8 - Rectangle 550/550	about axis y	+	-	5.400	1.0000	5.400 / 34.0
		about axis z	+	-	5.400	1.0000	5.400 / 34.0
120	8 - Rectangle 550/550	about axis y	+	-	5.400	1.0000	5.400 / 34.0
		about axis z	+	-	5.400	1.0000	5.400 / 34.0
121	8 - Rectangle 550/550	about axis y	+	-	5.400	1.0000	5.400 / 34.0
		about axis z	+	-	5.400	1.0000	5.400 / 34.0
122	8 - Rectangle 550/550	about axis y	+	-	5.400	1.0000	5.400 / 34.0
		about axis z	+	-	5.400	1.0000	5.400 / 34.0
123	8 - Rectangle 550/550	about axis y	+	-	5.400	1.0000	5.400 / 34.0
		about axis z	+	-	5.400	1.0000	5.400 / 34.0
124	8 - Rectangle 550/550	about axis y	+	-	5.400	1.0000	5.400 / 34.0
		about axis z	+	-	5.400	1.0000	5.400 / 34.0
125	8 - Rectangle 550/550	about axis y	+	-	5.400	1.0000	5.400 / 34.0
		about axis z	+	-	5.400	1.0000	5.400 / 34.0
126	8 - Rectangle 550/550	about axis y	+	-	5.400	1.0000	5.400 / 34.0
		about axis z	+	-	5.400	1.0000	5.400 / 34.0
127	8 - Rectangle 550/550	about axis y	+	-	5.400	1.0000	5.400 / 34.0
		about axis z	+	-	5.400	1.0000	5.400 / 34.0
128	8 - Rectangle 550/550	about axis y	+	-	5.400	1.0000	5.400 / 34.0
		about axis z	+	-	5.400	1.0000	5.400 / 34.0
129	8 - Rectangle 550/550	about axis y	+	-	5.400	1.0000	5.400 / 34.0
		about axis z	+	-	5.400	1.0000	5.400 / 34.0
130	8 - Rectangle 550/550	about axis y	+	-	5.400	1.0000	5.400 / 34.0
		about axis z	+	-	5.400	1.0000	5.400 / 34.0
131	8 - Rectangle 550/550	about axis y	+	-	5.400	1.0000	5.400 / 34.0
		about axis z	+	-	5.400	1.0000	5.400 / 34.0
132	8 - Rectangle 550/550	about axis y	+	-	5.400	1.0000	5.400 / 34.0
		about axis z	+	-	5.400	1.0000	5.400 / 34.0
133	8 - Rectangle 550/550	about axis y	+	-	5.400	1.0000	5.400 / 34.0
		about axis z	+	-	5.400	1.0000	5.400 / 34.0
134	2 - Circle 500	about axis y	+	-	3.000	1.0000	3.000 / 24.0
		about axis z	+	-	3.000	1.0000	3.000 / 24.0
146	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
148	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8
185	1 - Rectangle 500/500	about axis y	+	-	3.000	1.0000	3.000 / 20.8
		about axis z	+	-	3.000	1.0000	3.000 / 20.8

RF-CONCRETE
Columns
CA1

3.1 Required Reinforcement by Cross-Section

Section No.	Reinforcement Type	Member No.	Location x [m]	LC / CO RC	Reinforcement	Area	Unit	Error or notice
1	Rectangle 500/500							

3.1 Required Reinforcement by Cross-Section

Section No.	Reinforcement Type	Member No.	Location x [m]	LC / CO RC	Reinforcement	Area	Unit	Error or notice
	Longitudinal	49	0.000	CO1	As	7.39	cm^2	Governing minimum reinforcement for determining the required reinforcement

Governing Load				
Load			CO1	
Governing Internal Forces			min N	
At Location		x	0.000	m
Normal Force		N	-3214.520	kN
Moment About y-Axis		M_y	8.875	kNm
Moment About z-Axis		M_z	-7.909	kNm
Effective Length According to 5.8.3.2				
Effective Length About Axis y		$l_{0,y}$	3.000	m
Column Length		l_y	3.000	m
Buckling Coefficient		β_y	1.000	
Effective Length About Axis z		$l_{0,z}$	3.000	m
Column Length		l_z	3.000	m
Buckling Coefficient		β_z	1.000	
Slenderness According to 5.8.3.2				
Slenderness About Axis y		λ_y	20.7846	
Effective Length		$l_{0,y}$	3.000	m
Radius of Gyration		i_y	144.3	mm
Slenderness About Axis z		λ_z	20.7846	
Effective Length		$l_{0,z}$	3.000	m
Radius of Gyration		i_z	144.3	mm
Limiting Slenderness According to 5.8.3.1 (1)				
Limiting Slenderness About Axis y		$\lambda_{lim,y}$	25.2901	
Factor A		A_y	0.7194	
Consider effects of creep?			Yes	
Effective Creep Coefficient		$\varphi_{ef,y}$	1.9506	
Final Value of Creep Coeff.		$\varphi(\infty, t_0)$	2.6154	
Condition for neglecting creep fulfilled?			Failed	
Final value of creep coeff. is less than or equal to two?		$\varphi(\infty, t_0) \leq 2.0$	Failed	
Slenderness about y-axis less than or equal to 75?		$\lambda_y \leq 75$	Passed	
Eccentricity in ULS higher as thickness of cross-section?		$M_y, 0E_d / N_{Ed} \geq h_z$	Failed	
Moment (Quasi-permanent Action)		$M_{c\text{-}quasi,1,y}$	24.600	kNm
Normal Force (Quasi-permanent Action)		$N_{Ed\text{-}quasi}$	-2399.030	kN
Eccentricity in z-Direction		$e_{c\text{-}quasi,1,z}$	10.3	mm
Intended Unreduced Eccentricity		$e_{c\text{-}quasi,0,z}$	2.8	mm
Eccentricity Due to Imperfection		$e_{i,z}$	7.5	mm
Load			CO2	
Moment About Axis y (First Ord. Th.)		$M_{c,1,y}$	32.984	kNm
Normal Force		N_{Ed}	-3214.520	kN
Eccentricity in z-Direction		$e_{c,1,z}$	10.3	mm
Intended Eccentricity		$e_{c,0,z}$	2.8	mm
Eccentricity Due to Imperfection		$e_{i,z}$	7.5	mm
Factor B		B_y	1.0000	
Mechanical Reinforcement Ratio		ω	0.0000	
Statically Required Reinforcement		req $A_{s,stat}$	0.00	cm^2
Design Value of Yield Stress		f_{yd}	434.78	N/mm^2
Area of Cross-Section		A_c	2500.00	cm^2
Design Value of Concrete Compr. Strength		f_{cd}	21.00	N/mm^2
Factor C		C_y	1.3755	
Moment Ratio		$r_{m,y}$	0.3245	
1st End Moment About Axis y		$M_{y,01}$	8.875	kNm
2nd End Moment About Axis y		$M_{y,02}$	2.880	kNm
Relative Normal Force		n	0.6123	
Design Normal Force		N_{Ed}	-3214.520	kN
Area of Cross-Section		A_c	2500.00	cm^2
Design Value of Concrete Compr. Strength		f_{cd}	21.00	N/mm^2
Limiting Slenderness About Axis z		$\lambda_{lim,z}$	16.9315	
Factor A		A_z	0.7198	
Consider effects of creep?			Yes	
Effective Creep Coefficient		$\varphi_{ef,z}$	1.9465	
Final Value of Creep Coeff.		$\varphi(\infty, t_0)$	2.6154	
Condition for neglecting creep fulfilled?			Failed	

3.1 Required Reinforcement by Cross-Section

Section No.	Reinforcement Type	Member No.	Location x [m]	LC / CO RC	Reinforcement Area	Unit	Error or notice	
	Final value of creep coeff. is less than or equal to two?					$\varphi(\infty,t_0)\leq 2.0$	Failed	
	Slenderness about z-axis less than or equal to 75?					$\lambda_z \leq 75$	Passed	
	Eccentricity in ULS higher as thickness of cross-section?					$M_z,0E_d/N_{Ed} \geq h_y$	Failed	
	Moment (Quasi-permanent Action)					$M_{c\text{-}quasi,1,z}$	-23.829	kNm
	Normal Force (Quasi-permanent Action)					$N_{Ed\text{-}quasi}$	-2399.030	kN
	Eccentricity in y-Direction					$e_{c\text{-}quasi,1,y}$	-9.9	mm
	Intended Unreduced Eccentricity					$e_{c\text{-}quasi,0,y}$	-2.4	mm
	Eccentricity Due to Imperfection					$e_{i,y}$	-7.5	mm
	Load						CO2	
	Moment About Axis z (First Ord. Th.)					$M_{c,1,z}$	-32.018	kNm
	Normal Force					N_{Ed}	-3214.520	kN
	Eccentricity in y-Direction					$e_{c,1,y}$	-10.0	mm
	Intended Eccentricity					$e_{c,0,y}$	-2.5	mm
	Eccentricity Due to Imperfection					$e_{i,y}$	-7.5	mm
Factor B						B_z	1.0000	
Mechanical Reinforcement Ratio						ω	0.0000	
Statically Required Reinforcement						req $A_{s,stat}$	0.00	cm^2
Design Value of Yield Stress						f_{yd}	434.78	N/mm^2
Area of Cross-Section						A_c	2500.00	cm^2
Design Value of Concrete Compr. Strength						f_{cd}	21.00	N/mm^2
Factor C						C_z	0.9203	
Moment Ratio						$r_{m,z}$	0.7797	
1st End Moment About Axis z						$M_{z,01}$	-7.909	kNm
2nd End Moment About Axis z						$M_{z,02}$	-10.144	kNm
Relative Normal Force						n	0.6123	
Design Normal Force						N_{Ed}	-3214.520	kN
Area of Cross-Section						A_c	2500.00	cm^2
Design Value of Concrete Compr. Strength						f_{cd}	21.00	N/mm^2
Design Type								
Conditions of standard design according to 5.8.3.1 (1)								
Condition About Axis y						$\lambda_y \leq \lambda_{lim,y}$	Passed	
Provided Slenderness						λ_y	20.7846	
Limiting Slenderness About Axis y						$\lambda_{lim,y}$	25.2901	
Condition About Axis z						$\lambda_z \leq \lambda_{lim,z}$	Failed	
Provided Slenderness						λ_z	20.7846	
Limiting Slenderness About Axis z						$\lambda_{lim,z}$	16.9315	
Condition of standard design fulfilled?							Failed	
Eccentricities								
Intended Eccentricity According to 5.8.8.2								
Intended Eccentricity in z-Direction						$e_{0,z}$	2.8	mm
Moment Diagram Along the Support						Diagram M_y	Different	
Moment About Axis y						M_y	8.875	kNm
Absolute Normal Force						$\lvert N \rvert$	3214.520	kN
Intended Eccentricity in y-Direction						$e_{0,y}$	-2.5	mm
Moment Diagram Along the Support						Diagram M_z	Different	
Moment About Axis z						M_z	-7.909	kNm
Absolute Normal Force						$\lvert N \rvert$	3214.520	kN
Eccentricity due to imperfection according to 5.2								
Eccentricity Due to Imperfection in z-Direction						$e_{i,z}$	7.5	mm
Inclination						$\Theta_{i,z}$	0.0050	
Basic Value of Inclination						Θ_0	0.0050	
Reduction Factor for Column Height						$\alpha_{h,z}$	1.0000	
Calculated Value of Reduction Factor						$\alpha_{h,z,calc}$	1.1547	
Column Length						l_y	3.000	m
Reduction Factor for Column Number						α_m	1.0000	
According to user specification, the column will be designed as a single column.								
Buckling Length						$l_{0,y}$	3.000	m
Eccentricity Due to Imperfection in y-Direction						$e_{i,y}$	-7.5	mm
Inclination						$\Theta_{i,y}$	0.0050	
Basic Value of Inclination						Θ_0	0.0050	
Reduction Factor for Column Height						$\alpha_{h,y}$	1.0000	
Calculated Value of Reduction Factor						$\alpha_{h,y,calc}$	1.1547	
Column Length						l_z	3.000	m
Reduction Factor for Column Number						α_m	1.0000	
According to user specification, the column will be designed as a single column.								

3.1 Required Reinforcement by Cross-Section

Section No.	Reinforcement Type	Member No.	Location x [m]	LC / CO RC	Reinforcement Area	Unit	Error or notice	
	Buckling Length					$l_{0,z}$	3.000	m
	Minimum Eccentricity According to 6.1 (4)							
	Minimum Eccentricity in z-Direction					$e_{min,z}$	20.0	mm
	Thickness of Structural Member					$h_{w,z}$	500.0	mm
	Minimum Value of Minimum Eccentricity					$e_{20\ mm,z}$	20.0	mm
	Minimum Eccentricity in y-Direction					$e_{min,y}$	-20.0	mm
	Thickness of Structural Member					$h_{w,y}$	500.0	mm
	Minimum Value of Minimum Eccentricity					$e_{20\ mm,y}$	20.0	mm
	Moments According to First Order Theory							
	Moments According to First Order Theory							
	Design Normal Force					N_{Ed}	-3214.520	kN
	Moment About Axis y					$M_{Ed,1,y}$	64.290	kNm
	Calculated Total Eccentricity in z-Direction					$e_{calc\ 1,z}$	10.3	mm
	Intended Eccentricity					$e_{0,z}$	2.8	mm
	Eccentricity Due to Imperfection					$e_{i,z}$	7.5	mm
	Moment About Axis z					$M_{Ed,1,z}$	-32.018	kNm
	Calculated Total Eccentricity in y-Direction					$e_{calc\ 1,y}$	-10.0	mm
	Intended Eccentricity					$e_{0,y}$	-2.5	mm
	Eccentricity Due to Imperfection					$e_{i,y}$	-7.5	mm
	Moments According to Second Order Theory							
	Eccentricity Through Second Order Theory According to 5.8.8.2(3)							
	Eccentricity Through Second Ord. Th. in z-Direction					$e_{2,z}$	0.0	mm
	No eccentricity due to second order effects, as the slenderness is smaller than the max. slenderness							
	Eccentricity Through Second Ord. Th. in y-Direction					$e_{2,y}$	-11.9	mm
	Curvature in y-plane					$1/r_y$	0.013	1/m
	Selected Factor (Normal Force)					sel $K_{r,y}$	0.6462	
	Calculated Factor (Normal Force)					$K_{r,y}$	0.6462	
	Max. Ultimate Limit State					n_u	1.0000	
	Ratio					ω	0.0000	
	Provided Reinforcement					prov A_s	0.00	cm^2
	The required reinforcement was applied as provided reinforcement							
	Design Value of Yield Stress					f_{yd}	434.78	N/mm^2
	Area of Cross-Section					A_c	2500.00	cm^2
	Design Value of Concrete Compr. Strength					f_{cd}	21.00	N/mm^2
	Relative Normal Force					n	0.6123	
	Design Normal Force					N_{Ed}	-3214.520	kN
	Area of Cross-Section					A_c	2500.00	cm^2
	Design Value of Concrete Compr. Strength					f_{cd}	21.00	N/mm^2
	Resistant Concrete Normal Force (Bending)					n_{bal}	0.4000	
	Selected Factor (Creep)					sel $K_{\varphi,y}$	1.7522	
	Calculated Factor (Creep)					$K_{\varphi,y}$	1.7522	
	Factor					β_z	0.386	
	Char. Concrete Compressive Strength					f_{ck}	35.00	N/mm^2
	Slenderness About Axis z					λ_z	20.7846	
	Effective Creep Coefficient					$\varphi_{ef,z}$	1.9465	
	Final Value of Creep Coeff.					$\varphi(\infty, t_0)$	2.6154	
	Moment (Quasi-permanent Action)					$M_{c\text{-}quasi,1,z}$	-23.829	kNm
	Normal Force (Quasi-permanent Action)					$N_{Ed\text{-}quasi}$	-2399.030	kN
	Eccentricity in y-Direction					$e_{c\text{-}quasi,1,y}$	-9.9	mm
	Intended Unreduced Eccentricity					$e_{c\text{-}quasi,0,y}$	-2.4	mm
	Eccentricity Due to Imperfection					$e_{i,y}$	-7.5	mm
	Load						CO2	
	Moment About Axis z (First Ord. Th.)					$M_{c,1,z}$	-32.018	kNm
	Normal Force					N_{Ed}	-3214.520	kN
	Eccentricity in y-Direction					$e_{c,1,y}$	-10.0	mm
	Intended Eccentricity					$e_{c,0,y}$	-2.5	mm
	Eccentricity Due to Imperfection					$e_{i,y}$	-7.5	mm
	Curvature in y-plane					$1/r_{0,y}$	0.012	1/m
	Strain (Yield Stress)					ε_{yd}	2.17	‰
	Design Value of Yield Stress					f_{yd}	434.78	N/mm^2
	Modulus of Elasticity					E_s	200000.00	N/mm^2
	Effective Depth					d_y	423.3	mm
	Buckling Length					$l_{0,z}$	3.000	m
	Factor (Curvature Distribution)					c	9.8696	
	Moments According to Second Order Theory							
	Design Normal Force					N_{Ed}	-3214.520	kN
	Moment About Axis y					$M_{Ed,y2}$	64.290	kNm

3.1 Required Reinforcement by Cross-Section

Section No.	Reinforcement Type	Member No.	Location x [m]	LC / CO RC	Reinforcement	Area	Unit	Error or notice	
No stability check, as the slenderness is smaller than the max. slenderness									
Governing Total Eccentricity in z-Direction							$e_{1,z}$	20.0	mm
Calculated Total Eccentricity in z-Direction							$e_{calc\ 1,z}$	10.3	mm
Intended Eccentricity							$e_{0,z}$	2.8	mm
Eccentricity Due to Imperfection							$e_{i,z}$	7.5	mm
Minimum Eccentricity in z-Direction							$e_{min,z}$	20.0	mm
Moment About Axis z							$M_{Ed,z2}$	-70.297	kNm
Total Eccentricity in y-Direction							$e_{2,tot,y}$	-21.9	mm
Eccentricity Through Second Ord. Th.							$e_{2,y}$	-11.9	mm
Eccentricity (First Ord. Th.) in y-Direction							$e_{1,y}$	-10.0	mm
Intended Eccentricity							$e_{0,y}$	-2.5	mm
Eccentricity Due to Imperfection							$e_{i,y}$	-7.5	mm
Minimum Eccentricity in y-Direction							$e_{min,y}$	-20.0	mm
Min. Reinforcement According to Standard									
1st Minimum Reinforcement									
Design Normal Force							N_{Ed}	-3214.520	kN
Design Value of Yield Stress							f_{yd}	434.78	N/mm^2
Min. Reinforcement							req $A_{s,min,1}$	7.39	cm^2
2nd Minimum Reinforcement									
Area of Cross-Section							A_c	2500.00	cm^2
Min. Reinforcement							req $A_{s,min,2}$	5.00	cm^2
Minimum Reinforcement Acc. to Standard							req $A_{s,min,Standard}$	7.39	cm^2
Required Reinforcement									
Statically Required Reinforcement							req $A_{s,stat}$	0.00	cm^2
Minimum Reinforcement Acc. to Standard							req $A_{s,min,Standard}$	7.39	cm^2
Required Reinforcement							req A_s	7.39	cm^2
1	Rectangle 500/500								
	Shear	1	-	-	a_{sw}	3.14	cm^2/m		
Min. Shear Reinforcement According to Standard									
Stirrup Diameter							$d_{sw,min}$	8.0	mm
Cutting Ability							n_{sw}	2.0000	
Spacing							$s_{sw,max}$	320.0	mm
Minimum Shear Reinforcement							$a_{sw,min}$	3.14	cm^2/m
Required Shear Reinforcement									
Statically Required Shear Reinforcement							req $a_{sw,stat}$	0.00	cm^2/m
Minimum Shear Reinforcement							$a_{sw,min}$	3.14	cm^2/m
Required Shear Reinforcement							req a_{sw}	3.14	cm^2/m
2	Circle 500								
	Longitudinal	134	3.000	CO1	As	8.91	cm^2		
Governing Load									
Load								CO1	
Governing Internal Forces								min M_y	
At Location							x	3.000	m
Normal Force							N	-734.637	kN
Moment About y-Axis							M_y	-185.323	kNm
Moment About z-Axis							M_z	-7.259	kNm
Effective Length According to 5.8.3.2									
Effective Length About Axis y							$l_{0,y}$	3.000	m
Column Length							l_y	3.000	m
Buckling Coefficient							β_y	1.000	
Effective Length About Axis z							$l_{0,z}$	3.000	m
Column Length							l_z	3.000	m
Buckling Coefficient							β_z	1.000	
Slenderness According to 5.8.3.2									
Slenderness About Axis y							λ_y	24.0000	
Effective Length							$l_{0,y}$	3.000	m
Radius of Gyration							i_y	125.0	mm
Slenderness About Axis z							λ_z	24.0000	
Effective Length							$l_{0,z}$	3.000	m
Radius of Gyration							i_z	125.0	mm
Limiting Slenderness According to 5.8.3.1 (1)									

3.1 Required Reinforcement by Cross-Section

Section No.	Reinforcement Type	Member No.	Location x [m]	LC / CO RC	Reinforcement Area	Unit	Error or notice	
Limiting Slenderness About Axis y						$\lambda_{lim,y}$	81.1246	
Factor A						A_y	0.7192	
Consider effects of creep?							Yes	
Effective Creep Coefficient						$\varphi_{ef,y}$	1.9521	
Final Value of Creep Coeff.						$\varphi(\infty, t_0)$	2.6154	
Condition for neglecting creep fulfilled?							Failed	
Final value of creep coeff. is less than or equal to two?						$\varphi(\infty, t_0) \leq 2.0$	Failed	
Slenderness about y-axis less than or equal to 75?						$\lambda_y \leq 75$	Passed	
Eccentricity in ULS higher as thickness of cross-section?						$M_y, 0E_d / N_{Ed} \geq h_z$	Failed	
Moment (Quasi-permanent Action)						$M_{c\text{-}quasi,1,y}$	-142.436	kNm
Normal Force (Quasi-permanent Action)						$N_{Ed\text{-}quasi}$	-548.168	kN
Eccentricity in z-Direction						$e_{c\text{-}quasi,1,z}$	-259.8	mm
Intended Unreduced Eccentricity						$e_{c\text{-}quasi,0,z}$	-252.3	mm
Eccentricity Due to Imperfection						$e_{i,z}$	-7.5	mm
Load							CO2	
Moment About Axis y (First Ord. Th.)						$M_{c,1,y}$	-190.832	kNm
Normal Force						N_{Ed}	-734.637	kN
Eccentricity in z-Direction						$e_{c,1,z}$	-259.8	mm
Intended Eccentricity						$e_{c,0,z}$	-252.3	mm
Eccentricity Due to Imperfection						$e_{i,z}$	-7.5	mm
Factor B						B_y	1.0899	
Mechanical Reinforcement Ratio						ω	0.0939	
Statically Required Reinforcement						req $A_{s,stat}$	8.91	cm^2
Design Value of Yield Stress						f_{yd}	434.78	N/mm^2
Area of Cross-Section						A_c	1963.50	cm^2
Design Value of Concrete Compr. Strength						f_{cd}	21.00	N/mm^2
Factor C						C_y	2.1842	
Moment Ratio						$r_{m,y}$	-0.4842	
1st End Moment About Axis y						$M_{y,01}$	89.741	kNm
2nd End Moment About Axis y						$M_{y,02}$	-185.323	kNm
Relative Normal Force						n	0.1782	
Design Normal Force						N_{Ed}	-734.637	kN
Area of Cross-Section						A_c	1963.50	cm^2
Design Value of Concrete Compr. Strength						f_{cd}	21.00	N/mm^2
Limiting Slenderness About Axis z						$\lambda_{lim,z}$	90.5886	
Factor A						A_z	0.7190	
Consider effects of creep?							Yes	
Effective Creep Coefficient						$\varphi_{ef,z}$	1.9543	
Final Value of Creep Coeff.						$\varphi(\infty, t_0)$	2.6154	
Condition for neglecting creep fulfilled?							Failed	
Final value of creep coeff. is less than or equal to two?						$\varphi(\infty, t_0) \leq 2.0$	Failed	
Slenderness about z-axis less than or equal to 75?						$\lambda_z \leq 75$	Passed	
Eccentricity in ULS higher as thickness of cross-section?						$M_z, 0E_d / N_{Ed} \geq h_y$	Failed	
Moment (Quasi-permanent Action)						$M_{c\text{-}quasi,1,z}$	-9.541	kNm
Normal Force (Quasi-permanent Action)						$N_{Ed\text{-}quasi}$	-548.168	kN
Eccentricity in y-Direction						$e_{c\text{-}quasi,1,y}$	-17.4	mm
Intended Unreduced Eccentricity						$e_{c\text{-}quasi,0,y}$	-9.9	mm
Eccentricity Due to Imperfection						$e_{i,y}$	-7.5	mm
Load							CO2	
Moment About Axis z (First Ord. Th.)						$M_{c,1,z}$	-12.769	kNm
Normal Force						N_{Ed}	-734.637	kN
Eccentricity in y-Direction						$e_{c,1,y}$	-17.4	mm
Intended Eccentricity						$e_{c,0,y}$	-9.9	mm
Eccentricity Due to Imperfection						$e_{i,y}$	-7.5	mm
Factor B						B_z	1.0899	
Mechanical Reinforcement Ratio						ω	0.0939	
Statically Required Reinforcement						req $A_{s,stat}$	8.91	cm^2
Design Value of Yield Stress						f_{yd}	434.78	N/mm^2
Area of Cross-Section						A_c	1963.50	cm^2
Design Value of Concrete Compr. Strength						f_{cd}	21.00	N/mm^2
Factor C						C_z	2.4398	
Moment Ratio						$r_{m,z}$	-0.7398	
1st End Moment About Axis z						$M_{z,01}$	5.370	kNm

3.1 Required Reinforcement by Cross-Section

Section No.	Reinforcement Type	Member No.	Location x [m]	LC / CO RC	Reinforcement Area	Unit	Error or notice	
	2nd End Moment About Axis z					$M_{z,02}$	-7.259	kNm
	Relative Normal Force					n	0.1782	
	Design Normal Force					N_{Ed}	-734.637	kN
	Area of Cross-Section					A_c	1963.50	cm^2
	Design Value of Concrete Compr. Strength					f_{cd}	21.00	N/mm^2
Design Type								
	Conditions of standard design according to 5.8.3.1 (1)							
	Condition About Axis y					$\lambda_y \leq \lambda_{lim,y}$	Passed	
	Provided Slenderness					λ_y	24.0000	
	Limiting Slenderness About Axis y					$\lambda_{lim,y}$	81.1246	
	Condition About Axis z					$\lambda_z \leq \lambda_{lim,z}$	Passed	
	Provided Slenderness					λ_z	24.0000	
	Limiting Slenderness About Axis z					$\lambda_{lim,z}$	90.5886	
	Condition of standard design fulfilled?						Passed	
Eccentricities								
	Intended Eccentricity According to 5.8.8.2							
	Intended Eccentricity in z-Direction					$e_{0,z}$	-252.3	mm
	Moment Diagram Along the Support					Diagram M_y	Different	
	Moment About Axis y					M_y	-185.323	kNm
	Absolute Normal Force					$\|N\|$	734.637	kN
	Intended Eccentricity in y-Direction					$e_{0,y}$	-9.9	mm
	Moment Diagram Along the Support					Diagram M_z	Different	
	Moment About Axis z					M_z	-7.259	kNm
	Absolute Normal Force					$\|N\|$	734.637	kN
	Eccentricity due to imperfection according to 5.2							
	Eccentricity Due to Imperfection in z-Direction					$e_{i,z}$	-7.5	mm
	Inclination					$\Theta_{i,z}$	0.0050	
	Basic Value of Inclination					Θ_0	0.0050	
	Reduction Factor for Column Height					$\alpha_{h,z}$	1.0000	
	Calculated Value of Reduction Factor					$\alpha_{h,z,calc}$	1.1547	
	Column Length					l_y	3.000	m
	Reduction Factor for Column Number					α_m	1.0000	
	According to user specification, the column will be designed as a single column.							
	Buckling Length					$l_{0,y}$	3.000	m
	Eccentricity Due to Imperfection in y-Direction					$e_{i,y}$	-7.5	mm
	Inclination					$\Theta_{i,y}$	0.0050	
	Basic Value of Inclination					Θ_0	0.0050	
	Reduction Factor for Column Height					$\alpha_{h,y}$	1.0000	
	Calculated Value of Reduction Factor					$\alpha_{h,y,calc}$	1.1547	
	Column Length					l_z	3.000	m
	Reduction Factor for Column Number					α_m	1.0000	
	According to user specification, the column will be designed as a single column.							
	Buckling Length					$l_{0,z}$	3.000	m
	Minimum Eccentricity According to 6.1 (4)							
	Minimum Eccentricity in z-Direction					$e_{min,z}$	-20.0	mm
	Thickness of Structural Member					$h_{w,z}$	500.0	mm
	Minimum Value of Minimum Eccentricity					$e_{20\ mm,z}$	20.0	mm
	Minimum Eccentricity in y-Direction					$e_{min,y}$	-20.0	mm
	Thickness of Structural Member					$h_{w,y}$	500.0	mm
	Minimum Value of Minimum Eccentricity					$e_{20\ mm,y}$	20.0	mm
Design Moment from Governing Eccentricity								
	Design Normal Force					N_{Ed}	-734.637	kN
	Moment About Axis y					$M_{Ed,1,y}$	-190.832	kNm
	Governing Total Eccentricity in z-Direction					$e_{1,z}$	-259.8	mm
	Calculated Total Eccentricity in z-Direction					$e_{calc\ 1,z}$	-259.8	mm
	Intended Eccentricity					$e_{0,z}$	-252.3	mm
	Eccentricity Due to Imperfection					$e_{i,z}$	-7.5	mm
	Minimum Eccentricity					$e_{min,z}$	-20.0	mm
	Moment About Axis z					$M_{Ed,1,z}$	-14.693	kNm
	Governing Total Eccentricity in y-Direction					$e_{1,y}$	-20.0	mm
	Calculated Total Eccentricity in y-Direction					$e_{calc\ 1,y}$	-17.4	mm
	Intended Eccentricity					$e_{0,y}$	-9.9	mm
	Eccentricity Due to Imperfection					$e_{i,y}$	-7.5	mm
	Minimum Eccentricity					$e_{min,y}$	-20.0	mm
Min. Reinforcement According to Standard								
	1st Minimum Reinforcement							
	Design Normal Force					N_{Ed}	-734.637	kN

3.1 Required Reinforcement by Cross-Section

Section No.	Reinforcement Type	Member No.	Location x [m]	LC / CO RC	Reinforcement	Area	Unit	Error or notice	
Design Value of Yield Stress							f_{yd}	434.78	N/mm^2
Min. Reinforcement							req $A_{s,min,1}$	1.69	cm^2
2nd Minimum Reinforcement									
Area of Cross-Section							A_c	1963.50	cm^2
Min. Reinforcement							req $A_{s,min,2}$	3.93	cm^2
Minimum Reinforcement Acc. to Standard							req $A_{s,min,Standard}$	3.93	cm^2
Required Reinforcement									
Statically Required Reinforcement							req $A_{s,stat}$	8.91	cm^2
Minimum Reinforcement Acc. to Standard							req $A_{s,min,Standard}$	3.93	cm^2
Required Reinforcement							req A_s	8.91	cm^2
2	Circle 500								
	Shear	134	-	-	a_{sw}	3.14	cm^2/m		
Min. Shear Reinforcement According to Standard									
Stirrup Diameter							$d_{sw,min}$	8.0	mm
Cutting Ability							n_{sw}	2.0000	
Spacing							$s_{sw,max}$	320.0	mm
Minimum Shear Reinforcement							$a_{sw,min}$	3.14	cm^2/m
Required Shear Reinforcement									
Statically Required Shear Reinforcement							req $a_{sw,stat}$	0.00	cm^2/m
Minimum Shear Reinforcement							$a_{sw,min}$	3.14	cm^2/m
Required Shear Reinforcement							req a_{sw}	3.14	cm^2/m
8	Rectangle 550/550								
	Longitudinal	118	0.000	CO1	As	6.09	cm^2	Governing minimum reinforcement for determining the required reinforcement	
Governing Load									
Load								CO1	
Governing Internal Forces								min N	
At Location							x	0.000	m
Normal Force							N	-2648.150	kN
Moment About y-Axis							M_y	-6.868	kNm
Moment About z-Axis							M_z	-7.796	kNm
Effective Length According to 5.8.3.2									
Effective Length About Axis y							$l_{0,y}$	5.400	m
Column Length							l_y	5.400	m
Buckling Coefficient							β_y	1.000	
Effective Length About Axis z							$l_{0,z}$	5.400	m
Column Length							l_z	5.400	m
Buckling Coefficient							β_z	1.000	
Slenderness According to 5.8.3.2									
Slenderness About Axis y							λ_y	34.0112	
Effective Length							$l_{0,y}$	5.400	m
Radius of Gyration							i_y	158.8	mm
Slenderness About Axis z							λ_z	34.0112	
Effective Length							$l_{0,z}$	5.400	m
Radius of Gyration							i_z	158.8	mm
Limiting Slenderness According to 5.8.3.1 (1)									
Limiting Slenderness About Axis y							$\lambda_{lim,y}$	37.9942	
Factor A							A_y	0.7215	
Consider effects of creep?								Yes	
Effective Creep Coefficient							$\varphi_{ef,y}$	1.9302	
Final Value of Creep Coeff.							$\varphi(\infty, t_0)$	2.5811	
Condition for neglecting creep fulfilled?								Failed	
Final value of creep coeff. is less than or equal to two?							$\varphi(\infty, t_0) \leq 2.0$	Failed	
Slenderness about y-axis less than or equal to 75?							$\lambda_y \leq 75$	Passed	
Eccentricity in ULS higher as thickness of cross-section?							$M_y, 0E_d/N_{Ed} \geq h_z$	Failed	
Moment (Quasi-permanent Action)							$M_{c\text{-}quasi,1,y}$	-28.145	kNm
Normal Force (Quasi-permanent Action)							$N_{Ed\text{-}quasi}$	-1977.690	kN
Eccentricity in z-Direction							$e_{c\text{-}quasi,1,z}$	-14.2	mm
Intended Unreduced Eccentricity							$e_{c\text{-}quasi,0,z}$	-2.6	mm
Eccentricity Due to Imperfection							$e_{i,z}$	-11.6	mm

3.1 Required Reinforcement by Cross-Section

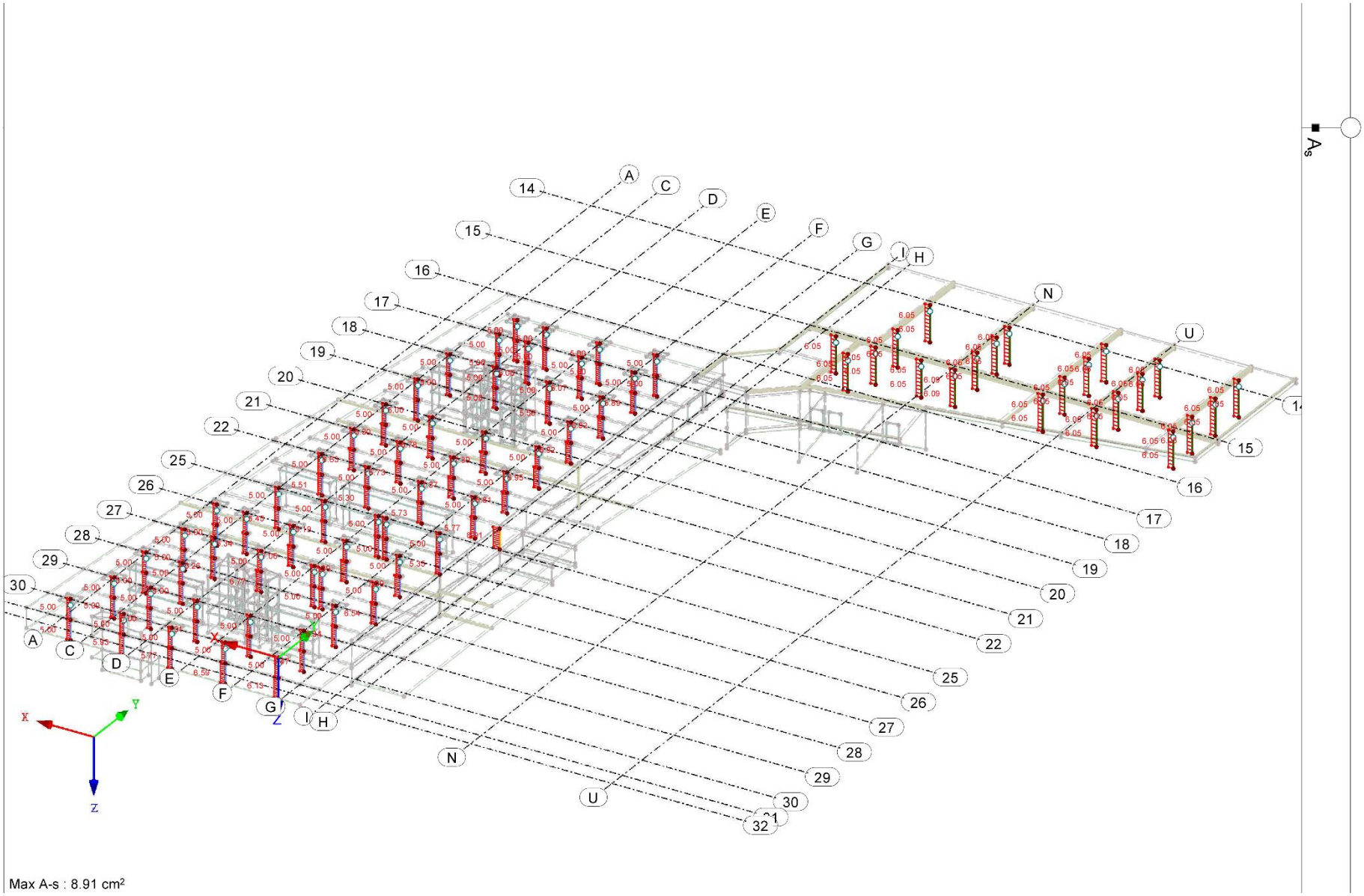
Section No.	Reinforcement Type	Member No.	Location x [m]	LC / CO RC	Reinforcement	Area	Unit	Error or notice	
	Load							CO2	
	Moment About Axis y (First Ord. Th.)						$M_{c,1,y}$	-37.637	kNm
	Normal Force						N_{Ed}	-2648.150	kN
	Eccentricity in z-Direction						$e_{c,1,z}$	-14.2	mm
	Intended Eccentricity						$e_{c,0,z}$	-2.6	mm
	Eccentricity Due to Imperfection						$e_{i,z}$	-11.6	mm
Factor B							B_y	1.0000	
Mechanical Reinforcement Ratio							ω	0.0000	
Statically Required Reinforcement							req $A_{s,stat}$	0.00	cm^2
Design Value of Yield Stress							f_{yd}	434.78	N/mm^2
Area of Cross-Section							A_c	3025.00	cm^2
Design Value of Concrete Compr. Strength							f_{cd}	21.00	N/mm^2
Factor C							C_y	1.7000	
Moment Ratio							$r_{m,y}$	0.0000	
1st End Moment About Axis y							$M_{y,01}$	-6.868	kNm
2nd End Moment About Axis y							$M_{y,02}$	0.000	kNm
Relative Normal Force							n	0.4169	
Design Normal Force							N_{Ed}	-2648.150	kN
Area of Cross-Section							A_c	3025.00	cm^2
Design Value of Concrete Compr. Strength							f_{cd}	21.00	N/mm^2
Limiting Slenderness About Axis z							$\lambda_{lim,z}$	38.1144	
Factor A							A_z	0.7238	
Consider effects of creep?								Yes	
Effective Creep Coefficient							$\varphi_{ef,z}$	1.9081	
Final Value of Creep Coeff.							$\varphi(\infty, t_0)$	2.5811	
Condition for neglecting creep fulfilled?								Failed	
Final value of creep coeff. is less than or equal to two?							$\varphi(\infty, t_0) \leq 2.0$	Failed	
Slenderness about z-axis less than or equal to 75?							$\lambda_z \leq 75$	Passed	
Eccentricity in ULS higher as thickness of cross-section?							$M_z, 0E_d / N_{Ed} \geq h_y$	Failed	
Moment (Quasi-permanent Action)							$M_{c\text{-}quasi,1,z}$	-28.510	kNm
Normal Force (Quasi-permanent Action)							$N_{Ed\text{-}quasi}$	-1977.690	kN
Eccentricity in y-Direction							$e_{c\text{-}quasi,1,y}$	-14.4	mm
Intended Unreduced Eccentricity							$e_{c\text{-}quasi,0,y}$	-2.8	mm
Eccentricity Due to Imperfection							$e_{i,y}$	-11.6	mm
Load								CO2	
Moment About Axis z (First Ord. Th.)							$M_{c,1,z}$	-38.565	kNm
Normal Force							N_{Ed}	-2648.150	kN
Eccentricity in y-Direction							$e_{c,1,y}$	-14.6	mm
Intended Eccentricity							$e_{c,0,y}$	-2.9	mm
Eccentricity Due to Imperfection							$e_{i,y}$	-11.6	mm
Factor B							B_z	1.0000	
Mechanical Reinforcement Ratio							ω	0.0000	
Statically Required Reinforcement							req $A_{s,stat}$	0.00	cm^2
Design Value of Yield Stress							f_{yd}	434.78	N/mm^2
Area of Cross-Section							A_c	3025.00	cm^2
Design Value of Concrete Compr. Strength							f_{cd}	21.00	N/mm^2
Factor C							C_z	1.7000	
Moment Ratio							$r_{m,z}$	0.0000	
1st End Moment About Axis z							$M_{z,01}$	-7.796	kNm
2nd End Moment About Axis z							$M_{z,02}$	0.000	kNm
Relative Normal Force							n	0.4169	
Design Normal Force							N_{Ed}	-2648.150	kN
Area of Cross-Section							A_c	3025.00	cm^2
Design Value of Concrete Compr. Strength							f_{cd}	21.00	N/mm^2
Design Type									
Conditions of standard design according to 5.8.3.1 (1)									
Condition About Axis y							$\lambda_y \leq \lambda_{lim,y}$	Passed	
Provided Slenderness							λ_y	34.0112	
Limiting Slenderness About Axis y							$\lambda_{lim,y}$	37.9942	
Condition About Axis z							$\lambda_z \leq \lambda_{lim,z}$	Passed	
Provided Slenderness							λ_z	34.0112	
Limiting Slenderness About Axis z							$\lambda_{lim,z}$	38.1144	
Condition of standard design fulfilled?								Passed	
Eccentricities									
Intended Eccentricity According to 5.8.8.2									

3.1 Required Reinforcement by Cross-Section

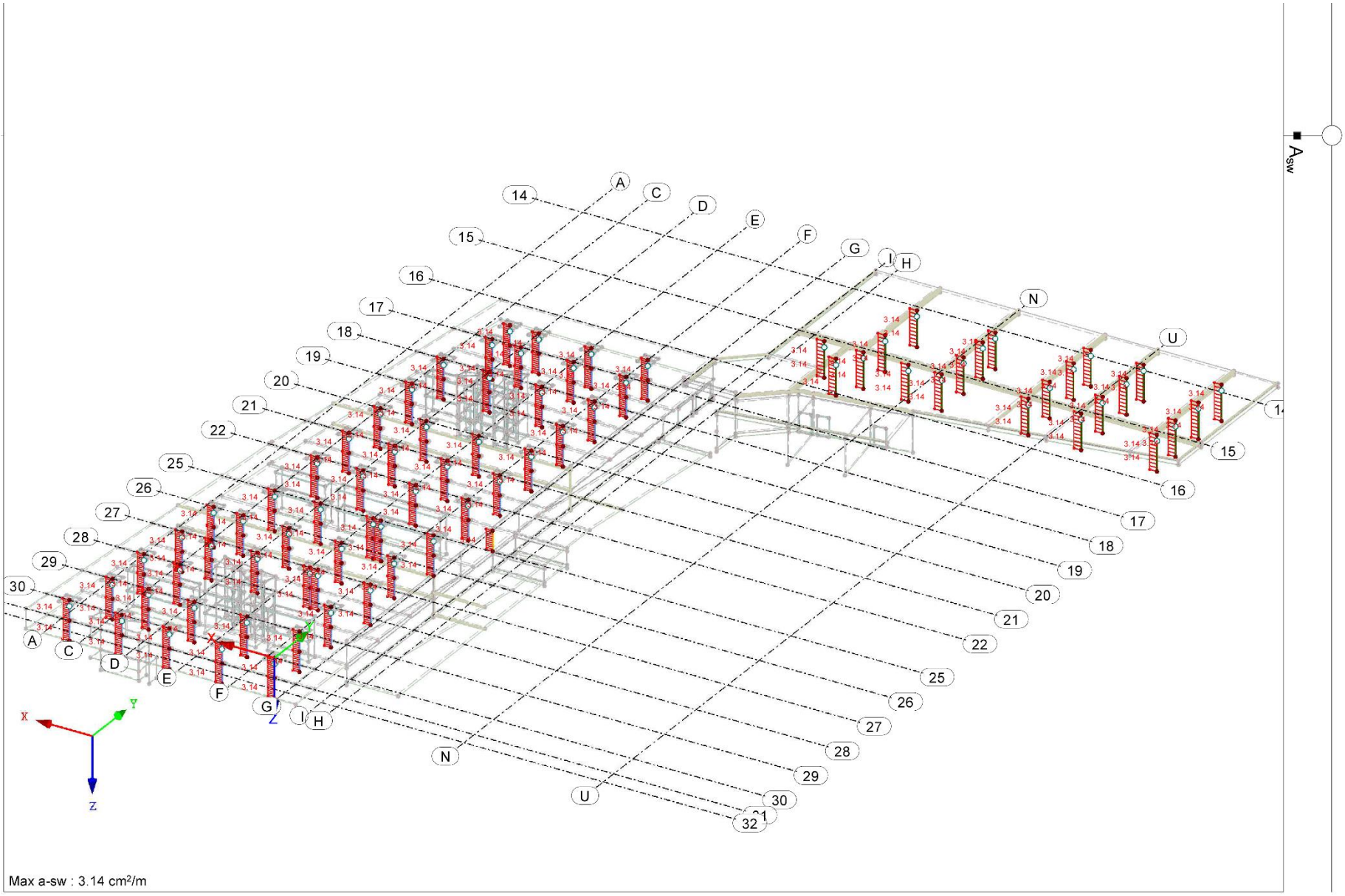
Section No.	Reinforcement Type	Member No.	Location x [m]	LC / CO RC	Reinforcement	Area	Unit	Error or notice	
	Intended Eccentricity in z-Direction						$e_{0,z}$	-2.6	mm
	Moment Diagram Along the Support						Diagram M_y	Different	
	Moment About Axis y						M_y	-6.868	kNm
	Absolute Normal Force						|N|	2648.150	kN
	Intended Eccentricity in y-Direction						$e_{0,y}$	-2.9	mm
	Moment Diagram Along the Support						Diagram M_z	Different	
	Moment About Axis z						M_z	-7.796	kNm
	Absolute Normal Force						|N|	2648.150	kN
Eccentricity due to imperfection according to 5.2									
	Eccentricity Due to Imperfection in z-Direction						$e_{i,z}$	-11.6	mm
	Inclination						$\Theta_{i,z}$	0.0043	
	Basic Value of Inclination						Θ_0	0.0050	
	Reduction Factor for Column Height						$\alpha_{h,z}$	0.8607	
	Calculated Value of Reduction Factor						$\alpha_{h,z,calc}$	0.8607	
	Column Length						l_y	5.400	m
	Reduction Factor for Column Number						α_m	1.0000	
	According to user specification, the column will be designed as a single column.								
	Buckling Length						$l_{0,y}$	5.400	m
	Eccentricity Due to Imperfection in y-Direction						$e_{i,y}$	-11.6	mm
	Inclination						$\Theta_{i,y}$	0.0043	
	Basic Value of Inclination						Θ_0	0.0050	
	Reduction Factor for Column Height						$\alpha_{h,y}$	0.8607	
	Calculated Value of Reduction Factor						$\alpha_{h,y,calc}$	0.8607	
	Column Length						l_z	5.400	m
	Reduction Factor for Column Number						α_m	1.0000	
	According to user specification, the column will be designed as a single column.								
	Buckling Length						$l_{0,z}$	5.400	m
Minimum Eccentricity According to 6.1 (4)									
	Minimum Eccentricity in z-Direction						$e_{min,z}$	-20.0	mm
	Thickness of Structural Member						$h_{w,z}$	550.0	mm
	Minimum Value of Minimum Eccentricity						$e_{20\ mm,z}$	20.0	mm
	Minimum Eccentricity in y-Direction						$e_{min,y}$	-20.0	mm
	Thickness of Structural Member						$h_{w,y}$	550.0	mm
	Minimum Value of Minimum Eccentricity						$e_{20\ mm,y}$	20.0	mm
Design Moment from Governing Eccentricity									
	Design Normal Force						N_{Ed}	-2648.150	kN
	Moment About Axis y						$M_{Ed,1,y}$	-52.963	kNm
	Governing Total Eccentricity in z-Direction						$e_{1,z}$	-20.0	mm
	Calculated Total Eccentricity in z-Direction						$e_{calc\ 1,z}$	-14.2	mm
	Intended Eccentricity						$e_{0,z}$	-2.6	mm
	Eccentricity Due to Imperfection						$e_{i,z}$	-11.6	mm
	Minimum Eccentricity						$e_{min,z}$	-20.0	mm
	Moment About Axis z						$M_{Ed,1,z}$	-52.963	kNm
	Governing Total Eccentricity in y-Direction						$e_{1,y}$	-20.0	mm
	Calculated Total Eccentricity in y-Direction						$e_{calc\ 1,y}$	-14.6	mm
	Intended Eccentricity						$e_{0,y}$	-2.9	mm
	Eccentricity Due to Imperfection						$e_{i,y}$	-11.6	mm
	Minimum Eccentricity						$e_{min,y}$	-20.0	mm
Min. Reinforcement According to Standard									
	1st Minimum Reinforcement								
	Design Normal Force						N_{Ed}	-2648.150	kN
	Design Value of Yield Stress						f_{yd}	434.78	N/mm^2
	Min. Reinforcement						req $A_{s,min,1}$	6.09	cm^2
	2nd Minimum Reinforcement								
	Area of Cross-Section						A_c	3025.00	cm^2
	Min. Reinforcement						req $A_{s,min,2}$	6.05	cm^2
	Minimum Reinforcement Acc. to Standard						req $A_{s,min,Standard}$	6.09	cm^2
Required Reinforcement									
	Statically Required Reinforcement						req $A_{s,stat}$	0.00	cm^2
	Minimum Reinforcement Acc. to Standard						req $A_{s,min,Standard}$	6.09	cm^2
	Required Reinforcement						req A_s	6.09	cm^2
8	Rectangle 550/550								
	Shear	111	-	-	a_{sw}	3.14	cm^2/m		

3.1 Required Reinforcement by Cross-Section

Section No.	Reinforcement Type	Member No.	Location x [m]	LC / CO RC	Reinforcement			Error or notice	
						Area	Unit		
Min. Shear Reinforcement According to Standard									
	Stirrup Diameter						$d_{sw,min}$	8.0	mm
	Cutting Ability						n_{sw}	2.0000	
	Spacing						$s_{sw,max}$	320.0	mm
	Minimum Shear Reinforcement						$a_{sw,min}$	3.14	cm^2/m
Required Shear Reinforcement									
	Statically Required Shear Reinforcement						req $a_{sw,stat}$	0.00	cm^2/m
	Minimum Shear Reinforcement						$a_{sw,min}$	3.14	cm^2/m
	Required Shear Reinforcement						req a_{sw}	3.14	cm^2/m



5.4.1.6 pav. Išilginė armatūra As (Parkingas)



5.4.1.7 pav. Skersinė armatūra Asw (Parkingas)

5.4.2. Gelžbetoninių monolitinių kolonų armavimas (Koncertų pastatas) .

Reikalingas armatūros kiekis gelžbetoninėms kolonoms, įskaitant pleišėtumą iki 0.3, toliau pateikti grafiniu pavidalu pagal atliktus skaičiavimus. Ataskaitose pateiktas *pilnas* reikalingas armatūros kiekis.

Išeities duomenys:

–kolonos: 400x400, 500x500, 600x600, 400x500, ∅600 mm

– apsauginis armatūros sluoksnis – 50 mm;

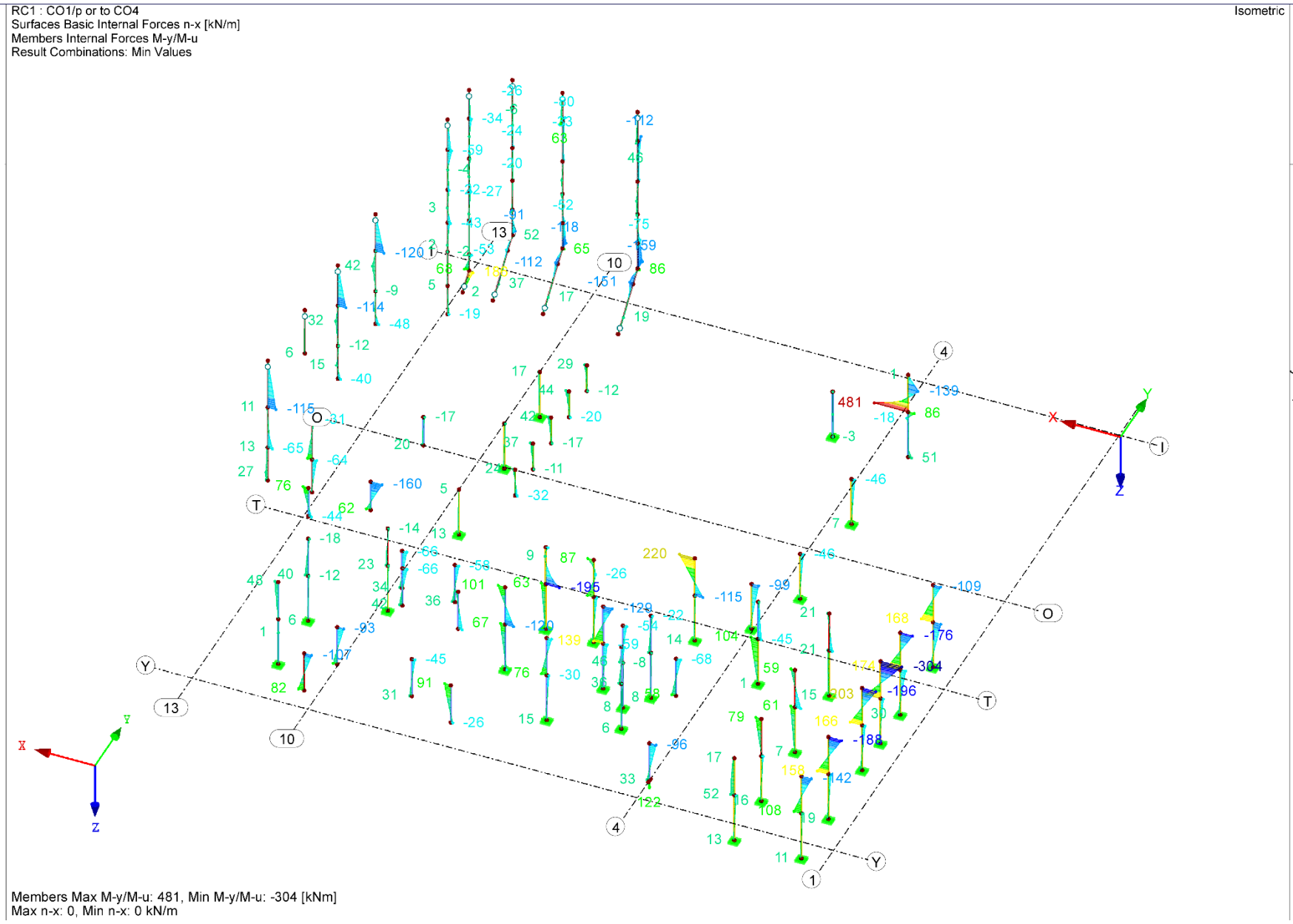
– betono klasė C30/37

– armatūros klasė:

išilginė – B500B;

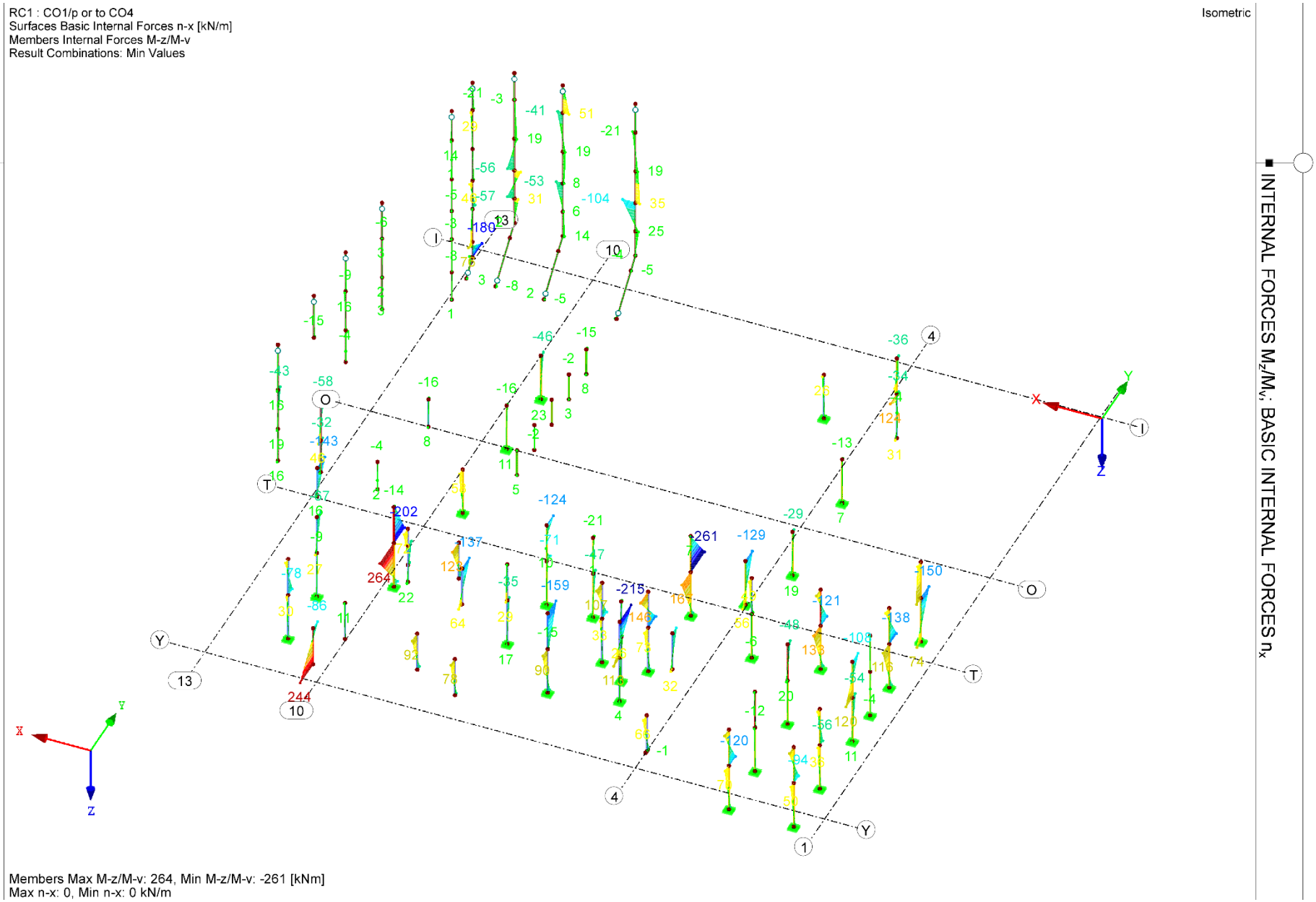
skersinė – B500A

Jėgos veikiančios kolonose (maksimali skerspjūvyje)

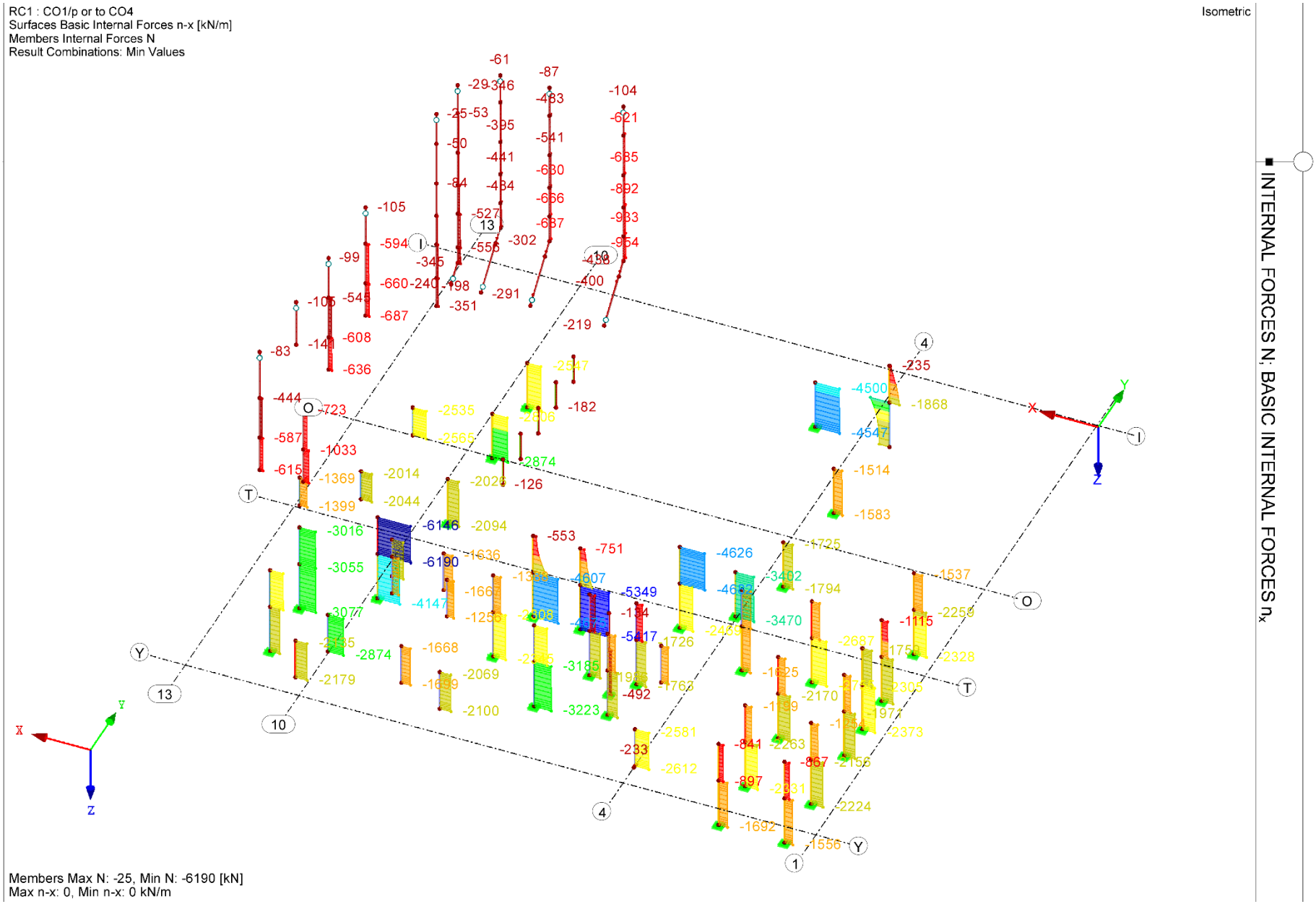


5.4.2.1 pav. Kolonose veikiančios įrąžos (lenkimo momentas My) (Koncertų pastatas)

DOKUMENTO ŽYMUO	LAPAS	LAPŲ	LAIDA
439-MKC-01-TP-SK2-BSPS-01	257	382	0

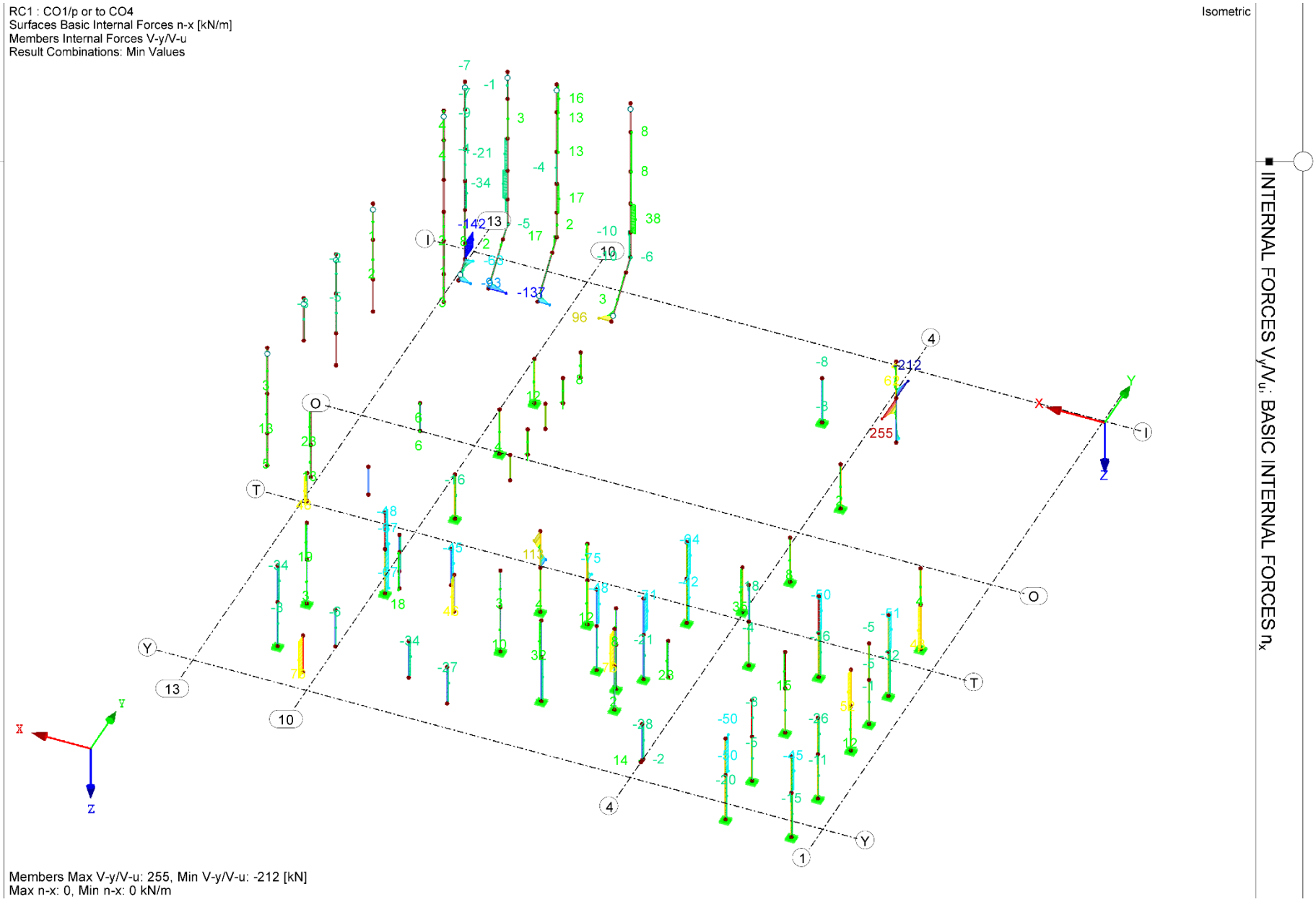


5.4.2.2 pav. Kolonose veikiančios įrąžos (lenkimo momentas Mz) (Koncertų pastatas)

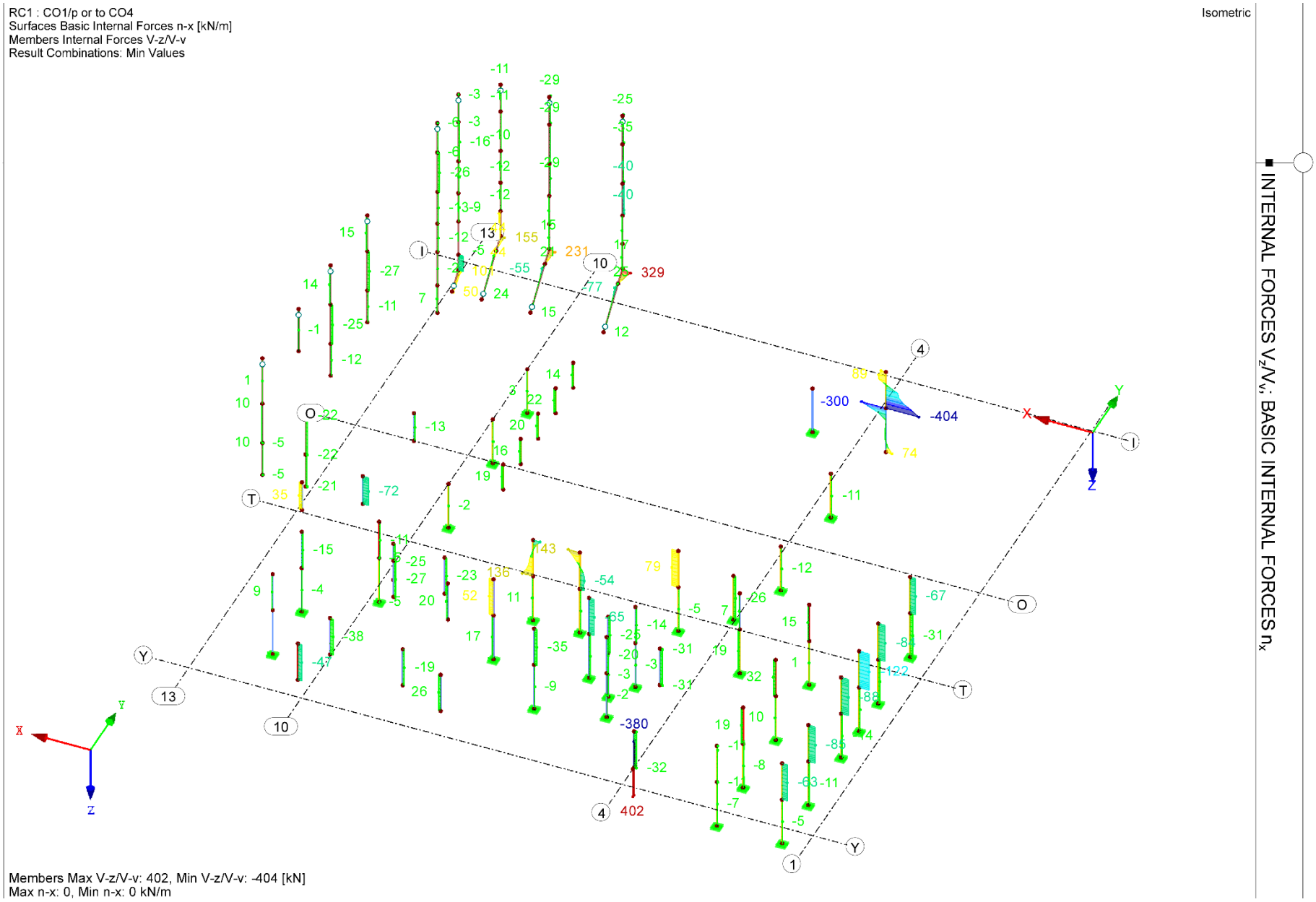


5.4.2.3 pav. Kolonose veikiančios įrąžos (ašinė jėga N) (Koncertų pastatas)

DOKUMENTO ŽYMUO	LAPAS	LAPŲ	LAIDA
439-MKC-01-TP-SK2-BSPS-01	259	382	0



5.4.2.4 pav. Kolonose veikiančios įrąžos (skersinė jėga Vy) (Koncertų pastatas)



5.4.2.5 pav. Kolonose veikiančios įrąžos (skersinė jėga Vz) (Koncertų pastatas)

DOKUMENTO ŽYMUO	LAPAS	LAPŲ	LAIDA
439-MKC-01-TP-SK2-BSPS-01	261	382	0

4.12 Cross-Sections - Internal Forces

Result Combinations

Member No.	RC	Node No.	Location x [m]		Forces [kN] N	V_y	V_z	Moments [kNm] M_T	M_y	M_z	Corresponding Load Cases
	Section No. 1: Rectangle 500/500										
39	RC1	84	3.200	MAX N	> -1324	48	35	1	76	-138	CO 2
2186	RC1	4792	0.000	MIN N	> -4547	-7	0	-1	-1	-9	CO 2
2187	RC1	202	0.000	MAX V_y	-3570	> 264	-296	59	87	130	CO 1
2187	RC1	236	5.100	MIN V_y	-1912	> -51	76	-6	52	31	CO 3
2187	RC1	236	5.100	MAX V_z	-1921	-51	> 76	-7	53	32	CO 1
2187	RC1	202	0.000	MIN V_z	-3576	263	> -300	59	89	129	CO 2
2187	RC1	202	0.000	MAX M_y	-3576	263	-300	59	> 89	129	CO 2
32	RC1	1360	3.200	MIN M_y	-1978	0	-72	1	> -160	1	CO 2
2187	RC1	202	0.000	MAX M_z	-3570	264	-296	59	87	> 130	CO 1
39	RC1	84	3.200	MIN M_z	-1369	50	39	1	81	> -143	CO 4
	Section No. 2: Rectangle 600/600										
2511	RC1	293	4.200	MAX N	> -229	62	60	-8	1	-34	CO 4
198	RC1	1422	0.000	MIN N	> -5417	13	-14	1	26	26	CO 2
44	RC1	91	4.200	MAX V_y	-536	> 115	-79	6	-26	-124	CO 3
2511	RC1	202	0.000	MIN V_y	-1868	> -212	-404	29	492	-31	CO 2
43	RC1	90	4.200	MAX V_z	-746	13	> 147	4	87	-20	CO 2
2511	RC1	202	0.000	MIN V_z	-1868	-212	> -404	29	492	-31	CO 2
2511	RC1	202	0.000	MAX M_y	-1868	-212	-404	29	> 492	-31	CO 2
4	RC1	49	4.200	MIN M_y	-1750	-2	-122	1	> -304	11	CO 2
202	RC1	25	5.100	MAX M_z	-4056	-67	-4	0	-12	> 267	CO 4
12	RC1	12	0.000	MIN M_z	-4682	-64	79	0	-111	> -261	CO 2
	Section No. 3: Rectangle 400/500										
664	RC1	1355	4.550	MAX N	> -11	0	-26	0	-59	0	CO 4
173	RC1	1029	0.000	MIN N	> -1060	13	-20	-1	13	18	CO 1
259	RC1	1814	0.000	MAX V_y	-218	> 101	12	0	1	12	CO 2
41	RC1	1808	0.000	MIN V_y	-551	> -142	-58	11	68	-179	CO 4
253	RC1	1813	1.439	MAX V_z	-438	-6	> 330	3	96	0	CO 4
259	RC1		4.094	MIN V_z	-400	9	> -77	0	-69	-1	CO 2
96	RC1	1808	2.014	MAX M_y	-343	-63	102	12	> 188	24	CO 3
101	RC1	1813	0.000	MIN M_y	-954	-10	43	1	> -159	-4	CO 4
41	RC1	1362	1.801	MAX M_z	-538	-142	-58	11	-36	> 77	CO 4
41	RC1	1808	0.000	MIN M_z	-555	-142	-58	11	68	> -180	CO 3
	Section No. 4: Rectangle 400/400										
256	RC1	1330	0.000	MAX N	> 66	-9	86	24	-69	-3	CO 3
35	RC1	35	0.000	MIN N	> -186	1	17	1	-11	-1	CO 1
257	RC1	1602	0.000	MAX V_y	34	> 26	-17	14	73	11	CO 3
256	RC1	1330	0.000	MIN V_y	66	> -9	86	24	-69	-3	CO 3
256	RC1	1330	0.000	MAX V_z	17	-6	> 89	24	-78	-3	CO 2
257	RC1	1326	2.392	MIN V_z	5	1	> -187	-49	-90	-1	CO 3
256	RC1	1602	1.853	MAX M_y	66	-9	75	24	> 79	13	CO 3
257	RC1	1326	2.392	MIN M_y	5	1	-187	-49	> -90	-1	CO 3
256	RC1	1602	1.853	MAX M_z	66	-9	75	24	79	> 13	CO 3
38	RC1	83	2.900	MIN M_z	-124	8	14	0	29	> -15	CO 3
	Section No. 5: Circle 600										
9	RC1	54	4.200	MAX N	> -1187	-7	23	0	88	19	CO 1
25	RC1	25	0.000	MIN N	> -6190	-41	-7	1	23	-188	CO 3
29	RC1	29	0.000	MAX V_y	-2151	> 81	-44	2	85	254	CO 3
7	RC1	7	0.000	MIN V_y	-1475	> -50	16	2	-42	-121	CO 4
8	RC1	8	0.000	MAX V_z	-1308	15	> 35	-1	-82	20	CO 1
29	RC1	29	0.000	MIN V_z	-2179	77	> -47	2	93	247	CO 2
29	RC1	29	0.000	MAX M_y	-2179	77	-47	2	> 93	247	CO 2
29	RC1	74	4.200	MIN M_y	-2135	77	-47	2	> -107	-77	CO 2
29	RC1	29	0.000	MAX M_z	-2151	81	-44	2	85	> 254	CO 3
25	RC1	25	0.000	MIN M_z	-6163	-48	-8	1	25	> -202	CO 4
	Section No. 6: Circle 500										
16	RC1	61	4.200	MAX N	> -133	11	-23	0	-50	-14	CO 3
219	RC1	1574	0.000	MIN N	> -3223	-25	-9	0	15	-38	CO 1
15	RC1	15	0.000	MAX V_y	-1478	> 80	-18	0	36	119	CO 3
13	RC1	13	0.000	MIN V_y	-1130	> -71	-12	-1	31	-147	CO 1
20	RC1	20	0.000	MAX V_z	-1417	3	> 54	0	-120	29	CO 1

4.12 Cross-Sections - Internal Forces

Member No.	RC	Node No.	Location x [m]		Forces [kN] N	V_y	V_z	Moments [kNm] M_T	M_y	M_z	Corresponding Load Cases
18	RC1	18	0.000	MIN V_z	-1038	-48	> -65	0	143	-86	CO 2
18	RC1	18	0.000	MAX M_y	-1038	-48	-65	0	> 143	-86	CO 2
18	RC1	63	4.200	MIN M_y	-1007	-48	-65	0	> -129	114	CO 2
13	RC1	58	4.200	MAX M_z	-1100	-71	-12	-1	-18	> 152	CO 1
15	RC1	60	4.200	MIN M_z	-1447	80	-18	0	-39	> -215	CO 3

RF-CONCRETE
Columns
CA1

1.1 General Data

Design according to Standard:	LST EN 1992-1-1:2005/NA:2011	
ULTIMATE LIMIT STATES		
Load combinations to design:	CO1	1.35G + 1.35Gq1 + 1.35Gq2 + 1.3QiC + 1.3Qs + 1.3Qw1 Persistent and Transient
CREEP-PRODUCING PERMANENT LOAD		
Load combinations to design:	CO5	SLS - Quasi-permanent

RF-CONCRETE
Columns
CA1

1.2 Materials

Material No.	Material Description: Concrete Strength Class	Reinforcing Steel	Notes	Comment
1	Concrete C35/45	B 500 S (A)		
2	Steel S 355	B 500 S (A)	2)	
3	Concrete C30/37	B 500 S (A)		

Notes:
2) Upper limit of the concrete strength class has been exceeded!

RF-CONCRETE
Columns
CA1

1.3 Cross-Sections

Section No.	Material No.	Cross-Section Description	Notes	Comment
1	1	Rectangle 500/500		
2	1	Rectangle 600/600		
3	1	Rectangle 400/500		
4	1	Rectangle 400/400		
5	1	Circle 600		
6	1	Circle 500		
51	1	Rectangle 401/401		

RF-CONCRETE
Columns
CA1

1.4 Reinforcement Group No. 1

Applied to members:	All (1-41,43,44,96,101,102,168,171-175,177,179,188-226,239,247-255,258-261,664,667,672,692,693,696,722,1390,1487,2186,2187,2511,2530,2531)
LONGITUDINAL REINFORCEMENT	
Possible diameters:	16.0 mm,20.0 mm,25.0 mm
Reinforcement layout - Rectangular:	Uniformly surrounding
Reinforcement layout - Circle:	Uniformly surrounding
Min. spacing for first layer:	50.0 mm

1.4 Reinforcement Group No. 1

Type of anchorage:	Straight
Steel surface:	Ribbed
STIRRUPS	
Possible diameters:	8.0 mm,10.0 mm
Number of legs - Rectangular:	2
Number of legs - Circle:	2
Min. shear reinforcement A_{sw}:	According to Standard
Type of anchorage:	Hook
SECONDARY REINFORCEMENT	
Max. secondary reinforcement distance:	300.0 mm
CONCRETE COVER	
Concrete cover acc. to Standard	-
Axial spacing concrete cover - Rectangle C_z:	50.0 mm
Axial spacing concrete cover - Rectangle C_y:	50.0 mm
Axial spacing concrete cover - Circle C:	30.0 mm
Relevant internal forces:	N, V-y, V-z, M-y, M-z
OPTIONS FOR LST EN 1992-1-1:2005/NA:2011	
Maximum longitudinal reinforcement according to Standard	x
Minimum longitudinal reinforcement according to Standard	x
Partial safety factor according to Table 2.1N: γ_c:	1.5000
Partial safety factor according to Table 2.1N: γ_s	1.1500
Factor α_{cc} :	0.9000
Min. inclination of concrete strut:	21.801 °
Max. inclination of concrete strut:	45.000 °

RF-CONCRETE
Columns
CA1

1.5 Parameters - by Member

Member No.	Cross-Section	Direction	Buckling Risk	System Unbraced	System Length [m]	Coefficient β	Effective Length [m] / Slenderness
1	2 - Rectangle 600/600	about axis y	+	-	4.200	0.5909	2.482 / 14.3
		about axis z	+	-	4.200	0.5909	2.482 / 14.3
2	2 - Rectangle 600/600	about axis y	+	-	4.200	0.5909	2.482 / 14.3
		about axis z	+	-	4.200	0.5909	2.482 / 14.3
3	2 - Rectangle 600/600	about axis y	+	-	4.200	0.5909	2.482 / 14.3
		about axis z	+	-	4.200	0.5909	2.482 / 14.3
4	2 - Rectangle 600/600	about axis y	+	-	4.200	0.5909	2.482 / 14.3
		about axis z	+	-	4.200	0.5909	2.482 / 14.3
5	2 - Rectangle 600/600	about axis y	+	-	4.200	0.5909	2.482 / 14.3
		about axis z	+	-	4.200	0.5909	2.482 / 14.3
6	2 - Rectangle 600/600	about axis y	+	-	4.200	0.5909	2.482 / 14.3
		about axis z	+	-	4.200	0.5909	2.482 / 14.3
7	5 - Circle 600	about axis y	+	-	4.200	0.5909	2.482 / 16.5
		about axis z	+	-	4.200	0.5909	2.482 / 16.5
8	5 - Circle 600	about axis y	+	-	4.200	0.5909	2.482 / 16.5
		about axis z	+	-	4.200	0.5909	2.482 / 16.5
9	5 - Circle 600	about axis y	+	-	4.200	0.5909	2.482 / 16.5
		about axis z	+	-	4.200	0.5909	2.482 / 16.5
10	2 - Rectangle 600/600	about axis y	+	-	4.200	0.5909	2.482 / 14.3
		about axis z	+	-	4.200	0.5909	2.482 / 14.3
11	6 - Circle 500	about axis y	+	-	4.200	0.5909	2.482 / 19.9
		about axis z	+	-	4.200	0.5909	2.482 / 19.9
12	2 - Rectangle 600/600	about axis y	+	-	4.200	0.5909	2.482 / 14.3
		about axis z	+	-	4.200	0.5909	2.482 / 14.3
13	6 - Circle 500	about axis y	+	-	4.200	0.5909	2.482 / 19.9
		about axis z	+	-	4.200	0.5909	2.482 / 19.9
14	6 - Circle 500	about axis y	+	-	4.200	0.5909	2.482 / 19.9
		about axis z	+	-	4.200	0.5909	2.482 / 19.9
15	6 - Circle 500	about axis y	+	-	4.200	0.5909	2.482 / 19.9
		about axis z	+	-	4.200	0.5909	2.482 / 19.9
16	6 - Circle 500	about axis y	+	-	4.200	0.5909	2.482 / 19.9
		about axis z	+	-	4.200	0.5909	2.482 / 19.9

1.5 Parameters - by Member

Member No.	Cross-Section	Direction	Buckling Risk	System Unbraced	System Length [m]	Coefficient β	Effective Length [m] / Slenderness
17	6 - Circle 500	about axis y	+	-	4.200	0.5909	2.482 / 19.9
		about axis z	+	-	4.200	0.5909	2.482 / 19.9
18	6 - Circle 500	about axis y	+	-	4.200	0.5909	2.482 / 19.9
		about axis z	+	-	4.200	0.5909	2.482 / 19.9
19	6 - Circle 500	about axis y	+	-	4.200	0.5909	2.482 / 19.9
		about axis z	+	-	4.200	0.5909	2.482 / 19.9
20	6 - Circle 500	about axis y	+	-	4.200	0.5909	2.482 / 19.9
		about axis z	+	-	4.200	0.5909	2.482 / 19.9
21	6 - Circle 500	about axis y	+	-	4.200	0.5909	2.482 / 19.9
		about axis z	+	-	4.200	0.5909	2.482 / 19.9
22	6 - Circle 500	about axis y	+	-	4.200	0.5909	2.482 / 19.9
		about axis z	+	-	4.200	0.5909	2.482 / 19.9
23	6 - Circle 500	about axis y	+	-	4.200	0.5909	2.482 / 19.9
		about axis z	+	-	4.200	0.5909	2.482 / 19.9
24	6 - Circle 500	about axis y	+	-	4.200	0.5909	2.482 / 19.9
		about axis z	+	-	4.200	0.5909	2.482 / 19.9
25	5 - Circle 600	about axis y	+	-	4.200	0.5909	2.482 / 16.5
		about axis z	+	-	4.200	0.5909	2.482 / 16.5
26	6 - Circle 500	about axis y	+	-	4.200	0.5909	2.482 / 19.9
		about axis z	+	-	4.200	0.5909	2.482 / 19.9
27	6 - Circle 500	about axis y	+	-	4.200	0.5909	2.482 / 19.9
		about axis z	+	-	4.200	0.5909	2.482 / 19.9
28	6 - Circle 500	about axis y	+	-	4.200	0.5909	2.482 / 19.9
		about axis z	+	-	4.200	0.5909	2.482 / 19.9
29	5 - Circle 600	about axis y	+	-	4.200	0.5909	2.482 / 16.5
		about axis z	+	-	4.200	0.5909	2.482 / 16.5
30	1 - Rectangle 500/500	about axis y	+	-	4.200	0.5909	2.482 / 17.2
		about axis z	+	-	4.200	0.5909	2.482 / 17.2
31	1 - Rectangle 500/500	about axis y	+	-	4.200	0.5909	2.482 / 17.2
		about axis z	+	-	4.200	0.5909	2.482 / 17.2
32	1 - Rectangle 500/500	about axis y	+	-	3.200	0.5909	1.891 / 13.1
		about axis z	+	-	3.200	0.5909	1.891 / 13.1
33	1 - Rectangle 500/500	about axis y	+	-	3.200	0.5909	1.891 / 13.1
		about axis z	+	-	3.200	0.5909	1.891 / 13.1
34	4 - Rectangle 400/400	about axis y	+	-	2.900	0.5909	1.714 / 14.8
		about axis z	+	-	2.900	0.5909	1.714 / 14.8
35	4 - Rectangle 400/400	about axis y	+	-	2.900	0.5909	1.714 / 14.8
		about axis z	+	-	2.900	0.5909	1.714 / 14.8
36	4 - Rectangle 400/400	about axis y	+	-	2.900	0.5909	1.714 / 14.8
		about axis z	+	-	2.900	0.5909	1.714 / 14.8
37	4 - Rectangle 400/400	about axis y	+	-	2.900	0.5909	1.714 / 14.8
		about axis z	+	-	2.900	0.5909	1.714 / 14.8
38	4 - Rectangle 400/400	about axis y	+	-	2.900	0.5909	1.714 / 14.8
		about axis z	+	-	2.900	0.5909	1.714 / 14.8
39	1 - Rectangle 500/500	about axis y	+	-	3.200	0.5909	1.891 / 13.1
		about axis z	+	-	3.200	0.5909	1.891 / 13.1
40	3 - Rectangle 400/500	about axis y	+	-	3.200	0.5909	1.891 / 13.1
		about axis z	+	-	3.200	0.5909	1.891 / 16.4
41	3 - Rectangle 400/500	about axis y	+	-	1.801	0.5909	1.064 / 7.4
		about axis z	+	-	1.801	0.5909	1.064 / 9.2
43	2 - Rectangle 600/600	about axis y	+	-	4.200	0.5909	2.482 / 14.3
		about axis z	+	-	4.200	0.5909	2.482 / 14.3
44	2 - Rectangle 600/600	about axis y	+	-	4.200	0.5909	2.482 / 14.3
		about axis z	+	-	4.200	0.5909	2.482 / 14.3
96	3 - Rectangle 400/500	about axis y	+	-	2.014	0.7687	1.548 / 10.7
		about axis z	+	-	2.014	0.7687	1.548 / 13.4
101	3 - Rectangle 400/500	about axis y	+	-	2.850	0.7687	2.191 / 15.2
		about axis z	+	-	2.850	0.7687	2.191 / 19.0
102	3 - Rectangle 400/500	about axis y	+	-	3.850	0.5909	2.275 / 15.8
		about axis z	+	-	3.850	0.5909	2.275 / 19.7
168	3 - Rectangle 400/500	about axis y	+	-	2.850	0.7687	2.191 / 15.2
		about axis z	+	-	2.850	0.7687	2.191 / 19.0
171	3 - Rectangle 400/500	about axis y	+	-	3.700	0.7072	2.617 / 18.1
		about axis z	+	-	3.700	0.7687	2.844 / 24.6
172	3 - Rectangle 400/500	about axis y	+	-	4.550	0.7072	3.218 / 22.3
		about axis z	+	-	4.550	0.7687	3.498 / 30.3
173	3 - Rectangle 400/500	about axis y	+	-	3.700	0.5909	2.186 / 15.1

1.5 Parameters - by Member

Member No.	Cross-Section	Direction	Buckling Risk	System Unbraced	System Length [m]	Coefficient β	Effective Length [m] / Slenderness
		about axis z	+	-	3.700	0.5909	2.186 / 18.9
174	3 - Rectangle 400/500	about axis y	+	-	4.550	0.5909	2.689 / 18.6
		about axis z	+	-	4.550	0.5909	2.689 / 23.3
175	3 - Rectangle 400/500	about axis y	+	-	3.300	0.7687	2.537 / 17.6
		about axis z	+	-	3.300	0.7687	2.537 / 22.0
177	3 - Rectangle 400/500	about axis y	+	-	3.300	0.7687	2.537 / 17.6
		about axis z	+	-	3.300	0.7687	2.537 / 22.0
179	3 - Rectangle 400/500	about axis y	+	-	3.850	0.5909	2.275 / 15.8
		about axis z	+	-	3.850	0.5909	2.275 / 19.7
188	3 - Rectangle 400/500	about axis y	+	-	3.300	0.5909	1.950 / 13.5
		about axis z	+	-	3.300	0.5909	1.950 / 16.9
189	3 - Rectangle 400/500	about axis y	+	-	3.700	0.7687	2.844 / 19.7
		about axis z	+	-	3.700	0.7687	2.844 / 24.6
190	3 - Rectangle 400/500	about axis y	+	-	3.424	0.7687	2.632 / 18.2
		about axis z	+	-	3.424	0.7687	2.632 / 22.8
191	3 - Rectangle 400/500	about axis y	+	-	4.548	0.7687	3.496 / 24.2
		about axis z	+	-	4.548	0.7687	3.496 / 30.3
192	3 - Rectangle 400/500	about axis y	+	-	3.300	0.5909	1.950 / 13.5
		about axis z	+	-	3.300	0.5909	1.950 / 16.9
193	3 - Rectangle 400/500	about axis y	+	-	3.700	0.7687	2.844 / 19.7
		about axis z	+	-	3.700	0.7687	2.844 / 24.6
194	3 - Rectangle 400/500	about axis y	+	-	3.199	0.7687	2.459 / 17.0
		about axis z	+	-	3.199	0.7687	2.459 / 21.3
195	3 - Rectangle 400/500	about axis y	+	-	4.153	0.7687	3.193 / 22.1
		about axis z	+	-	4.153	0.7687	3.193 / 27.6
196	3 - Rectangle 400/500	about axis y	+	-	4.892	0.7687	3.760 / 26.1
		about axis z	+	-	4.892	0.7687	3.760 / 32.6
197	3 - Rectangle 400/500	about axis y	+	-	5.280	0.7687	4.059 / 28.1
		about axis z	+	-	5.280	0.7687	4.059 / 35.2
198	2 - Rectangle 600/600	about axis y	+	-	5.100	0.5909	3.014 / 17.4
		about axis z	+	-	5.100	0.5909	3.014 / 17.4
199	2 - Rectangle 600/600	about axis y	+	-	5.100	0.5909	3.014 / 17.4
		about axis z	+	-	5.100	0.5909	3.014 / 17.4
200	1 - Rectangle 500/500	about axis y	+	-	5.100	0.5909	3.014 / 20.9
		about axis z	+	-	5.100	0.5909	3.014 / 20.9
201	1 - Rectangle 500/500	about axis y	+	-	5.100	0.5909	3.014 / 20.9
		about axis z	+	-	5.100	0.5909	3.014 / 20.9
202	2 - Rectangle 600/600	about axis y	+	-	5.100	0.5909	3.014 / 17.4
		about axis z	+	-	5.100	0.5909	3.014 / 17.4
203	2 - Rectangle 600/600	about axis y	+	-	5.100	0.5909	3.014 / 17.4
		about axis z	+	-	5.100	0.5909	3.014 / 17.4
204	2 - Rectangle 600/600	about axis y	+	-	5.100	0.5909	3.014 / 17.4
		about axis z	+	-	5.100	0.5909	3.014 / 17.4
205	2 - Rectangle 600/600	about axis y	+	-	5.100	0.5909	3.014 / 17.4
		about axis z	+	-	5.100	0.5909	3.014 / 17.4
206	2 - Rectangle 600/600	about axis y	+	-	5.100	0.5909	3.014 / 17.4
		about axis z	+	-	5.100	0.5909	3.014 / 17.4
207	2 - Rectangle 600/600	about axis y	+	-	5.100	0.5909	3.014 / 17.4
		about axis z	+	-	5.100	0.5909	3.014 / 17.4
208	2 - Rectangle 600/600	about axis y	+	-	5.100	0.5909	3.014 / 17.4
		about axis z	+	-	5.100	0.5909	3.014 / 17.4
209	2 - Rectangle 600/600	about axis y	+	-	5.100	0.5909	3.014 / 17.4
		about axis z	+	-	5.100	0.5909	3.014 / 17.4
210	2 - Rectangle 600/600	about axis y	+	-	5.100	0.5909	3.014 / 17.4
		about axis z	+	-	5.100	0.5909	3.014 / 17.4
211	2 - Rectangle 600/600	about axis y	+	-	5.100	0.5909	3.014 / 17.4
		about axis z	+	-	5.100	0.5909	3.014 / 17.4
212	2 - Rectangle 600/600	about axis y	+	-	5.100	0.5909	3.014 / 17.4
		about axis z	+	-	5.100	0.5909	3.014 / 17.4
213	2 - Rectangle 600/600	about axis y	+	-	5.100	0.5909	3.014 / 17.4
		about axis z	+	-	5.100	0.5909	3.014 / 17.4
214	2 - Rectangle 600/600	about axis y	+	-	5.100	0.5909	3.014 / 17.4
		about axis z	+	-	5.100	0.5909	3.014 / 17.4
215	6 - Circle 500	about axis y	+	-	5.100	0.5909	3.014 / 24.1
		about axis z	+	-	5.100	0.5909	3.014 / 24.1
216	6 - Circle 500	about axis y	+	-	5.100	0.5909	3.014 / 24.1
		about axis z	+	-	5.100	0.5909	3.014 / 24.1

1.5 Parameters - by Member

Member No.	Cross-Section	Direction	Buckling Risk	System Unbraced	System Length [m]	Coefficient β	Effective Length [m] / Slenderness
217	6 - Circle 500	about axis y	+	-	5.100	0.5909	3.014 / 24.1
		about axis z	+	-	5.100	0.5909	3.014 / 24.1
218	6 - Circle 500	about axis y	+	-	5.100	0.5909	3.014 / 24.1
		about axis z	+	-	5.100	0.5909	3.014 / 24.1
219	6 - Circle 500	about axis y	+	-	5.100	0.5909	3.014 / 24.1
		about axis z	+	-	5.100	0.5909	3.014 / 24.1
220	6 - Circle 500	about axis y	+	-	5.100	0.5909	3.014 / 24.1
		about axis z	+	-	5.100	0.5909	3.014 / 24.1
221	2 - Rectangle 600/600	about axis y	+	-	5.100	0.5909	3.014 / 17.4
		about axis z	+	-	5.100	0.5909	3.014 / 17.4
222	2 - Rectangle 600/600	about axis y	+	-	5.100	0.5909	3.014 / 17.4
		about axis z	+	-	5.100	0.5909	3.014 / 17.4
223	2 - Rectangle 600/600	about axis y	+	-	5.100	0.5909	3.014 / 17.4
		about axis z	+	-	5.100	0.5909	3.014 / 17.4
224	2 - Rectangle 600/600	about axis y	+	-	5.100	0.5909	3.014 / 17.4
		about axis z	+	-	5.100	0.5909	3.014 / 17.4
225	2 - Rectangle 600/600	about axis y	+	-	5.100	0.5909	3.014 / 17.4
		about axis z	+	-	5.100	0.5909	3.014 / 17.4
226	2 - Rectangle 600/600	about axis y	+	-	5.100	0.5909	3.014 / 17.4
		about axis z	+	-	5.100	0.5909	3.014 / 17.4
239	3 - Rectangle 400/500	about axis y	+	-	3.700	0.7687	2.844 / 19.7
		about axis z	+	-	3.700	0.7687	2.844 / 24.6
247	3 - Rectangle 400/500	about axis y	+	-	2.850	0.5909	1.684 / 11.7
		about axis z	+	-	2.850	0.5909	1.684 / 14.6
248	3 - Rectangle 400/500	about axis y	+	-	3.317	0.7687	2.550 / 17.7
		about axis z	+	-	3.317	0.7687	2.550 / 22.1
249	3 - Rectangle 400/500	about axis y	+	-	3.700	0.7687	2.844 / 19.7
		about axis z	+	-	3.700	0.7687	2.844 / 24.6
250	3 - Rectangle 400/500	about axis y	+	-	3.194	0.7687	2.456 / 17.0
		about axis z	+	-	3.194	0.7687	2.456 / 21.3
251	3 - Rectangle 400/500	about axis y	+	-	3.300	0.5909	1.950 / 13.5
		about axis z	+	-	3.300	0.5909	1.950 / 16.9
252	3 - Rectangle 400/500	about axis y	+	-	3.112	0.7687	2.393 / 16.6
		about axis z	+	-	3.112	0.7687	2.393 / 20.7
253	3 - Rectangle 400/500	about axis y	+	-	1.439	0.5909	0.851 / 5.9
		about axis z	+	-	1.439	0.5909	0.851 / 7.4
254	3 - Rectangle 400/500	about axis y	+	-	1.439	0.5909	0.851 / 5.9
		about axis z	+	-	1.439	0.5909	0.851 / 7.4
255	3 - Rectangle 400/500	about axis y	+	-	1.439	0.5909	0.851 / 5.9
		about axis z	+	-	1.439	0.5909	0.851 / 7.4
258	3 - Rectangle 400/500	about axis y	+	-	3.700	0.7687	2.844 / 19.7
		about axis z	+	-	3.700	0.7687	2.844 / 24.6
259	3 - Rectangle 400/500	about axis y	+	-	4.606	0.7687	3.541 / 24.5
		about axis z	+	-	4.606	0.7687	3.541 / 30.7
260	3 - Rectangle 400/500	about axis y	+	-	4.606	0.7687	3.541 / 24.5
		about axis z	+	-	4.606	0.7687	3.541 / 30.7
261	3 - Rectangle 400/500	about axis y	+	-	4.606	0.7687	3.541 / 24.5
		about axis z	+	-	4.606	0.7687	3.541 / 30.7
664	3 - Rectangle 400/500	about axis y	+	-	4.550	0.7687	3.498 / 24.2
		about axis z	+	-	4.550	0.7687	3.498 / 30.3
667	3 - Rectangle 400/500	about axis y	+	-	4.550	0.7687	3.498 / 24.2
		about axis z	+	-	4.550	0.7687	3.498 / 30.3
672	3 - Rectangle 400/500	about axis y	+	-	4.550	0.7687	3.498 / 24.2
		about axis z	+	-	4.550	0.7687	3.498 / 30.3
692	3 - Rectangle 400/500	about axis y	+	-	3.700	0.7687	2.844 / 19.7
		about axis z	+	-	3.700	0.7687	2.844 / 24.6
693	3 - Rectangle 400/500	about axis y	+	-	3.700	0.7687	2.844 / 19.7
		about axis z	+	-	3.700	0.7687	2.844 / 24.6
696	3 - Rectangle 400/500	about axis y	+	-	4.550	0.7687	3.498 / 24.2
		about axis z	+	-	4.550	0.7687	3.498 / 30.3
722	3 - Rectangle 400/500	about axis y	+	-	4.550	0.7687	3.498 / 24.2
		about axis z	+	-	4.550	0.7687	3.498 / 30.3
1390	3 - Rectangle 400/500	about axis y	+	-	4.550	0.7687	3.498 / 24.2
		about axis z	+	-	4.550	0.7687	3.498 / 30.3
1487	3 - Rectangle 400/500	about axis y	+	-	4.550	0.7687	3.498 / 24.2
		about axis z	+	-	4.550	0.7687	3.498 / 30.3
2186	1 - Rectangle 500/500	about axis y	+	-	5.100	0.5909	3.014 / 20.9

1.5 Parameters - by Member

Member No.	Cross-Section	Direction	Buckling Risk	System Unbraced	System Length [m]	Coefficient β	Effective Length [m] / Slenderness
		about axis z	+	-	5.100	0.5909	3.014 / 20.9
2187	1 - Rectangle 500/500	about axis y	+	-	5.100	0.5909	3.014 / 20.9
		about axis z	+	-	5.100	0.5909	3.014 / 20.9
2511	2 - Rectangle 600/600	about axis y	+	-	4.200	0.5909	2.482 / 14.3
		about axis z	+	-	4.200	0.5909	2.482 / 14.3
2530	51 - Rectangle 401/401	about axis y	+	-	0.250	0.5909	0.148 / 1.3
		about axis z	+	-	0.250	0.5909	0.148 / 1.3
2531	51 - Rectangle 401/401	about axis y	+	-	0.250	0.5909	0.148 / 1.3
		about axis z	+	-	0.250	0.5909	0.148 / 1.3

RF-CONCRETE
Columns
CA1

3.1 Required Reinforcement by Cross-Section (1-6)

Section No.	Reinforcement Type	Member No.	Location x [m]	LC / CO RC	Reinforcement	Area	Unit	Error or notice
1	Rectangle 500/500							
	Longitudinal	2186	0.000	CO1	As	10.45	cm^2	Governing minimum reinforcement for determining the required reinforcement

Governing Load			
Load		CO1	
Governing Internal Forces		min N	
At Location	x	0.000	m
Normal Force	N	-4542.600	kN
Moment About y-Axis	M_y	-2.796	kNm
Moment About z-Axis	M_z	-9.243	kNm
Effective Length According to 5.8.3.2			
Effective Length About Axis y	$l_{0,y}$	3.014	m
Column Length	l_y	5.100	m
Buckling Coefficient	β_y	0.591	
Effective Length About Axis z	$l_{0,z}$	3.014	m
Column Length	l_z	5.100	m
Buckling Coefficient	β_z	0.591	
Slenderness According to 5.8.3.2			
Slenderness About Axis y	λ_y	20.8791	
Effective Length	$l_{0,y}$	3.014	m
Radius of Gyration	i_y	144.3	mm
Slenderness About Axis z	λ_z	20.8791	
Effective Length	$l_{0,z}$	3.014	m
Radius of Gyration	i_z	144.3	mm
Limiting Slenderness According to 5.8.3.1 (1)			
Limiting Slenderness About Axis y	$\lambda_{lim,y}$	22.4338	
Factor A	A_y	0.7444	
Consider effects of creep?		Yes	
Effective Creep Coefficient	$\varphi_{ef,y}$	1.7172	
Final Value of Creep Coeff.	$\varphi(\infty, t_0)$	2.6154	
Condition for neglecting creep fulfilled?		Failed	
Final value of creep coeff. is less than or equal to two?	$\varphi(\infty, t_0) \leq 2.0$	Failed	
Slenderness about y-axis less than or equal to 75?	$\lambda_y \leq 75$	Passed	
Eccentricity in ULS higher as thickness of cross-section?	$M_y, 0E_d/N_{Ed} \geq h_z$	Failed	
Moment (Quasi-permanent Action)	$M_{c\text{-}quasi,1,y}$	-21.737	kNm
Normal Force (Quasi-permanent Action)	$N_{Ed\text{-}quasi}$	-3055.410	kN
Eccentricity in z-Direction	$e_{c\text{-}quasi,1,z}$	-7.1	mm
Intended Unreduced Eccentricity	$e_{c\text{-}quasi,0,z}$	-0.4	mm
Eccentricity Due to Imperfection	$e_{i,z}$	-6.7	mm
Load		CO5	
Moment About Axis y (First Ord. Th.)	$M_{c,1,y}$	-33.106	kNm
Normal Force	N_{Ed}	-4542.600	kN
Eccentricity in z-Direction	$e_{c,1,z}$	-7.3	mm
Intended Eccentricity	$e_{c,0,z}$	-0.6	mm
Eccentricity Due to Imperfection	$e_{i,z}$	-6.7	mm
Factor B	B_y	1.0200	

3.1 Required Reinforcement by Cross-Section (1-6)

Section No.	Reinforcement Type	Member No.	Location x [m]	LC / CO RC	Reinforcement	Area	Unit	Error or notice	
	Mechanical Reinforcement Ratio						ω	0.0202	
	Statically Required Reinforcement						req $A_{s,stat}$	2.44	cm^2
	Design Value of Yield Stress						f_{yd}	434.78	N/mm^2
	Area of Cross-Section						A_c	2500.00	cm^2
	Design Value of Concrete Compr. Strength						f_{cd}	21.00	N/mm^2
	Factor C						C_y	1.3742	
	Moment Ratio						$r_{m,y}$	0.3258	
	1st End Moment About Axis y						$M_{y,01}$	-2.796	kNm
	2nd End Moment About Axis y						$M_{y,02}$	-0.911	kNm
	Relative Normal Force						n	0.8653	
	Design Normal Force						N_{Ed}	-4542.600	kN
	Area of Cross-Section						A_c	2500.00	cm^2
	Design Value of Concrete Compr. Strength						f_{cd}	21.00	N/mm^2
	Limiting Slenderness About Axis z						$\lambda_{lim,z}$	32.8472	
	Factor A						A_z	0.7367	
	Consider effects of creep?							Yes	
	Effective Creep Coefficient						$\varphi_{ef,z}$	1.7872	
	Final Value of Creep Coeff.						$\varphi(\infty, t_0)$	2.6154	
	Condition for neglecting creep fulfilled?							Failed	
	Final value of creep coeff. is less than or equal to two?						$\varphi(\infty, t_0) \leq 2.0$	Failed	
	Slenderness about z-axis less than or equal to 75?						$\lambda_z \leq 75$	Passed	
	Eccentricity in ULS higher as thickness of cross-section?						$M_z, 0E_d/N_{Ed} \geq h_y$	Failed	
	Moment (Quasi-permanent Action)						$M_{c\text{-}quasi,1,z}$	-27.027	kNm
	Normal Force (Quasi-permanent Action)						$N_{Ed\text{-}quasi}$	-3055.410	kN
	Eccentricity in y-Direction						$e_{c\text{-}quasi,1,y}$	-8.8	mm
	Intended Unreduced Eccentricity						$e_{c\text{-}quasi,0,y}$	-2.2	mm
	Eccentricity Due to Imperfection						$e_{i,y}$	-6.7	mm
	Load							CO5	
	Moment About Axis z (First Ord. Th.)						$M_{c,1,z}$	-39.552	kNm
	Normal Force						N_{Ed}	-4542.600	kN
	Eccentricity in y-Direction						$e_{c,1,y}$	-8.7	mm
	Intended Eccentricity						$e_{c,0,y}$	-2.0	mm
	Eccentricity Due to Imperfection						$e_{i,y}$	-6.7	mm
	Factor B						B_z	1.0200	
	Mechanical Reinforcement Ratio						ω	0.0202	
	Statically Required Reinforcement						req $A_{s,stat}$	2.44	cm^2
	Design Value of Yield Stress						f_{yd}	434.78	N/mm^2
	Area of Cross-Section						A_c	2500.00	cm^2
	Design Value of Concrete Compr. Strength						f_{cd}	21.00	N/mm^2
	Factor C						C_z	2.0331	
	Moment Ratio						$r_{m,z}$	-0.3331	
	1st End Moment About Axis z						$M_{z,01}$	-9.243	kNm
	2nd End Moment About Axis z						$M_{z,02}$	27.749	kNm
	Relative Normal Force						n	0.8653	
	Design Normal Force						N_{Ed}	-4542.600	kN
	Area of Cross-Section						A_c	2500.00	cm^2
	Design Value of Concrete Compr. Strength						f_{cd}	21.00	N/mm^2
Design Type									
Conditions of standard design according to 5.8.3.1 (1)									
	Condition About Axis y						$\lambda_y \leq \lambda_{lim,y}$	Passed	
	Provided Slenderness						λ_y	20.8791	
	Limiting Slenderness About Axis y						$\lambda_{lim,y}$	22.4338	
	Condition About Axis z						$\lambda_z \leq \lambda_{lim,z}$	Passed	
	Provided Slenderness						λ_z	20.8791	
	Limiting Slenderness About Axis z						$\lambda_{lim,z}$	32.8472	
	Condition of standard design fulfilled?							Passed	
Eccentricities									
Intended Eccentricity According to 5.8.8.2									
	Intended Eccentricity in z-Direction						$e_{0,z}$	-0.6	mm
	Moment Diagram Along the Support						Diagram M_y	Changing Linearly	

3.1 Required Reinforcement by Cross-Section (1-6)

Section No.	Reinforcement Type	Member No.	Location x [m]	LC / CO RC	Reinforcement	Area	Unit	Error or notice	
	Moment About Axis y						M_y	-2.796	kNm
	Absolute Normal Force						$\|N\|$	4542.600	kN
	Intended Eccentricity in y-Direction						$e_{0,y}$	-2.0	mm
	Moment Diagram Along the Support						Diagram M_z	Changing Linearly	
	Moment About Axis z						M_z	-9.243	kNm
	Absolute Normal Force						$\|N\|$	4542.600	kN
Eccentricity due to imperfection according to 5.2									
	Eccentricity Due to Imperfection in z-Direction						$e_{i,z}$	-6.7	mm
	Inclination						$\Theta_{i,z}$	0.0044	
	Basic Value of Inclination						Θ_0	0.0050	
	Reduction Factor for Column Height						$\alpha_{h,z}$	0.8856	
	Calculated Value of Reduction Factor						$\alpha_{h,z,calc}$	0.8856	
	Column Length						l_y	5.100	m
	Reduction Factor for Column Number						α_m	1.0000	
	According to user specification, the column will be designed as a single column.								
	Buckling Length						$l_{0,y}$	3.014	m
	Eccentricity Due to Imperfection in y-Direction						$e_{i,y}$	-6.7	mm
	Inclination						$\Theta_{i,y}$	0.0044	
	Basic Value of Inclination						Θ_0	0.0050	
	Reduction Factor for Column Height						$\alpha_{h,y}$	0.8856	
	Calculated Value of Reduction Factor						$\alpha_{h,y,calc}$	0.8856	
	Column Length						l_z	5.100	m
	Reduction Factor for Column Number						α_m	1.0000	
	According to user specification, the column will be designed as a single column.								
	Buckling Length						$l_{0,z}$	3.014	m
Minimum Eccentricity According to 6.1 (4)									
	Minimum Eccentricity in z-Direction						$e_{min,z}$	-20.0	mm
	Thickness of Structural Member						$h_{w,z}$	500.0	mm
	Minimum Value of Minimum Eccentricity						$e_{20\ mm,z}$	20.0	mm
	Minimum Eccentricity in y-Direction						$e_{min,y}$	-20.0	mm
	Thickness of Structural Member						$h_{w,y}$	500.0	mm
	Minimum Value of Minimum Eccentricity						$e_{20\ mm,y}$	20.0	mm
Design Moment from Governing Eccentricity									
	Design Normal Force						N_{Ed}	-4542.600	kN
	Moment About Axis y						$M_{Ed,1,y}$	-90.852	kNm
	Governing Total Eccentricity in z-Direction						$e_{1,z}$	-20.0	mm
	Calculated Total Eccentricity in z-Direction						$e_{calc\ 1,z}$	-7.3	mm
	Intended Eccentricity						$e_{0,z}$	-0.6	mm
	Eccentricity Due to Imperfection						$e_{i,z}$	-6.7	mm
	Minimum Eccentricity						$e_{min,z}$	-20.0	mm
	Moment About Axis z						$M_{Ed,1,z}$	-90.852	kNm
	Governing Total Eccentricity in y-Direction						$e_{1,y}$	-20.0	mm
	Calculated Total Eccentricity in y-Direction						$e_{calc\ 1,y}$	-8.7	mm
	Intended Eccentricity						$e_{0,y}$	-2.0	mm
	Eccentricity Due to Imperfection						$e_{i,y}$	-6.7	mm
	Minimum Eccentricity						$e_{min,y}$	-20.0	mm
Min. Reinforcement According to Standard									
1st Minimum Reinforcement									
	Design Normal Force						N_{Ed}	-4542.600	kN
	Design Value of Yield Stress						f_{yd}	434.78	N/mm^2
	Min. Reinforcement						req $A_{s,min,1}$	10.45	cm^2
2nd Minimum Reinforcement									
	Area of Cross-Section						A_c	2500.00	cm^2
	Min. Reinforcement						req $A_{s,min,2}$	5.00	cm^2
	Minimum Reinforcement Acc. to Standard						req $A_{s,min,Standard}$	10.45	cm^2
Required Reinforcement									
	Statically Required Reinforcement						req $A_{s,stat}$	2.44	cm^2
	Minimum Reinforcement Acc. to Standard						req $A_{s,min,Standard}$	10.45	cm^2
	Required Reinforcement						req A_s	10.45	cm^2
1	Rectangle 500/500								
	Shear	30	-	-	a_{sw}	3.14	cm^2/m		
Min. Shear Reinforcement According to Standard									

3.1 Required Reinforcement by Cross-Section (1-6)

Section No.	Reinforcement Type	Member No.	Location x [m]	LC / CO RC	Reinforcement	Area	Unit	Error or notice
Stirrup Diameter							$d_{sw,min}$	8.0 mm
Cutting Ability							n_{sw}	2.0000
Spacing							$s_{sw,max}$	320.0 mm
Minimum Shear Reinforcement							$a_{sw,min}$	3.14 cm^2/m
Required Shear Reinforcement								
Statically Required Shear Reinforcement							req $a_{sw,stat}$	0.00 cm^2/m
Minimum Shear Reinforcement							$a_{sw,min}$	3.14 cm^2/m
Required Shear Reinforcement							req a_{sw}	3.14 cm^2/m
2	Rectangle 600/600							
	Longitudinal	198	0.000	CO1	As	12.32	cm^2	Governing minimum reinforcement for determining the required reinforcement
Governing Load								
Load								CO1
Governing Internal Forces								min N
At Location							x	0.000 m
Normal Force							N	-5357.990 kN
Moment About y-Axis							M_y	22.857 kNm
Moment About z-Axis							M_z	25.617 kNm
Effective Length According to 5.8.3.2								
Effective Length About Axis y							$l_{0,y}$	3.014 m
Column Length							l_y	5.100 m
Buckling Coefficient							β_y	0.591
Effective Length About Axis z							$l_{0,z}$	3.014 m
Column Length							l_z	5.100 m
Buckling Coefficient							β_z	0.591
Slenderness According to 5.8.3.2								
Slenderness About Axis y							λ_y	17.3992
Effective Length							$l_{0,y}$	3.014 m
Radius of Gyration							i_y	173.2 mm
Slenderness About Axis z							λ_z	17.3992
Effective Length							$l_{0,z}$	3.014 m
Radius of Gyration							i_z	173.2 mm
Limiting Slenderness According to 5.8.3.1 (1)								
Limiting Slenderness About Axis y							$\lambda_{lim,y}$	39.3031
Factor A							A_y	0.7381
Consider effects of creep?								Yes
Effective Creep Coefficient							$\varphi_{ef,y}$	1.7740
Final Value of Creep Coeff.							$\varphi(\infty, t_0)$	2.5505
Condition for neglecting creep fulfilled?								Failed
Final value of creep coeff. is less than or equal to two?							$\varphi(\infty, t_0) \leq 2.0$	Failed
Slenderness about y-axis less than or equal to 75?							$\lambda_y \leq 75$	Passed
Eccentricity in ULS higher as thickness of cross-section?							$M_y, 0E_d/N_{Ed} \geq h_z$	Failed
Moment (Quasi-permanent Action)							$M_{c\text{-}quasi,1,y}$	40.765 kNm
Normal Force (Quasi-permanent Action)							$N_{Ed\text{-}quasi}$	-3658.840 kN
Eccentricity in z-Direction							$e_{c\text{-}quasi,1,z}$	11.1 mm
Intended Unreduced Eccentricity							$e_{c\text{-}quasi,0,z}$	4.5 mm
Eccentricity Due to Imperfection							$e_{i,z}$	-6.7 mm
Load								CO5
Moment About Axis y (First Ord. Th.)							$M_{c,1,y}$	58.608 kNm
Normal Force							N_{Ed}	-5357.990 kN
Eccentricity in z-Direction							$e_{c,1,z}$	10.9 mm
Intended Eccentricity							$e_{c,0,z}$	4.3 mm
Eccentricity Due to Imperfection							$e_{i,z}$	-6.7 mm
Factor B							B_y	1.0000
Mechanical Reinforcement Ratio							ω	0.0000
Statically Required Reinforcement							req $A_{s,stat}$	0.00 cm^2
Design Value of Yield Stress							f_{yd}	434.78 N/mm^2
Area of Cross-Section							A_c	3600.00 cm^2
Design Value of Concrete Compr. Strength							f_{cd}	21.00 N/mm^2
Factor C							C_y	2.2414
Moment Ratio							$r_{m,y}$	-0.5414
1st End Moment About Axis y							$M_{y,01}$	22.857 kNm

3.1 Required Reinforcement by Cross-Section (1-6)

Section No.	Reinforcement Type	Member No.	Location x [m]	LC / CO RC	Reinforcement Area	Unit	Error or notice	
	2nd End Moment About Axis y					$M_{y,02}$	-42.222	kNm
	Relative Normal Force					n	0.7087	
	Design Normal Force					N_{Ed}	-5357.990	kN
	Area of Cross-Section					A_c	3600.00	cm^2
	Design Value of Concrete Compr. Strength					f_{cd}	21.00	N/mm^2
	Limiting Slenderness About Axis z					$\lambda_{lim,z}$	40.4995	
	Factor A					A_z	0.7416	
	Consider effects of creep?						Yes	
	Effective Creep Coefficient					$\varphi_{ef,z}$	1.7419	
	Final Value of Creep Coeff.					$\varphi(\infty, t_0)$	2.5505	
	Condition for neglecting creep fulfilled?						Failed	
	Final value of creep coeff. is less than or equal to two?					$\varphi(\infty, t_0) \leq 2.0$	Failed	
	Slenderness about z-axis less than or equal to 75?					$\lambda_z \leq 75$	Passed	
	Eccentricity in ULS higher as thickness of cross-section?					$M_z, 0E_d/N_{Ed} \geq h_y$	Failed	
	Moment (Quasi-permanent Action)					$M_{c\text{-}quasi,1,z}$	41.910	kNm
	Normal Force (Quasi-permanent Action)					$N_{Ed\text{-}quasi}$	-3658.840	kN
	Eccentricity in y-Direction					$e_{c\text{-}quasi,1,y}$	11.5	mm
	Intended Unreduced Eccentricity					$e_{c\text{-}quasi,0,y}$	4.8	mm
	Eccentricity Due to Imperfection					$e_{i,y}$	-6.7	mm
	Load						CO5	
	Moment About Axis z (First Ord. Th.)					$M_{c,1,z}$	61.367	kNm
	Normal Force					N_{Ed}	-5357.990	kN
	Eccentricity in y-Direction					$e_{c,1,y}$	11.5	mm
	Intended Eccentricity					$e_{c,0,y}$	4.8	mm
	Eccentricity Due to Imperfection					$e_{i,y}$	-6.7	mm
	Factor B					B_z	1.0000	
	Mechanical Reinforcement Ratio					ω	0.0000	
	Statically Required Reinforcement					req $A_{s,stat}$	0.00	cm^2
	Design Value of Yield Stress					f_{yd}	434.78	N/mm^2
	Area of Cross-Section					A_c	3600.00	cm^2
	Design Value of Concrete Compr. Strength					f_{cd}	21.00	N/mm^2
	Factor C					C_z	2.2986	
	Moment Ratio					$r_{m,z}$	-0.5986	
	1st End Moment About Axis z					$M_{z,01}$	25.617	kNm
	2nd End Moment About Axis z					$M_{z,02}$	-42.794	kNm
	Relative Normal Force					n	0.7087	
	Design Normal Force					N_{Ed}	-5357.990	kN
	Area of Cross-Section					A_c	3600.00	cm^2
	Design Value of Concrete Compr. Strength					f_{cd}	21.00	N/mm^2
Design Type								
Conditions of standard design according to 5.8.3.1 (1)								
	Condition About Axis y					$\lambda_y \leq \lambda_{lim,y}$	Passed	
	Provided Slenderness					λ_y	17.3992	
	Limiting Slenderness About Axis y					$\lambda_{lim,y}$	39.3031	
	Condition About Axis z					$\lambda_z \leq \lambda_{lim,z}$	Passed	
	Provided Slenderness					λ_z	17.3992	
	Limiting Slenderness About Axis z					$\lambda_{lim,z}$	40.4995	
	Condition of standard design fulfilled?						Passed	
Eccentricities								
Intended Eccentricity According to 5.8.8.2								
	Intended Eccentricity in z-Direction					$e_{0,z}$	4.3	mm
	Moment Diagram Along the Support					Diagram M_y	Changing Linearly	
	Moment About Axis y					M_y	22.857	kNm
	Absolute Normal Force					$\|N\|$	5357.990	kN
	Intended Eccentricity in y-Direction					$e_{0,y}$	4.8	mm
	Moment Diagram Along the Support					Diagram M_z	Changing Linearly	
	Moment About Axis z					M_z	25.617	kNm
	Absolute Normal Force					$\|N\|$	5357.990	kN
Eccentricity due to imperfection according to 5.2								
	Eccentricity Due to Imperfection in z-Direction					$e_{i,z}$	6.7	mm
	Inclination					$\Theta_{i,z}$	0.0044	
	Basic Value of Inclination					Θ_0	0.0050	

3.1 Required Reinforcement by Cross-Section (1-6)

Section No.	Reinforcement Type	Member No.	Location x [m]	LC / CO RC	Reinforcement	Area	Unit	Error or notice	
	Reduction Factor for Column Height						$\alpha_{h,z}$	0.8856	
	Calculated Value of Reduction Factor						$\alpha_{h,z,calc}$	0.8856	
	Column Length						l_y	5.100	m
	Reduction Factor for Column Number						α_m	1.0000	
	According to user specification, the column will be designed as a single column.								
	Buckling Length						$l_{0,y}$	3.014	m
	Eccentricity Due to Imperfection in y-Direction						$e_{i,y}$	6.7	mm
	Inclination						$\Theta_{i,y}$	0.0044	
	Basic Value of Inclination						Θ_0	0.0050	
	Reduction Factor for Column Height						$\alpha_{h,y}$	0.8856	
	Calculated Value of Reduction Factor						$\alpha_{h,y,calc}$	0.8856	
	Column Length						l_z	5.100	m
	Reduction Factor for Column Number						α_m	1.0000	
	According to user specification, the column will be designed as a single column.								
	Buckling Length						$l_{0,z}$	3.014	m
Minimum Eccentricity According to 6.1 (4)									
	Minimum Eccentricity in z-Direction						$e_{min,z}$	20.0	mm
	Thickness of Structural Member						$h_{w,z}$	600.0	mm
	Minimum Value of Minimum Eccentricity						$e_{20\ mm,z}$	20.0	mm
	Minimum Eccentricity in y-Direction						$e_{min,y}$	20.0	mm
	Thickness of Structural Member						$h_{w,y}$	600.0	mm
	Minimum Value of Minimum Eccentricity						$e_{20\ mm,y}$	20.0	mm
Design Moment from Governing Eccentricity									
	Design Normal Force						N_{Ed}	-5357.990	kN
	Moment About Axis y						$M_{Ed,1,y}$	107.160	kNm
	Governing Total Eccentricity in z-Direction						$e_{1,z}$	20.0	mm
	Calculated Total Eccentricity in z-Direction						$e_{calc\ 1,z}$	10.9	mm
	Intended Eccentricity						$e_{0,z}$	4.3	mm
	Eccentricity Due to Imperfection						$e_{i,z}$	6.7	mm
	Minimum Eccentricity						$e_{min,z}$	20.0	mm
	Moment About Axis z						$M_{Ed,1,z}$	107.160	kNm
	Governing Total Eccentricity in y-Direction						$e_{1,y}$	20.0	mm
	Calculated Total Eccentricity in y-Direction						$e_{calc\ 1,y}$	11.5	mm
	Intended Eccentricity						$e_{0,y}$	4.8	mm
	Eccentricity Due to Imperfection						$e_{i,y}$	6.7	mm
	Minimum Eccentricity						$e_{min,y}$	20.0	mm
Min. Reinforcement According to Standard									
1st Minimum Reinforcement									
	Design Normal Force						N_{Ed}	-5357.990	kN
	Design Value of Yield Stress						f_{yd}	434.78	N/mm^2
	Min. Reinforcement						req $A_{s,min,1}$	12.32	cm^2
2nd Minimum Reinforcement									
	Area of Cross-Section						A_c	3600.00	cm^2
	Min. Reinforcement						req $A_{s,min,2}$	7.20	cm^2
	Minimum Reinforcement Acc. to Standard						req $A_{s,min,Standard}$	12.32	cm^2
Required Reinforcement									
	Statically Required Reinforcement						req $A_{s,stat}$	0.00	cm^2
	Minimum Reinforcement Acc. to Standard						req $A_{s,min,Standard}$	12.32	cm^2
	Required Reinforcement						req A_s	12.32	cm^2
2	Rectangle 600/600								
	Shear	2511	0.000	CO1	a_{sw}	8.90	cm^2/m		
Governing Load									
	Load							CO1	
	Governing Internal Forces							min N	
	At Location						x	0.000	m
	Normal Force						N	-1865.110	kN
	Moment About y-Axis						M_y	487.526	kNm
	Moment About z-Axis						M_z	-30.345	kNm
	Shear Force in y-Direction						V_y	-209.400	kN
	Shear Force in z-Direction						V_z	-397.999	kN
Statically Required Shear Reinforcement									
	Design Shear Force						V_{Ed}	449.724	kN

3.1 Required Reinforcement by Cross-Section (1-6)

Section No.	Reinforcement Type	Member No.	Location x [m]	LC / CO RC	Reinforcement	Area	Unit	Error or notice	
Lever arm							z	464.9	mm
Design Value of Yield Stress							f_{yd}	434.78	N/mm^2
Cotangent of Angle of Strut							cot Θ	2.5000	
Angle of Struts							Θ	21.801	°
Statically Required Shear Reinforcement							req $a_{sw,stat}$	8.90	cm^2/m
Min. Shear Reinforcement According to Standard									
Stirrup Diameter							$d_{sw,min}$	8.0	mm
Cutting Ability							n_{sw}	2.0000	
Spacing							$s_{sw,max}$	320.0	mm
Minimum Shear Reinforcement							$a_{sw,min}$	3.14	cm^2/m
Required Shear Reinforcement									
Statically Required Shear Reinforcement							req $a_{sw,stat}$	8.90	cm^2/m
Minimum Shear Reinforcement							$a_{sw,min}$	3.14	cm^2/m
Required Shear Reinforcement							req a_{sw}	8.90	cm^2/m
3	Rectangle 400/500								
	Longitudinal	41	0.000	CO1	As	16.31	cm^2		
Governing Load									
Load								CO1	
Governing Internal Forces								min N	
At Location							x	0.000	m
Normal Force							N	-553.197	kN
Moment About y-Axis							M_y	68.355	kNm
Moment About z-Axis							M_z	-179.085	kNm
Effective Length According to 5.8.3.2									
Effective Length About Axis y							$l_{0,y}$	1.064	m
Column Length							l_y	1.801	m
Buckling Coefficient							β_y	0.591	
Effective Length About Axis z							$l_{0,z}$	1.064	m
Column Length							l_z	1.801	m
Buckling Coefficient							β_z	0.591	
Slenderness According to 5.8.3.2									
Slenderness About Axis y							λ_y	7.3717	
Effective Length							$l_{0,y}$	1.064	m
Radius of Gyration							i_y	144.3	mm
Slenderness About Axis z							λ_z	9.2146	
Effective Length							$l_{0,z}$	1.064	m
Radius of Gyration							i_z	115.5	mm
Limiting Slenderness According to 5.8.3.1 (1)									
Limiting Slenderness About Axis y							$\lambda_{lim,y}$	103.9670	
Factor A							A_y	0.7348	
Consider effects of creep?								Yes	
Effective Creep Coefficient							$\varphi_{ef,y}$	1.8044	
Final Value of Creep Coeff.							$\varphi(\infty, t_0)$	2.6592	
Condition for neglecting creep fulfilled?								Failed	
Final value of creep coeff. is less than or equal to two?							$\varphi(\infty, t_0) \leq 2.0$	Failed	
Slenderness about y-axis less than or equal to 75?							$\lambda_y \leq 75$	Passed	
Eccentricity in ULS higher as thickness of cross-section?							$M_y, 0E_d/N_{Ed} \geq h_z$	Failed	
Moment (Quasi-permanent Action)							$M_{c\text{-}quasi,1,y}$	47.379	kNm
Normal Force (Quasi-permanent Action)							$N_{Ed\text{-}quasi}$	-374.955	kN
Eccentricity in z-Direction							$e_{c\text{-}quasi,1,z}$	126.4	mm
Intended Unreduced Eccentricity							$e_{c\text{-}quasi,0,z}$	123.7	mm
Eccentricity Due to Imperfection							$e_{i,z}$	2.7	mm
Load								CO5	
Moment About Axis y (First Ord. Th.)							$M_{c,1,y}$	69.827	kNm
Normal Force							N_{Ed}	-553.197	kN
Eccentricity in z-Direction							$e_{c,1,z}$	126.2	mm
Intended Eccentricity							$e_{c,0,z}$	123.6	mm
Eccentricity Due to Imperfection							$e_{i,z}$	2.7	mm
Factor B							B_y	1.1566	
Mechanical Reinforcement Ratio							ω	0.1688	
Statically Required Reinforcement							req $A_{s,stat}$	16.31	cm^2
Design Value of Yield Stress							f_{yd}	434.78	N/mm^

3.1 Required Reinforcement by Cross-Section (1-6)

Section No.	Reinforcement Type	Member No.	Location x [m]	LC / CO RC	Reinforcement Area	Unit	Error or notice	
								2
	Area of Cross-Section					A_c	2000.00	cm^2
	Design Value of Concrete Compr. Strength					f_{cd}	21.00	N/mm^2
	Factor C					C_y	2.2199	
	Moment Ratio					$r_{m,y}$	-0.5199	
	1st End Moment About Axis y					$M_{y,01}$	68.355	kNm
	2nd End Moment About Axis y					$M_{y,02}$	-35.539	kNm
	Relative Normal Force					n	0.1317	
	Design Normal Force					N_{Ed}	-553.197	kN
	Area of Cross-Section					A_c	2000.00	cm^2
	Design Value of Concrete Compr. Strength					f_{cd}	21.00	N/mm^2
	Limiting Slenderness About Axis z					$\lambda_{lim,z}$	99.5178	
	Factor A					A_z	0.7349	
	Consider effects of creep?						Yes	
	Effective Creep Coefficient					$\varphi_{ef,z}$	1.8041	
	Final Value of Creep Coeff.					$\varphi(\infty, t_0)$	2.6592	
	Condition for neglecting creep fulfilled?						Failed	
	Final value of creep coeff. is less than or equal to two?					$\varphi(\infty, t_0) \leq 2.0$	Failed	
	Slenderness about z-axis less than or equal to 75?					$\lambda_z \leq 75$	Passed	
	Eccentricity in ULS higher as thickness of cross-section?					$M_z, 0E_d/N_{Ed} \geq h_y$	Passed	
	Moment (Quasi-permanent Action)					$M_{c\text{-}quasi,1,z}$	-122.492	kNm
	Normal Force (Quasi-permanent Action)					$N_{Ed\text{-}quasi}$	-374.955	kN
	Eccentricity in y-Direction					$e_{c\text{-}quasi,1,y}$	-326.7	mm
	Intended Unreduced Eccentricity					$e_{c\text{-}quasi,0,y}$	-324.0	mm
	Eccentricity Due to Imperfection					$e_{i,y}$	-2.7	mm
	Load						CO5	
	Moment About Axis z (First Ord. Th.)					$M_{c,1,z}$	-180.557	kNm
	Normal Force					N_{Ed}	-553.197	kN
	Eccentricity in y-Direction					$e_{c,1,y}$	-326.4	mm
	Intended Eccentricity					$e_{c,0,y}$	-323.7	mm
	Eccentricity Due to Imperfection					$e_{i,y}$	-2.7	mm
	Factor B					B_z	1.1566	
	Mechanical Reinforcement Ratio					ω	0.1688	
	Statically Required Reinforcement					req $A_{s,stat}$	16.31	cm^2
	Design Value of Yield Stress					f_{yd}	434.78	N/mm^2
	Area of Cross-Section					A_c	2000.00	cm^2
	Design Value of Concrete Compr. Strength					f_{cd}	21.00	N/mm^2
	Factor C					C_z	2.1248	
	Moment Ratio					$r_{m,z}$	-0.4248	
	1st End Moment About Axis z					$M_{z,01}$	-179.085	kNm
	2nd End Moment About Axis z					$M_{z,02}$	76.077	kNm
	Relative Normal Force					n	0.1317	
	Design Normal Force					N_{Ed}	-553.197	kN
	Area of Cross-Section					A_c	2000.00	cm^2
	Design Value of Concrete Compr. Strength					f_{cd}	21.00	N/mm^2
Design Type								
Conditions of standard design according to 5.8.3.1 (1)								
	Condition About Axis y					$\lambda_y \leq \lambda_{lim,y}$	Passed	
	Provided Slenderness					λ_y	7.3717	
	Limiting Slenderness About Axis y					$\lambda_{lim,y}$	103.9670	
	Condition About Axis z					$\lambda_z \leq \lambda_{lim,z}$	Passed	
	Provided Slenderness					λ_z	9.2146	
	Limiting Slenderness About Axis z					$\lambda_{lim,z}$	99.5178	
	Condition of standard design fulfilled?						Passed	
Eccentricities								
Intended Eccentricity According to 5.8.8.2								
	Intended Eccentricity in z-Direction					$e_{0,z}$	123.6	mm
	Moment Diagram Along the Support					Diagram M_y	Changing Linearly	
	Moment About Axis y					M_y	68.355	kNm
	Absolute Normal Force					$\|N\|$	553.197	kN
	Intended Eccentricity in y-Direction					$e_{0,y}$	-323.7	mm

3.1 Required Reinforcement by Cross-Section (1-6)

Section No.	Reinforcement Type	Member No.	Location x [m]	LC / CO RC	Reinforcement	Area	Unit	Error or notice	
	Moment Diagram Along the Support						Diagram M_z	Changing Linearly	
	Moment About Axis z						M_z	-179.085	kNm
	Absolute Normal Force						$\|N\|$	553.197	kN
Eccentricity due to imperfection according to 5.2									
	Eccentricity Due to Imperfection in z-Direction						$e_{i,z}$	2.7	mm
	Inclination						$\Theta_{i,z}$	0.0050	
	Basic Value of Inclination						Θ_0	0.0050	
	Reduction Factor for Column Height						$\alpha_{h,z}$	1.0000	
	Calculated Value of Reduction Factor						$\alpha_{h,z,calc}$	1.4905	
	Column Length						l_y	1.801	m
	Reduction Factor for Column Number						α_m	1.0000	
	According to user specification, the column will be designed as a single column.								
	Buckling Length						$l_{0,y}$	1.064	m
	Eccentricity Due to Imperfection in y-Direction						$e_{i,y}$	-2.7	mm
	Inclination						$\Theta_{i,y}$	0.0050	
	Basic Value of Inclination						Θ_0	0.0050	
	Reduction Factor for Column Height						$\alpha_{h,y}$	1.0000	
	Calculated Value of Reduction Factor						$\alpha_{h,y,calc}$	1.4905	
	Column Length						l_z	1.801	m
	Reduction Factor for Column Number						α_m	1.0000	
	According to user specification, the column will be designed as a single column.								
	Buckling Length						$l_{0,z}$	1.064	m
Minimum Eccentricity According to 6.1 (4)									
	Minimum Eccentricity in z-Direction						$e_{min,z}$	20.0	mm
	Thickness of Structural Member						$h_{w,z}$	500.0	mm
	Minimum Value of Minimum Eccentricity						$e_{20\ mm,z}$	20.0	mm
	Minimum Eccentricity in y-Direction						$e_{min,y}$	-20.0	mm
	Thickness of Structural Member						$h_{w,y}$	400.0	mm
	Minimum Value of Minimum Eccentricity						$e_{20\ mm,y}$	20.0	mm
Design Moment from Governing Eccentricity									
	Design Normal Force						N_{Ed}	-553.197	kN
	Moment About Axis y						$M_{Ed,1,y}$	69.827	kNm
	Governing Total Eccentricity in z-Direction						$e_{1,z}$	126.2	mm
	Calculated Total Eccentricity in z-Direction						$e_{calc\ 1,z}$	126.2	mm
	Intended Eccentricity						$e_{0,z}$	123.6	mm
	Eccentricity Due to Imperfection						$e_{i,z}$	2.7	mm
	Minimum Eccentricity						$e_{min,z}$	20.0	mm
	Moment About Axis z						$M_{Ed,1,z}$	-180.557	kNm
	Governing Total Eccentricity in y-Direction						$e_{1,y}$	-326.4	mm
	Calculated Total Eccentricity in y-Direction						$e_{calc\ 1,y}$	-326.4	mm
	Intended Eccentricity						$e_{0,y}$	-323.7	mm
	Eccentricity Due to Imperfection						$e_{i,y}$	-2.7	mm
	Minimum Eccentricity						$e_{min,y}$	-20.0	mm
Min. Reinforcement According to Standard									
1st Minimum Reinforcement									
	Design Normal Force						N_{Ed}	-553.197	kN
	Design Value of Yield Stress						f_{yd}	434.78	N/mm^2
	Min. Reinforcement						req $A_{s,min,1}$	1.27	cm^2
2nd Minimum Reinforcement									
	Area of Cross-Section						A_c	2000.00	cm^2
	Min. Reinforcement						req $A_{s,min,2}$	4.00	cm^2
	Minimum Reinforcement Acc. to Standard						req $A_{s,min,Standard}$	4.00	cm^2
Required Reinforcement									
	Statically Required Reinforcement						req $A_{s,stat}$	16.31	cm^2
	Minimum Reinforcement Acc. to Standard						req $A_{s,min,Standard}$	4.00	cm^2
	Required Reinforcement						req A_s	16.31	cm^2
3	Rectangle 400/500								
	Shear	253	0.000	CO1	a_{sw}	8.45	cm^2/m		
Governing Load									
	Load							CO1	
	Governing Internal Forces							min N	
	At Location						x	1.439	m

3.1 Required Reinforcement by Cross-Section (1-6)

Section No.	Reinforcement Type	Member No.	Location x [m]	LC / CO RC	Reinforcement	Area	Unit	Error or notice	
Normal Force							N	-427.050	kN
Moment About y-Axis							M_y	86.012	kNm
Moment About z-Axis							M_z	-0.928	kNm
Shear Force in y-Direction							V_y	-3.952	kN
Shear Force in z-Direction							V_z	328.650	kN
Statically Required Shear Reinforcement									
Design Shear Force							V_{Ed}	328.674	kN
Lever arm							z	358.0	mm
Design Value of Yield Stress							f_{yd}	434.78	N/mm^2
Cotangent of Angle of Strut							cot Θ	2.5000	
Angle of Struts							Θ	21.801	°
Statically Required Shear Reinforcement							req $a_{sw,stat}$	8.45	cm^2/m
Min. Shear Reinforcement According to Standard									
Stirrup Diameter							$d_{sw,min}$	8.0	mm
Cutting Ability							n_{sw}	2.0000	
Spacing							$s_{sw,max}$	320.0	mm
Minimum Shear Reinforcement							$a_{sw,min}$	3.14	cm^2/m
Required Shear Reinforcement									
Statically Required Shear Reinforcement							req $a_{sw,stat}$	8.45	cm^2/m
Minimum Shear Reinforcement							$a_{sw,min}$	3.14	cm^2/m
Required Shear Reinforcement							req a_{sw}	8.45	cm^2/m
4	Rectangle 400/400								
	Longitudinal	34	0.000	CO1	As	3.20	cm^2	Governing minimum reinforcement for determining the required reinforcement	
Governing Load									
Load								CO1	
Governing Internal Forces								min N	
At Location							x	0.000	m
Normal Force							N	-124.658	kN
Moment About y-Axis							M_y	-32.007	kNm
Moment About z-Axis							M_z	5.343	kNm
Effective Length According to 5.8.3.2									
Effective Length About Axis y							$l_{0,y}$	1.714	m
Column Length							l_y	2.900	m
Buckling Coefficient							β_y	0.591	
Effective Length About Axis z							$l_{0,z}$	1.714	m
Column Length							l_z	2.900	m
Buckling Coefficient							β_z	0.591	
Slenderness According to 5.8.3.2									
Slenderness About Axis y							λ_y	14.8405	
Effective Length							$l_{0,y}$	1.714	m
Radius of Gyration							i_y	115.5	mm
Slenderness About Axis z							λ_z	14.8405	
Effective Length							$l_{0,z}$	1.714	m
Radius of Gyration							i_z	115.5	mm
Limiting Slenderness According to 5.8.3.1 (1)									
Limiting Slenderness About Axis y							$\lambda_{lim,y}$	189.8160	
Factor A							A_y	0.7323	
Consider effects of creep?								Yes	
Effective Creep Coefficient							$\varphi_{ef,y}$	1.8276	
Final Value of Creep Coeff.							$\varphi(\infty, t_0)$	2.6998	
Condition for neglecting creep fulfilled?								Failed	
Final value of creep coeff. is less than or equal to two?							$\varphi(\infty, t_0) \leq 2.0$	Failed	
Slenderness about y-axis less than or equal to 75?							$\lambda_y \leq 75$	Passed	
Eccentricity in ULS higher as thickness of cross-section?							$M_y, 0E_d/N_{Ed} \geq h_z$	Failed	
Moment (Quasi-permanent Action)							$M_{c\text{-}quasi,1,y}$	-22.027	kNm
Normal Force (Quasi-permanent Action)							$N_{Ed\text{-}quasi}$	-84.839	kN
Eccentricity in z-Direction							$e_{c\text{-}quasi,1,z}$	-259.6	mm
Intended Unreduced Eccentricity							$e_{c\text{-}quasi,0,z}$	-255.4	mm
Eccentricity Due to Imperfection							$e_{i,z}$	4.3	mm
Load								CO5	
Moment About Axis y (First Ord. Th.)							$M_{c,1,y}$	-32.541	kNm

3.1 Required Reinforcement by Cross-Section (1-6)

Section No.	Reinforcement Type	Member No.	Location x [m]	LC / CO RC	Reinforcement Area	Unit	Error or notice	
	Normal Force					N_{Ed}	-124.658	kN
	Eccentricity in z-Direction					$e_{c,1,z}$	-261.0	mm
	Intended Eccentricity					$e_{c,0,z}$	-256.8	mm
	Eccentricity Due to Imperfection					$e_{i,z}$	4.3	mm
Factor B						B_y	1.0152	
Mechanical Reinforcement Ratio						ω	0.0154	
Statically Required Reinforcement						req $A_{s,stat}$	1.19	cm^2
Design Value of Yield Stress						f_{yd}	434.78	N/mm^2
Area of Cross-Section						A_c	1600.00	cm^2
Design Value of Concrete Compr. Strength						f_{cd}	21.00	N/mm^2
Factor C						C_y	2.4588	
Moment Ratio						$r_{m,y}$	-0.7588	
1st End Moment About Axis y						$M_{y,01}$	-32.007	kNm
2nd End Moment About Axis y						$M_{y,02}$	24.286	kNm
Relative Normal Force						n	0.0371	
Design Normal Force						N_{Ed}	-124.658	kN
Area of Cross-Section						A_c	1600.00	cm^2
Design Value of Concrete Compr. Strength						f_{cd}	21.00	N/mm^2
Limiting Slenderness About Axis z						$\lambda_{lim,z}$	81.1865	
Factor A						A_z	0.7435	
Consider effects of creep?							Yes	
Effective Creep Coefficient						$\varphi_{ef,z}$	1.7252	
Final Value of Creep Coeff.						$\varphi(\infty, t_0)$	2.6998	
Condition for neglecting creep fulfilled?							Failed	
Final value of creep coeff. is less than or equal to two?						$\varphi(\infty, t_0) \leq 2.0$	Failed	
Slenderness about z-axis less than or equal to 75?						$\lambda_z \leq 75$	Passed	
Eccentricity in ULS higher as thickness of cross-section?						$M_z, 0E_d/N_{Ed} \geq h_y$	Failed	
Moment (Quasi-permanent Action)						$M_{c\text{-}quasi,1,z}$	3.756	kNm
Normal Force (Quasi-permanent Action)						$N_{Ed\text{-}quasi}$	-84.839	kN
Eccentricity in y-Direction						$e_{c\text{-}quasi,1,y}$	44.3	mm
Intended Unreduced Eccentricity						$e_{c\text{-}quasi,0,y}$	40.0	mm
Eccentricity Due to Imperfection						$e_{i,y}$	4.3	mm
Load							CO5	
Moment About Axis z (First Ord. Th.)						$M_{c,1,z}$	5.877	kNm
Normal Force						N_{Ed}	-124.658	kN
Eccentricity in y-Direction						$e_{c,1,y}$	47.1	mm
Intended Eccentricity						$e_{c,0,y}$	42.9	mm
Eccentricity Due to Imperfection						$e_{i,y}$	4.3	mm
Factor B						B_z	1.0152	
Mechanical Reinforcement Ratio						ω	0.0154	
Statically Required Reinforcement						req $A_{s,stat}$	1.19	cm^2
Design Value of Yield Stress						f_{yd}	434.78	N/mm^2
Area of Cross-Section						A_c	1600.00	cm^2
Design Value of Concrete Compr. Strength						f_{cd}	21.00	N/mm^2
Factor C						C_z	1.0359	
Moment Ratio						$r_{m,z}$	0.6641	
1st End Moment About Axis z						$M_{z,01}$	5.343	kNm
2nd End Moment About Axis z						$M_{z,02}$	3.548	kNm
Relative Normal Force						n	0.0371	
Design Normal Force						N_{Ed}	-124.658	kN
Area of Cross-Section						A_c	1600.00	cm^2
Design Value of Concrete Compr. Strength						f_{cd}	21.00	N/mm^2
Design Type								
Conditions of standard design according to 5.8.3.1 (1)								
Condition About Axis y						$\lambda_y \leq \lambda_{lim,y}$	Passed	
Provided Slenderness						λ_y	14.8405	
Limiting Slenderness About Axis y						$\lambda_{lim,y}$	189.8160	
Condition About Axis z						$\lambda_z \leq \lambda_{lim,z}$	Passed	
Provided Slenderness						λ_z	14.8405	
Limiting Slenderness About Axis z						$\lambda_{lim,z}$	81.1865	

3.1 Required Reinforcement by Cross-Section (1-6)

Section No.	Reinforcement Type	Member No.	Location x [m]	LC / CO RC	Reinforcement	Area	Unit	Error or notice	
Condition of standard design fulfilled?								Passed	
Eccentricities									
Intended Eccentricity According to 5.8.8.2									
Intended Eccentricity in z-Direction							$e_{0,z}$	-256.8	mm
Moment Diagram Along the Support							Diagram M_y	Changing Linearly	
Moment About Axis y							M_y	-32.007	kNm
Absolute Normal Force							$\|N\|$	124.658	kN
Intended Eccentricity in y-Direction							$e_{0,y}$	42.9	mm
Moment Diagram Along the Support							Diagram M_z	Changing Linearly	
Moment About Axis z							M_z	5.343	kNm
Absolute Normal Force							$\|N\|$	124.658	kN
Eccentricity due to imperfection according to 5.2									
Eccentricity Due to Imperfection in z-Direction							$e_{i,z}$	-4.3	mm
Inclination							$\Theta_{i,z}$	0.0050	
Basic Value of Inclination							Θ_0	0.0050	
Reduction Factor for Column Height							$\alpha_{h,z}$	1.0000	
Calculated Value of Reduction Factor							$\alpha_{h,z,calc}$	1.1744	
Column Length							l_y	2.900	m
Reduction Factor for Column Number							α_m	1.0000	
According to user specification, the column will be designed as a single column.									
Buckling Length							$l_{0,y}$	1.714	m
Eccentricity Due to Imperfection in y-Direction							$e_{i,y}$	4.3	mm
Inclination							$\Theta_{i,y}$	0.0050	
Basic Value of Inclination							Θ_0	0.0050	
Reduction Factor for Column Height							$\alpha_{h,y}$	1.0000	
Calculated Value of Reduction Factor							$\alpha_{h,y,calc}$	1.1744	
Column Length							l_z	2.900	m
Reduction Factor for Column Number							α_m	1.0000	
According to user specification, the column will be designed as a single column.									
Buckling Length							$l_{0,z}$	1.714	m
Minimum Eccentricity According to 6.1 (4)									
Minimum Eccentricity in z-Direction							$e_{min,z}$	-20.0	mm
Thickness of Structural Member							$h_{w,z}$	400.0	mm
Minimum Value of Minimum Eccentricity							$e_{20\ mm,z}$	20.0	mm
Minimum Eccentricity in y-Direction							$e_{min,y}$	20.0	mm
Thickness of Structural Member							$h_{w,y}$	400.0	mm
Minimum Value of Minimum Eccentricity							$e_{20\ mm,y}$	20.0	mm
Design Moment from Governing Eccentricity									
Design Normal Force							N_{Ed}	-124.658	kN
Moment About Axis y							$M_{Ed,1,y}$	-32.541	kNm
Governing Total Eccentricity in z-Direction							$e_{1,z}$	-261.0	mm
Calculated Total Eccentricity in z-Direction							$e_{calc\ 1,z}$	-261.0	mm
Intended Eccentricity							$e_{0,z}$	-256.8	mm
Eccentricity Due to Imperfection							$e_{i,z}$	-4.3	mm
Minimum Eccentricity							$e_{min,z}$	-20.0	mm
Moment About Axis z							$M_{Ed,1,z}$	5.877	kNm
Governing Total Eccentricity in y-Direction							$e_{1,y}$	47.1	mm
Calculated Total Eccentricity in y-Direction							$e_{calc\ 1,y}$	47.1	mm
Intended Eccentricity							$e_{0,y}$	42.9	mm
Eccentricity Due to Imperfection							$e_{i,y}$	4.3	mm
Minimum Eccentricity							$e_{min,y}$	20.0	mm
Min. Reinforcement According to Standard									
1st Minimum Reinforcement									
Design Normal Force							N_{Ed}	-124.658	kN
Design Value of Yield Stress							f_{yd}	434.78	N/mm^2
Min. Reinforcement							req $A_{s,min,1}$	0.29	cm^2
2nd Minimum Reinforcement									
Area of Cross-Section							A_c	1600.00	cm^2
Min. Reinforcement							req $A_{s,min,2}$	3.20	cm^2
Minimum Reinforcement Acc. to Standard							req $A_{s,min,Standard}$	3.20	cm^2
Required Reinforcement									
Statically Required Reinforcement							req $A_{s,stat}$	1.19	cm^2
Minimum Reinforcement Acc. to Standard							req $A_{s,min,Standard}$	3.20	cm^2
Required Reinforcement							req A_s	3.20	cm^2

3.1 Required Reinforcement by Cross-Section (1-6)

Section No.	Reinforcement Type	Member No.	Location x [m]	LC / CO RC	Reinforcement	Area	Unit	Error or notice
4	Rectangle 400/400							
	Shear	34	-	-	a_{sw}	3.14	cm^2/m	

Min. Shear Reinforcement According to Standard			
Stirrup Diameter	$d_{sw,min}$	8.0	mm
Cutting Ability	n_{sw}	2.0000	
Spacing	$s_{sw,max}$	320.0	mm
Minimum Shear Reinforcement	$a_{sw,min}$	3.14	cm^2/m
Required Shear Reinforcement			
Statically Required Shear Reinforcement	req $a_{sw,stat}$	0.00	cm^2/m
Minimum Shear Reinforcement	$a_{sw,min}$	3.14	cm^2/m
Required Shear Reinforcement	req a_{sw}	3.14	cm^2/m

5	Circle 600							
	Longitudinal	25	0.000	CO1	As	37.43	cm^2	

Governing Load			
Load		CO1	
Governing Internal Forces		min N	
At Location	x	0.000	m
Normal Force	N	-6146.540	kN
Moment About y-Axis	M_y	24.189	kNm
Moment About z-Axis	M_z	-196.926	kNm
Effective Length According to 5.8.3.2			
Effective Length About Axis y	$l_{0,y}$	2.482	m
Column Length	l_y	4.200	m
Buckling Coefficient	β_y	0.591	
Effective Length About Axis z	$l_{0,z}$	2.482	m
Column Length	l_z	4.200	m
Buckling Coefficient	β_z	0.591	
Slenderness According to 5.8.3.2			
Slenderness About Axis y	λ_y	16.5455	
Effective Length	$l_{0,y}$	2.482	m
Radius of Gyration	i_y	150.0	mm
Slenderness About Axis z	λ_z	16.5455	
Effective Length	$l_{0,z}$	2.482	m
Radius of Gyration	i_z	150.0	mm
Limiting Slenderness According to 5.8.3.1 (1)			
Limiting Slenderness About Axis y	$\lambda_{lim,y}$	35.5939	
Factor A	A_y	0.7370	
Consider effects of creep?		Yes	
Effective Creep Coefficient	$\varphi_{ef,y}$	1.7845	
Final Value of Creep Coeff.	$\varphi(\infty, t_0)$	2.5505	
Condition for neglecting creep fulfilled?		Failed	
Final value of creep coeff. is less than or equal to two?	$\varphi(\infty, t_0) \leq 2.0$	Failed	
Slenderness about y-axis less than or equal to 75?	$\lambda_y \leq 75$	Passed	
Eccentricity in ULS higher as thickness of cross-section?	$M_y, 0E_d/N_{Ed} \geq h_z$	Failed	
Moment (Quasi-permanent Action)	$M_{c\text{-}quasi,1,y}$	42.964	kNm
Normal Force (Quasi-permanent Action)	$N_{Ed\text{-}quasi}$	-4213.590	kN
Eccentricity in z-Direction	$e_{c\text{-}quasi,1,z}$	10.2	mm
Intended Unreduced Eccentricity	$e_{c\text{-}quasi,0,z}$	4.1	mm
Eccentricity Due to Imperfection	$e_{i,z}$	6.1	mm
Load		CO5	
Moment About Axis y (First Ord. Th.)	$M_{c,1,y}$	61.406	kNm
Normal Force	N_{Ed}	-6146.540	kN
Eccentricity in z-Direction	$e_{c,1,z}$	10.0	mm
Intended Eccentricity	$e_{c,0,z}$	3.9	mm
Eccentricity Due to Imperfection	$e_{i,z}$	6.1	mm
Factor B	B_y	1.2442	
Mechanical Reinforcement Ratio	ω	0.2741	
Statically Required Reinforcement	req $A_{s,stat}$	37.43	cm^2
Design Value of Yield Stress	f_{yd}	434.78	N/mm^2
Area of Cross-Section	A_c	2827.43	cm^2

3.1 Required Reinforcement by Cross-Section (1-6)

Section No.	Reinforcement Type	Member No.	Location x [m]	LC / CO RC	Reinforcement Area	Reinforcement Unit	Error or notice	
	Design Value of Concrete Compr. Strength					f_{cd}	21.00	N/mm^2
	Factor C					C_y	1.9747	
	Moment Ratio					$r_{m,y}$	-0.2747	
	1st End Moment About Axis y					$M_{y,01}$	24.189	kNm
	2nd End Moment About Axis y					$M_{y,02}$	-6.645	kNm
	Relative Normal Force					n	1.0352	
	Design Normal Force					N_{Ed}	-6146.540	kN
	Area of Cross-Section					A_c	2827.43	cm^2
	Design Value of Concrete Compr. Strength					f_{cd}	21.00	N/mm^2
	Limiting Slenderness About Axis z					$\lambda_{lim,z}$	30.5180	
	Factor A					A_z	0.7424	
	Consider effects of creep?						Yes	
	Effective Creep Coefficient					$\varphi_{ef,z}$	1.7348	
	Final Value of Creep Coeff.					$\varphi(\infty, t_0)$	2.5505	
	Condition for neglecting creep fulfilled?						Failed	
	Final value of creep coeff. is less than or equal to two?					$\varphi(\infty, t_0) \leq 2.0$	Failed	
	Slenderness about z-axis less than or equal to 75?					$\lambda_z \leq 75$	Passed	
	Eccentricity in ULS higher as thickness of cross-section?					$M_z, 0E_d/N_{Ed} \geq h_y$	Failed	
	Moment (Quasi-permanent Action)					$M_{c\text{-}quasi,1,z}$	-159.261	kNm
	Normal Force (Quasi-permanent Action)					$N_{Ed\text{-}quasi}$	-4213.590	kN
	Eccentricity in y-Direction					$e_{c\text{-}quasi,1,y}$	-37.8	mm
	Intended Unreduced Eccentricity					$e_{c\text{-}quasi,0,y}$	-31.7	mm
	Eccentricity Due to Imperfection					$e_{i,y}$	-6.1	mm
	Load						CO5	
	Moment About Axis z (First Ord. Th.)					$M_{c,1,z}$	-234.144	kNm
	Normal Force					N_{Ed}	-6146.540	kN
	Eccentricity in y-Direction					$e_{c,1,y}$	-38.1	mm
	Intended Eccentricity					$e_{c,0,y}$	-32.0	mm
	Eccentricity Due to Imperfection					$e_{i,y}$	-6.1	mm
	Factor B					B_z	1.2442	
	Mechanical Reinforcement Ratio					ω	0.2741	
	Statically Required Reinforcement					req $A_{s,stat}$	37.43	cm^2
	Design Value of Yield Stress					f_{yd}	434.78	N/mm^2
	Area of Cross-Section					A_c	2827.43	cm^2
	Design Value of Concrete Compr. Strength					f_{cd}	21.00	N/mm^2
	Factor C					C_z	1.6807	
	Moment Ratio					$r_{m,z}$	0.0193	
	1st End Moment About Axis z					$M_{z,01}$	-196.926	kNm
	2nd End Moment About Axis z					$M_{z,02}$	-3.801	kNm
	Relative Normal Force					n	1.0352	
	Design Normal Force					N_{Ed}	-6146.540	kN
	Area of Cross-Section					A_c	2827.43	cm^2
	Design Value of Concrete Compr. Strength					f_{cd}	21.00	N/mm^2
Design Type								
Conditions of standard design according to 5.8.3.1 (1)								
	Condition About Axis y					$\lambda_y \leq \lambda_{lim,y}$	Passed	
	Provided Slenderness					λ_y	16.5455	
	Limiting Slenderness About Axis y					$\lambda_{lim,y}$	35.5939	
	Condition About Axis z					$\lambda_z \leq \lambda_{lim,z}$	Passed	
	Provided Slenderness					λ_z	16.5455	
	Limiting Slenderness About Axis z					$\lambda_{lim,z}$	30.5180	
	Condition of standard design fulfilled?						Passed	
Eccentricities								
Intended Eccentricity According to 5.8.8.2								
	Intended Eccentricity in z-Direction					$e_{0,z}$	3.9	mm
	Moment Diagram Along the Support					Diagram M_y	Changing Linearly	
	Moment About Axis y					M_y	24.189	kNm
	Absolute Normal Force					$\|N\|$	6146.540	kN
	Intended Eccentricity in y-Direction					$e_{0,y}$	-32.0	mm
	Moment Diagram Along the Support					Diagram M_z	Changing Linearly	
	Moment About Axis z					M_z	-196.926	kNm

3.1 Required Reinforcement by Cross-Section (1-6)

Section No.	Reinforcement Type	Member No.	Location x [m]	LC / CO RC	Reinforcement	Area	Unit	Error or notice	
	Absolute Normal Force						|N|	6146.540	kN
Eccentricity due to imperfection according to 5.2									
	Eccentricity Due to Imperfection in z-Direction						$e_{i,z}$	6.1	mm
	Inclination						$\Theta_{i,z}$	0.0049	
	Basic Value of Inclination						Θ_0	0.0050	
	Reduction Factor for Column Height						$\alpha_{h,z}$	0.9759	
	Calculated Value of Reduction Factor						$\alpha_{h,z,calc}$	0.9759	
	Column Length						l_y	4.200	m
	Reduction Factor for Column Number						α_m	1.0000	
	According to user specification, the column will be designed as a single column.								
	Buckling Length						$l_{0,y}$	2.482	m
	Eccentricity Due to Imperfection in y-Direction						$e_{i,y}$	-6.1	mm
	Inclination						$\Theta_{i,y}$	0.0049	
	Basic Value of Inclination						Θ_0	0.0050	
	Reduction Factor for Column Height						$\alpha_{h,y}$	0.9759	
	Calculated Value of Reduction Factor						$\alpha_{h,y,calc}$	0.9759	
	Column Length						l_z	4.200	m
	Reduction Factor for Column Number						α_m	1.0000	
	According to user specification, the column will be designed as a single column.								
	Buckling Length						$l_{0,z}$	2.482	m
Minimum Eccentricity According to 6.1 (4)									
	Minimum Eccentricity in z-Direction						$e_{min,z}$	20.0	mm
	Thickness of Structural Member						$h_{w,z}$	600.0	mm
	Minimum Value of Minimum Eccentricity						$e_{20\ mm,z}$	20.0	mm
	Minimum Eccentricity in y-Direction						$e_{min,y}$	-20.0	mm
	Thickness of Structural Member						$h_{w,y}$	600.0	mm
	Minimum Value of Minimum Eccentricity						$e_{20\ mm,y}$	20.0	mm
Design Moment from Governing Eccentricity									
	Design Normal Force						N_{Ed}	-6146.540	kN
	Moment About Axis y						$M_{Ed,1,y}$	122.931	kNm
	Governing Total Eccentricity in z-Direction						$e_{1,z}$	20.0	mm
	Calculated Total Eccentricity in z-Direction						$e_{calc\ 1,z}$	10.0	mm
	Intended Eccentricity						$e_{0,z}$	3.9	mm
	Eccentricity Due to Imperfection						$e_{i,z}$	6.1	mm
	Minimum Eccentricity						$e_{min,z}$	20.0	mm
	Moment About Axis z						$M_{Ed,1,z}$	-234.144	kNm
	Governing Total Eccentricity in y-Direction						$e_{1,y}$	-38.1	mm
	Calculated Total Eccentricity in y-Direction						$e_{calc\ 1,y}$	-38.1	mm
	Intended Eccentricity						$e_{0,y}$	-32.0	mm
	Eccentricity Due to Imperfection						$e_{i,y}$	-6.1	mm
	Minimum Eccentricity						$e_{min,y}$	-20.0	mm
Min. Reinforcement According to Standard									
1st Minimum Reinforcement									
	Design Normal Force						N_{Ed}	-6146.540	kN
	Design Value of Yield Stress						f_{yd}	434.78	N/mm^2
	Min. Reinforcement						req $A_{s,min,1}$	14.14	cm^2
2nd Minimum Reinforcement									
	Area of Cross-Section						A_c	2827.43	cm^2
	Min. Reinforcement						req $A_{s,min,2}$	5.65	cm^2
	Minimum Reinforcement Acc. to Standard						req $A_{s,min,Standard}$	14.14	cm^2
Required Reinforcement									
	Statically Required Reinforcement						req $A_{s,stat}$	37.43	cm^2
	Minimum Reinforcement Acc. to Standard						req $A_{s,min,Standard}$	14.14	cm^2
	Required Reinforcement						req A_s	37.43	cm^2
5	Circle 600								
	Shear	7	-	-	a_{sw}	3.14	cm^2/m		
Min. Shear Reinforcement According to Standard									
	Stirrup Diameter						$d_{sw,min}$	8.0	mm
	Cutting Ability						n_{sw}	2.0000	
	Spacing						$s_{sw,max}$	320.0	mm
	Minimum Shear Reinforcement						$a_{sw,min}$	3.14	cm^2/m
Required Shear Reinforcement									

3.1 Required Reinforcement by Cross-Section (1-6)

Section No.	Reinforcement Type	Member No.	Location x [m]	LC / CO RC	Reinforcement	Area	Unit	Error or notice	
Statically Required Shear Reinforcement							req $a_{sw,stat}$	0.00	cm^2/m
Minimum Shear Reinforcement							$a_{sw,min}$	3.14	cm^2/m
Required Shear Reinforcement							req a_{sw}	3.14	cm^2/m
6	Circle 500								
	Longitudinal	219	0.000	CO1	As	7.41	cm^2	Governing minimum reinforcement for determining the required reinforcement	

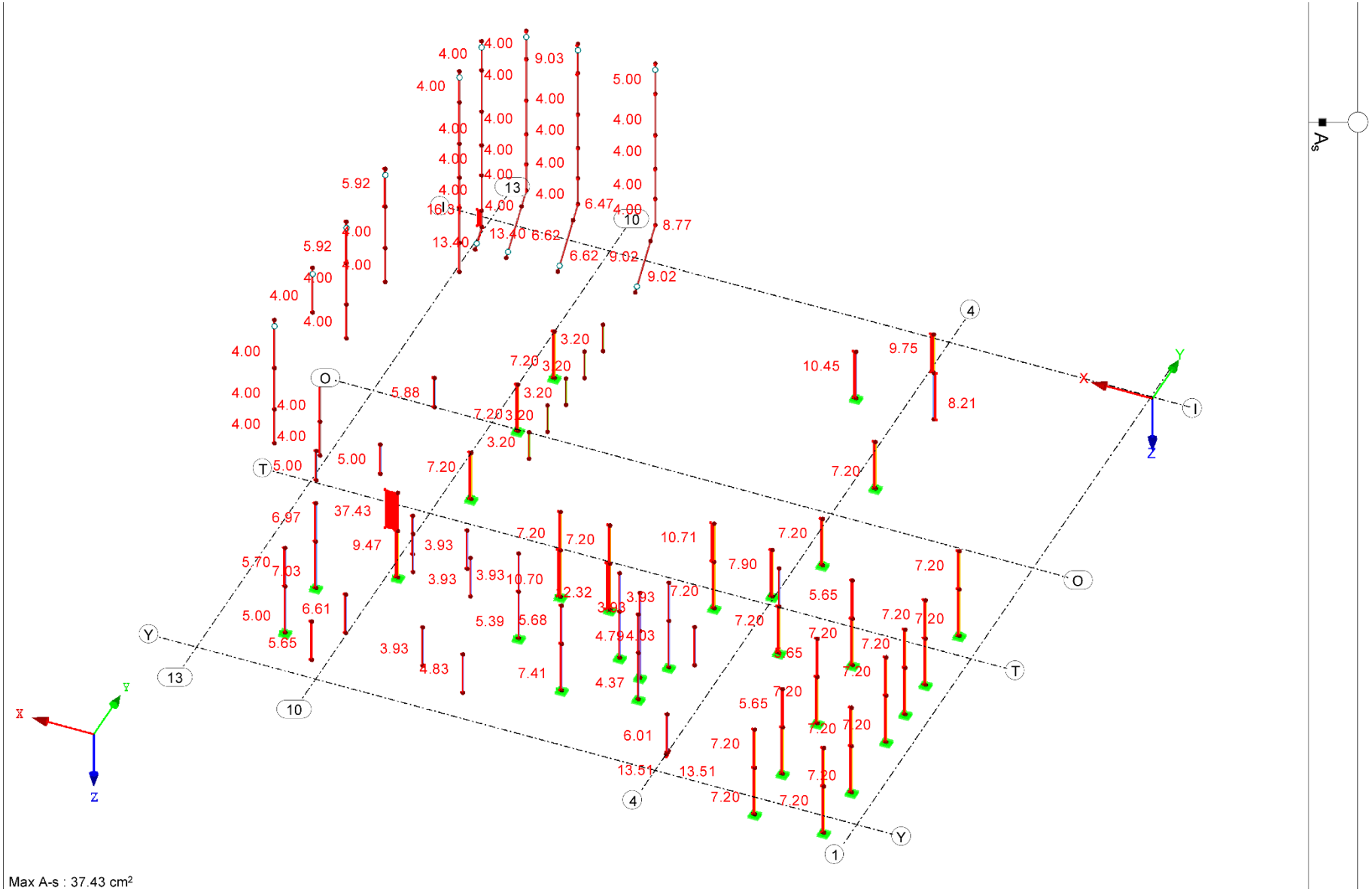
Governing Load			
Load		CO1	
Governing Internal Forces		min N	
At Location	x	0.000	m
Normal Force	N	-3222.530	kN
Moment About y-Axis	M_y	14.964	kNm
Moment About z-Axis	M_z	-37.543	kNm
Effective Length According to 5.8.3.2			
Effective Length About Axis y	$l_{0,y}$	3.014	m
Column Length	l_y	5.100	m
Buckling Coefficient	β_y	0.591	
Effective Length About Axis z	$l_{0,z}$	3.014	m
Column Length	l_z	5.100	m
Buckling Coefficient	β_z	0.591	
Slenderness According to 5.8.3.2			
Slenderness About Axis y	λ_y	24.1091	
Effective Length	$l_{0,y}$	3.014	m
Radius of Gyration	i_y	125.0	mm
Slenderness About Axis z	λ_z	24.1091	
Effective Length	$l_{0,z}$	3.014	m
Radius of Gyration	i_z	125.0	mm
Limiting Slenderness According to 5.8.3.1 (1)			
Limiting Slenderness About Axis y	$\lambda_{lim,y}$	36.5587	
Factor A	A_y	0.7359	
Consider effects of creep?		Yes	
Effective Creep Coefficient	$\varphi_{ef,y}$	1.7940	
Final Value of Creep Coeff.	$\varphi(\infty, t_0)$	2.6154	
Condition for neglecting creep fulfilled?		Failed	
Final value of creep coeff. is less than or equal to two?	$\varphi(\infty, t_0) \leq 2.0$	Failed	
Slenderness about y-axis less than or equal to 75?	$\lambda_y \leq 75$	Passed	
Eccentricity in ULS higher as thickness of cross-section?	$M_y, 0E_d/N_{Ed} \geq h_z$	Failed	
Moment (Quasi-permanent Action)	$M_{c\text{-}quasi,1,y}$	25.013	kNm
Normal Force (Quasi-permanent Action)	$N_{Ed\text{-}quasi}$	-2190.410	kN
Eccentricity in z-Direction	$e_{c\text{-}quasi,1,z}$	11.4	mm
Intended Unreduced Eccentricity	$e_{c\text{-}quasi,0,z}$	4.7	mm
Eccentricity Due to Imperfection	$e_{i,z}$	6.7	mm
Load		CO5	
Moment About Axis y (First Ord. Th.)	$M_{c,1,y}$	-51.438	kNm
Normal Force	N_{Ed}	-3222.530	kN
Eccentricity in z-Direction	$e_{c,1,z}$	11.3	mm
Intended Eccentricity	$e_{c,0,z}$	4.6	mm
Eccentricity Due to Imperfection	$e_{i,z}$	6.7	mm
Factor B	B_y	1.0000	
Mechanical Reinforcement Ratio	ω	0.0000	
Statically Required Reinforcement	req $A_{s,stat}$	0.00	cm^2
Design Value of Yield Stress	f_{yd}	434.78	N/mm^2
Area of Cross-Section	A_c	1963.50	cm^2
Design Value of Concrete Compr. Strength	f_{cd}	21.00	N/mm^2
Factor C	C_y	2.1958	
Moment Ratio	$r_{m,y}$	-0.4958	
1st End Moment About Axis y	$M_{y,01}$	14.964	kNm
2nd End Moment About Axis y	$M_{y,02}$	-30.184	kNm
Relative Normal Force	n	0.7815	
Design Normal Force	N_{Ed}	-3222.530	kN
Area of Cross-Section	A_c	1963.50	cm^2
Design Value of Concrete Compr. Strength	f_{cd}	21.00	N/mm^

3.1 Required Reinforcement by Cross-Section (1-6)

Section No.	Reinforcement Type	Member No.	Location x [m]	LC / CO RC	Reinforcement Area	Reinforcement Unit	Error or notice	
								2
Limiting Slenderness About Axis z						$\lambda_{lim,z}$	35.3066	
Factor A						A_z	0.7379	
Consider effects of creep?							Yes	
Effective Creep Coefficient						$\varphi_{ef,z}$	1.7756	
Final Value of Creep Coeff.						$\varphi(\infty, t_0)$	2.6154	
Condition for neglecting creep fulfilled?							Failed	
Final value of creep coeff. is less than or equal to two?						$\varphi(\infty, t_0) \leq 2.0$	Failed	
Slenderness about z-axis less than or equal to 75?						$\lambda_z \leq 75$	Passed	
Eccentricity in ULS higher as thickness of cross-section?						$M_z, 0E_d / N_{Ed} \geq h_y$	Failed	
Moment (Quasi-permanent Action)						$M_{c\text{-}quasi,1,z}$	-40.087	kNm
Normal Force (Quasi-permanent Action)						$N_{Ed\text{-}quasi}$	-2190.410	kN
Eccentricity in y-Direction						$e_{c\text{-}quasi,1,y}$	-18.3	mm
Intended Unreduced Eccentricity						$e_{c\text{-}quasi,0,y}$	-11.6	mm
Eccentricity Due to Imperfection						$e_{i,y}$	-6.7	mm
Load							CO5	
Moment About Axis z (First Ord. Th.)						$M_{c,1,z}$	111.756	kNm
Normal Force						N_{Ed}	-3222.530	kN
Eccentricity in y-Direction						$e_{c,1,y}$	-18.3	mm
Intended Eccentricity						$e_{c,0,y}$	-11.7	mm
Eccentricity Due to Imperfection						$e_{i,y}$	-6.7	mm
Factor B						B_z	1.0000	
Mechanical Reinforcement Ratio						ω	0.0000	
Statically Required Reinforcement						req $A_{s,stat}$	0.00	cm^2
Design Value of Yield Stress						f_{yd}	434.78	N/mm^2
Area of Cross-Section						A_c	1963.50	cm^2
Design Value of Concrete Compr. Strength						f_{cd}	21.00	N/mm^2
Factor C						C_z	2.1148	
Moment Ratio						$r_{m,z}$	-0.4148	
1st End Moment About Axis z						$M_{z,01}$	-37.543	kNm
2nd End Moment About Axis z						$M_{z,02}$	90.502	kNm
Relative Normal Force						n	0.7815	
Design Normal Force						N_{Ed}	-3222.530	kN
Area of Cross-Section						A_c	1963.50	cm^2
Design Value of Concrete Compr. Strength						f_{cd}	21.00	N/mm^2
Design Type								
Conditions of standard design according to 5.8.3.1 (1)								
Condition About Axis y						$\lambda_y \leq \lambda_{lim,y}$	Passed	
Provided Slenderness						λ_y	24.1091	
Limiting Slenderness About Axis y						$\lambda_{lim,y}$	36.5587	
Condition About Axis z						$\lambda_z \leq \lambda_{lim,z}$	Passed	
Provided Slenderness						λ_z	24.1091	
Limiting Slenderness About Axis z						$\lambda_{lim,z}$	35.3066	
Condition of standard design fulfilled?							Passed	
Eccentricities								
Intended Eccentricity According to 5.8.8.2								
Intended Eccentricity in z-Direction						$e_{0,z}$	4.6	mm
Moment Diagram Along the Support						Diagram M_y	Changing Linearly	
Moment About Axis y						M_y	14.964	kNm
Absolute Normal Force						$\|N\|$	3222.530	kN
Intended Eccentricity in y-Direction						$e_{0,y}$	-11.7	mm
Moment Diagram Along the Support						Diagram M_z	Changing Linearly	
Moment About Axis z						M_z	-37.543	kNm
Absolute Normal Force						$\|N\|$	3222.530	kN
Eccentricity due to imperfection according to 5.2								
Eccentricity Due to Imperfection in z-Direction						$e_{i,z}$	-6.7	mm
Inclination						$\Theta_{i,z}$	0.0044	
Basic Value of Inclination						Θ_0	0.0050	
Reduction Factor for Column Height						$\alpha_{h,z}$	0.8856	
Calculated Value of Reduction Factor						$\alpha_{h,z,calc}$	0.8856	
Column Length						l_y	5.100	m
Reduction Factor for Column Number						α_m	1.0000	

3.1 Required Reinforcement by Cross-Section (1-6)

Section No.	Reinforcement Type	Member No.	Location x [m]	LC / CO RC	Reinforcement	Area	Unit	Error or notice	
	According to user specification, the column will be designed as a single column.								
	Buckling Length						$l_{0,y}$	3.014	m
	Eccentricity Due to Imperfection in y-Direction						$e_{i,y}$	6.7	mm
	Inclination						$\Theta_{i,y}$	0.0044	
	Basic Value of Inclination						Θ_0	0.0050	
	Reduction Factor for Column Height						$\alpha_{h,y}$	0.8856	
	Calculated Value of Reduction Factor						$\alpha_{h,y,calc}$	0.8856	
	Column Length						l_z	5.100	m
	Reduction Factor for Column Number						α_m	1.0000	
	According to user specification, the column will be designed as a single column.								
	Buckling Length						$l_{0,z}$	3.014	m
Minimum Eccentricity According to 6.1 (4)									
	Minimum Eccentricity in z-Direction						$e_{min,z}$	-20.0	mm
	Thickness of Structural Member						$h_{w,z}$	500.0	mm
	Minimum Value of Minimum Eccentricity						$e_{20\ mm,z}$	20.0	mm
	Minimum Eccentricity in y-Direction						$e_{min,y}$	20.0	mm
	Thickness of Structural Member						$h_{w,y}$	500.0	mm
	Minimum Value of Minimum Eccentricity						$e_{20\ mm,y}$	20.0	mm
Design Moment from Governing Eccentricity									
	Design Normal Force						N_{Ed}	-3222.530	kN
	Moment About Axis y						$M_{Ed,1,y}$	64.451	kNm
	Governing Total Eccentricity in z-Direction						$e_{1,z}$	20.0	mm
	Calculated Total Eccentricity in z-Direction						$e_{calc\ 1,z}$	11.3	mm
	Intended Eccentricity						$e_{0,z}$	4.6	mm
	Eccentricity Due to Imperfection						$e_{i,z}$	-6.7	mm
	Minimum Eccentricity						$e_{min,z}$	-20.0	mm
	Moment About Axis z						$M_{Ed,1,z}$	-64.451	kNm
	Governing Total Eccentricity in y-Direction						$e_{1,y}$	-20.0	mm
	Calculated Total Eccentricity in y-Direction						$e_{calc\ 1,y}$	-18.3	mm
	Intended Eccentricity						$e_{0,y}$	-11.7	mm
	Eccentricity Due to Imperfection						$e_{i,y}$	6.7	mm
	Minimum Eccentricity						$e_{min,y}$	20.0	mm
Min. Reinforcement According to Standard									
1st Minimum Reinforcement									
	Design Normal Force						N_{Ed}	-3222.530	kN
	Design Value of Yield Stress						f_{yd}	434.78	N/mm^2
	Min. Reinforcement						req $A_{s,min,1}$	7.41	cm^2
2nd Minimum Reinforcement									
	Area of Cross-Section						A_c	1963.50	cm^2
	Min. Reinforcement						req $A_{s,min,2}$	3.93	cm^2
	Minimum Reinforcement Acc. to Standard						req $A_{s,min,Standard}$	7.41	cm^2
Required Reinforcement									
	Statically Required Reinforcement						req $A_{s,stat}$	0.00	cm^2
	Minimum Reinforcement Acc. to Standard						req $A_{s,min,Standard}$	7.41	cm^2
	Required Reinforcement						req A_s	7.41	cm^2
6	Circle 500								
	Shear	11	-	-	a_{sw}	3.14	cm^2/m		
Min. Shear Reinforcement According to Standard									
	Stirrup Diameter						$d_{sw,min}$	8.0	mm
	Cutting Ability						n_{sw}	2.0000	
	Spacing						$s_{sw,max}$	320.0	mm
	Minimum Shear Reinforcement						$a_{sw,min}$	3.14	cm^2/m
Required Shear Reinforcement									
	Statically Required Shear Reinforcement						req $a_{sw,stat}$	0.00	cm^2/m
	Minimum Shear Reinforcement						$a_{sw,min}$	3.14	cm^2/m
	Required Shear Reinforcement						req a_{sw}	3.14	cm^2/m



5.4.2.6 pav. Išilginė armatūra As (Koncertų pastatas)

DOKUMENTO ŽYMUO	LAPAS	LAPŲ	LAIDA
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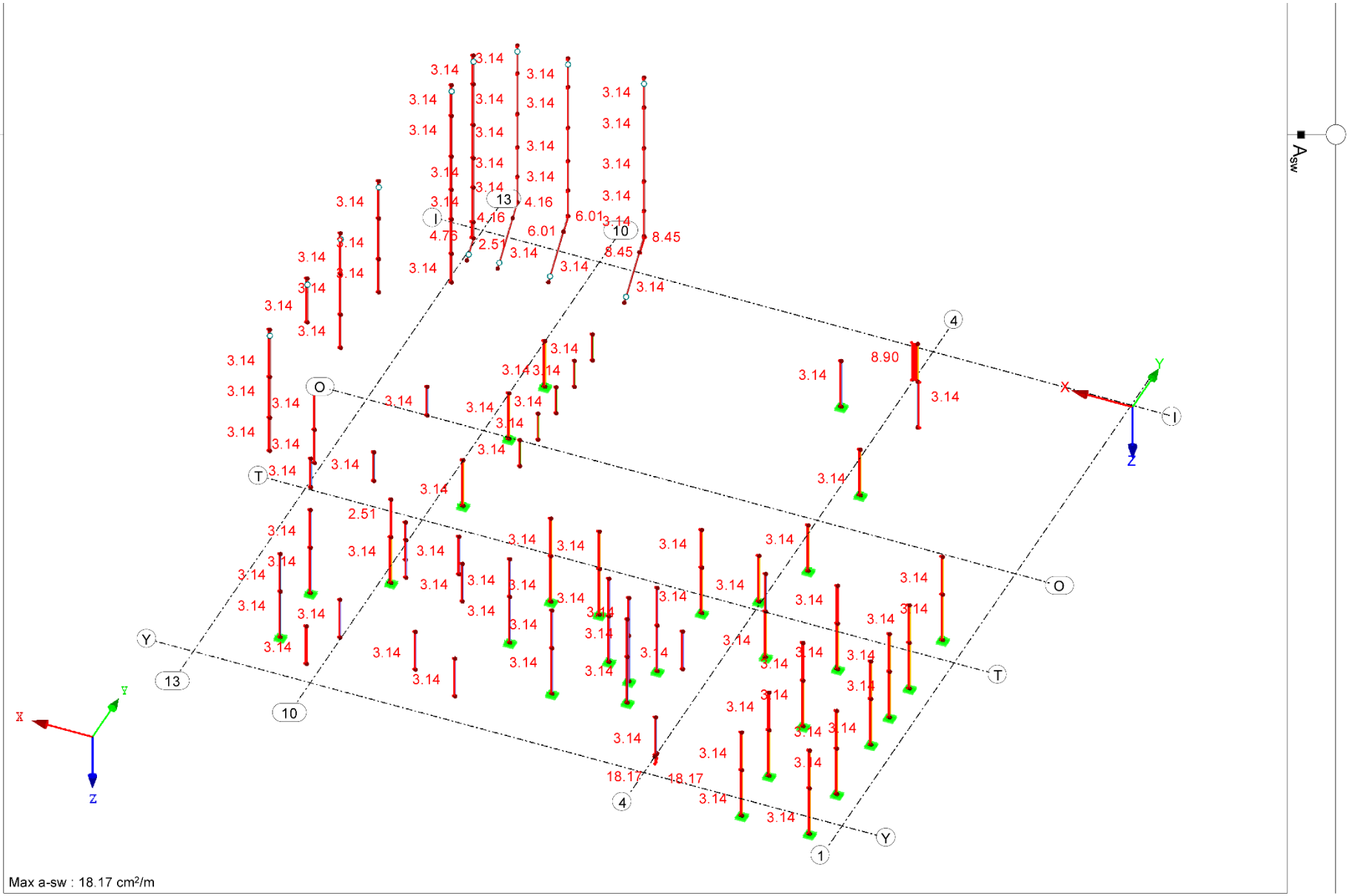


5.4.2.7 pav. Skersinė armatūra Asw (Koncertų pastatas)

DOKUMENTO ŽYMUO	LAPAS	LAPŲ	LAIDA
439-MKC-01-TP-SK2-BSPS-01	287	382	0

5.5. GELŽBETONINIŲ MONOLITINIŲ IR SURENKAMŲ LAIPTŲ ARMAVIMAS.

5.5.1. Gelžbetoninių monolitinių laiptų armavimas (koncertų pastatas)

Reikalingas armatūros kiekis gelžbetoninėms sienoms, įskaitant pleišėtumą iki 0,3mm, toliau pateikti grafiniu pavidalu pagal atliktus skaičiavimus. Ataskaitose pateiktas *papildomas* reikalingas armatūros kiekis.

Išeities duomenys:

–sienos: 200, 180 mm

– apsauginis armatūros sluoksnis – 35 mm;

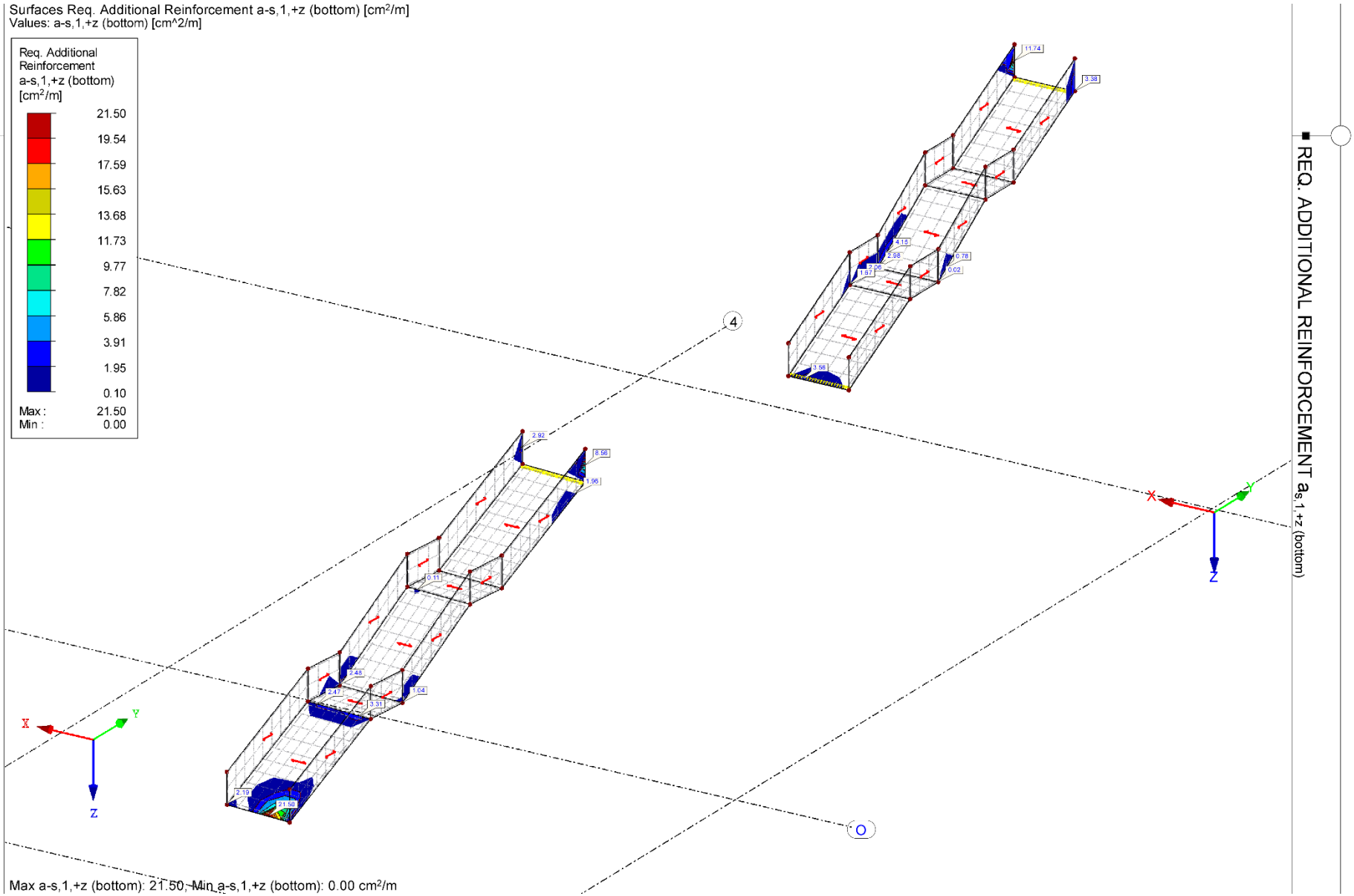
– betono klasė: monolitinio gelžbetonio C35/45.

– armatūros klasė:

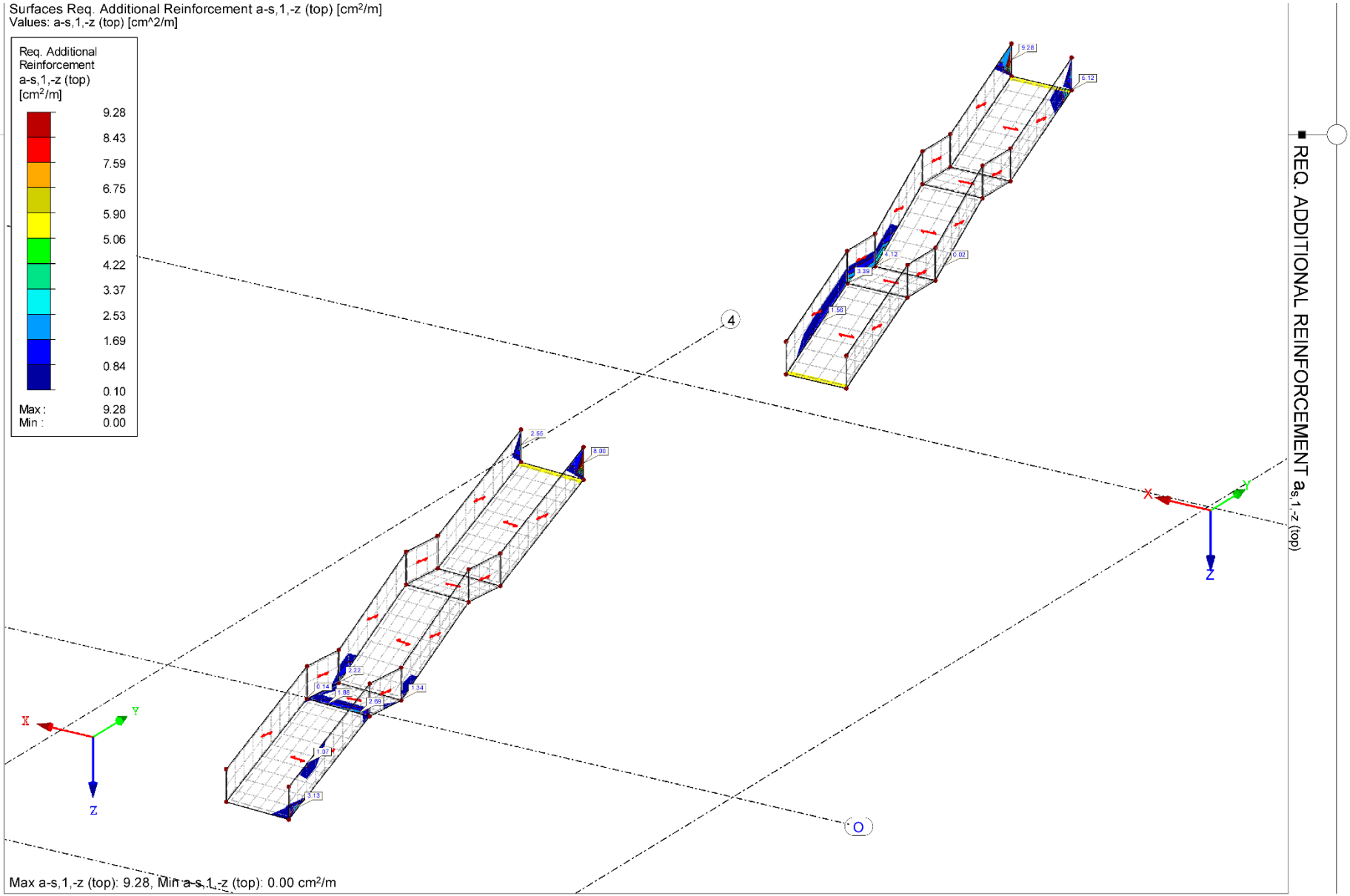
išilginė – B500B;

skersinė – B500B.

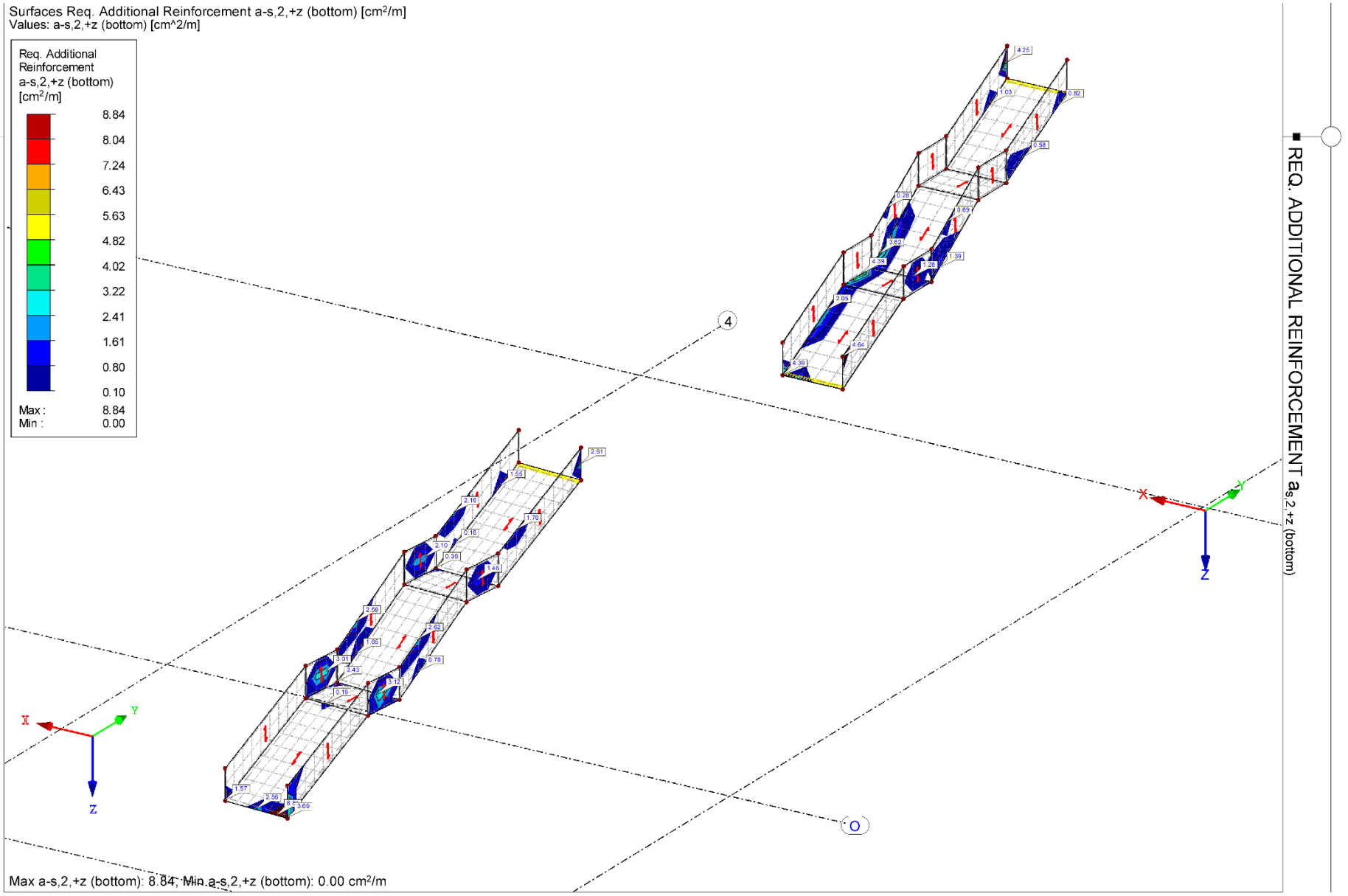
Pagrindinis armavimas ∅10 kas 200 / ∅10 kas 200.



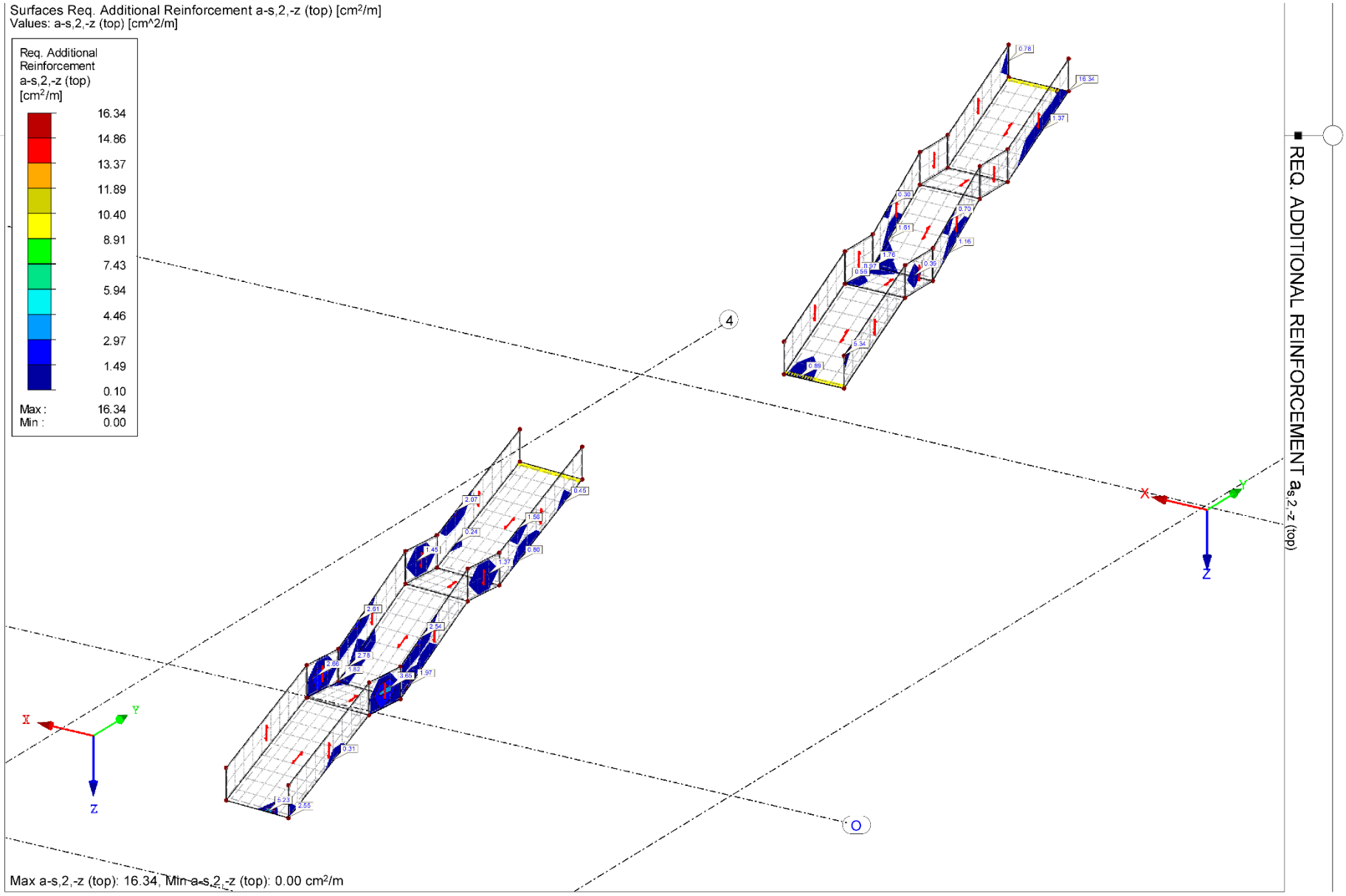
5.5.1.1 pav. Sienų armavimas horizontaliai (apatinis)



5.5.1.2 pav. Sienų armavimas horizontaliai (viršutinis)



5.5.1.3 pav. Sienų armavimas vertikaliai (apatinis)



5.5.1.4 pav. Sienų armavimas vertikaliai (viršutinis)

5.1. Gelžbetoninių surenkanų laiptų armavimas (koncertų pastatas)

Reikalingas armatūros kiekis gelžbetoninėms sienoms, įskaitant pleišėtumą iki 0,3mm, toliau pateikti grafiniu pavidalu pagal atliktus skaičiavimus. Ataskaitose pateiktas *papildomas* reikalingas armatūros kiekis.

Išeities duomenys:

–sienos: 220, 180 mm

– apsauginis armatūros sluoksnis – 35 mm;

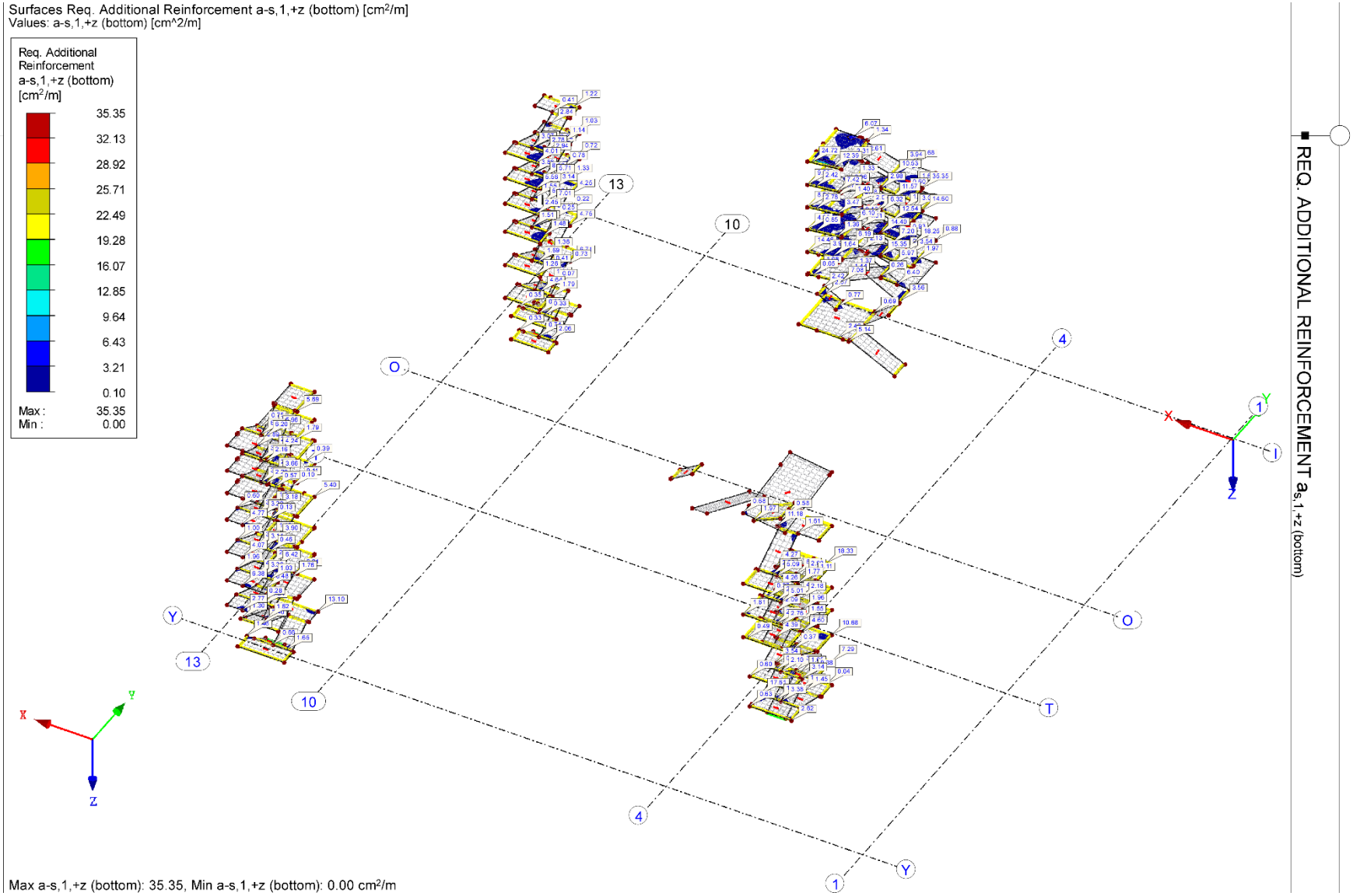
– betono klasė: monolitinio gelžbetonio C35/45.

– armatūros klasė:

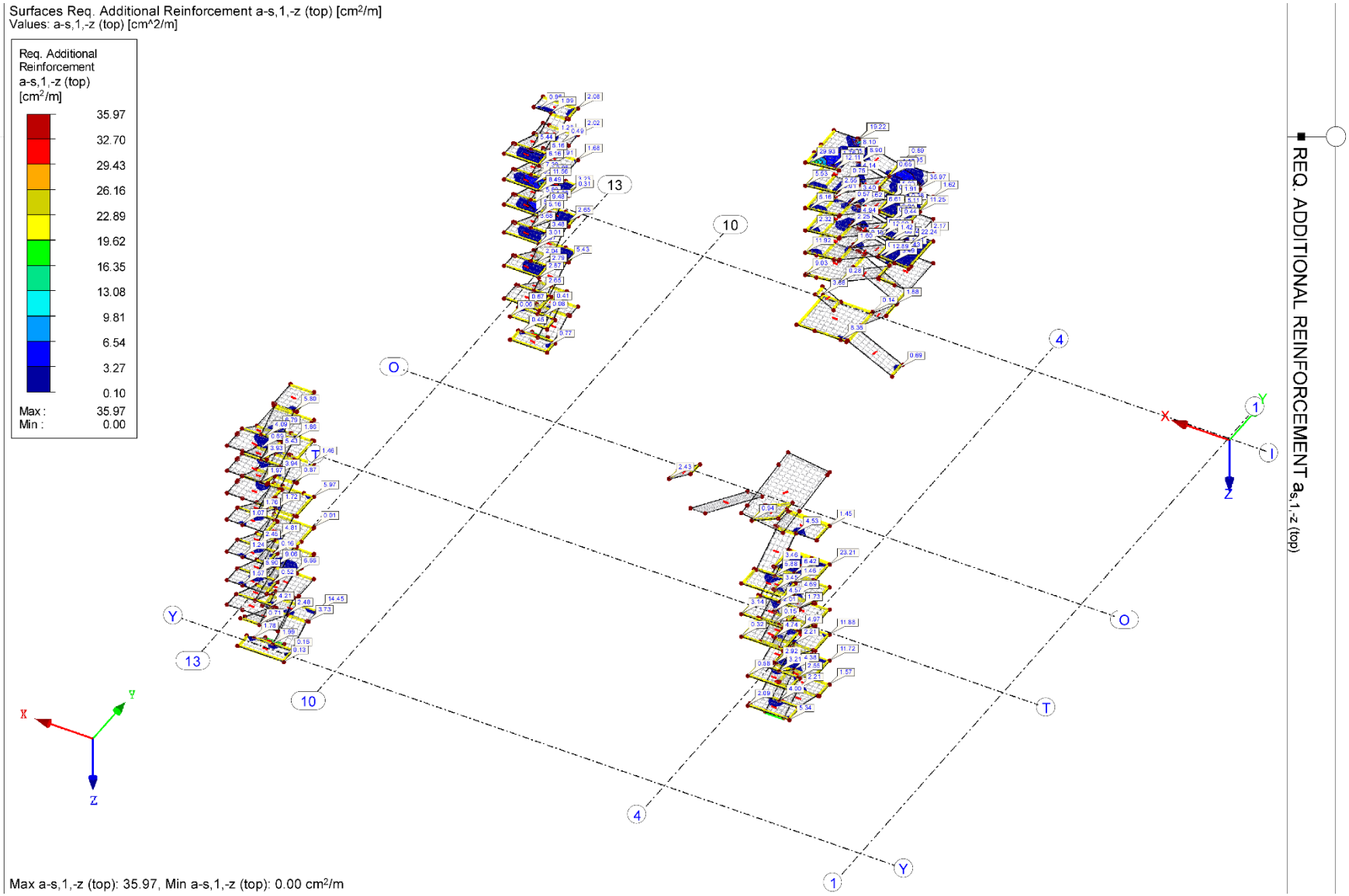
išilginė – B500B;

skersinė – B500B.

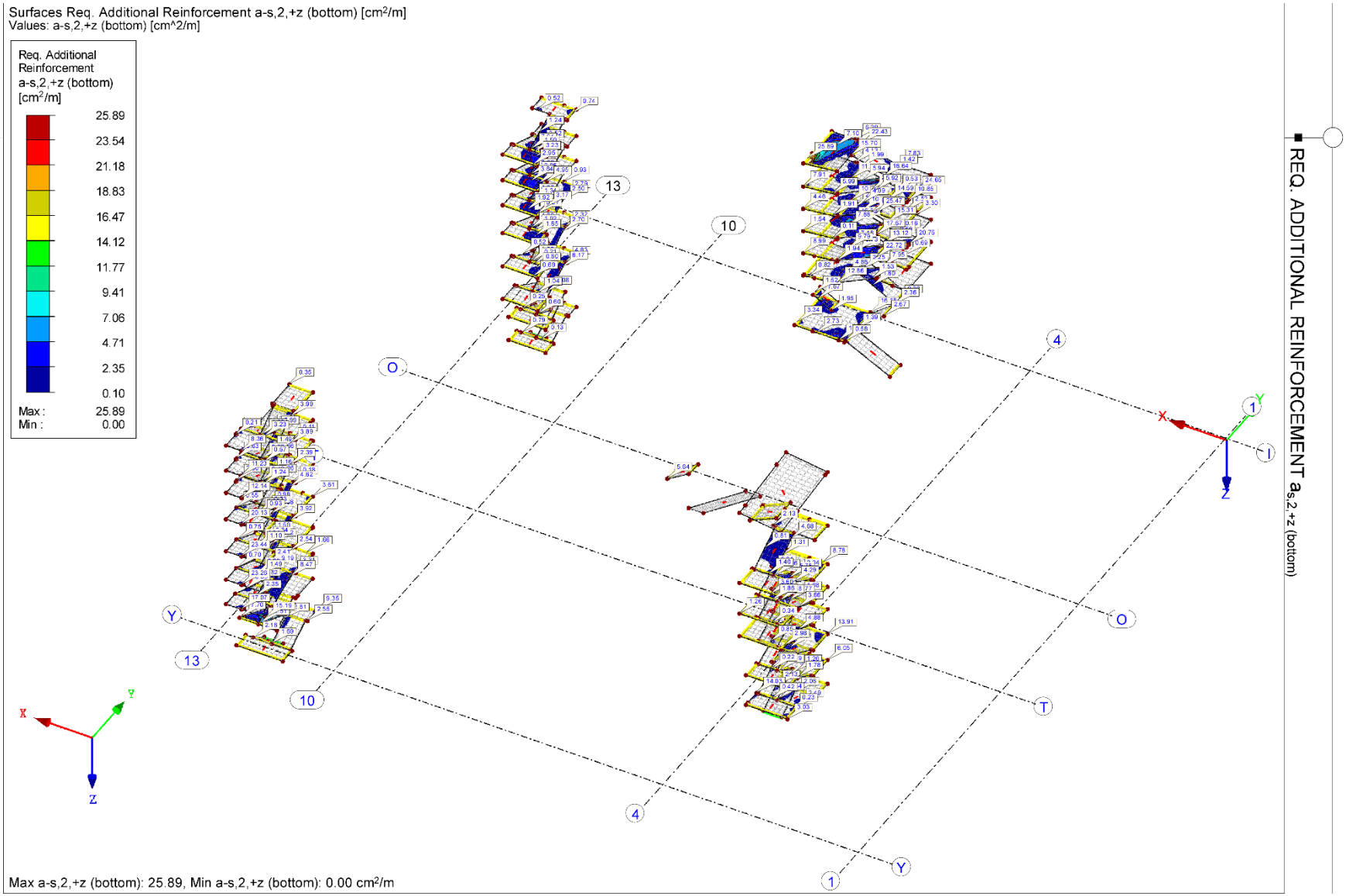
Pagrindinis armavimas ∅10 kas 200 / ∅10 kas 200.



5.5.1.1 pav. Sienų armavimas horizontaliai (apatinis)



5.5.1.2 pav. Sienų armavimas horizontaliai (viršutinis)



5.5.1.3 pav. Sienų armavimas vertikaliai (apatinis)

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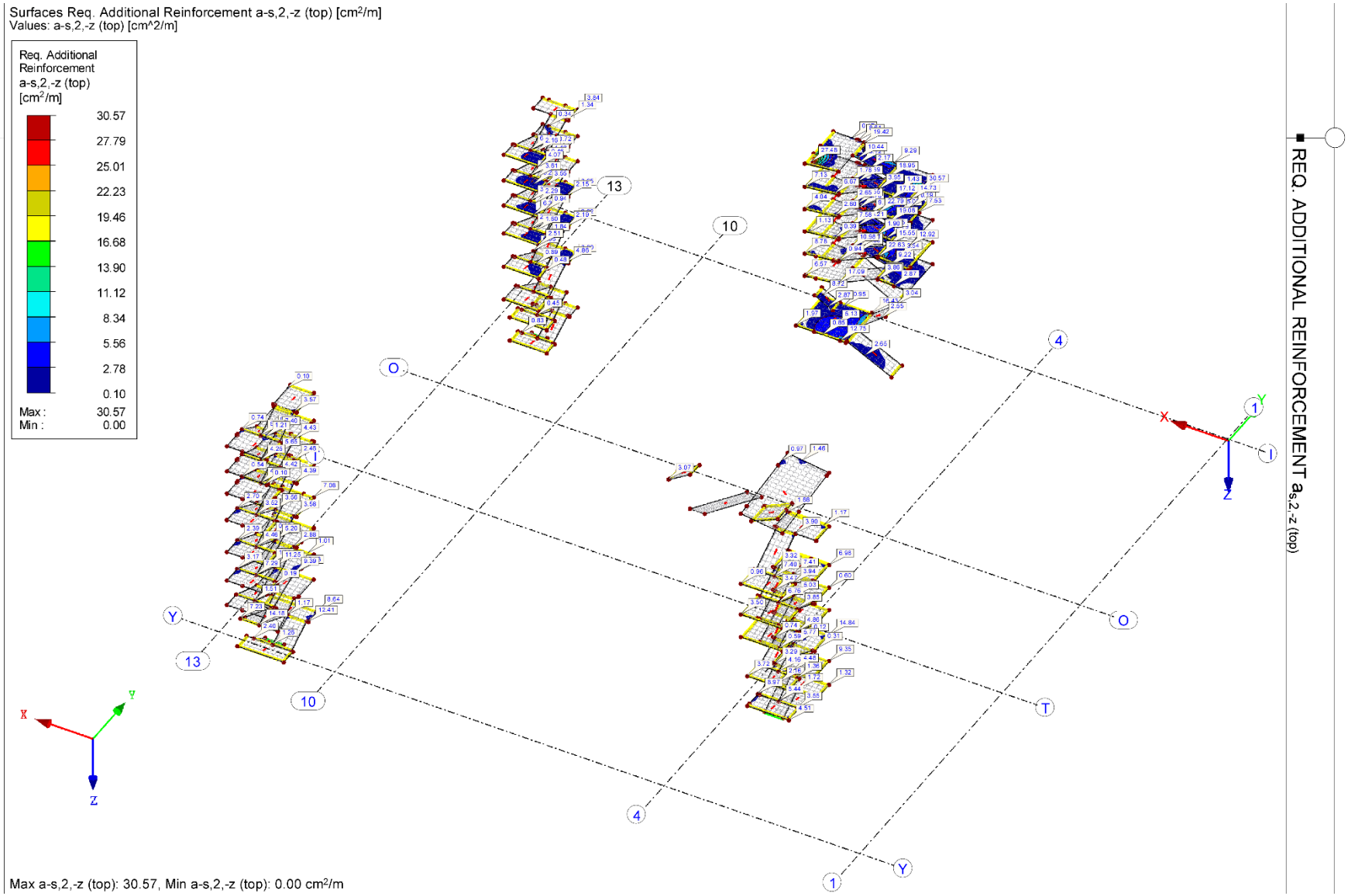


5.5.1.4 pav. Sienų armavimas vertikaliai (viršutinis)

6. METALINIŲ KONSTRUKCIJŲ SKAIČIAVIMAS

Išeities duomenys:

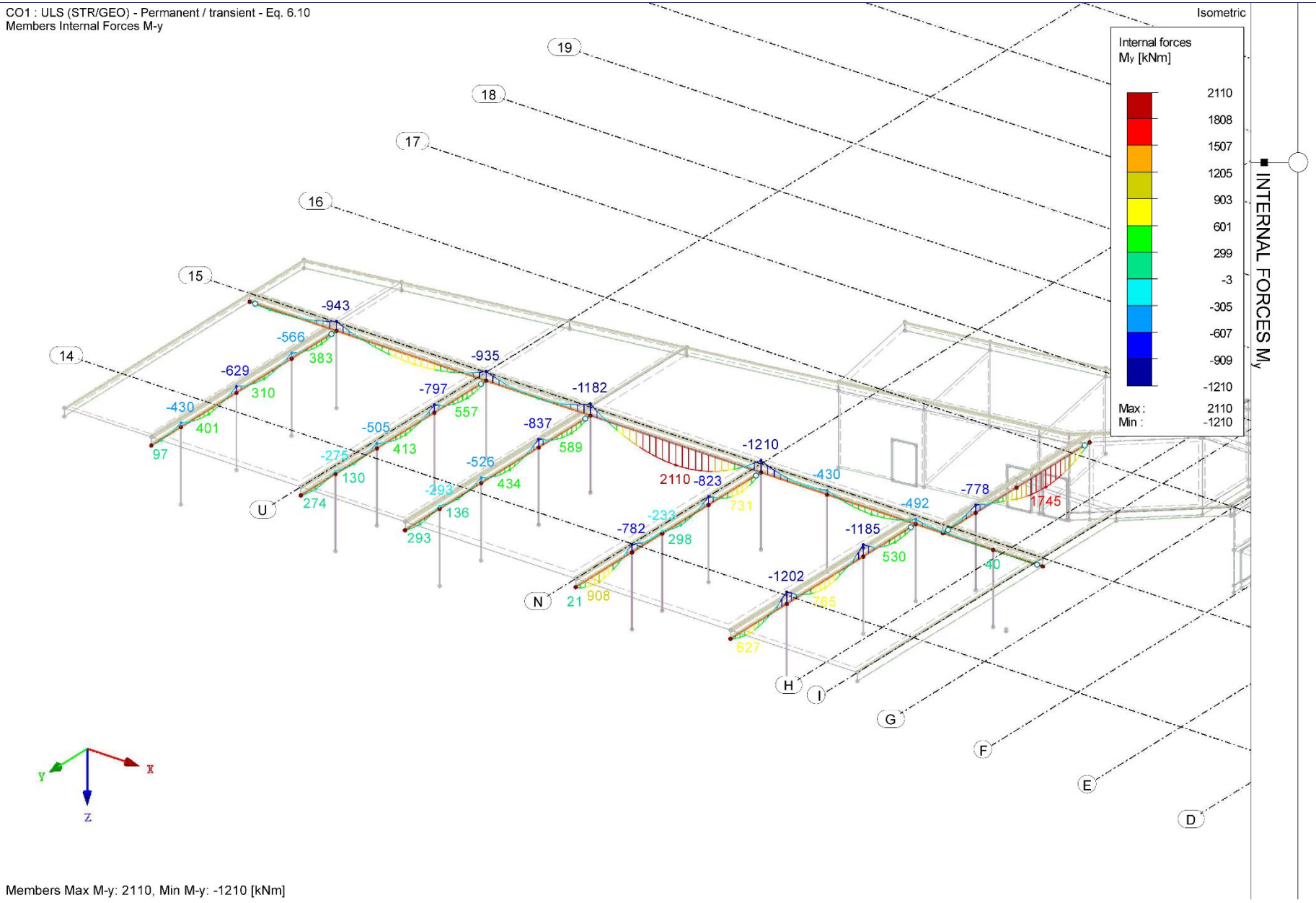
Visos metalinės konstrukcijos projektuotos remiantis LST EN 1993-1-1 “Eurokodas 3. Metalinių konstrukcijų projektavimas“ . Skaičiavimuose priimtas plienas S355, kurio fy=35,5 N/cm^2.

6.1 METALINIŲ SIJŲ-RYGELIŲ SKAIČIAVIMAS (PARKINGAS)

Maksimalios įrąžos veikiančios skerspjūvyje

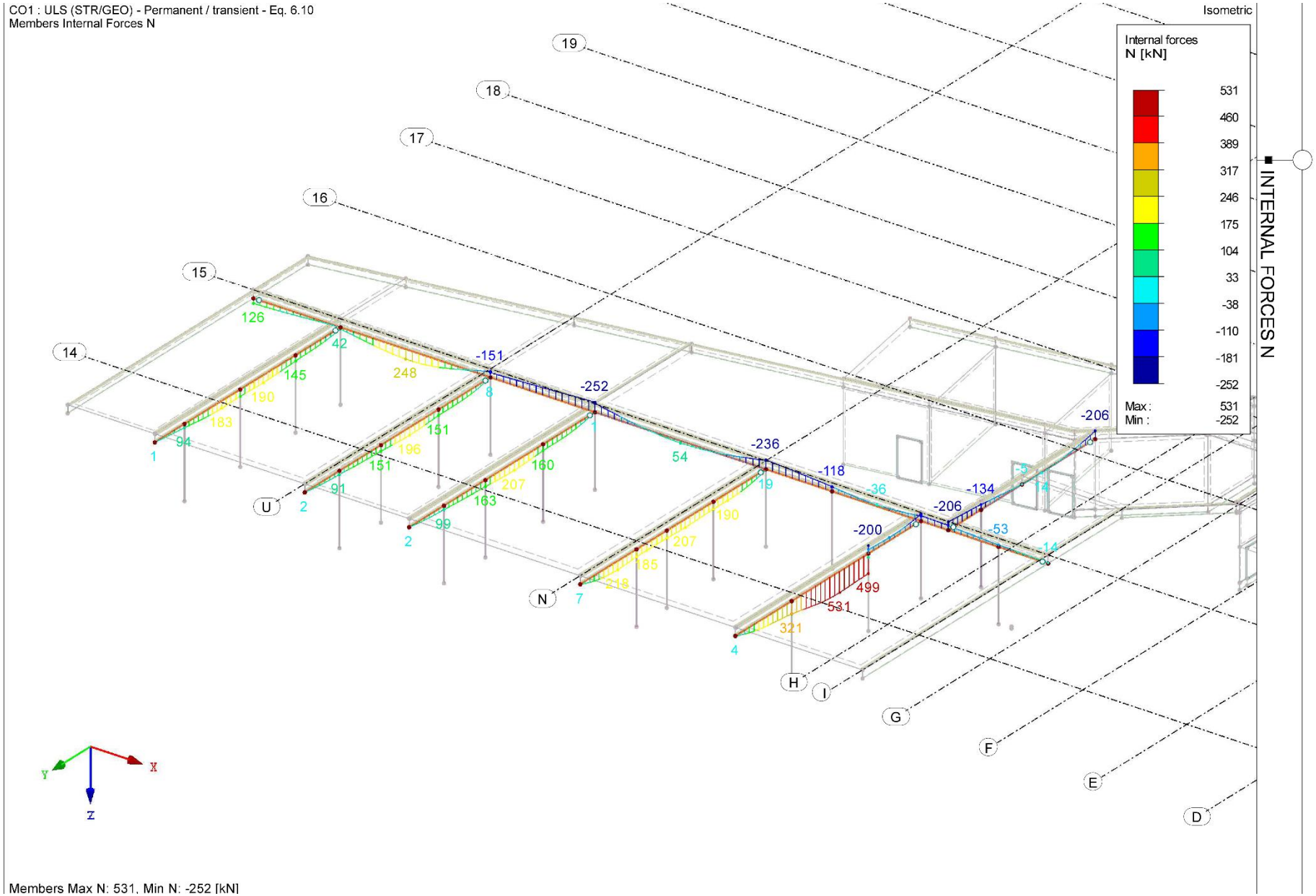
4.12 Cross-Sections - Internal Forces

Member No.	LC/CO	Node No.	Location x [m]	Forces [kN] N	V_y	V_z	Moments [kNm] M_T	M_y	M_z	
	Section No. 3: BOX(A) 400/25/10/300/825/800/25/5/5									
144	CO1	520	0.000	> 99	-19	915	3	-875	6	
163	CO1	525	0.000	> -227	10	1095	4	-1182	9	
163	CO1	525	0.000	-227	> 10	1095	4	-1182	9	
137	CO1	1652	0.000	-206	> -20	753	4	0	0	
163	CO1	525	0.000	-227	10	> 1095	4	-1182	9	
163	CO1	521	13.175	-220	0	> -982	4	-1210	-1	
163	CO1	MAX M_y	6.587	54	3	6	4	> 2110	-10	
163	CO1	521	13.175	-220	0	-982	4	> -1210	-1	
163	CO1	MAX M_z	1.013	-163	5	822	4	-209	> 10	
163	CO1	MIN M_z	7.601	46	2	-149	4	2039	> -10	
	Section No. 11: BOX(A) 400/25/10/300/425/800/25/5/5									
139	CO1	MAX N	3.019	> 531	-12	283	0	619	-2	
166	CO1	525	8.050	> -252	2	-607	3	-1175	14	
145	CO1	517	0.000	-137	> 124	409	-22	-492	103	
136	CO1	475	0.000	126	> -46	134	10	0	0	
139	CO1	520	0.000	499	-16	> 957	0	-1183	-7	
53	CO1	1731	5.515	-99	-6	> -794	13	-1185	-7	
152	CO1	MAX M_y	3.452	193	0	4	0	> 908	-7	
139	CO1	518	8.050	321	-9	-35	0	> -1202	6	
145	CO1	517	0.000	-137	124	409	-22	-492	> 103	
145	CO1	480	2.100	-120	109	-9	-22	-138	> -98	



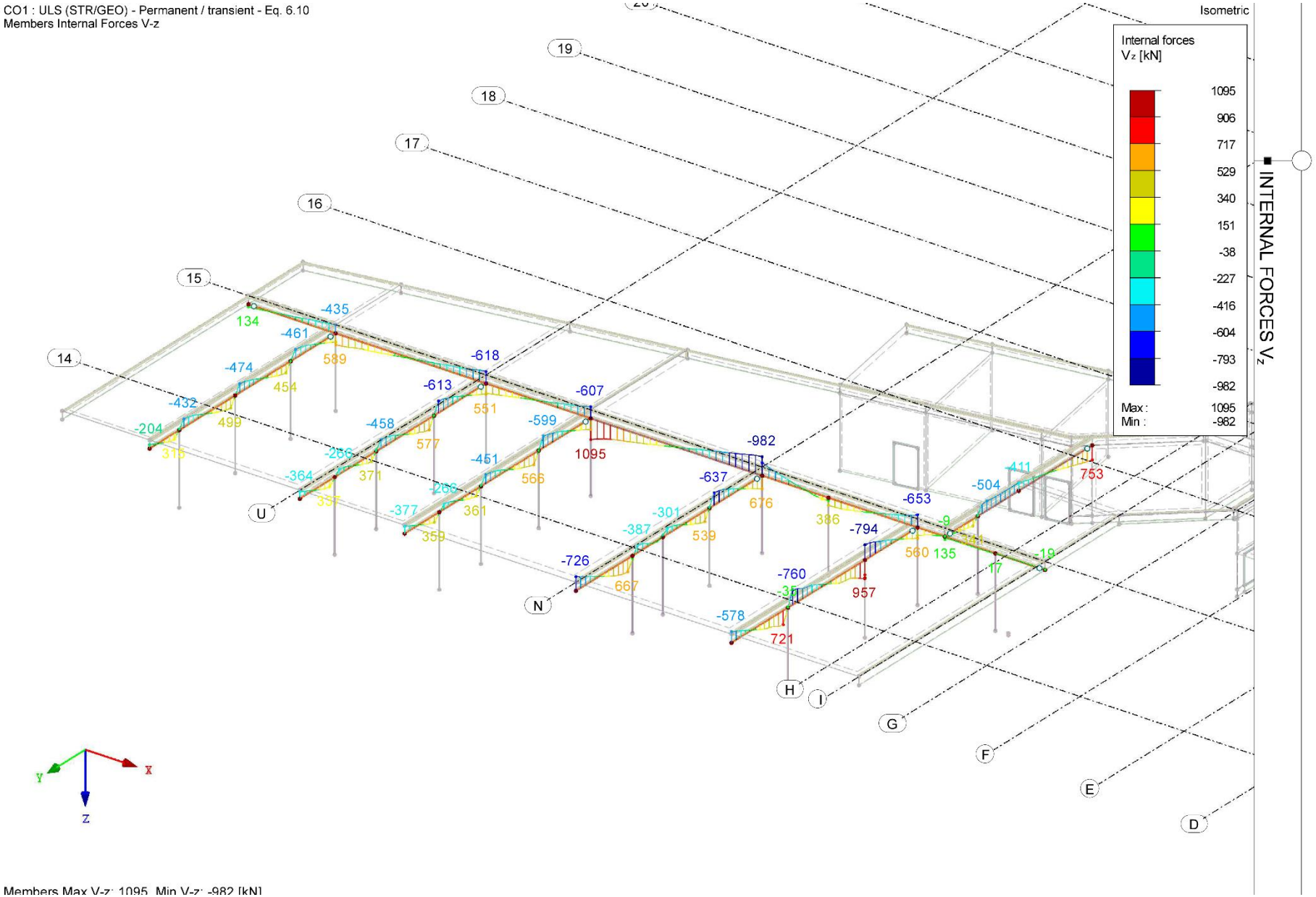
Members Max M-y: 2110, Min M-y: -1210 [kNm]

6.1.1 pav.Įrąžos elementuose (lenkimo momentas My)



6.1.2 pav. Įrąžos elementuose (ašinės jėgos N)

DOKUMENTO ŽYMUO	LAPAS	LAPŲ	LAIDA
439-MKC-01-TP-SK2-BSPS-01	300	382	0



6.1.3 pav. Įrąžos elementuose (skersinės jėgos Vz)

Metalo konstrukcijų skaičiavimas

1.1 General Data

Members to design:	53,135-145,147,149-166,184	
Sets of members to design:		
National Annex:	CEN	
Ultimate Limit State Design		
Load combinations to design:	CO1	ULS (STR/GEO) - Permanent / transient - Eq. 6.10

1.2 Materials

Matl. No.	Material Description	E- Modulus E [kN/cm²]	Shear Modulus G [kN/cm²]	Poisson's Ratio ν [-]	Yield Stress f_{yk} [kN/cm²]	Max. Thickness t [mm]
3	Steel S 355 | EN 10025-2:2004-11	21000.00	8076.92	0.300	35.50	3.0
					35.50	16.0
					34.50	40.0
					33.50	63.0
					32.50	80.0
					31.50	100.0
					29.50	150.0
					28.50	200.0

1.3 Cross-Sections

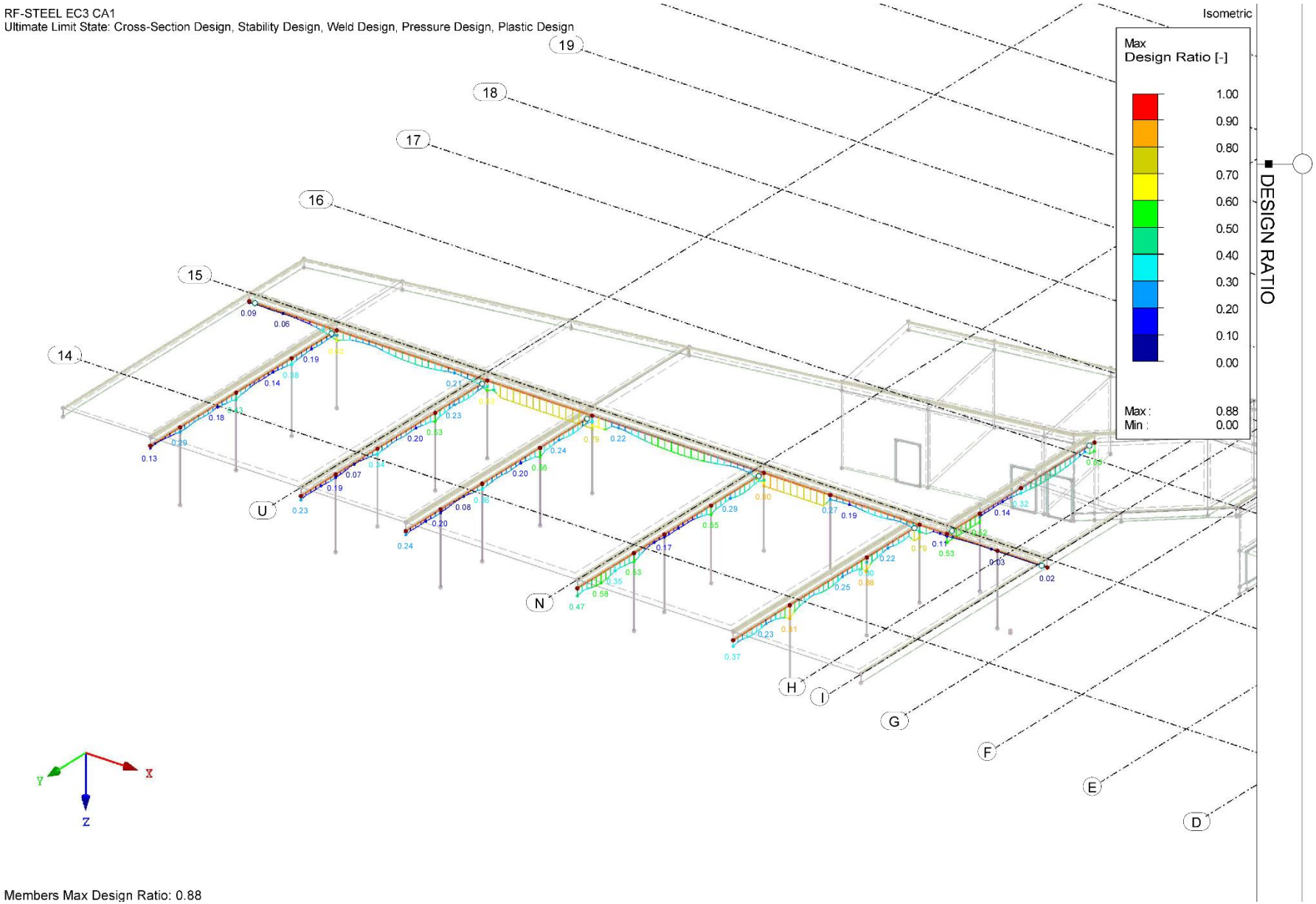
Sect. No.	Matl. No.	Cross-Section Description	Cross-Section Type	Max Design Ratio	Comment
3	3	BOX(A) 400/25/10/300/825/800/25/5/5	General	0.60	
11	3	BOX(A) 400/25/10/300/425/800/25/5/5	General	0.88	

1.5 Effective Lengths - Members

Member No.	Buckling Possible	Buckling About Axis y			Buckling About Axis z			Lateral-Torsional Buckling				
		Possible	$k_{cr,y}$	$L_{cr,y}$ [m]	Possible	$k_{cr,z}$	$L_{cr,z}$ [m]	Possible	k_z	k_w	L_w [m]	L_T [m]
53	x	x	1.00	5.515	x	0.18	1.000	-	1.0	1.0	5.515	5.515
135	x	x	1.00	11.550	x	0.09	1.000	-	1.0	1.0	11.550	11.550
136	x	x	1.00	6.715	x	0.15	1.000	-	1.0	1.0	6.715	6.715
137	x	x	1.56	11.997	x	0.13	1.000	-	1.0	1.0	7.691	7.691
138	x	x	1.00	3.435	x	0.29	1.000	-	1.0	1.0	3.435	3.435
139	x	x	1.00	8.050	x	0.12	1.000	-	1.0	1.0	8.050	8.050
140	x	x	1.00	5.515	x	0.18	1.000	-	1.0	1.0	5.515	5.515
141	x	x	1.00	5.445	x	0.18	1.000	-	1.0	1.0	5.445	5.445
142	x	x	1.00	5.445	x	0.18	1.000	-	1.0	1.0	5.445	5.445
143	x	x	1.00	4.720	x	0.21	1.000	-	1.0	1.0	4.720	4.720
144	x	x	1.00	0.005	x	200.00	1.000	-	1.0	1.0	0.005	0.005
145	x	x	1.00	2.100	x	0.48	1.000	-	1.0	1.0	2.100	2.100
147	x	x	1.00	3.875	x	0.26	1.000	-	1.0	1.0	3.875	3.875
149	x	x	1.00	5.918	x	0.17	1.000	-	1.0	1.0	5.918	5.918
150	x	x	1.00	4.880	x	0.20	1.000	-	1.0	1.0	4.880	4.880
151	x	x	1.00	3.175	x	0.31	1.000	-	1.0	1.0	3.175	3.175
152	x	x	1.00	5.918	x	0.17	1.000	-	1.0	1.0	5.918	5.918
153	x	x	1.00	6.050	x	0.17	1.000	-	1.0	1.0	6.050	6.050
154	x	x	1.00	4.350	x	0.23	1.000	-	1.0	1.0	4.350	4.350
155	x	x	1.00	3.643	x	0.27	1.000	-	1.0	1.0	3.643	3.643
156	x	x	1.00	6.050	x	0.17	1.000	-	1.0	1.0	6.050	6.050
157	x	x	1.00	4.350	x	0.23	1.000	-	1.0	1.0	4.350	4.350
158	x	x	1.00	3.643	x	0.27	1.000	-	1.0	1.0	3.643	3.643
159	x	x	1.00	5.800	x	0.17	1.000	-	1.0	1.0	5.800	5.800
160	x	x	1.00	5.854	x	0.17	1.000	-	1.0	1.0	5.854	5.854
161	x	x	1.00	3.115	x	0.32	1.000	-	1.0	1.0	3.115	3.115
162	x	x	1.00	3.825	x	0.26	1.000	-	1.0	1.0	3.825	3.825
163	x	x	1.00	13.175	x	0.08	1.000	-	1.0	1.0	13.175	13.175
164	x	x	1.00	5.100	x	0.20	1.000	-	1.0	1.0	5.100	5.100
165	x	x	1.00	6.850	x	0.15	1.000	-	1.0	1.0	6.850	6.850
166	x	x	1.00	8.050	x	0.12	1.000	-	1.0	1.0	8.050	8.050
184	x	x	2.79	11.997	x	0.23	1.000	-	1.0	1.0	4.306	4.306

2.2 Design by Cross-Section

Sect. No.	Member No.	Location x [m]	LC/CO/ RC	Design		Equation No.	Description
3	BOX(A) 400/25/10/300/825/800/25/5/5						
	144	0.000	CO1	0.01	≤ 1	CS101)	Cross-section check - Tension acc. to 6.2.3
	163	0.000	CO1	0.01	≤ 1	CS102)	Cross-section check - Compression acc. to 6.2.4
	137	0.000	CO1	0.02	≤ 1	CS103)	Cross-section check - Compression acc. to 6.2.4 - Class 4
	137	4.614	CO1	0.48	≤ 1	CS113)	Cross-section check - Bending about y-axis acc. to 6.2.5 - Class 4
	163	0.000	CO1	0.36	≤ 1	CS122)	Cross-section check - Shear force in z-axis acc. to 6.2.6(4) - Class 3 or 4
	137	0.000	CO1	0.01	≤ 1	CS124)	Cross-section check - Shear force in y-axis acc. to 6.2.6(4) - Class 3 or 4
	137	4.614	CO1	0.48	≤ 1	CS145)	Cross-section check - Bending and shear force acc. to 6.2.9.3 and 6.2.10 - Class 4
	163	8.614	CO1	0.51	≤ 1	CS165)	Cross-section check - Biaxial bending and shear force acc. to 6.2.9.3 and 6.2.10 - Class 4
	163	13.175	CO1	0.32	≤ 1	CS183)	Cross-section check - Bending, shear and axial force acc. to 6.2.9.2 - Class 3 - General cross-section
	137	3.076	CO1	0.43	≤ 1	CS191)	Cross-section check - Bending, shear and axial force acc. to 6.2.9.3 - Class 4
	163	0.000	CO1	0.32	≤ 1	CS223)	Cross-section check - Biaxial bending, shear and axial force acc. to 6.2.10 and 6.2.9 - Class 3 - General cross-section
	163	6.587	CO1	0.59	≤ 1	CS231)	Cross-section check - Biaxial bending, shear and axial force acc. to 6.2.10 and 6.2.9.3 - Class 4
	163	0.000	CO1	0.60	≤ 1	ST354)	Stability analysis - Bending and compression acc. to 6.3.3, Method 1
11	BOX(A) 400/25/10/300/425/800/25/5/5						
	139	3.019	CO1	0.04	≤ 1	CS101)	Cross-section check - Tension acc. to 6.2.3
	166	8.050	CO1	0.02	≤ 1	CS102)	Cross-section check - Compression acc. to 6.2.4
	138	3.435	CO1	0.02	≤ 1	CS103)	Cross-section check - Compression acc. to 6.2.4 - Class 4
	136	5.682	CO1	0.34	≤ 1	CS112)	Cross-section check - Bending about y-axis acc. to 6.2.5 - Class 3
	139	0.000	CO1	0.61	≤ 1	CS122)	Cross-section check - Shear force in z-axis acc. to 6.2.6(4) - Class 3 or 4
	145	0.000	CO1	0.04	≤ 1	CS124)	Cross-section check - Shear force in y-axis acc. to 6.2.6(4) - Class 3 or 4
	136	5.682	CO1	0.34	≤ 1	CS143)	Cross-section check - Bending and shear force acc. to 6.2.9.2 and 6.2.10 - Class 3 - General cross-section
	136	6.715	CO1	0.62	≤ 1	CS163)	Cross-section check - Biaxial bending and shear force acc. to 6.2.9.2 and 6.2.10 - Class 3 - General cross-section
	164	5.100	CO1	0.76	≤ 1	CS183)	Cross-section check - Bending, shear and axial force acc. to 6.2.9.2 - Class 3 - General cross-section
	139	0.000	CO1	0.88	≤ 1	CS223)	Cross-section check - Biaxial bending, shear and axial force acc. to 6.2.10 and 6.2.9 - Class 3 - General cross-section
	164	5.100	CO1	0.80	≤ 1	ST354)	Stability analysis - Bending and compression acc. to 6.3.3, Method 1



6.1.4 pav. Metalinių konstrukcijų išnaudojimas

6.2 METALINIŲ FASADO KOLONŲ SKAIČIAVIMAS (KONCERTŲ PASTATAS)

Maksimalios įrąžos veikiančios skerspjūvyje

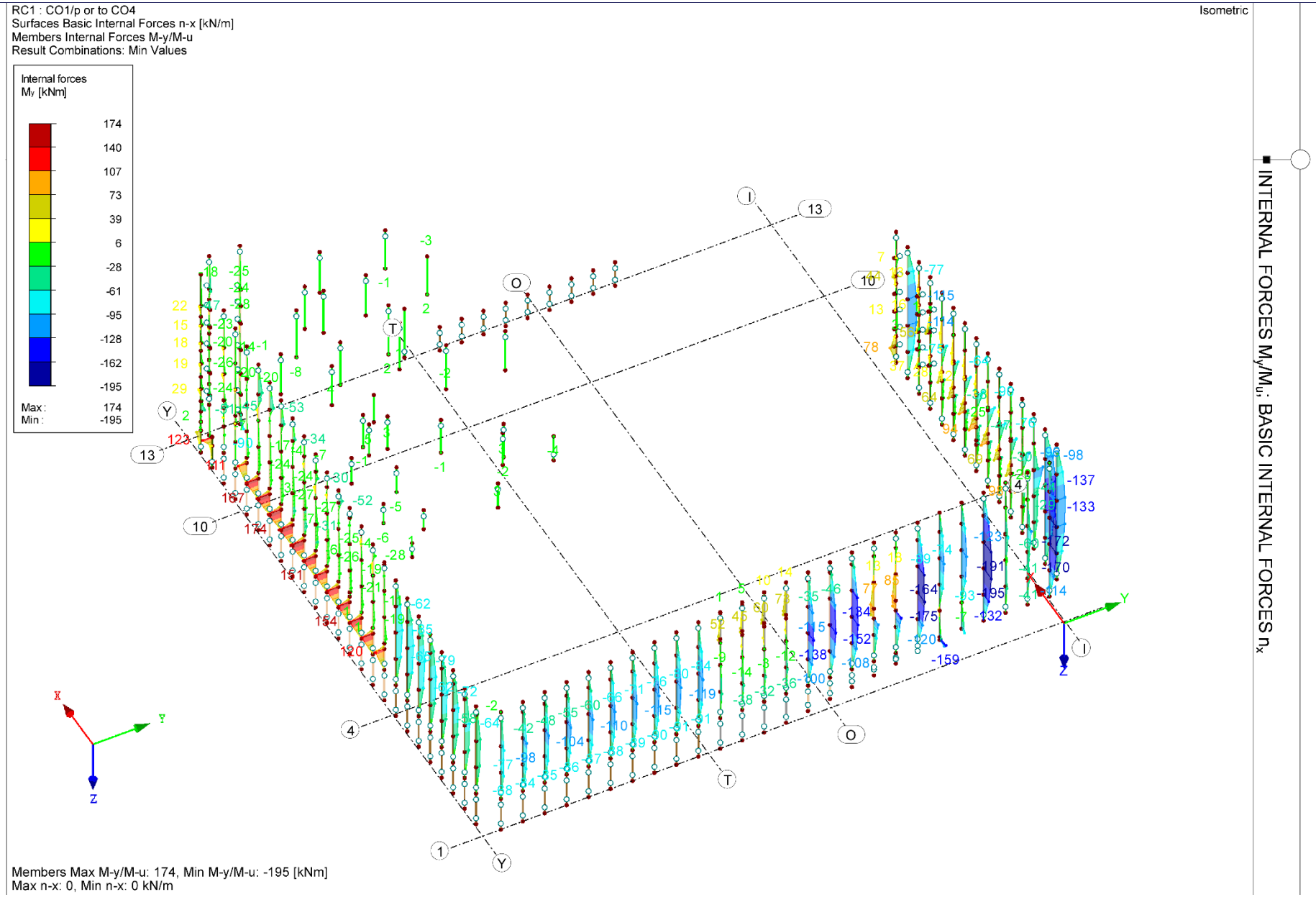
4.12 Cross-Sections - Internal Forces

Result Combinations

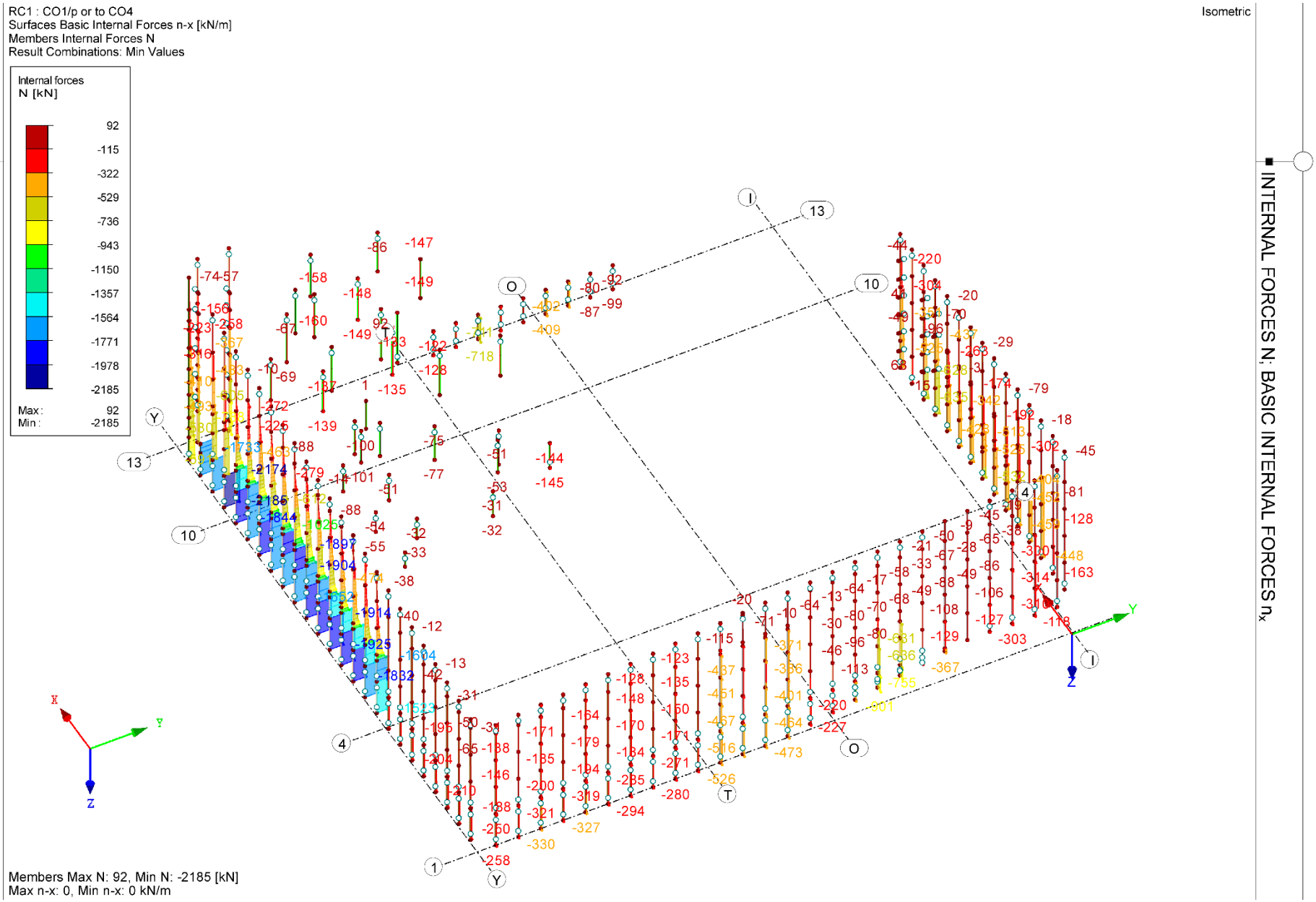
Member No.	RC	Node No.	Location x [m]		Forces [kN] N	V_y / V_u	V_z / V_v	Moments [kNm] M_T	M_y / M_u	M_z / M_v	Corresponding Load Cases
	Section No. 7: TO 400/150/20/20/10/10										
2975	RC1	4045	0.000	MAX N	> 85	-47	-4	-13	1	-9	CO 2
51	RC1	309	0.000	MIN N	> -718	0	0	0	0	0	CO 4
2971	RC1	2321	0.000	MAX V_y	-22	> 238	-64	-70	13	48	CO 3
2975	RC1	4046	0.200	MIN V_y	85	> -48	-4	-13	0	0	CO 2
2279	RC1	2494	0.000	MAX V_z	21	-8	> 357	12	-71	-2	CO 2
2971	RC1	2321	0.000	MIN V_z	-44	233	> -67	-66	13	46	CO 4
617	RC1	2415	0.000	MAX M_y	-80	10	-51	0	> 113	14	CO 1
368	RC1	2356	3.600	MIN M_y	-54	0	-8	-3	> -119	0	CO 3
2971	RC1	2321	0.000	MAX M_z	-22	238	-64	-70	13	> 48	CO 3
534	RC1	2321	2.500	MIN M_z	-220	36	-32	-2	-33	> -52	CO 2
	Section No. 8: TO 400/300/20/20/10/10										
183	RC1	798	4.299	MAX N	> -70	-15	1	-1	0	50	CO 4
61	RC1	344	0.000	MIN N	> -1740	-2	8	0	0	0	CO 2
125	RC1		0.713	MAX V_y	-663	> 19	1	-3	2	-3	CO 3
183	RC1	2802	0.000	MIN V_y	-81	> -17	-2	0	9	-19	CO 3
264	RC1	2602	0.000	MAX V_z	-1726	0	> 99	3	10	5	CO 2
263	RC1	2578	0.000	MIN V_z	-673	-3	> -8	-3	10	7	CO 3
264	RC1	695	1.200	MAX M_y	-1723	0	99	3	> 129	5	CO 2
269	RC1	2617	0.000	MIN M_y	-568	14	30	-1	> -51	16	CO 2
183	RC1	798	4.299	MAX M_z	-70	-17	-2	0	0	> 55	CO 3
690	RC1	2802	1.500	MIN M_z	-149	7	28	0	40	> -23	CO 3
	Section No. 9: TO 500/150/20/20/10/10										
292	RC1		2.571	MAX N	> 94	1	17	-1	27	0	CO 3
55	RC1	322	0.000	MIN N	> -2185	0	0	0	0	0	CO 1
2966	RC1	2544	0.000	MAX V_y	36	> 36	96	-9	-21	8	CO 3
413	RC1	2306	0.000	MIN V_y	-13	> -121	-22	-2	7	-36	CO 3
2964	RC1	2540	0.000	MAX V_z	17	22	> 115	-8	-25	5	CO 3
297	RC1	2205	0.000	MIN V_z	-1458	1	> -357	0	209	2	CO 1
134	RC1	2205	2.850	MAX M_y	-1894	-1	80	0	> 227	2	CO 1
374	RC1	2348	3.600	MIN M_y	-65	-3	-15	1	> -175	7	CO 4
350	RC1	1141	2.250	MAX M_z	-555	-19	-2	0	-71	> 31	CO 3
412	RC1	2306	3.600	MIN M_z	-5	13	0	16	7	> -39	CO 3
	Section No. 34: QRO 120x6 | EN 10219-2:2006										
2042	RC1	4394	0.000	MAX N	> 93	0	0	0	0	0	CO 2
2045	RC1	4756	5.753	MIN N	> -160	0	0	0	0	1	CO 3
2070	RC1	4530	0.000	MAX V_y	-32	> 2	-1	-1	4	7	CO 1
2072	RC1	4538	0.000	MIN V_y	-55	> -2	2	0	-5	-5	CO 3
2072	RC1	4538	0.000	MAX V_z	-55	-2	> 2	0	-6	-5	CO 1
2062	RC1	4435	0.000	MIN V_z	-101	0	> -1	1	6	-1	CO 3
2062	RC1	4435	0.000	MAX M_y	-101	0	-1	1	> 6	-1	CO 3
2069	RC1	4518	0.000	MIN M_y	-69	0	1	0	> -8	1	CO 3
2059	RC1	2031	0.000	MAX M_z	-35	2	0	0	-2	> 10	CO 4
2058	RC1	3870	3.299	MIN M_z	-144	2	-1	-1	-4	> -6	CO 1
	Section No. 54: TO 500/150/30/30/20/20										
342	RC1	1095	3.667	MAX N	> -5	-1	1	1	0	0	CO 2
163	RC1	1103	0.000	MIN N	> -448	2	-12	0	0	0	CO 1
319	RC1	2258	0.000	MAX V_y	-91	> 61	-31	-3	54	4	CO 3
234	RC1	1782	0.000	MIN V_y	-367	> -272	-15	8	-16	-47	CO 4
357	RC1	1090	3.152	MAX V_z	-27	-1	> 39	-3	0	0	CO 4
234	RC1	1782	0.000	MIN V_z	-337	-267	> -108	1	-115	-46	CO 1
123	RC1	734	0.000	MAX M_y	-132	6	-45	4	> 183	11	CO 4
377	RC1	2346	3.600	MIN M_y	-88	-4	-18	-3	> -195	8	CO 4
234	RC1	734	0.407	MAX M_z	-365	-272	-15	8	-22	> 64	CO 4
234	RC1	1782	0.000	MIN M_z	-367	-272	-15	8	-16	> -47	CO 4
	Section No. 55: TO 450/150/20/20/10/10										
340	RC1	995	0.837	MAX N	> -4	2	-17	0	0	0	CO 4
90	RC1	702	0.000	MIN N	> -526	0	0	1	0	0	CO 4
339	RC1	2307	0.000	MAX V_y	-20	> 7	15	-4	-5	2	CO 3
337	RC1	1121	0.000	MIN V_y	-112	> -62	-22	2	1	-4	CO 4

4.12 Cross-Sections - Internal Forces

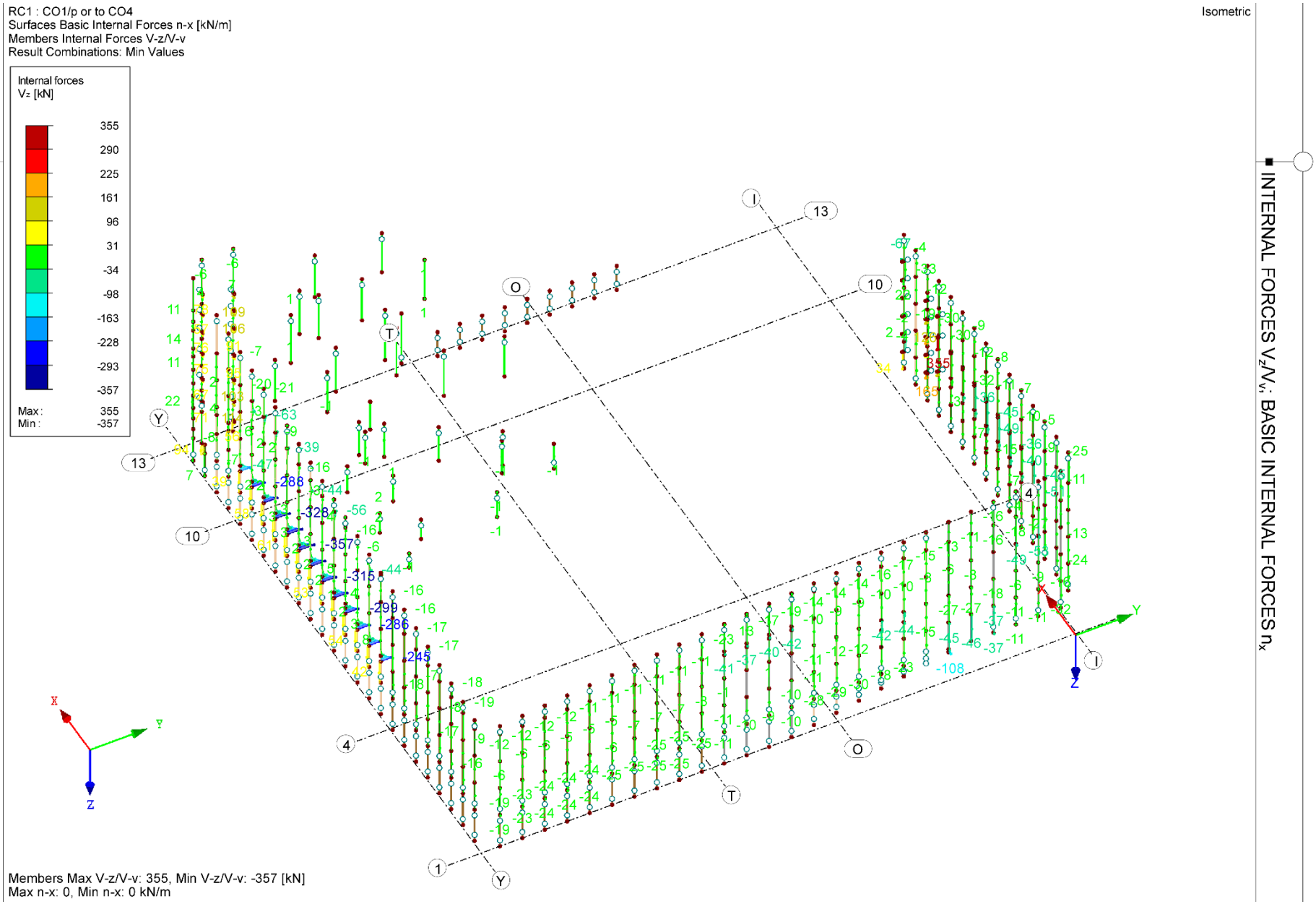
Member No.	RC	Node No.	Location x [m]		Forces [kN] N	V_y / V_u	V_z / V_v	Moments [kNm] M_T	M_y / M_u	M_z / M_v	Corresponding Load Cases
387	RC1	2355	0.000	MAX V_z	-331	0	> 25	0	-3	1	CO 3
316	RC1	2177	0.000	MIN V_z	-26	-34	> -42	0	130	-30	CO 4
316	RC1	2177	0.000	MAX M_y	-26	-25	-41	0	> 130	-20	CO 3
343	RC1	2293	0.000	MIN M_y	-447	-1	6	0	> -40	0	CO 3
343	RC1	2357	3.600	MAX M_z	-449	-1	-1	0	18	> 4	CO 1
316	RC1	2177	0.000	MIN M_z	-26	-34	-42	0	130	> -30	CO 4



6.2.1 pav.Įrąžos elementuose (lenkimo momentas My)



6.2.2 pav. Įrąžos elementuose (ašinės jėgos N)



6.2.3 pav. Įrąžos elementuose (skersinės jėgos Vz)

Metalo konstrukcijų skaičiavimas

1.1 General Data

Members to design:	42,45-92,98-100,103-167,169,170,180-184,186,187,227-234,263-265,268,269,278-280,287-311,313-316,319,320,333,334,337-382,386-430,528-530,534-546,559-571,584-596,609-617,626,636-645,662,663,665,666,670,671,673,676,679-691,695,697-708,719-721,734-754,756,757,760,2015,2042-2046,2052-2075,2258-2262,2279,2281,2282,2481,2578,2803,2807,2830-2855,2909-2929,2945-2947,2963-2975,3009-3011	
Sets of members to design:		
National Annex:	CEN	
Ultimate Limit State Design		
Load combinations to design:	CO1	1.35G + 1.35Gq1 + 1.35Gq2 + 1.3QiC + 1.3Qs + 1.3Qw1

1.2 Materials

Matl. No.	Material Description	E- Modulus E [kN/cm²]	Shear Modulus G [kN/cm²]	Poisson's Ratio ν [-]	Yield Stress f_{yk} [kN/cm²]	Max. Thickness t [mm]
2	Steel S 355 | EN 10025-2:2004-11	21000.00	8076.92	0.300	35.50	3.0
					35.50	16.0
					34.50	40.0
					33.50	63.0
					32.50	80.0
					31.50	100.0
					29.50	150.0
					28.50	200.0

1.3 Cross-Sections

Sect. No.	Matl. No.	Cross-Section Description	Cross-Section Type	Max Design Ratio	Comment
7	2	TO 400/150/20/20/10/10	Box welded	0.80	
8	2	TO 400/300/20/20/10/10	Box welded	0.32	
9	2	TO 500/150/20/20/10/10	Box welded	0.50	
34	2	QRO 120x6 | EN 10219-2:2006	Box rolled	0.66	
54	2	TO 500/150/30/30/20/20	Box welded	0.22	
55	2	TO 450/150/20/20/10/10	Box welded	0.45	

1.5 Effective Lengths - Members

Member No.	Buckling Possible	Buckling About Axis y			Buckling About Axis z			Lateral-Torsional Buckling				
		Possible	$k_{cr,y}$	$L_{cr,y}$ [m]	Possible	$k_{cr,z}$	$L_{cr,z}$ [m]	Possible	k_z	k_w	L_w [m]	L_T [m]
42	x	x	1.00	3.000	x	1.00	3.000	-	1.0	1.0	3.000	3.000
45	x	x	1.00	3.200	x	1.00	3.200	-	1.0	1.0	3.200	3.200
46	x	x	1.00	3.200	x	1.00	3.200	-	1.0	1.0	3.200	3.200
47	x	x	1.00	3.200	x	1.00	3.200	-	1.0	1.0	3.200	3.200
48	x	x	1.00	3.200	x	1.00	3.200	-	1.0	1.0	3.200	3.200
49	x	x	1.00	3.200	x	1.00	3.200	-	1.0	1.0	3.200	3.200
50	x	x	1.00	3.200	x	1.00	3.200	-	1.0	1.0	3.200	3.200
51	x	x	1.00	3.200	x	1.00	3.200	-	1.0	1.0	3.200	3.200
52	x	x	1.00	3.200	x	1.00	3.200	-	1.0	1.0	3.200	3.200
53	x	x	1.00	3.200	x	1.00	3.200	-	1.0	1.0	3.200	3.200
54	x	x	1.00	4.200	x	1.00	4.200	-	1.0	1.0	4.200	4.200
55	x	x	1.00	4.200	x	1.00	4.200	-	1.0	1.0	4.200	4.200
56	x	x	1.00	4.200	x	1.00	4.200	-	1.0	1.0	4.200	4.200
57	x	x	1.00	4.200	x	1.00	4.200	-	1.0	1.0	4.200	4.200
58	x	x	1.00	4.200	x	1.00	4.200	-	1.0	1.0	4.200	4.200
59	x	x	1.00	4.200	x	1.00	4.200	-	1.0	1.0	4.200	4.200
60	x	x	1.00	4.200	x	1.00	4.200	-	1.0	1.0	4.200	4.200
61	x	x	1.00	3.000	x	1.00	3.000	-	1.0	1.0	3.000	3.000
62	x	x	1.00	4.200	x	1.00	4.200	-	1.0	1.0	4.200	4.200
63	x	x	1.00	4.200	x	1.00	4.200	-	1.0	1.0	4.200	4.200
64	x	x	1.00	4.200	x	1.00	4.200	-	1.0	1.0	4.200	4.200
65	x	x	1.00	4.200	x	1.00	4.200	-	1.0	1.0	4.200	4.200
66	x	x	1.00	4.200	x	1.00	4.200	-	1.0	1.0	4.200	4.200
67	x	x	1.00	4.200	x	1.00	4.200	-	1.0	1.0	4.200	4.200

1.5 Effective Lengths - Members

Member	Buckling	Buckling About Axis y			Buckling About Axis z			Lateral-Torsional Buckling				
No.	Possible	Possible	$k_{cr,y}$	$L_{cr,y}$ [m]	Possible	$k_{cr,z}$	$L_{cr,z}$ [m]	Possible	k_z	k_w	L_w [m]	L_T [m]
68	x	x	1.00	4.200	x	1.00	4.200	-	1.0	1.0	4.200	4.200
69	x	x	1.00	4.200	x	1.00	4.200	-	1.0	1.0	4.200	4.200
70	x	x	3.81	16.000	x	1.00	4.200	-	1.0	1.0	4.200	4.200
71	x	x	3.81	16.000	x	1.00	4.200	-	1.0	1.0	4.200	4.200
72	x	x	3.81	16.000	x	1.00	4.200	-	1.0	1.0	4.200	4.200
73	x	x	3.81	16.000	x	1.00	4.200	-	1.0	1.0	4.200	4.200
74	x	x	3.81	16.000	x	1.00	4.200	-	1.0	1.0	4.200	4.200
75	x	x	3.81	16.000	x	1.00	4.200	-	1.0	1.0	4.200	4.200
76	x	x	3.81	16.000	x	1.00	4.200	-	1.0	1.0	4.200	4.200
77	x	x	3.81	16.000	x	1.00	4.200	-	1.0	1.0	4.200	4.200
78	x	x	1.00	1.500	x	1.00	1.500	-	1.0	1.0	1.500	1.500
79	x	x	1.00	2.700	x	1.00	2.700	-	1.0	1.0	2.700	2.700
80	x	x	3.81	16.000	x	1.00	4.200	-	1.0	1.0	4.200	4.200
81	x	x	3.81	16.000	x	1.00	4.200	-	1.0	1.0	4.200	4.200
82	x	x	3.81	16.000	x	1.00	4.200	-	1.0	1.0	4.200	4.200
83	x	x	3.81	16.000	x	1.00	4.200	-	1.0	1.0	4.200	4.200
84	x	x	3.81	16.000	x	1.00	4.200	-	1.0	1.0	4.200	4.200
85	x	x	3.81	16.000	x	1.00	4.200	-	1.0	1.0	4.200	4.200
86	x	x	3.81	16.000	x	1.00	4.200	-	1.0	1.0	4.200	4.200
87	x	x	3.81	16.000	x	1.00	4.200	-	1.0	1.0	4.200	4.200
88	x	x	3.81	16.000	x	1.00	4.200	-	1.0	1.0	4.200	4.200
89	x	x	3.81	16.000	x	1.00	4.200	-	1.0	1.0	4.200	4.200
90	x	x	3.81	16.000	x	1.00	4.200	-	1.0	1.0	4.200	4.200
91	x	x	3.81	16.000	x	1.00	4.200	-	1.0	1.0	4.200	4.200
92	x	x	3.81	16.000	x	1.00	4.200	-	1.0	1.0	4.200	4.200
98	x	x	1.00	2.850	x	1.00	2.850	-	1.0	1.0	2.850	2.850
99	x	x	1.00	1.425	x	1.00	1.425	-	1.0	1.0	1.425	1.425
100	x	x	1.00	3.600	x	1.00	3.600	-	1.0	1.0	3.600	3.600
103	x	x	3.81	13.714	x	1.00	3.600	-	1.0	1.0	3.600	3.600
104	x	x	3.81	13.714	x	1.00	3.600	-	1.0	1.0	3.600	3.600
105	x	x	3.81	13.714	x	1.00	3.600	-	1.0	1.0	3.600	3.600
106	x	x	3.81	13.714	x	1.00	3.600	-	1.0	1.0	3.600	3.600
107	x	x	3.81	13.714	x	1.00	3.600	-	1.0	1.0	3.600	3.600
108	x	x	3.81	13.714	x	1.00	3.600	-	1.0	1.0	3.600	3.600
109	x	x	3.81	13.714	x	1.00	3.600	-	1.0	1.0	3.600	3.600
110	x	x	3.81	13.714	x	1.00	3.600	-	1.0	1.0	3.600	3.600
111	x	x	3.81	13.714	x	1.00	3.600	-	1.0	1.0	3.600	3.600
112	x	x	3.81	13.714	x	1.00	3.600	-	1.0	1.0	3.600	3.600
113	x	x	3.81	13.714	x	1.00	3.600	-	1.0	1.0	3.600	3.600
114	x	x	3.81	13.714	x	1.00	3.600	-	1.0	1.0	3.600	3.600
115	x	x	3.81	13.714	x	1.00	3.600	-	1.0	1.0	3.600	3.600
116	x	x	3.81	13.714	x	1.00	3.600	-	1.0	1.0	3.600	3.600
117	x	x	3.81	13.714	x	1.00	3.600	-	1.0	1.0	3.600	3.600
118	x	x	3.81	13.714	x	1.00	3.600	-	1.0	1.0	3.600	3.600
119	x	x	3.81	13.714	x	1.00	3.600	-	1.0	1.0	3.600	3.600
120	x	x	3.81	13.714	x	1.00	3.600	-	1.0	1.0	3.600	3.600
121	x	x	3.81	13.714	x	1.00	3.600	-	1.0	1.0	3.600	3.600
122	x	x	3.81	13.714	x	1.00	3.600	-	1.0	1.0	3.600	3.600
123	x	x	3.81	13.714	x	1.00	3.600	-	1.0	1.0	3.600	3.600
124	x	x	3.81	13.714	x	1.00	3.600	-	1.0	1.0	3.600	3.600
125	x	x	1.00	1.425	x	1.00	1.425	-	1.0	1.0	1.425	1.425
126	x	x	1.00	3.600	x	1.00	3.600	-	1.0	1.0	3.600	3.600
127	x	x	1.00	3.600	x	1.00	3.600	-	1.0	1.0	3.600	3.600
128	x	x	1.00	2.850	x	1.00	2.850	-	1.0	1.0	2.850	2.850
129	x	x	1.00	2.850	x	1.00	2.850	-	1.0	1.0	2.850	2.850
130	x	x	1.00	2.850	x	1.00	2.850	-	1.0	1.0	2.850	2.850
131	x	x	1.00	2.850	x	1.00	2.850	-	1.0	1.0	2.850	2.850
132	x	x	1.00	2.850	x	1.00	2.850	-	1.0	1.0	2.850	2.850
133	x	x	1.00	2.250	x	1.00	2.250	-	1.0	1.0	2.250	2.250
134	x	x	1.00	2.850	x	1.00	2.850	-	1.0	1.0	2.850	2.850
135	x	x	1.00	2.850	x	1.00	2.850	-	1.0	1.0	2.850	2.850
136	x	x	1.00	2.850	x	1.00	2.850	-	1.0	1.0	2.850	2.850
137	x	x	1.00	0.750	x	1.00	0.750	-	1.0	1.0	0.750	0.750
138	x	x	1.00	2.850	x	1.00	2.850	-	1.0	1.0	2.850	2.850
139	x	x	1.00	2.850	x	1.00	2.850	-	1.0	1.0	2.850	2.850
140	x	x	1.00	2.850	x	1.00	2.850	-	1.0	1.0	2.850	2.850
141	x	x	1.00	2.850	x	1.00	2.850	-	1.0	1.0	2.850	2.850

1.5 Effective Lengths - Members

Member	Buckling	Buckling About Axis y			Buckling About Axis z			Lateral-Torsional Buckling				
No.	Possible	Possible	$k_{cr,y}$	$L_{cr,y}$ [m]	Possible	$k_{cr,z}$	$L_{cr,z}$ [m]	Possible	k_z	k_w	L_w [m]	L_T [m]
142	x	x	3.81	13.714	x	1.00	3.600	-	1.0	1.0	3.600	3.600
143	x	x	3.81	13.714	x	1.00	3.600	-	1.0	1.0	3.600	3.600
144	x	x	3.81	13.714	x	1.00	3.600	-	1.0	1.0	3.600	3.600
145	x	x	3.81	13.714	x	1.00	3.600	-	1.0	1.0	3.600	3.600
146	x	x	3.81	13.714	x	1.00	3.600	-	1.0	1.0	3.600	3.600
147	x	x	3.81	13.714	x	1.00	3.600	-	1.0	1.0	3.600	3.600
148	x	x	3.81	13.714	x	1.00	3.600	-	1.0	1.0	3.600	3.600
149	x	x	3.81	13.714	x	1.00	3.600	-	1.0	1.0	3.600	3.600
150	x	x	3.81	13.714	x	1.00	3.600	-	1.0	1.0	3.600	3.600
151	x	x	3.81	13.714	x	1.00	3.600	-	1.0	1.0	3.600	3.600
152	x	x	3.81	13.714	x	1.00	3.600	-	1.0	1.0	3.600	3.600
153	x	x	3.81	13.714	x	1.00	3.600	-	1.0	1.0	3.600	3.600
154	x	x	1.00	3.600	x	1.00	3.600	-	1.0	1.0	3.600	3.600
155	x	x	1.00	3.600	x	1.00	3.600	-	1.0	1.0	3.600	3.600
156	x	x	1.00	3.600	x	1.00	3.600	-	1.0	1.0	3.600	3.600
157	x	x	1.00	3.600	x	1.00	3.600	-	1.0	1.0	3.600	3.600
158	x	x	1.00	3.600	x	1.00	3.600	-	1.0	1.0	3.600	3.600
159	x	x	1.00	3.600	x	1.00	3.600	-	1.0	1.0	3.600	3.600
160	x	x	1.00	3.600	x	1.00	3.600	-	1.0	1.0	3.600	3.600
161	x	x	1.00	3.600	x	1.00	3.600	-	1.0	1.0	3.600	3.600
162	x	x	1.00	3.600	x	1.00	3.600	-	1.0	1.0	3.600	3.600
163	x	x	1.00	3.600	x	1.00	3.600	-	1.0	1.0	3.600	3.600
164	x	x	1.00	3.600	x	1.00	3.600	-	1.0	1.0	3.600	3.600
165	x	x	1.00	3.600	x	1.00	3.600	-	1.0	1.0	3.600	3.600
166	x	x	1.00	3.600	x	1.00	3.600	-	1.0	1.0	3.600	3.600
167	x	x	1.00	3.600	x	1.00	3.600	-	1.0	1.0	3.600	3.600
169	x	x	1.00	3.600	x	1.00	3.600	-	1.0	1.0	3.600	3.600
170	x	x	1.00	3.600	x	1.00	3.600	-	1.0	1.0	3.600	3.600
180	x	x	1.00	1.050	x	1.00	1.050	-	1.0	1.0	1.050	1.050
181	x	x	1.00	1.050	x	1.00	1.050	-	1.0	1.0	1.050	1.050
182	x	x	1.00	4.459	x	1.00	4.459	-	1.0	1.0	4.459	4.459
183	x	x	1.00	4.299	x	1.00	4.299	-	1.0	1.0	4.299	4.299
184	x	x	1.00	2.400	x	1.00	2.400	-	1.0	1.0	2.400	2.400
186	x	x	1.00	5.112	x	1.00	5.112	-	1.0	1.0	5.112	5.112
187	x	x	1.00	4.768	x	1.00	4.768	-	1.0	1.0	4.768	4.768
227	x	x	4.01	16.000	x	1.00	3.993	-	1.0	1.0	3.993	3.993
228	x	x	4.60	16.000	x	1.00	3.481	-	1.0	1.0	3.481	3.481
229	x	x	5.39	16.000	x	1.00	2.969	-	1.0	1.0	2.969	2.969
230	x	x	6.51	16.000	x	1.00	2.456	-	1.0	1.0	2.456	2.456
231	x	x	8.23	16.000	x	1.00	1.944	-	1.0	1.0	1.944	1.944
232	x	x	11.18	16.000	x	1.00	1.431	-	1.0	1.0	1.431	1.431
233	x	x	17.37	16.000	x	1.00	0.921	-	1.0	1.0	0.921	0.921
234	x	x	39.36	16.000	x	1.00	0.407	-	1.0	1.0	0.407	0.407
263	x	x	1.00	1.200	x	1.00	1.200	-	1.0	1.0	1.200	1.200
264	x	x	1.00	1.200	x	1.00	1.200	-	1.0	1.0	1.200	1.200
265	x	x	1.00	4.200	x	1.00	4.200	-	1.0	1.0	4.200	4.200
268	x	x	1.00	1.425	x	1.00	1.425	-	1.0	1.0	1.425	1.425
269	x	x	1.00	1.425	x	1.00	1.425	-	1.0	1.0	1.425	1.425
278	x	x	1.00	1.650	x	1.00	1.650	-	1.0	1.0	1.650	1.650
279	x	x	1.00	1.800	x	1.00	1.800	-	1.0	1.0	1.800	1.800
280	x	x	1.00	1.050	x	1.00	1.050	-	1.0	1.0	1.050	1.050
287	x	x	1.00	0.750	x	1.00	0.750	-	1.0	1.0	0.750	0.750
288	x	x	1.00	3.600	x	1.00	3.600	-	1.0	1.0	3.600	3.600
289	x	x	1.00	2.850	x	1.00	2.850	-	1.0	1.0	2.850	2.850
290	x	x	1.00	3.600	x	1.00	3.600	-	1.0	1.0	3.600	3.600
291	x	x	1.00	0.750	x	1.00	0.750	-	1.0	1.0	0.750	0.750
292	x	x	1.00	3.600	x	1.00	3.600	-	1.0	1.0	3.600	3.600
293	x	x	1.00	0.750	x	1.00	0.750	-	1.0	1.0	0.750	0.750
294	x	x	1.00	3.600	x	1.00	3.600	-	1.0	1.0	3.600	3.600
295	x	x	1.00	0.750	x	1.00	0.750	-	1.0	1.0	0.750	0.750
296	x	x	1.00	3.600	x	1.00	3.600	-	1.0	1.0	3.600	3.600
297	x	x	1.00	0.750	x	1.00	0.750	-	1.0	1.0	0.750	0.750
298	x	x	1.00	3.600	x	1.00	3.600	-	1.0	1.0	3.600	3.600
299	x	x	1.00	0.750	x	1.00	0.750	-	1.0	1.0	0.750	0.750
300	x	x	1.00	3.600	x	1.00	3.600	-	1.0	1.0	3.600	3.600
301	x	x	1.00	0.750	x	1.00	0.750	-	1.0	1.0	0.750	0.750
302	x	x	1.00	3.600	x	1.00	3.600	-	1.0	1.0	3.600	3.600

1.5 Effective Lengths - Members

Member	Buckling	Buckling About Axis y			Buckling About Axis z			Lateral-Torsional Buckling				
No.	Possible	Possible	$k_{cr,y}$	$L_{cr,y}$ [m]	Possible	$k_{cr,z}$	$L_{cr,z}$ [m]	Possible	k_z	k_w	L_w [m]	L_T [m]
303	x	x	1.00	0.750	x	1.00	0.750	-	1.0	1.0	0.750	0.750
304	x	x	1.00	3.600	x	1.00	3.600	-	1.0	1.0	3.600	3.600
305	x	x	1.00	0.750	x	1.00	0.750	-	1.0	1.0	0.750	0.750
306	x	x	1.00	3.600	x	1.00	3.600	-	1.0	1.0	3.600	3.600
307	x	x	1.00	0.750	x	1.00	0.750	-	1.0	1.0	0.750	0.750
308	x	x	1.00	3.600	x	1.00	3.600	-	1.0	1.0	3.600	3.600
309	x	x	1.00	0.750	x	1.00	0.750	-	1.0	1.0	0.750	0.750
310	x	x	1.00	3.600	x	1.00	3.600	-	1.0	1.0	3.600	3.600
311	x	x	1.00	0.750	x	1.00	0.750	-	1.0	1.0	0.750	0.750
313	x	x	6.96	3.478	x	1.00	0.500	-	1.0	1.0	0.500	0.500
314	x	x	6.96	3.478	x	1.00	0.500	-	1.0	1.0	0.500	0.500
315	x	x	6.96	3.478	x	1.00	0.500	-	1.0	1.0	0.500	0.500
316	x	x	6.96	3.478	x	1.00	0.500	-	1.0	1.0	0.500	0.500
319	x	x	8.65	0.432	x	1.00	0.050	-	1.0	1.0	0.050	0.050
320	x	x	8.65	0.432	x	1.00	0.050	-	1.0	1.0	0.050	0.050
333	x	x	6.27	8.470	x	1.00	1.350	-	1.0	1.0	1.350	1.350
334	x	x	6.27	8.470	x	1.00	1.350	-	1.0	1.0	1.350	1.350
337	x	x	8.58	0.558	x	1.00	0.065	-	1.0	1.0	0.065	0.065
338	x	x	6.72	3.897	x	1.00	0.580	-	1.0	1.0	0.580	0.580
339	x	x	7.54	2.430	x	1.00	0.322	-	1.0	1.0	0.322	0.322
340	x	x	6.07	5.078	x	1.00	0.837	-	1.0	1.0	0.837	0.837
341	x	x	3.07	10.472	x	1.00	3.410	-	1.0	1.0	3.410	3.410
342	x	x	2.93	10.732	x	1.00	3.667	-	1.0	1.0	3.667	3.667
343	x	x	3.81	13.714	x	1.00	3.600	-	1.0	1.0	3.600	3.600
344	x	x	3.81	13.714	x	1.00	3.600	-	1.0	1.0	3.600	3.600
345	x	x	3.81	13.714	x	1.00	3.600	-	1.0	1.0	3.600	3.600
346	x	x	3.81	13.714	x	1.00	3.600	-	1.0	1.0	3.600	3.600
347	x	x	4.36	8.144	x	1.00	1.866	-	1.0	1.0	1.866	1.866
348	x	x	4.08	8.659	x	1.00	2.123	-	1.0	1.0	2.123	2.123
349	x	x	5.53	6.049	x	1.00	1.094	-	1.0	1.0	1.094	1.094
350	x	x	9.70	21.818	x	1.00	2.250	-	1.0	1.0	2.250	2.250
351	x	x	9.70	21.818	x	1.00	2.250	-	1.0	1.0	2.250	2.250
352	x	x	5.08	6.861	x	1.00	1.351	-	1.0	1.0	1.351	1.351
353	x	x	4.69	7.551	x	1.00	1.609	-	1.0	1.0	1.609	1.609
354	x	x	3.83	9.109	x	1.00	2.380	-	1.0	1.0	2.380	2.380
355	x	x	3.61	9.510	x	1.00	2.638	-	1.0	1.0	2.638	2.638
356	x	x	3.41	9.866	x	1.00	2.895	-	1.0	1.0	2.895	2.895
357	x	x	3.23	10.185	x	1.00	3.152	-	1.0	1.0	3.152	3.152
358	x	x	2.80	10.969	x	1.00	3.924	-	1.0	1.0	3.924	3.924
359	x	x	3.81	13.714	x	1.00	3.600	-	1.0	1.0	3.600	3.600
360	x	x	3.81	13.714	x	1.00	3.600	-	1.0	1.0	3.600	3.600
361	x	x	3.81	13.714	x	1.00	3.600	-	1.0	1.0	3.600	3.600
362	x	x	3.81	13.714	x	1.00	3.600	-	1.0	1.0	3.600	3.600
363	x	x	3.81	13.714	x	1.00	3.600	-	1.0	1.0	3.600	3.600
364	x	x	3.81	13.714	x	1.00	3.600	-	1.0	1.0	3.600	3.600
365	x	x	3.81	13.714	x	1.00	3.600	-	1.0	1.0	3.600	3.600
366	x	x	3.81	13.714	x	1.00	3.600	-	1.0	1.0	3.600	3.600
367	x	x	3.81	13.714	x	1.00	3.600	-	1.0	1.0	3.600	3.600
368	x	x	3.81	13.714	x	1.00	3.600	-	1.0	1.0	3.600	3.600
369	x	x	3.81	13.714	x	1.00	3.600	-	1.0	1.0	3.600	3.600
370	x	x	3.81	13.714	x	1.00	3.600	-	1.0	1.0	3.600	3.600
371	x	x	3.81	13.714	x	1.00	3.600	-	1.0	1.0	3.600	3.600
372	x	x	3.81	13.714	x	1.00	3.600	-	1.0	1.0	3.600	3.600
373	x	x	3.81	13.714	x	1.00	3.600	-	1.0	1.0	3.600	3.600
374	x	x	3.81	13.714	x	1.00	3.600	-	1.0	1.0	3.600	3.600
375	x	x	3.81	13.714	x	1.00	3.600	-	1.0	1.0	3.600	3.600
376	x	x	3.81	13.714	x	1.00	3.600	-	1.0	1.0	3.600	3.600
377	x	x	3.81	13.714	x	1.00	3.600	-	1.0	1.0	3.600	3.600
378	x	x	3.81	13.714	x	1.00	3.600	-	1.0	1.0	3.600	3.600
379	x	x	3.81	13.714	x	1.00	3.600	-	1.0	1.0	3.600	3.600
380	x	x	3.81	13.714	x	1.00	3.600	-	1.0	1.0	3.600	3.600
381	x	x	8.42	26.105	x	1.00	3.100	-	1.0	1.0	3.100	3.100
382	x	x	3.81	13.714	x	1.00	3.600	-	1.0	1.0	3.600	3.600
386	x	x	8.42	26.105	x	1.00	3.100	-	1.0	1.0	3.100	3.100
387	x	x	8.42	26.105	x	1.00	3.100	-	1.0	1.0	3.100	3.100
388	x	x	8.42	26.105	x	1.00	3.100	-	1.0	1.0	3.100	3.100
389	x	x	4.58	16.494	x	1.00	3.600	-	1.0	1.0	3.600	3.600

1.5 Effective Lengths - Members

Member	Buckling	Buckling About Axis y			Buckling About Axis z			Lateral-Torsional Buckling				
No.	Possible	Possible	$k_{cr,y}$	$L_{cr,y}$ [m]	Possible	$k_{cr,z}$	$L_{cr,z}$ [m]	Possible	k_z	k_w	L_w [m]	L_T [m]
390	x	x	4.27	15.362	x	1.00	3.600	-	1.0	1.0	3.600	3.600
391	x	x	3.99	14.375	x	1.00	3.600	-	1.0	1.0	3.600	3.600
392	x	x	3.75	13.508	x	1.00	3.600	-	1.0	1.0	3.600	3.600
393	x	x	3.54	12.739	x	1.00	3.600	-	1.0	1.0	3.600	3.600
394	x	x	3.35	12.054	x	1.00	3.600	-	1.0	1.0	3.600	3.600
395	x	x	3.18	11.438	x	1.00	3.600	-	1.0	1.0	3.600	3.600
396	x	x	3.02	10.882	x	1.00	3.600	-	1.0	1.0	3.600	3.600
397	x	x	2.88	10.377	x	1.00	3.600	-	1.0	1.0	3.600	3.600
398	x	x	2.75	9.918	x	1.00	3.600	-	1.0	1.0	3.600	3.600
399	x	x	3.81	13.714	x	1.00	3.600	-	1.0	1.0	3.600	3.600
400	x	x	3.81	13.714	x	1.00	3.600	-	1.0	1.0	3.600	3.600
401	x	x	3.81	13.714	x	1.00	3.600	-	1.0	1.0	3.600	3.600
402	x	x	3.81	13.714	x	1.00	3.600	-	1.0	1.0	3.600	3.600
403	x	x	3.81	13.714	x	1.00	3.600	-	1.0	1.0	3.600	3.600
404	x	x	3.81	13.714	x	1.00	3.600	-	1.0	1.0	3.600	3.600
405	x	x	3.81	13.714	x	1.00	3.600	-	1.0	1.0	3.600	3.600
406	x	x	6.81	24.170	x	1.00	3.550	-	1.0	1.0	3.550	3.550
407	x	x	6.81	24.170	x	1.00	3.550	-	1.0	1.0	3.550	3.550
408	x	x	3.81	13.714	x	1.00	3.600	-	1.0	1.0	3.600	3.600
409	x	x	1.00	3.600	x	1.00	3.600	-	1.0	1.0	3.600	3.600
410	x	x	2.69	9.670	x	1.00	3.600	-	1.0	1.0	3.600	3.600
411	x	x	1.00	3.600	x	1.00	3.600	-	1.0	1.0	3.600	3.600
412	x	x	1.00	3.600	x	1.00	3.600	-	1.0	1.0	3.600	3.600
413	x	x	1.00	0.300	x	1.00	0.300	-	1.0	1.0	0.300	0.300
414	x	x	1.00	3.600	x	1.00	3.600	-	1.0	1.0	3.600	3.600
415	x	x	1.00	3.600	x	1.00	3.600	-	1.0	1.0	3.600	3.600
416	x	x	1.00	3.502	x	1.00	3.502	-	1.0	1.0	3.502	3.502
417	x	x	3.81	13.714	x	1.00	3.600	-	1.0	1.0	3.600	3.600
418	x	x	2.85	10.262	x	1.00	3.600	-	1.0	1.0	3.600	3.600
419	x	x	3.81	13.714	x	1.00	3.600	-	1.0	1.0	3.600	3.600
420	x	x	3.04	10.932	x	1.00	3.600	-	1.0	1.0	3.600	3.600
421	x	x	3.81	13.714	x	1.00	3.600	-	1.0	1.0	3.600	3.600
422	x	x	3.25	11.694	x	1.00	3.600	-	1.0	1.0	3.600	3.600
423	x	x	3.81	13.714	x	1.00	3.600	-	1.0	1.0	3.600	3.600
424	x	x	3.49	12.572	x	1.00	3.600	-	1.0	1.0	3.600	3.600
425	x	x	3.81	13.714	x	1.00	3.600	-	1.0	1.0	3.600	3.600
426	x	x	3.78	13.591	x	1.00	3.600	-	1.0	1.0	3.600	3.600
427	x	x	3.81	13.714	x	1.00	3.600	-	1.0	1.0	3.600	3.600
428	x	x	4.11	14.791	x	1.00	3.600	-	1.0	1.0	3.600	3.600
429	x	x	4.51	16.222	x	1.00	3.600	-	1.0	1.0	3.600	3.600
430	x	x	3.81	13.714	x	1.00	3.600	-	1.0	1.0	3.600	3.600
528	x	x	1.00	3.600	x	1.00	3.600	-	1.0	1.0	3.600	3.600
529	x	x	1.00	3.600	x	1.00	3.600	-	1.0	1.0	3.600	3.600
530	x	x	1.00	3.543	x	1.00	3.543	-	1.0	1.0	3.543	3.543
534	x	x	1.00	2.500	x	1.00	2.500	-	1.0	1.0	2.500	2.500
535	x	x	1.00	3.666	x	1.00	3.666	-	1.0	1.0	3.666	3.666
536	x	x	1.00	3.707	x	1.00	3.707	-	1.0	1.0	3.707	3.707
537	x	x	1.00	3.748	x	1.00	3.748	-	1.0	1.0	3.748	3.748
538	x	x	1.00	3.789	x	1.00	3.789	-	1.0	1.0	3.789	3.789
539	x	x	1.00	3.830	x	1.00	3.830	-	1.0	1.0	3.830	3.830
540	x	x	1.00	3.871	x	1.00	3.871	-	1.0	1.0	3.871	3.871
541	x	x	1.00	3.912	x	1.00	3.912	-	1.0	1.0	3.912	3.912
542	x	x	1.00	3.953	x	1.00	3.953	-	1.0	1.0	3.953	3.953
543	x	x	1.00	3.994	x	1.00	3.994	-	1.0	1.0	3.994	3.994
544	x	x	1.00	4.035	x	1.00	4.035	-	1.0	1.0	4.035	4.035
545	x	x	1.00	4.076	x	1.00	4.076	-	1.0	1.0	4.076	4.076
546	x	x	1.00	1.050	x	1.00	1.050	-	1.0	1.0	1.050	1.050
559	x	x	1.00	3.350	x	1.00	3.350	-	1.0	1.0	3.350	3.350
560	x	x	1.00	3.337	x	1.00	3.337	-	1.0	1.0	3.337	3.337
561	x	x	1.00	3.300	x	1.00	3.300	-	1.0	1.0	3.300	3.300
562	x	x	1.00	3.262	x	1.00	3.262	-	1.0	1.0	3.262	3.262
563	x	x	1.00	3.250	x	1.00	3.250	-	1.0	1.0	3.250	3.250
564	x	x	1.00	3.250	x	1.00	3.250	-	1.0	1.0	3.250	3.250
565	x	x	1.00	3.250	x	1.00	3.250	-	1.0	1.0	3.250	3.250
566	x	x	1.00	3.305	x	1.00	3.305	-	1.0	1.0	3.305	3.305
567	x	x	1.00	3.405	x	1.00	3.405	-	1.0	1.0	3.405	3.405
568	x	x	1.00	3.506	x	1.00	3.506	-	1.0	1.0	3.506	3.506

1.5 Effective Lengths - Members

Member	Buckling	Buckling About Axis y			Buckling About Axis z			Lateral-Torsional Buckling				
No.	Possible	Possible	$k_{cr,y}$	$L_{cr,y}$ [m]	Possible	$k_{cr,z}$	$L_{cr,z}$ [m]	Possible	k_z	k_w	L_w [m]	L_T [m]
569	x	x	1.00	3.600	x	1.00	3.600	-	1.0	1.0	3.600	3.600
570	x	x	1.00	3.600	x	1.00	3.600	-	1.0	1.0	3.600	3.600
571	x	x	1.00	1.350	x	1.00	1.350	-	1.0	1.0	1.350	1.350
584	x	x	1.00	2.400	x	1.00	2.400	-	1.0	1.0	2.400	2.400
585	x	x	1.00	2.400	x	1.00	2.400	-	1.0	1.0	2.400	2.400
586	x	x	1.00	2.400	x	1.00	2.400	-	1.0	1.0	2.400	2.400
587	x	x	1.00	2.400	x	1.00	2.400	-	1.0	1.0	2.400	2.400
588	x	x	1.00	1.800	x	1.00	1.800	-	1.0	1.0	1.800	1.800
589	x	x	1.00	2.400	x	1.00	2.400	-	1.0	1.0	2.400	2.400
590	x	x	1.00	2.400	x	1.00	2.400	-	1.0	1.0	2.400	2.400
591	x	x	1.00	2.250	x	1.00	2.250	-	1.0	1.0	2.250	2.250
592	x	x	1.00	2.400	x	1.00	2.400	-	1.0	1.0	2.400	2.400
593	x	x	1.00	3.600	x	1.00	3.600	-	1.0	1.0	3.600	3.600
594	x	x	1.00	3.600	x	1.00	3.600	-	1.0	1.0	3.600	3.600
595	x	x	1.00	3.600	x	1.00	3.600	-	1.0	1.0	3.600	3.600
596	x	x	1.00	2.550	x	1.00	2.550	-	1.0	1.0	2.550	2.550
609	x	x	1.00	1.200	x	1.00	1.200	-	1.0	1.0	1.200	1.200
610	x	x	1.00	1.200	x	1.00	1.200	-	1.0	1.0	1.200	1.200
611	x	x	1.00	1.200	x	1.00	1.200	-	1.0	1.0	1.200	1.200
612	x	x	1.00	1.200	x	1.00	1.200	-	1.0	1.0	1.200	1.200
613	x	x	1.00	1.200	x	1.00	1.200	-	1.0	1.0	1.200	1.200
614	x	x	1.00	1.200	x	1.00	1.200	-	1.0	1.0	1.200	1.200
615	x	x	1.00	1.200	x	1.00	1.200	-	1.0	1.0	1.200	1.200
616	x	x	1.00	1.200	x	1.00	1.200	-	1.0	1.0	1.200	1.200
617	x	x	1.00	1.200	x	1.00	1.200	-	1.0	1.0	1.200	1.200
626	x	x	1.00	0.200	x	1.00	0.200	-	1.0	1.0	0.200	0.200
636	x	x	1.00	0.250	x	1.00	0.250	-	1.0	1.0	0.250	0.250
637	x	x	1.00	0.263	x	1.00	0.263	-	1.0	1.0	0.263	0.263
638	x	x	1.00	0.300	x	1.00	0.300	-	1.0	1.0	0.300	0.300
639	x	x	1.00	0.338	x	1.00	0.338	-	1.0	1.0	0.338	0.338
640	x	x	1.00	0.350	x	1.00	0.350	-	1.0	1.0	0.350	0.350
641	x	x	1.00	0.350	x	1.00	0.350	-	1.0	1.0	0.350	0.350
642	x	x	1.00	0.350	x	1.00	0.350	-	1.0	1.0	0.350	0.350
643	x	x	1.00	0.295	x	1.00	0.295	-	1.0	1.0	0.295	0.295
644	x	x	1.00	0.195	x	1.00	0.195	-	1.0	1.0	0.195	0.195
645	x	x	1.00	0.094	x	1.00	0.094	-	1.0	1.0	0.094	0.094
662	x	x	1.00	3.600	x	1.00	3.600	-	1.0	1.0	3.600	3.600
663	x	x	1.00	2.550	x	1.00	2.550	-	1.0	1.0	2.550	2.550
665	x	x	1.00	3.600	x	1.00	3.600	-	1.0	1.0	3.600	3.600
666	x	x	1.00	3.600	x	1.00	3.600	-	1.0	1.0	3.600	3.600
670	x	x	1.00	3.600	x	1.00	3.600	-	1.0	1.0	3.600	3.600
671	x	x	1.00	3.600	x	1.00	3.600	-	1.0	1.0	3.600	3.600
673	x	x	1.00	0.600	x	1.00	0.600	-	1.0	1.0	0.600	0.600
676	x	x	1.00	3.600	x	1.00	3.600	-	1.0	1.0	3.600	3.600
679	x	x	1.00	3.300	x	1.00	3.300	-	1.0	1.0	3.300	3.300
680	x	x	1.00	3.600	x	1.00	3.600	-	1.0	1.0	3.600	3.600
681	x	x	1.00	2.400	x	1.00	2.400	-	1.0	1.0	2.400	2.400
682	x	x	1.00	5.847	x	1.00	5.847	-	1.0	1.0	5.847	5.847
683	x	x	1.00	1.650	x	1.00	1.650	-	1.0	1.0	1.650	1.650
684	x	x	1.00	1.800	x	1.00	1.800	-	1.0	1.0	1.800	1.800
685	x	x	1.00	1.200	x	1.00	1.200	-	1.0	1.0	1.200	1.200
686	x	x	1.00	1.500	x	1.00	1.500	-	1.0	1.0	1.500	1.500
687	x	x	1.00	1.650	x	1.00	1.650	-	1.0	1.0	1.650	1.650
688	x	x	1.00	1.800	x	1.00	1.800	-	1.0	1.0	1.800	1.800
689	x	x	1.00	1.050	x	1.00	1.050	-	1.0	1.0	1.050	1.050
690	x	x	1.00	1.500	x	1.00	1.500	-	1.0	1.0	1.500	1.500
691	x	x	1.00	3.600	x	1.00	3.600	-	1.0	1.0	3.600	3.600
695	x	x	1.00	3.600	x	1.00	3.600	-	1.0	1.0	3.600	3.600
697	x	x	1.00	4.425	x	1.00	4.425	-	1.0	1.0	4.425	4.425
698	x	x	1.00	4.081	x	1.00	4.081	-	1.0	1.0	4.081	4.081
699	x	x	1.00	3.737	x	1.00	3.737	-	1.0	1.0	3.737	3.737
700	x	x	1.00	3.394	x	1.00	3.394	-	1.0	1.0	3.394	3.394
701	x	x	1.00	3.050	x	1.00	3.050	-	1.0	1.0	3.050	3.050
702	x	x	1.00	2.706	x	1.00	2.706	-	1.0	1.0	2.706	2.706
703	x	x	1.00	2.362	x	1.00	2.362	-	1.0	1.0	2.362	2.362
704	x	x	1.00	2.019	x	1.00	2.019	-	1.0	1.0	2.019	2.019
705	x	x	1.00	1.675	x	1.00	1.675	-	1.0	1.0	1.675	1.675

1.5 Effective Lengths - Members

Member	Buckling	Buckling About Axis y			Buckling About Axis z			Lateral-Torsional Buckling				
No.	Possible	Possible	$k_{cr,y}$	$L_{cr,y}$ [m]	Possible	$k_{cr,z}$	$L_{cr,z}$ [m]	Possible	k_z	k_w	L_w [m]	L_T [m]
706	x	x	1.00	1.331	x	1.00	1.331	-	1.0	1.0	1.331	1.331
707	x	x	1.00	0.988	x	1.00	0.988	-	1.0	1.0	0.988	0.988
708	x	x	1.00	0.644	x	1.00	0.644	-	1.0	1.0	0.644	0.644
719	x	x	1.00	3.557	x	1.00	3.557	-	1.0	1.0	3.557	3.557
720	x	x	1.00	3.600	x	1.00	3.600	-	1.0	1.0	3.600	3.600
721	x	x	1.00	3.600	x	1.00	3.600	-	1.0	1.0	3.600	3.600
734	x	x	1.00	3.213	x	1.00	3.213	-	1.0	1.0	3.213	3.213
735	x	x	1.00	3.600	x	1.00	3.600	-	1.0	1.0	3.600	3.600
736	x	x	1.00	3.600	x	1.00	3.600	-	1.0	1.0	3.600	3.600
737	x	x	1.00	2.869	x	1.00	2.869	-	1.0	1.0	2.869	2.869
738	x	x	1.00	3.600	x	1.00	3.600	-	1.0	1.0	3.600	3.600
739	x	x	1.00	3.600	x	1.00	3.600	-	1.0	1.0	3.600	3.600
740	x	x	1.00	2.525	x	1.00	2.525	-	1.0	1.0	2.525	2.525
741	x	x	1.00	3.600	x	1.00	3.600	-	1.0	1.0	3.600	3.600
742	x	x	1.00	3.600	x	1.00	3.600	-	1.0	1.0	3.600	3.600
743	x	x	1.00	2.182	x	1.00	2.182	-	1.0	1.0	2.182	2.182
744	x	x	1.00	3.600	x	1.00	3.600	-	1.0	1.0	3.600	3.600
745	x	x	1.00	3.600	x	1.00	3.600	-	1.0	1.0	3.600	3.600
746	x	x	1.00	1.838	x	1.00	1.838	-	1.0	1.0	1.838	1.838
747	x	x	1.00	3.600	x	1.00	3.600	-	1.0	1.0	3.600	3.600
748	x	x	1.00	3.600	x	1.00	3.600	-	1.0	1.0	3.600	3.600
749	x	x	1.00	1.494	x	1.00	1.494	-	1.0	1.0	1.494	1.494
750	x	x	1.00	3.000	x	1.00	3.000	-	1.0	1.0	3.000	3.000
751	x	x	1.00	3.600	x	1.00	3.600	-	1.0	1.0	3.600	3.600
752	x	x	1.00	1.151	x	1.00	1.151	-	1.0	1.0	1.151	1.151
753	x	x	1.00	3.600	x	1.00	3.600	-	1.0	1.0	3.600	3.600
754	x	x	1.00	3.600	x	1.00	3.600	-	1.0	1.0	3.600	3.600
756	x	x	1.00	3.600	x	1.00	3.600	-	1.0	1.0	3.600	3.600
757	x	x	1.00	3.600	x	1.00	3.600	-	1.0	1.0	3.600	3.600
760	x	x	1.00	2.550	x	1.00	2.550	-	1.0	1.0	2.550	2.550
2015	x	x	1.00	2.450	x	1.00	2.450	-	1.0	1.0	2.450	2.450
2042	x	x	1.00	6.734	x	1.00	6.734	-	1.0	1.0	6.734	6.734
2043	x	x	1.00	6.698	x	1.00	6.698	-	1.0	1.0	6.698	6.698
2044	x	x	1.00	5.350	x	1.00	5.350	-	1.0	1.0	5.350	5.350
2045	x	x	1.00	5.753	x	1.00	5.753	-	1.0	1.0	5.753	5.753
2046	x	x	1.00	5.795	x	1.00	5.795	-	1.0	1.0	5.795	5.795
2052	x	x	1.00	6.403	x	1.00	6.403	-	1.0	1.0	6.403	6.403
2053	x	x	1.00	6.048	x	1.00	6.048	-	1.0	1.0	6.048	6.048
2054	x	x	1.00	5.528	x	1.00	5.528	-	1.0	1.0	5.528	5.528
2055	x	x	1.00	5.563	x	1.00	5.563	-	1.0	1.0	5.563	5.563
2056	x	x	1.00	5.226	x	1.00	5.226	-	1.0	1.0	5.226	5.226
2057	x	x	1.00	5.221	x	1.00	5.221	-	1.0	1.0	5.221	5.221
2058	x	x	1.00	3.299	x	1.00	3.299	-	1.0	1.0	3.299	3.299
2059	x	x	1.00	4.561	x	1.00	4.561	-	1.0	1.0	4.561	4.561
2060	x	x	1.00	4.414	x	1.00	4.414	-	1.0	1.0	4.414	4.414
2061	x	x	1.00	4.371	x	1.00	4.371	-	1.0	1.0	4.371	4.371
2062	x	x	1.00	4.231	x	1.00	4.231	-	1.0	1.0	4.231	4.231
2063	x	x	1.00	4.440	x	1.00	4.440	-	1.0	1.0	4.440	4.440
2064	x	x	1.00	3.724	x	1.00	3.724	-	1.0	1.0	3.724	3.724
2065	x	x	1.00	5.856	x	1.00	5.856	-	1.0	1.0	5.856	5.856
2066	x	x	1.00	4.495	x	1.00	4.495	-	1.0	1.0	4.495	4.495
2067	x	x	1.00	5.346	x	1.00	5.346	-	1.0	1.0	5.346	5.346
2068	x	x	1.00	5.469	x	1.00	5.469	-	1.0	1.0	5.469	5.469
2069	x	x	1.00	6.410	x	1.00	6.410	-	1.0	1.0	6.410	6.410
2070	x	x	1.00	3.320	x	1.00	3.320	-	1.0	1.0	3.320	3.320
2071	x	x	1.00	3.497	x	1.00	3.497	-	1.0	1.0	3.497	3.497
2072	x	x	1.00	2.627	x	1.00	2.627	-	1.0	1.0	2.627	2.627
2073	x	x	1.00	1.887	x	1.00	1.887	-	1.0	1.0	1.887	1.887
2074	x	x	1.00	2.593	x	1.00	2.593	-	1.0	1.0	2.593	2.593
2075	x	x	1.00	3.412	x	1.00	3.412	-	1.0	1.0	3.412	3.412
2258	x	x	1.00	1.200	x	1.00	1.200	-	1.0	1.0	1.200	1.200
2259	x	x	1.00	1.650	x	1.00	1.650	-	1.0	1.0	1.650	1.650
2260	x	x	1.00	1.800	x	1.00	1.800	-	1.0	1.0	1.800	1.800
2261	x	x	1.00	2.400	x	1.00	2.400	-	1.0	1.0	2.400	2.400
2262	x	x	1.00	1.200	x	1.00	1.200	-	1.0	1.0	1.200	1.200
2279	x	x	1.00	0.200	x	1.00	0.200	-	1.0	1.0	0.200	0.200
2281	x	x	1.00	0.200	x	1.00	0.200	-	1.0	1.0	0.200	0.200

1.5 Effective Lengths - Members

Member	Buckling	Buckling About Axis y			Buckling About Axis z			Lateral-Torsional Buckling				
No.	Possible	Possible	$k_{cr,y}$	$L_{cr,y}$ [m]	Possible	$k_{cr,z}$	$L_{cr,z}$ [m]	Possible	k_z	k_w	L_w [m]	L_T [m]
2282	x	x	1.00	0.200	x	1.00	0.200	-	1.0	1.0	0.200	0.200
2481	x	x	1.00	0.200	x	1.00	0.200	-	1.0	1.0	0.200	0.200
2578	x	x	1.00	0.200	x	1.00	0.200	-	1.0	1.0	0.200	0.200
2803	x	x	1.00	0.200	x	1.00	0.200	-	1.0	1.0	0.200	0.200
2807	x	x	1.00	0.200	x	1.00	0.200	-	1.0	1.0	0.200	0.200
2830	x	x	1.00	3.600	x	1.00	3.600	-	1.0	1.0	3.600	3.600
2831	x	x	1.00	3.600	x	1.00	3.600	-	1.0	1.0	3.600	3.600
2832	x	x	1.00	3.600	x	1.00	3.600	-	1.0	1.0	3.600	3.600
2833	x	x	1.00	3.600	x	1.00	3.600	-	1.0	1.0	3.600	3.600
2834	x	x	1.00	3.600	x	1.00	3.600	-	1.0	1.0	3.600	3.600
2835	x	x	1.00	3.600	x	1.00	3.600	-	1.0	1.0	3.600	3.600
2836	x	x	1.00	3.600	x	1.00	3.600	-	1.0	1.0	3.600	3.600
2837	x	x	1.00	3.600	x	1.00	3.600	-	1.0	1.0	3.600	3.600
2838	x	x	1.00	1.092	x	1.00	1.092	-	1.0	1.0	1.092	1.092
2839	x	x	1.00	1.350	x	1.00	1.350	-	1.0	1.0	1.350	1.350
2840	x	x	1.00	1.607	x	1.00	1.607	-	1.0	1.0	1.607	1.607
2841	x	x	1.00	1.864	x	1.00	1.864	-	1.0	1.0	1.864	1.864
2842	x	x	1.00	2.121	x	1.00	2.121	-	1.0	1.0	2.121	2.121
2843	x	x	1.00	2.379	x	1.00	2.379	-	1.0	1.0	2.379	2.379
2844	x	x	1.00	2.636	x	1.00	2.636	-	1.0	1.0	2.636	2.636
2845	x	x	1.00	2.893	x	1.00	2.893	-	1.0	1.0	2.893	2.893
2846	x	x	1.00	3.151	x	1.00	3.151	-	1.0	1.0	3.151	3.151
2847	x	x	1.00	3.408	x	1.00	3.408	-	1.0	1.0	3.408	3.408
2848	x	x	1.00	3.600	x	1.00	3.600	-	1.0	1.0	3.600	3.600
2849	x	x	1.00	3.600	x	1.00	3.600	-	1.0	1.0	3.600	3.600
2850	x	x	1.00	3.600	x	1.00	3.600	-	1.0	1.0	3.600	3.600
2851	x	x	1.00	3.600	x	1.00	3.600	-	1.0	1.0	3.600	3.600
2852	x	x	1.00	3.600	x	1.00	3.600	-	1.0	1.0	3.600	3.600
2853	x	x	1.00	3.600	x	1.00	3.600	-	1.0	1.0	3.600	3.600
2854	x	x	1.00	3.600	x	1.00	3.600	-	1.0	1.0	3.600	3.600
2855	x	x	1.00	3.600	x	1.00	3.600	-	1.0	1.0	3.600	3.600
2909	x	x	1.00	0.600	x	1.00	0.600	-	1.0	1.0	0.600	0.600
2910	x	x	1.00	2.400	x	1.00	2.400	-	1.0	1.0	2.400	2.400
2911	x	x	1.00	3.625	x	1.00	3.625	-	1.0	1.0	3.625	3.625
2912	x	x	1.00	3.584	x	1.00	3.584	-	1.0	1.0	3.584	3.584
2913	x	x	1.00	1.100	x	1.00	1.100	-	1.0	1.0	1.100	1.100
2914	x	x	1.00	3.600	x	1.00	3.600	-	1.0	1.0	3.600	3.600
2915	x	x	1.00	3.600	x	1.00	3.600	-	1.0	1.0	3.600	3.600
2916	x	x	1.00	3.600	x	1.00	3.600	-	1.0	1.0	3.600	3.600
2917	x	x	1.00	0.150	x	1.00	0.150	-	1.0	1.0	0.150	0.150
2918	x	x	1.00	1.000	x	1.00	1.000	-	1.0	1.0	1.000	1.000
2919	x	x	1.00	2.600	x	1.00	2.600	-	1.0	1.0	2.600	2.600
2920	x	x	1.00	1.000	x	1.00	1.000	-	1.0	1.0	1.000	1.000
2921	x	x	1.00	3.600	x	1.00	3.600	-	1.0	1.0	3.600	3.600
2922	x	x	1.00	3.600	x	1.00	3.600	-	1.0	1.0	3.600	3.600
2923	x	x	1.00	3.600	x	1.00	3.600	-	1.0	1.0	3.600	3.600
2924	x	x	1.00	3.600	x	1.00	3.600	-	1.0	1.0	3.600	3.600
2925	x	x	1.00	3.600	x	1.00	3.600	-	1.0	1.0	3.600	3.600
2926	x	x	1.00	3.600	x	1.00	3.600	-	1.0	1.0	3.600	3.600
2927	x	x	1.00	3.600	x	1.00	3.600	-	1.0	1.0	3.600	3.600
2928	x	x	1.00	3.600	x	1.00	3.600	-	1.0	1.0	3.600	3.600
2929	x	x	1.00	3.600	x	1.00	3.600	-	1.0	1.0	3.600	3.600
2945	x	x	1.00	0.226	x	1.00	0.226	-	1.0	1.0	0.226	0.226
2946	x	x	1.00	0.226	x	1.00	0.226	-	1.0	1.0	0.226	0.226
2947	x	x	1.00	0.226	x	1.00	0.226	-	1.0	1.0	0.226	0.226
2963	x	x	1.00	0.221	x	1.00	0.221	-	1.0	1.0	0.221	0.221
2964	x	x	1.00	0.221	x	1.00	0.221	-	1.0	1.0	0.221	0.221
2965	x	x	1.00	0.221	x	1.00	0.221	-	1.0	1.0	0.221	0.221
2966	x	x	1.00	0.221	x	1.00	0.221	-	1.0	1.0	0.221	0.221
2967	x	x	1.00	0.221	x	1.00	0.221	-	1.0	1.0	0.221	0.221
2968	x	x	1.00	0.221	x	1.00	0.221	-	1.0	1.0	0.221	0.221
2969	x	x	1.00	0.226	x	1.00	0.226	-	1.0	1.0	0.226	0.226
2970	x	x	1.00	0.200	x	1.00	0.200	-	1.0	1.0	0.200	0.200
2971	x	x	1.00	0.200	x	1.00	0.200	-	1.0	1.0	0.200	0.200
2972	x	x	1.00	0.200	x	1.00	0.200	-	1.0	1.0	0.200	0.200
2973	x	x	1.00	0.200	x	1.00	0.200	-	1.0	1.0	0.200	0.200
2974	x	x	1.00	0.200	x	1.00	0.200	-	1.0	1.0	0.200	0.200

1.5 Effective Lengths - Members

Member	Buckling	Buckling About Axis y			Buckling About Axis z			Lateral-Torsional Buckling				
No.	Possible	Possible	$k_{cr,y}$	$L_{cr,y}$ [m]	Possible	$k_{cr,z}$	$L_{cr,z}$ [m]	Possible	k_z	k_w	L_w [m]	L_T [m]
2975	x	x	1.00	0.200	x	1.00	0.200	-	1.0	1.0	0.200	0.200
3009	x	x	1.00	0.226	x	1.00	0.226	-	1.0	1.0	0.226	0.226
3010	x	x	1.00	0.226	x	1.00	0.226	-	1.0	1.0	0.226	0.226
3011	x	x	1.00	0.226	x	1.00	0.226	-	1.0	1.0	0.226	0.226

2.2 Design by Cross-Section

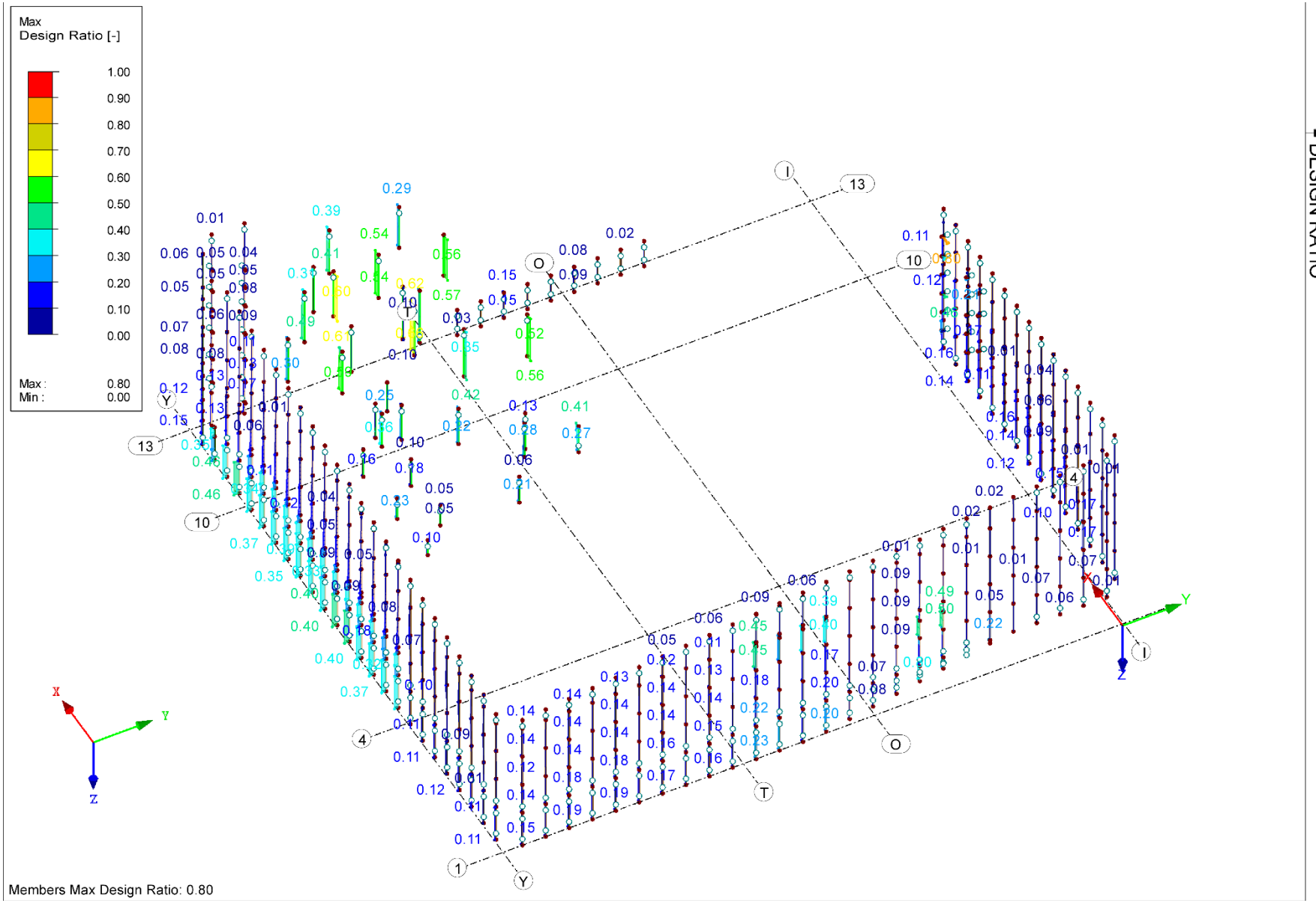
Sect. No.	Member No.	Location x [m]	LC/CO/ RC	Design		Equation No.	Description
7	TO 400/150/20/20/10/10						
	2975	0.000	CO1	0.01	≤ 1	CS101)	Cross-section check - Tension acc. to 6.2.3
	51	0.000	CO1	0.11	≤ 1	CS102)	Cross-section check - Compression acc. to 6.2.4
	734	0.000	CO1	0.07	≤ 1	CS111)	Cross-section check - Bending about y-axis acc. to 6.2.5 - Class 1 or 2
	2922	3.600	CO1	0.00	≤ 1	CS116)	Cross-section check - Bending about z-axis acc. to 6.2.5 - Class 1 or 2
	2279	0.000	CO1	0.10	≤ 1	CS121)	Cross-section check - Shear force in z-axis acc. to 6.2.6
	637	0.000	CO1	0.08	≤ 1	CS123)	Cross-section check - Shear force in y-axis acc. to 6.2.6
	100	0.000	CO1	0.00	≤ 1	CS126)	Cross-section check - Shear buckling acc. to 6.2.6(6)
	2971	0.000	CO1	0.35	≤ 1	CS131)	Cross-section check - Torsion acc. to 6.2.7
	2807	0.000	CO1	0.06	≤ 1	CS132)	Cross-section check - Torsion and shear force acc. to 6.2.7(9)
	2971	0.000	CO1	0.58	≤ 1	CS137)	Cross-section check - Torsion and shear force acc. to 6.2.7(9)
	734	0.000	CO1	0.07	≤ 1	CS141)	Cross-section check - Bending and shear force acc. to 6.2.5 and 6.2.8
	2922	3.600	CO1	0.00	≤ 1	CS151)	Cross-section check - Bending about z-axis and shear force acc. to 6.2.5 and 6.2.8
	2922	0.000	CO1	0.01	≤ 1	CS161)	Cross-section check - Biaxial bending and shear force acc. to 6.2.6, 6.2.7 and 6.2.9
	613	0.000	CO1	0.15	≤ 1	CS181)	Cross-section check - Bending, shear and axial force acc. to 6.2.9.1
	2807	0.000	CO1	0.05	≤ 1	CS186)	Cross-section check - Bending, shear, torsion and axial force acc. to 6.2.9.1
	414	2.300	CO1	0.03	≤ 1	CS201)	Cross-section check - Bending about z-axis, shear and axial force acc. to 6.2.9.1
	2974	0.000	CO1	0.01	≤ 1	CS206)	Cross-section check - Bending about z-axis, shear, torsion and axial force acc. to 6.2.9.1
	617	0.000	CO1	0.05	≤ 1	CS221)	Cross-section check - Biaxial bending, shear and axial force acc. to 6.2.10 and 6.2.9
	2971	0.000	CO1	0.03	≤ 1	CS226)	Cross-section check - Biaxial bending, shear, torsion and axial force acc. to 6.2.10 and 6.2.9
	2971	0.000	CO1	0.80	≤ 1	CS271)	Cross-section check - Axial stress and torsion - Elastic design
	51	0.000	CO1	0.12	≤ 1	ST301)	Stability analysis - Flexural buckling about y-axis acc. to 6.3.1.1 and 6.3.1.2(4)
	82	0.000	CO1	0.19	≤ 1	ST302)	Stability analysis - Flexural buckling about y-axis acc. to 6.3.1.1 and 6.3.1.2
	155	0.000	CO1	0.10	≤ 1	ST311)	Stability analysis - Flexural buckling about z-axis acc. to 6.3.1.1 and 6.3.1.2(4)
	51	0.000	CO1	0.15	≤ 1	ST312)	Stability analysis - Flexural buckling about z-axis acc. to 6.3.1.1 and 6.3.1.2
	100	2.300	CO1	0.22	≤ 1	ST364)	Stability analysis - Bending and compression acc. to 6.3.3, Method 2
8	TO 400/300/20/20/10/10						
	61	0.000	CO1	0.23	≤ 1	CS102)	Cross-section check - Compression acc. to 6.2.4
	264	0.000	CO1	0.03	≤ 1	CS121)	Cross-section check - Shear force in z-axis acc. to 6.2.6
	125	1.425	CO1	0.01	≤ 1	CS123)	Cross-section check - Shear force in y-axis acc. to 6.2.6
	42	0.000	CO1	0.00	≤ 1	CS126)	Cross-section check - Shear buckling acc. to 6.2.6(6)
	183	4.299	CO1	0.06	≤ 1	CS201)	Cross-section check - Bending about z-axis, shear and axial force acc. to 6.2.9.1
	264	1.200	CO1	0.03	≤ 1	CS221)	Cross-section check - Biaxial bending, shear and axial force acc. to 6.2.10 and 6.2.9
	61	0.000	CO1	0.24	≤ 1	ST301)	Stability analysis - Flexural buckling about y-axis acc. to 6.3.1.1 and 6.3.1.2(4)
	61	0.000	CO1	0.25	≤ 1	ST311)	Stability analysis - Flexural buckling about z-axis acc. to 6.3.1.1 and 6.3.1.2(4)
	264	0.000	CO1	0.32	≤ 1	ST364)	Stability analysis - Bending and compression acc. to 6.3.3, Method 2
9	TO 500/150/20/20/10/10						
	703	2.362	CO1	0.00	≤ 1	CS100)	Negligible internal forces
	2968	0.000	CO1	0.00	≤ 1	CS101)	Cross-section check - Tension acc. to 6.2.3
	55	0.000	CO1	0.28	≤ 1	CS102)	Cross-section check - Compression acc. to 6.2.4
	2964	0.000	CO1	0.02	≤ 1	CS111)	Cross-section check - Bending about y-axis acc. to 6.2.5 - Class 1 or 2
	412	3.600	CO1	0.01	≤ 1	CS116)	Cross-section check - Bending about z-axis acc. to 6.2.5 - Class 1 or 2
	297	0.000	CO1	0.08	≤ 1	CS121)	Cross-section check - Shear force in z-axis acc. to 6.2.6

2.2 Design by Cross-Section

Sect. No.	Member No.	Location x [m]	LC/CO/ RC	Design		Equation No.	Description
	78	0.000	CO1	0.03	≤ 1	CS123)	Cross-section check - Shear force in y-axis acc. to 6.2.6
	78	0.000	CO1	0.00	≤ 1	CS126)	Cross-section check - Shear buckling acc. to 6.2.6(6)
	2964	0.000	CO1	0.02	≤ 1	CS141)	Cross-section check - Bending and shear force acc. to 6.2.5 and 6.2.8
	412	3.600	CO1	0.01	≤ 1	CS151)	Cross-section check - Bending about z-axis and shear force acc. to 6.2.5 and 6.2.8
	334	1.350	CO1	0.02	≤ 1	CS161)	Cross-section check - Biaxial bending and shear force acc. to 6.2.6, 6.2.7 and 6.2.9
	132	2.850	CO1	0.21	≤ 1	CS181)	Cross-section check - Bending, shear and axial force acc. to 6.2.9.1
	681	0.000	CO1	0.02	≤ 1	CS201)	Cross-section check - Bending about z-axis, shear and axial force acc. to 6.2.9.1
	134	2.850	CO1	0.06	≤ 1	CS221)	Cross-section check - Biaxial bending, shear and axial force acc. to 6.2.10 and 6.2.9
	55	0.000	CO1	0.31	≤ 1	ST301)	Stability analysis - Flexural buckling about y-axis acc. to 6.3.1.1 and 6.3.1.2(4)
	231	0.000	CO1	0.30	≤ 1	ST302)	Stability analysis - Flexural buckling about y-axis acc. to 6.3.1.1 and 6.3.1.2
	231	0.000	CO1	0.13	≤ 1	ST311)	Stability analysis - Flexural buckling about z-axis acc. to 6.3.1.1 and 6.3.1.2(4)
	55	0.000	CO1	0.46	≤ 1	ST312)	Stability analysis - Flexural buckling about z-axis acc. to 6.3.1.1 and 6.3.1.2
	351	0.000	CO1	0.50	≤ 1	ST364)	Stability analysis - Bending and compression acc. to 6.3.3, Method 2
34	QRO 120x6 | EN 10219-2:2006						
	2064	3.724	CO1	0.00	≤ 1	CS100)	Negligible internal forces
	2042	0.000	CO1	0.10	≤ 1	CS101)	Cross-section check - Tension acc. to 6.2.3
	2045	5.753	CO1	0.17	≤ 1	CS102)	Cross-section check - Compression acc. to 6.2.4
	2072	0.000	CO1	0.01	≤ 1	CS121)	Cross-section check - Shear force in z-axis acc. to 6.2.6
	2070	0.000	CO1	0.01	≤ 1	CS123)	Cross-section check - Shear force in y-axis acc. to 6.2.6
	2057	0.000	CO1	0.00	≤ 1	CS126)	Cross-section check - Shear buckling acc. to 6.2.6(6)
	2074	0.000	CO1	0.01	≤ 1	CS181)	Cross-section check - Bending, shear and axial force acc. to 6.2.9.1
	2068	2.734	CO1	0.06	≤ 1	CS201)	Cross-section check - Bending about z-axis, shear and axial force acc. to 6.2.9.1
	2059	0.000	CO1	0.11	≤ 1	CS221)	Cross-section check - Biaxial bending, shear and axial force acc. to 6.2.10 and 6.2.9
	2072	2.627	CO1	0.08	≤ 1	ST301)	Stability analysis - Flexural buckling about y-axis acc. to 6.3.1.1 and 6.3.1.2(4)
	2052	6.403	CO1	0.62	≤ 1	ST302)	Stability analysis - Flexural buckling about y-axis acc. to 6.3.1.1 and 6.3.1.2
	2072	2.627	CO1	0.08	≤ 1	ST311)	Stability analysis - Flexural buckling about z-axis acc. to 6.3.1.1 and 6.3.1.2(4)
	2052	6.403	CO1	0.62	≤ 1	ST312)	Stability analysis - Flexural buckling about z-axis acc. to 6.3.1.1 and 6.3.1.2
	2052	0.000	CO1	0.66	≤ 1	ST364)	Stability analysis - Bending and compression acc. to 6.3.3, Method 2
54	TO 500/150/30/30/20/20						
	163	0.000	CO1	0.04	≤ 1	CS102)	Cross-section check - Compression acc. to 6.2.4
	356	2.895	CO1	0.02	≤ 1	CS116)	Cross-section check - Bending about z-axis acc. to 6.2.5 - Class 1 or 2
	234	0.000	CO1	0.02	≤ 1	CS121)	Cross-section check - Shear force in z-axis acc. to 6.2.6
	234	0.000	CO1	0.22	≤ 1	CS123)	Cross-section check - Shear force in y-axis acc. to 6.2.6
	123	0.000	CO1	0.00	≤ 1	CS126)	Cross-section check - Shear buckling acc. to 6.2.6(6)
	356	2.895	CO1	0.02	≤ 1	CS151)	Cross-section check - Bending about z-axis and shear force acc. to 6.2.5 and 6.2.8
	356	0.000	CO1	0.00	≤ 1	CS161)	Cross-section check - Biaxial bending and shear force acc. to 6.2.6, 6.2.7 and 6.2.9
	569	0.000	CO1	0.08	≤ 1	CS181)	Cross-section check - Bending, shear and axial force acc. to 6.2.9.1
	355	2.638	CO1	0.02	≤ 1	CS201)	Cross-section check - Bending about z-axis, shear and axial force acc. to 6.2.9.1
	234	0.407	CO1	0.04	≤ 1	CS221)	Cross-section check - Biaxial bending, shear and axial force acc. to 6.2.10 and 6.2.9
	151	0.000	CO1	0.06	≤ 1	ST301)	Stability analysis - Flexural buckling about y-axis acc. to 6.3.1.1 and 6.3.1.2(4)
	163	0.000	CO1	0.06	≤ 1	ST311)	Stability analysis - Flexural buckling about z-axis acc. to 6.3.1.1 and 6.3.1.2(4)
	234	0.000	CO1	0.19	≤ 1	ST364)	Stability analysis - Bending and compression acc. to 6.3.3, Method 2
55	TO 450/150/20/20/10/10						
	90	0.000	CO1	0.07	≤ 1	CS102)	Cross-section check - Compression acc. to 6.2.4
	340	0.837	CO1	0.00	≤ 1	CS121)	Cross-section check - Shear force in z-axis acc. to 6.2.6
	337	0.000	CO1	0.09	≤ 1	CS123)	Cross-section check - Shear force in y-axis acc. to 6.2.6
	115	0.000	CO1	0.00	≤ 1	CS126)	Cross-section check - Shear buckling acc. to 6.2.6(6)

2.2 Design by Cross-Section

Sect. No.	Member No.	Location x [m]	LC/CO/ RC	Design		Equation No.	Description
	2833	3.600	CO1	0.00	≤ 1	CS161)	Cross-section check - Biaxial bending and shear force acc. to 6.2.6, 6.2.7 and 6.2.9
	115	3.600	CO1	0.03	≤ 1	CS181)	Cross-section check - Bending, shear and axial force acc. to 6.2.9.1
	2832	3.600	CO1	0.01	≤ 1	CS201)	Cross-section check - Bending about z-axis, shear and axial force acc. to 6.2.9.1
	316	0.000	CO1	0.03	≤ 1	CS221)	Cross-section check - Biaxial bending, shear and axial force acc. to 6.2.10 and 6.2.9
	337	0.000	CO1	0.02	≤ 1	ST301)	Stability analysis - Flexural buckling about y-axis acc. to 6.3.1.1 and 6.3.1.2(4)
	90	0.000	CO1	0.23	≤ 1	ST302)	Stability analysis - Flexural buckling about y-axis acc. to 6.3.1.1 and 6.3.1.2
	113	0.000	CO1	0.10	≤ 1	ST311)	Stability analysis - Flexural buckling about z-axis acc. to 6.3.1.1 and 6.3.1.2(4)
	90	0.000	CO1	0.12	≤ 1	ST312)	Stability analysis - Flexural buckling about z-axis acc. to 6.3.1.1 and 6.3.1.2
	381	0.000	CO1	0.45	≤ 1	ST364)	Stability analysis - Bending and compression acc. to 6.3.3, Method 2



6.2.4 pav. Metalinių konstrukcijų išnaudojimas

DOKUMENTO ŽYMUO	LAPAS	LAPŲ	LAIDA
439-MKC-01-TP-SK2-BSPS-01	321	382	0

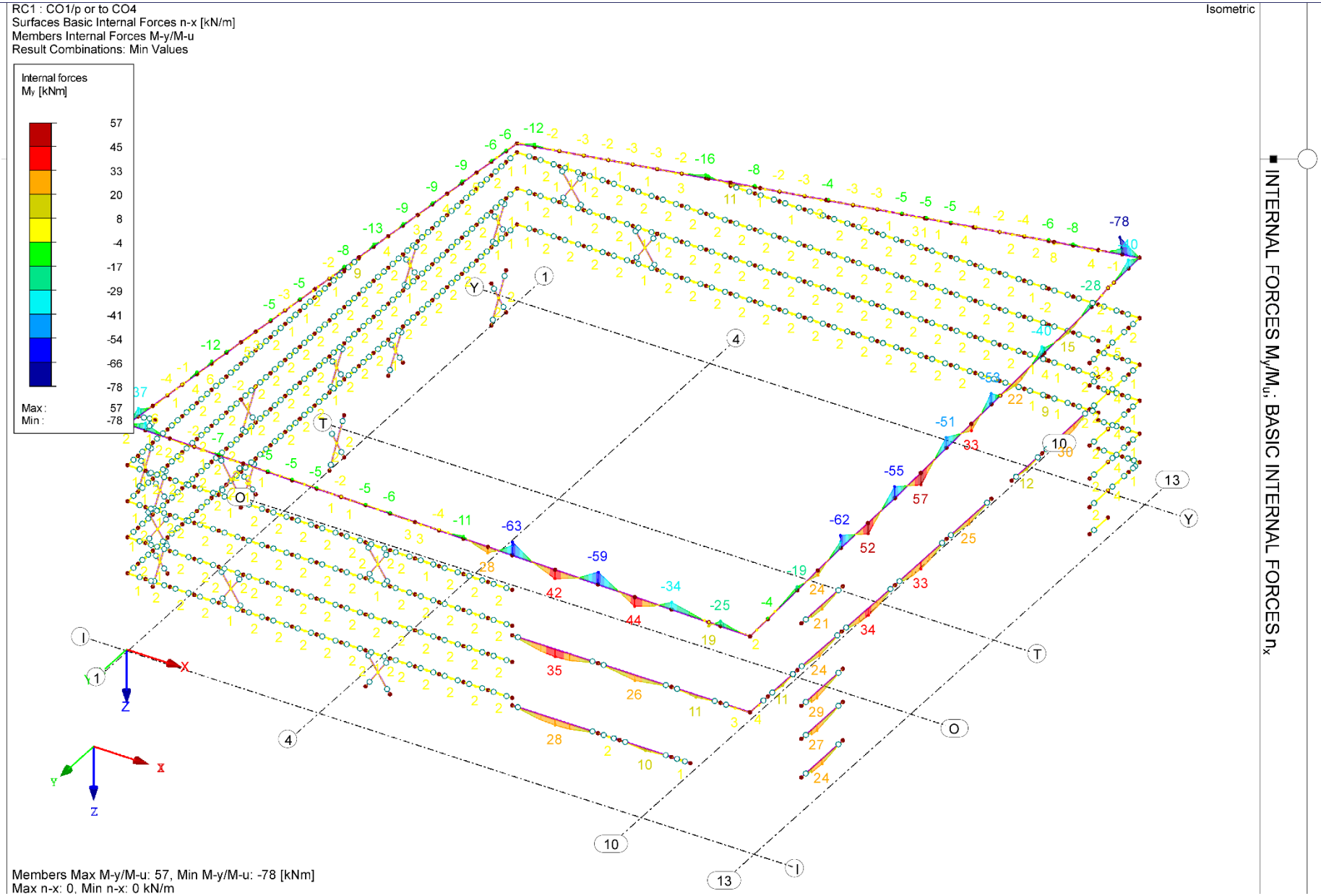
6.3 METALINIŲ FASADO SIJŲ SKAIČIAVIMAS (KONCERTŲ PASTATAS)

Maksimalios įrąžos veikiančios skerspjūvyje

4.12 Cross-Sections - Internal Forces

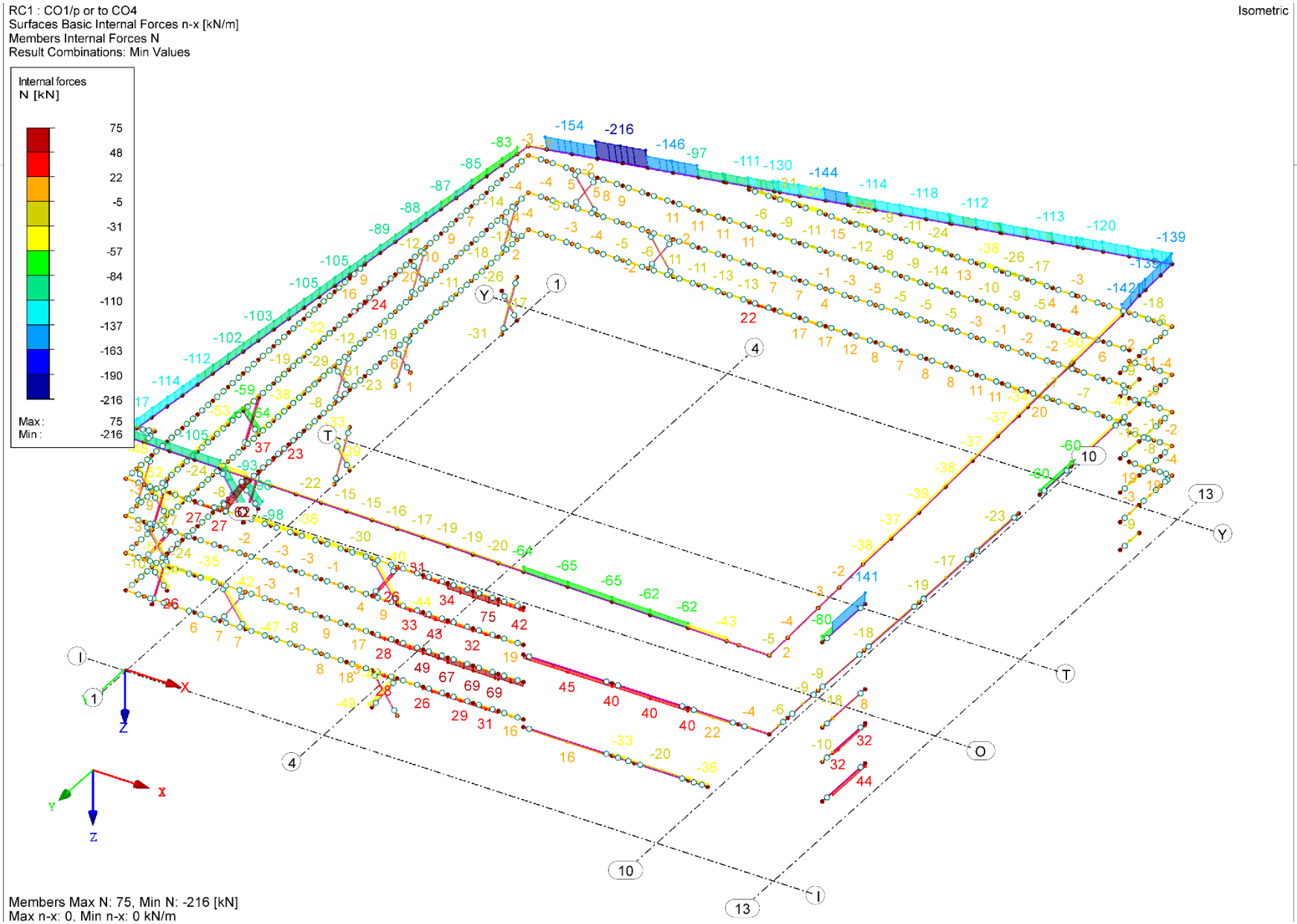
Result Combinations

Member No.	RC	Node No.	Location x [m]		Forces [kN] N	V_y / V_u	V_z / V_v	Moments [kNm] M_T	M_y / M_u	M_z / M_v	Corresponding Load Cases
	Section No. 17: HE A 120 | Euronorm 53-62										
533	RC1		2.400	MAX N	> 83	6	-3	0	0	0	CO 4
2568	RC1	3998	0.000	MIN N	> -58	-7	3	0	0	0	CO 3
282	RC1	2574	0.000	MAX V_y	12	> 20	6	0	0	0	CO 3
286	RC1	2574	3.000	MIN V_y	28	> -21	-7	0	-4	12	CO 3
282	RC1	2574	0.000	MAX V_z	15	4	> 6	0	0	0	CO 1
755	RC1	2604	0.250	MIN V_z	-5	-7	> -36	0	0	0	CO 1
755	RC1	2332	0.000	MAX M_y	-5	-7	-35	0	> 9	-2	CO 1
286	RC1	2574	3.000	MIN M_y	28	-16	-7	0	> -4	9	CO 4
286	RC1	2574	3.000	MAX M_z	28	-21	-7	0	-4	> 12	CO 3
504	RC1	2365	0.000	MIN M_z	6	-9	1	0	0	> -7	CO 3
	Section No. 26: HE A 240 | Euronorm 53-62										
1679	RC1	951	0.000	MAX N	> 202	1	4	0	-2	-1	CO 1
1678	RC1		2.424	MIN N	> -216	2	-4	0	-2	1	CO 3
725	RC1	2588	0.000	MAX V_y	-17	> 37	16	0	0	0	CO 4
725	RC1	2582	8.502	MIN V_y	-18	> -36	-16	0	0	0	CO 4
2051	RC1	1413	0.000	MAX V_z	-24	9	> 50	0	-40	-7	CO 2
2025	RC1	798	1.725	MIN V_z	-120	-3	> -49	0	-78	-3	CO 2
2030	RC1	4614	4.205	MAX M_y	-38	7	22	0	> 58	-5	CO 2
2025	RC1	798	1.725	MIN M_y	-120	-3	-49	0	> -78	-3	CO 2
727	RC1		5.600	MAX M_z	-15	11	-5	0	30	> 64	CO 4
725	RC1		2.834	MIN M_z	-17	12	5	0	30	> -69	CO 4
	Section No. 52: QRO 100x5 | EN 10219-2:2006										
2956	RC1		4.590	MAX N	> 90	0	-1	0	0	0	CO 3
2955	RC1	2387	0.000	MIN N	> -98	0	1	0	0	0	CO 3
2863	RC1	4012	0.000	MAX V_y	45	> 0	2	0	-2	0	CO 1
2802	RC1	2362	0.000	MIN V_y	-64	> 0	1	0	0	0	CO 4
2235	RC1	1126	0.000	MAX V_z	2	0	> 3	1	0	0	CO 1
2235	RC1	372	1.765	MIN V_z	2	0	> -3	1	0	0	CO 1
2796	RC1		2.419	MAX M_y	-33	0	0	0	> 2	0	CO 1
2863	RC1	4012	0.000	MIN M_y	47	0	2	0	> -2	0	CO 4
2802	RC1	4013	4.327	MAX M_z	-59	0	-2	0	-2	> 0	CO 4
2235	RC1	1126	0.000	MIN M_z	2	0	3	1	0	> 0	CO 1

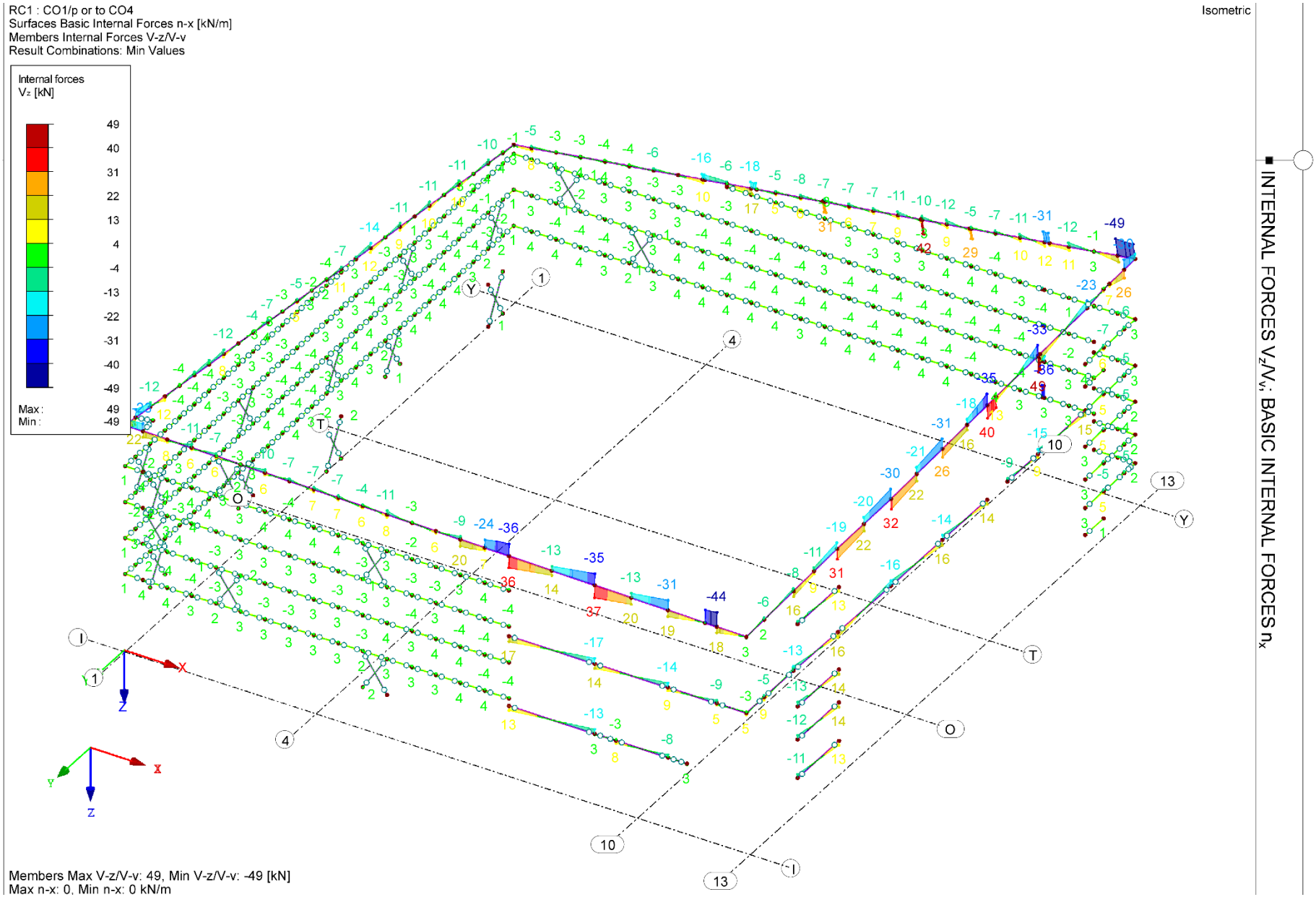


6.3.1 pav.Įrąžos elementuose (lenkimo momentas My)

DOKUMENTO ŽYMUO	LAPAS	LAPŲ	LAIDA
439-MKC-01-TP-SK2-BSPS-01	323	382	0



6.3.2 pav. Įrąžos elementuose (ašinės jėgos N)



6.3.3 pav. Įrąžos elementuose (skersinės jėgos Vz)

DOKUMENTO ŽYMUO	LAPAS	LAPŲ	LAIDA
439-MKC-01-TP-SK2-BSPS-01	325	382	0

Metalo konstrukcijų skaičiavimas

1.1 General Data

Members to design:	262,266,267,270-272,276,277,281,282,286,431-527,531-533,547-558,572-583,597-608,661,668,669,674,675,677,678,723-733,755,758,759,761-796,1536,1538-1540,1543,1545,1548,1549,1551,1553,1559,1560,1569,1571,1573,1576,1593-1596,1600-1603,1607,1616-1626,1630,1638,1640,1643-1653,1662,1669-1680,1688,1935,2005,2014,2016-2028,2030-2034,2047-2049,2051,2164,2173-2177,2241,2242,2245,2248,2251,2255,2257,2263,2265-2267,2269,2271-2273,2275,2276,2402-2407,2472-2480,2506,2514,2566-2568,2788-2802,2804-2806,2810-2823,2825-2829,2856,2858,2863,2865,2867-2908,2930,2931,2953-2962	
Sets of members to design:		
National Annex:	CEN	
Ultimate Limit State Design		
Result combinations to design:	RC1	CO1/p or to CO4

1.2 Materials

Matl. No.	Material Description	E- Modulus E [kN/cm²]	Shear Modulus G [kN/cm²]	Poisson's Ratio ν [-]	Yield Stress f_{yk} [kN/cm²]	Max. Thickness t [mm]
2	Steel S 355 | EN 10025-2:2004-11	21000.00	8076.92	0.300	35.50	3.0
					35.50	16.0
					34.50	40.0
					33.50	63.0
					32.50	80.0
					31.50	100.0
					29.50	150.0
					28.50	200.0

1.3 Cross-Sections

Sect. No.	Matl. No.	Cross-Section Description	Cross-Section Type	Max Design Ratio	Comment
17	2	HE A 120 | Euronorm 53-62	I-section rolled	0.59	
26	2	HE A 240 | Euronorm 53-62	I-section rolled	0.78	
52	2	QRO 100x5 | EN 10219-2:2006	Box rolled	0.60	

1.5 Effective Lengths - Members

Member	Buckling	Buckling About Axis y			Buckling About Axis z			Lateral-Torsional Buckling				
No.	Possible	Possible	$k_{cr,y}$	$L_{cr,y}$ [m]	Possible	$k_{cr,z}$	$L_{cr,z}$ [m]	Possible	k_z	k_w	L_w [m]	L_T [m]
262	x	x	1.00	3.360	x	1.00	3.360	x	1.0	1.0	3.360	3.360
266	x	x	1.00	3.000	x	1.00	3.000	x	1.0	1.0	3.000	3.000
267	x	x	1.00	3.360	x	1.00	3.360	x	1.0	1.0	3.360	3.360
270	x	x	1.00	4.256	x	1.00	4.256	x	1.0	1.0	4.256	4.256
271	x	x	1.00	3.000	x	1.00	3.000	x	1.0	1.0	3.000	3.000
272	x	x	1.00	3.360	x	1.00	3.360	x	1.0	1.0	3.360	3.360
276	x	x	1.00	3.000	x	1.00	3.000	x	1.0	1.0	3.000	3.000
277	x	x	1.00	3.360	x	1.00	3.360	x	1.0	1.0	3.360	3.360
281	x	x	1.00	3.000	x	1.00	3.000	x	1.0	1.0	3.000	3.000
282	x	x	1.00	3.360	x	1.00	3.360	x	1.0	1.0	3.360	3.360
286	x	x	1.00	3.000	x	1.00	3.000	x	1.0	1.0	3.000	3.000
431	x	x	1.00	1.750	x	1.00	1.750	x	1.0	1.0	1.750	1.750
432	x	x	1.00	1.750	x	1.00	1.750	x	1.0	1.0	1.750	1.750
433	x	x	1.00	1.793	x	1.00	1.793	x	1.0	1.0	1.793	1.793
434	x	x	1.00	1.793	x	1.00	1.793	x	1.0	1.0	1.793	1.793
435	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
436	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
437	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
438	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
439	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
440	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
441	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
442	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
443	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
444	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
445	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400

1.5 Effective Lengths - Members

Member	Buckling	Buckling About Axis y			Buckling About Axis z			Lateral-Torsional Buckling				
No.	Possible	Possible	$k_{cr,y}$	$L_{cr,y}$ [m]	Possible	$k_{cr,z}$	$L_{cr,z}$ [m]	Possible	k_z	k_w	L_w [m]	L_T [m]
446	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
447	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
448	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
449	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
450	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
451	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
452	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
453	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
454	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
455	x	x	1.00	1.750	x	1.00	1.750	x	1.0	1.0	1.750	1.750
456	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
457	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
458	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
459	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
460	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
461	x	x	1.00	2.410	x	1.00	2.410	x	1.0	1.0	2.410	2.410
462	x	x	1.00	2.390	x	1.00	2.390	x	1.0	1.0	2.390	2.390
463	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
464	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
465	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
466	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
467	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
468	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
469	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
470	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
471	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
472	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
473	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
474	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
475	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
476	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
477	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
478	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
479	x	x	1.00	1.750	x	1.00	1.750	x	1.0	1.0	1.750	1.750
480	x	x	1.00	1.707	x	1.00	1.707	x	1.0	1.0	1.707	1.707
481	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
482	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
483	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
484	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
485	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
486	x	x	1.00	2.410	x	1.00	2.410	x	1.0	1.0	2.410	2.410
487	x	x	1.00	2.390	x	1.00	2.390	x	1.0	1.0	2.390	2.390
488	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
489	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
490	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
491	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
492	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
493	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
494	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
495	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
496	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
497	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
498	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
499	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
500	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
501	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
502	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
503	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
504	x	x	1.00	1.707	x	1.00	1.707	x	1.0	1.0	1.707	1.707
505	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
506	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
507	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
508	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
509	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
510	x	x	1.00	2.410	x	1.00	2.410	x	1.0	1.0	2.410	2.410
511	x	x	1.00	2.390	x	1.00	2.390	x	1.0	1.0	2.390	2.390
512	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400

1.5 Effective Lengths - Members

Member	Buckling	Buckling About Axis y			Buckling About Axis z			Lateral-Torsional Buckling				
No.	Possible	Possible	$k_{cr,y}$	$L_{cr,y}$ [m]	Possible	$k_{cr,z}$	$L_{cr,z}$ [m]	Possible	k_z	k_w	L_w [m]	L_T [m]
513	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
514	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
515	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
516	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
517	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
518	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
519	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
520	x	x	1.00	1.750	x	1.00	1.750	x	1.0	1.0	1.750	1.750
521	x	x	1.00	1.707	x	1.00	1.707	x	1.0	1.0	1.707	1.707
522	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
523	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
524	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
525	x	x	1.00	2.380	x	1.00	2.380	x	1.0	1.0	2.380	2.380
526	x	x	1.00	2.380	x	1.00	2.380	x	1.0	1.0	2.380	2.380
527	x	x	1.00	2.380	x	1.00	2.380	x	1.0	1.0	2.380	2.380
531	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
532	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
533	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
547	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
548	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
549	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
550	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
551	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
552	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
553	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
554	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
555	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
556	x	x	1.00	2.450	x	1.00	2.450	x	1.0	1.0	2.450	2.450
557	x	x	1.00	2.350	x	1.00	2.350	x	1.0	1.0	2.350	2.350
558	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
572	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
573	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
574	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
575	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
576	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
577	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
578	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
579	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
580	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
581	x	x	1.00	2.450	x	1.00	2.450	x	1.0	1.0	2.450	2.450
582	x	x	1.00	2.350	x	1.00	2.350	x	1.0	1.0	2.350	2.350
583	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
597	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
598	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
599	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
600	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
601	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
602	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
603	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
604	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
605	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
606	x	x	1.00	2.450	x	1.00	2.450	x	1.0	1.0	2.450	2.450
607	x	x	1.00	2.350	x	1.00	2.350	x	1.0	1.0	2.350	2.350
608	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
661	x	x	1.00	5.099	x	1.00	5.099	x	1.0	1.0	5.099	5.099
668	x	x	1.00	4.800	x	1.00	4.800	x	1.0	1.0	4.800	4.800
669	x	x	1.00	2.906	x	1.00	2.906	x	1.0	1.0	2.906	2.906
674	x	x	1.00	2.900	x	1.00	2.900	x	1.0	1.0	2.900	2.900
675	x	x	1.00	4.800	x	1.00	4.800	x	1.0	1.0	4.800	4.800
677	x	x	1.00	8.043	x	1.00	8.043	x	1.0	1.0	8.043	8.043
678	x	x	1.00	4.975	x	1.00	4.975	x	1.0	1.0	4.975	4.975
723	x	x	1.00	8.419	x	1.00	8.419	x	1.0	1.0	8.419	8.419
724	x	x	1.00	7.200	x	1.00	7.200	x	1.0	1.0	7.200	7.200
725	x	x	1.00	8.502	x	1.00	8.502	x	1.0	1.0	8.502	8.502
726	x	x	1.00	7.325	x	1.00	7.325	x	1.0	1.0	7.325	7.325
727	x	x	1.00	8.400	x	1.00	8.400	x	1.0	1.0	8.400	8.400
728	x	x	1.00	8.419	x	1.00	8.419	x	1.0	1.0	8.419	8.419

1.5 Effective Lengths - Members

Member	Buckling	Buckling About Axis y			Buckling About Axis z			Lateral-Torsional Buckling				
No.	Possible	Possible	$k_{cr,y}$	$L_{cr,y}$ [m]	Possible	$k_{cr,z}$	$L_{cr,z}$ [m]	Possible	k_z	k_w	L_w [m]	L_T [m]
729	x	x	1.00	2.101	x	1.00	2.101	x	1.0	1.0	2.101	2.101
730	x	x	1.00	1.866	x	1.00	1.866	x	1.0	1.0	1.866	1.866
731	x	x	1.00	2.387	x	1.00	2.387	x	1.0	1.0	2.387	2.387
732	x	x	1.00	2.387	x	1.00	2.387	x	1.0	1.0	2.387	2.387
733	x	x	1.00	2.387	x	1.00	2.387	x	1.0	1.0	2.387	2.387
755	x	x	1.00	0.250	x	1.00	0.250	x	1.0	1.0	0.250	0.250
758	x	x	1.00	0.250	x	1.00	0.250	x	1.0	1.0	0.250	0.250
759	x	x	1.00	0.250	x	1.00	0.250	x	1.0	1.0	0.250	0.250
761	x	x	1.00	2.413	x	1.00	2.413	x	1.0	1.0	2.413	2.413
762	x	x	1.00	2.449	x	1.00	2.449	x	1.0	1.0	2.449	2.449
763	x	x	1.00	2.351	x	1.00	2.351	x	1.0	1.0	2.351	2.351
764	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
765	x	x	1.00	2.387	x	1.00	2.387	x	1.0	1.0	2.387	2.387
766	x	x	1.00	2.413	x	1.00	2.413	x	1.0	1.0	2.413	2.413
767	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
768	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
769	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
770	x	x	1.00	2.387	x	1.00	2.387	x	1.0	1.0	2.387	2.387
771	x	x	1.00	2.413	x	1.00	2.413	x	1.0	1.0	2.413	2.413
772	x	x	1.00	2.150	x	1.00	2.150	x	1.0	1.0	2.150	2.150
773	x	x	1.00	2.413	x	1.00	2.413	x	1.0	1.0	2.413	2.413
774	x	x	1.00	2.449	x	1.00	2.449	x	1.0	1.0	2.449	2.449
775	x	x	1.00	2.351	x	1.00	2.351	x	1.0	1.0	2.351	2.351
776	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
777	x	x	1.00	2.387	x	1.00	2.387	x	1.0	1.0	2.387	2.387
778	x	x	1.00	2.413	x	1.00	2.413	x	1.0	1.0	2.413	2.413
779	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
780	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
781	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
782	x	x	1.00	2.387	x	1.00	2.387	x	1.0	1.0	2.387	2.387
783	x	x	1.00	2.413	x	1.00	2.413	x	1.0	1.0	2.413	2.413
784	x	x	1.00	2.150	x	1.00	2.150	x	1.0	1.0	2.150	2.150
785	x	x	1.00	2.413	x	1.00	2.413	x	1.0	1.0	2.413	2.413
786	x	x	1.00	2.449	x	1.00	2.449	x	1.0	1.0	2.449	2.449
787	x	x	1.00	2.351	x	1.00	2.351	x	1.0	1.0	2.351	2.351
788	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
789	x	x	1.00	2.387	x	1.00	2.387	x	1.0	1.0	2.387	2.387
790	x	x	1.00	2.413	x	1.00	2.413	x	1.0	1.0	2.413	2.413
791	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
792	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
793	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
794	x	x	1.00	2.387	x	1.00	2.387	x	1.0	1.0	2.387	2.387
795	x	x	1.00	2.413	x	1.00	2.413	x	1.0	1.0	2.413	2.413
796	x	x	1.00	2.150	x	1.00	2.150	x	1.0	1.0	2.150	2.150
1536	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
1538	x	x	1.00	1.758	x	1.00	1.758	x	1.0	1.0	1.758	1.758
1539	x	x	1.00	2.380	x	1.00	2.380	x	1.0	1.0	2.380	2.380
1540	x	x	1.00	4.210	x	1.00	4.210	x	1.0	1.0	4.210	4.210
1543	x	x	1.00	2.903	x	1.00	2.903	x	1.0	1.0	2.903	2.903
1545	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
1548	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
1549	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
1551	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
1553	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
1559	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
1560	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
1569	x	x	1.00	2.450	x	1.00	2.450	x	1.0	1.0	2.450	2.450
1571	x	x	1.00	2.350	x	1.00	2.350	x	1.0	1.0	2.350	2.350
1573	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
1576	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
1593	x	x	1.00	3.601	x	1.00	3.601	x	1.0	1.0	3.601	3.601
1594	x	x	1.00	3.657	x	1.00	3.657	x	1.0	1.0	3.657	3.657
1595	x	x	1.00	1.144	x	1.00	1.144	x	1.0	1.0	1.144	1.144
1596	x	x	1.00	2.907	x	1.00	2.907	x	1.0	1.0	2.907	2.907
1600	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
1601	x	x	1.00	2.414	x	1.00	2.414	x	1.0	1.0	2.414	2.414
1602	x	x	1.00	2.414	x	1.00	2.414	x	1.0	1.0	2.414	2.414

1.5 Effective Lengths - Members

Member	Buckling	Buckling About Axis y			Buckling About Axis z			Lateral-Torsional Buckling				
No.	Possible	Possible	$k_{cr,y}$	$L_{cr,y}$ [m]	Possible	$k_{cr,z}$	$L_{cr,z}$ [m]	Possible	k_z	k_w	L_w [m]	L_T [m]
1603	x	x	1.00	2.424	x	1.00	2.424	x	1.0	1.0	2.424	2.424
1607	x	x	1.00	2.404	x	1.00	2.404	x	1.0	1.0	2.404	2.404
1616	x	x	1.00	2.414	x	1.00	2.414	x	1.0	1.0	2.414	2.414
1617	x	x	1.00	2.414	x	1.00	2.414	x	1.0	1.0	2.414	2.414
1618	x	x	1.00	2.414	x	1.00	2.414	x	1.0	1.0	2.414	2.414
1619	x	x	1.00	2.414	x	1.00	2.414	x	1.0	1.0	2.414	2.414
1620	x	x	1.00	2.414	x	1.00	2.414	x	1.0	1.0	2.414	2.414
1621	x	x	1.00	2.414	x	1.00	2.414	x	1.0	1.0	2.414	2.414
1622	x	x	1.00	2.414	x	1.00	2.414	x	1.0	1.0	2.414	2.414
1623	x	x	1.00	2.414	x	1.00	2.414	x	1.0	1.0	2.414	2.414
1624	x	x	1.00	2.414	x	1.00	2.414	x	1.0	1.0	2.414	2.414
1625	x	x	1.00	2.414	x	1.00	2.414	x	1.0	1.0	2.414	2.414
1626	x	x	1.00	2.414	x	1.00	2.414	x	1.0	1.0	2.414	2.414
1630	x	x	1.00	2.414	x	1.00	2.414	x	1.0	1.0	2.414	2.414
1638	x	x	1.00	2.414	x	1.00	2.414	x	1.0	1.0	2.414	2.414
1640	x	x	1.00	2.414	x	1.00	2.414	x	1.0	1.0	2.414	2.414
1643	x	x	1.00	2.414	x	1.00	2.414	x	1.0	1.0	2.414	2.414
1644	x	x	1.00	2.414	x	1.00	2.414	x	1.0	1.0	2.414	2.414
1645	x	x	1.00	2.414	x	1.00	2.414	x	1.0	1.0	2.414	2.414
1646	x	x	1.00	2.424	x	1.00	2.424	x	1.0	1.0	2.424	2.424
1647	x	x	1.00	2.424	x	1.00	2.424	x	1.0	1.0	2.424	2.424
1648	x	x	1.00	2.437	x	1.00	2.437	x	1.0	1.0	2.437	2.437
1649	x	x	1.00	2.412	x	1.00	2.412	x	1.0	1.0	2.412	2.412
1650	x	x	1.00	0.160	x	1.00	0.160	x	1.0	1.0	0.160	0.160
1651	x	x	1.00	2.424	x	1.00	2.424	x	1.0	1.0	2.424	2.424
1652	x	x	1.00	0.159	x	1.00	0.159	x	1.0	1.0	0.159	0.159
1653	x	x	1.00	2.437	x	1.00	2.437	x	1.0	1.0	2.437	2.437
1662	x	x	1.00	2.412	x	1.00	2.412	x	1.0	1.0	2.412	2.412
1669	x	x	1.00	2.424	x	1.00	2.424	x	1.0	1.0	2.424	2.424
1670	x	x	1.00	0.223	x	1.00	0.223	x	1.0	1.0	0.223	0.223
1671	x	x	1.00	2.473	x	1.00	2.473	x	1.0	1.0	2.473	2.473
1672	x	x	1.00	1.911	x	1.00	1.911	x	1.0	1.0	1.911	1.911
1673	x	x	1.00	2.412	x	1.00	2.412	x	1.0	1.0	2.412	2.412
1674	x	x	1.00	0.526	x	1.00	0.526	x	1.0	1.0	0.526	0.526
1675	x	x	1.00	0.227	x	1.00	0.227	x	1.0	1.0	0.227	0.227
1676	x	x	1.00	2.424	x	1.00	2.424	x	1.0	1.0	2.424	2.424
1677	x	x	1.00	2.424	x	1.00	2.424	x	1.0	1.0	2.424	2.424
1678	x	x	1.00	2.424	x	1.00	2.424	x	1.0	1.0	2.424	2.424
1679	x	x	1.00	2.424	x	1.00	2.424	x	1.0	1.0	2.424	2.424
1680	x	x	1.00	2.480	x	1.00	2.480	x	1.0	1.0	2.480	2.480
1688	x	x	1.00	3.341	x	1.00	3.341	x	1.0	1.0	3.341	3.341
1935	x	x	1.00	2.266	x	1.00	2.266	x	1.0	1.0	2.266	2.266
2005	x	x	1.00	2.197	x	1.00	2.197	x	1.0	1.0	2.197	2.197
2014	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
2016	x	x	1.00	2.414	x	1.00	2.414	x	1.0	1.0	2.414	2.414
2017	x	x	1.00	2.414	x	1.00	2.414	x	1.0	1.0	2.414	2.414
2018	x	x	1.00	1.803	x	1.00	1.803	x	1.0	1.0	1.803	1.803
2019	x	x	1.00	2.424	x	1.00	2.424	x	1.0	1.0	2.424	2.424
2020	x	x	1.00	1.768	x	1.00	1.768	x	1.0	1.0	1.768	1.768
2021	x	x	1.00	1.911	x	1.00	1.911	x	1.0	1.0	1.911	1.911
2022	x	x	1.00	2.424	x	1.00	2.424	x	1.0	1.0	2.424	2.424
2023	x	x	1.00	2.368	x	1.00	2.368	x	1.0	1.0	2.368	2.368
2024	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
2025	x	x	1.00	1.725	x	1.00	1.725	x	1.0	1.0	1.725	1.725
2026	x	x	1.00	1.802	x	1.00	1.802	x	1.0	1.0	1.802	1.802
2027	x	x	1.00	3.012	x	1.00	3.012	x	1.0	1.0	3.012	3.012
2028	x	x	1.00	2.153	x	1.00	2.153	x	1.0	1.0	2.153	2.153
2030	x	x	1.00	4.205	x	1.00	4.205	x	1.0	1.0	4.205	4.205
2031	x	x	1.00	4.029	x	1.00	4.029	x	1.0	1.0	4.029	4.029
2032	x	x	1.00	1.430	x	1.00	1.430	x	1.0	1.0	1.430	1.430
2033	x	x	1.00	7.717	x	1.00	7.717	x	1.0	1.0	7.717	7.717
2034	x	x	1.00	4.805	x	1.00	4.805	x	1.0	1.0	4.805	4.805
2047	x	x	1.00	0.513	x	1.00	0.513	x	1.0	1.0	0.513	0.513
2048	x	x	1.00	2.265	x	1.00	2.265	x	1.0	1.0	2.265	2.265
2049	x	x	1.00	6.854	x	1.00	6.854	x	1.0	1.0	6.854	6.854
2051	x	x	1.00	0.331	x	1.00	0.331	x	1.0	1.0	0.331	0.331
2164	x	x	1.00	4.210	x	1.00	4.210	x	1.0	1.0	4.210	4.210

1.5 Effective Lengths - Members

Member	Buckling	Buckling About Axis y			Buckling About Axis z			Lateral-Torsional Buckling				
No.	Possible	Possible	$k_{cr,y}$	$L_{cr,y}$ [m]	Possible	$k_{cr,z}$	$L_{cr,z}$ [m]	Possible	k_z	k_w	L_w [m]	L_T [m]
2173	x	x	1.00	3.601	x	1.00	3.601	x	1.0	1.0	3.601	3.601
2174	x	x	1.00	3.766	x	1.00	3.766	x	1.0	1.0	3.766	3.766
2175	x	x	1.00	4.256	x	1.00	4.256	x	1.0	1.0	4.256	4.256
2176	x	x	1.00	4.205	x	1.00	4.205	x	1.0	1.0	4.205	4.205
2177	x	x	1.00	3.304	x	1.00	3.304	x	1.0	1.0	3.304	3.304
2241	x	x	1.00	2.344	x	1.00	2.344	x	1.0	1.0	2.344	2.344
2242	x	x	1.00	1.708	x	1.00	1.708	x	1.0	1.0	1.708	1.708
2245	x	x	1.00	1.708	x	1.00	1.708	x	1.0	1.0	1.708	1.708
2248	x	x	1.00	1.708	x	1.00	1.708	x	1.0	1.0	1.708	1.708
2251	x	x	1.00	1.708	x	1.00	1.708	x	1.0	1.0	1.708	1.708
2255	x	x	1.00	1.800	x	1.00	1.800	x	1.0	1.0	1.800	1.800
2257	x	x	1.00	1.708	x	1.00	1.708	x	1.0	1.0	1.708	1.708
2263	x	x	1.00	1.800	x	1.00	1.800	x	1.0	1.0	1.800	1.800
2265	x	x	1.00	1.800	x	1.00	1.800	x	1.0	1.0	1.800	1.800
2266	x	x	1.00	1.800	x	1.00	1.800	x	1.0	1.0	1.800	1.800
2267	x	x	1.00	3.000	x	1.00	3.000	x	1.0	1.0	3.000	3.000
2269	x	x	1.00	3.000	x	1.00	3.000	x	1.0	1.0	3.000	3.000
2271	x	x	1.00	2.344	x	1.00	2.344	x	1.0	1.0	2.344	2.344
2272	x	x	1.00	2.344	x	1.00	2.344	x	1.0	1.0	2.344	2.344
2273	x	x	1.00	2.344	x	1.00	2.344	x	1.0	1.0	2.344	2.344
2275	x	x	1.00	2.344	x	1.00	2.344	x	1.0	1.0	2.344	2.344
2276	x	x	1.00	1.800	x	1.00	1.800	x	1.0	1.0	1.800	1.800
2402	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
2403	x	x	1.00	2.455	x	1.00	2.455	x	1.0	1.0	2.455	2.455
2404	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
2405	x	x	1.00	2.455	x	1.00	2.455	x	1.0	1.0	2.455	2.455
2406	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
2407	x	x	1.00	2.455	x	1.00	2.455	x	1.0	1.0	2.455	2.455
2472	x	x	1.00	7.100	x	1.00	7.100	x	1.0	1.0	7.100	7.100
2473	x	x	1.00	6.749	x	1.00	6.749	x	1.0	1.0	6.749	6.749
2474	x	x	1.00	6.749	x	1.00	6.749	x	1.0	1.0	6.749	6.749
2475	x	x	1.00	6.749	x	1.00	6.749	x	1.0	1.0	6.749	6.749
2476	x	x	1.00	6.749	x	1.00	6.749	x	1.0	1.0	6.749	6.749
2477	x	x	1.00	1.793	x	1.00	1.793	x	1.0	1.0	1.793	1.793
2478	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
2479	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
2480	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
2506	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
2514	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
2566	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
2567	x	x	1.00	2.410	x	1.00	2.410	x	1.0	1.0	2.410	2.410
2568	x	x	1.00	2.390	x	1.00	2.390	x	1.0	1.0	2.390	2.390
2788	x	x	1.00	4.327	x	1.00	4.327	-	1.0	1.0	4.327	4.327
2789	x	x	1.00	4.327	x	1.00	4.327	-	1.0	1.0	4.327	4.327
2790	x	x	1.00	4.327	x	1.00	4.327	-	1.0	1.0	4.327	4.327
2791	x	x	1.00	4.327	x	1.00	4.327	-	1.0	1.0	4.327	4.327
2792	x	x	1.00	4.327	x	1.00	4.327	-	1.0	1.0	4.327	4.327
2793	x	x	1.00	4.327	x	1.00	4.327	-	1.0	1.0	4.327	4.327
2794	x	x	1.00	4.327	x	1.00	4.327	-	1.0	1.0	4.327	4.327
2795	x	x	1.00	4.327	x	1.00	4.327	-	1.0	1.0	4.327	4.327
2796	x	x	1.00	4.837	x	1.00	4.837	-	1.0	1.0	4.837	4.837
2797	x	x	1.00	4.837	x	1.00	4.837	-	1.0	1.0	4.837	4.837
2798	x	x	1.00	4.327	x	1.00	4.327	-	1.0	1.0	4.327	4.327
2799	x	x	1.00	4.327	x	1.00	4.327	-	1.0	1.0	4.327	4.327
2800	x	x	1.00	4.327	x	1.00	4.327	-	1.0	1.0	4.327	4.327
2801	x	x	1.00	4.327	x	1.00	4.327	-	1.0	1.0	4.327	4.327
2802	x	x	1.00	4.327	x	1.00	4.327	-	1.0	1.0	4.327	4.327
2804	x	x	1.00	4.327	x	1.00	4.327	-	1.0	1.0	4.327	4.327
2805	x	x	1.00	4.327	x	1.00	4.327	-	1.0	1.0	4.327	4.327
2806	x	x	1.00	4.327	x	1.00	4.327	-	1.0	1.0	4.327	4.327
2810	x	x	1.00	4.837	x	1.00	4.837	-	1.0	1.0	4.837	4.837
2811	x	x	1.00	4.837	x	1.00	4.837	-	1.0	1.0	4.837	4.837
2812	x	x	1.00	4.327	x	1.00	4.327	-	1.0	1.0	4.327	4.327
2813	x	x	1.00	4.327	x	1.00	4.327	-	1.0	1.0	4.327	4.327
2814	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
2815	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
2816	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400

1.5 Effective Lengths - Members

Member	Buckling	Buckling About Axis y			Buckling About Axis z			Lateral-Torsional Buckling				
No.	Possible	Possible	$k_{cr,y}$	$L_{cr,y}$ [m]	Possible	$k_{cr,z}$	$L_{cr,z}$ [m]	Possible	k_z	k_w	L_w [m]	L_T [m]
2817	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
2818	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
2819	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
2820	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
2821	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
2822	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
2823	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
2825	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
2826	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
2827	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
2828	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
2829	x	x	1.00	1.707	x	1.00	1.707	x	1.0	1.0	1.707	1.707
2856	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
2858	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
2863	x	x	1.00	4.327	x	1.00	4.327	-	1.0	1.0	4.327	4.327
2865	x	x	1.00	4.327	x	1.00	4.327	-	1.0	1.0	4.327	4.327
2867	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
2868	x	x	1.00	1.750	x	1.00	1.750	x	1.0	1.0	1.750	1.750
2869	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
2870	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
2871	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
2872	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
2873	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
2874	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
2875	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
2876	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
2877	x	x	1.00	2.387	x	1.00	2.387	x	1.0	1.0	2.387	2.387
2878	x	x	1.00	2.413	x	1.00	2.413	x	1.0	1.0	2.413	2.413
2879	x	x	1.00	2.449	x	1.00	2.449	x	1.0	1.0	2.449	2.449
2880	x	x	1.00	2.351	x	1.00	2.351	x	1.0	1.0	2.351	2.351
2881	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
2882	x	x	1.00	2.387	x	1.00	2.387	x	1.0	1.0	2.387	2.387
2883	x	x	1.00	2.413	x	1.00	2.413	x	1.0	1.0	2.413	2.413
2884	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
2885	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
2886	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
2887	x	x	1.00	2.387	x	1.00	2.387	x	1.0	1.0	2.387	2.387
2888	x	x	1.00	2.413	x	1.00	2.413	x	1.0	1.0	2.413	2.413
2889	x	x	1.00	2.150	x	1.00	2.150	x	1.0	1.0	2.150	2.150
2890	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
2891	x	x	1.00	2.455	x	1.00	2.455	x	1.0	1.0	2.455	2.455
2892	x	x	1.00	0.250	x	1.00	0.250	x	1.0	1.0	0.250	0.250
2893	x	x	1.00	1.750	x	1.00	1.750	x	1.0	1.0	1.750	1.750
2894	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
2895	x	x	1.00	2.380	x	1.00	2.380	x	1.0	1.0	2.380	2.380
2896	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
2897	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
2898	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
2899	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
2900	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
2901	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
2902	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
2903	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
2904	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
2905	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
2906	x	x	1.00	2.450	x	1.00	2.450	x	1.0	1.0	2.450	2.450
2907	x	x	1.00	2.350	x	1.00	2.350	x	1.0	1.0	2.350	2.350
2908	x	x	1.00	2.400	x	1.00	2.400	x	1.0	1.0	2.400	2.400
2930	x	x	1.00	4.327	x	1.00	4.327	-	1.0	1.0	4.327	4.327
2931	x	x	1.00	4.327	x	1.00	4.327	-	1.0	1.0	4.327	4.327
2953	x	x	1.00	4.327	x	1.00	4.327	-	1.0	1.0	4.327	4.327
2954	x	x	1.00	4.327	x	1.00	4.327	-	1.0	1.0	4.327	4.327
2955	x	x	1.00	4.625	x	1.00	4.625	-	1.0	1.0	4.625	4.625
2956	x	x	1.00	4.590	x	1.00	4.590	-	1.0	1.0	4.590	4.590
2957	x	x	1.00	4.327	x	1.00	4.327	-	1.0	1.0	4.327	4.327
2958	x	x	1.00	4.327	x	1.00	4.327	-	1.0	1.0	4.327	4.327
2959	x	x	1.00	4.327	x	1.00	4.327	-	1.0	1.0	4.327	4.327

1.5 Effective Lengths - Members

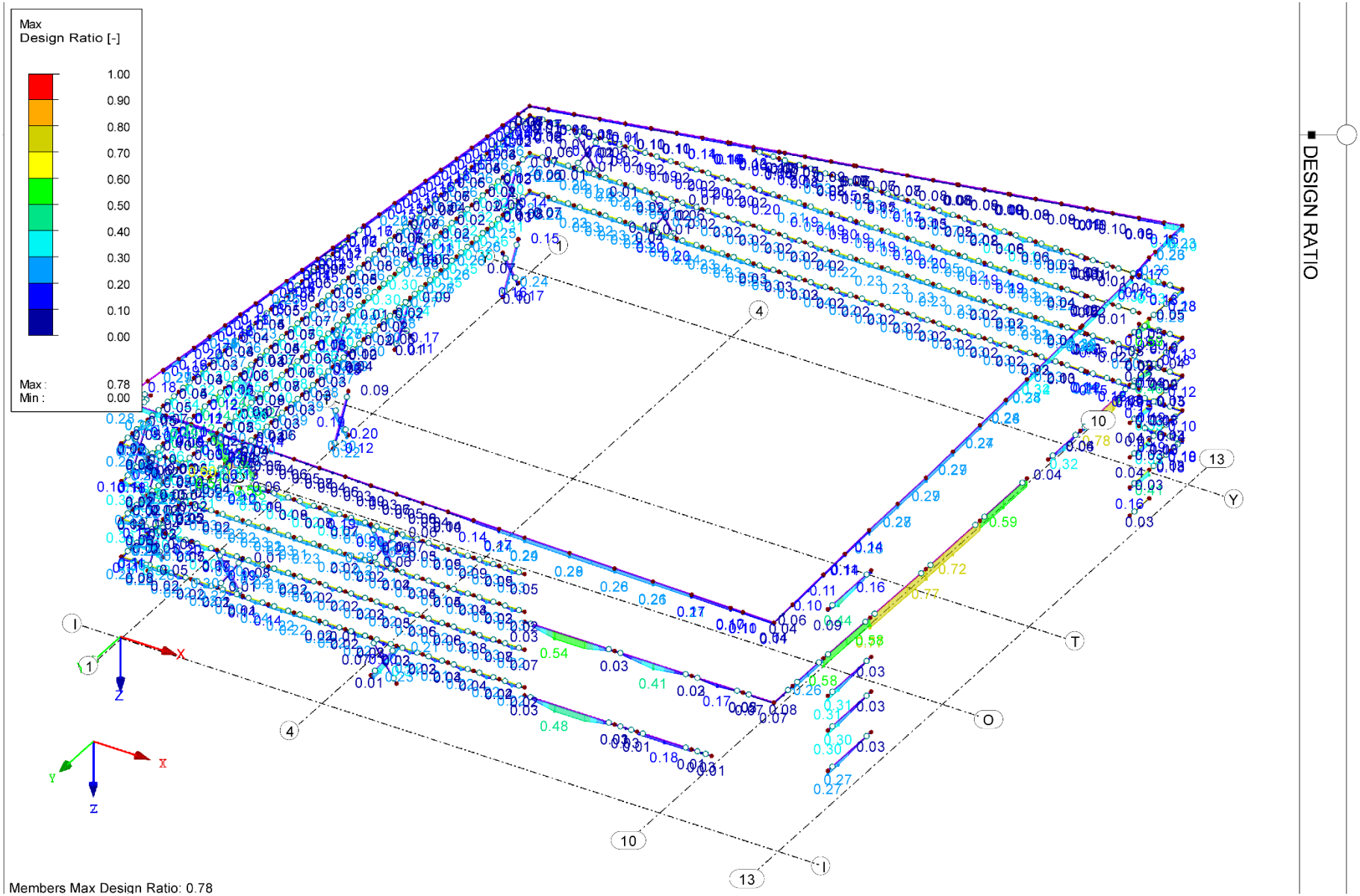
Member	Buckling	Buckling About Axis y			Buckling About Axis z			Lateral-Torsional Buckling				
No.	Possible	Possible	$k_{cr,y}$	$L_{cr,y}$ [m]	Possible	$k_{cr,z}$	$L_{cr,z}$ [m]	Possible	k_z	k_w	L_w [m]	L_T [m]
2960	x	x	1.00	4.327	x	1.00	4.327	-	1.0	1.0	4.327	4.327
2961	x	x	1.00	4.327	x	1.00	4.327	-	1.0	1.0	4.327	4.327
2962	x	x	1.00	4.327	x	1.00	4.327	-	1.0	1.0	4.327	4.327

2.2 Design by Cross-Section

Sect. No.	Member No.	Location x [m]	LC/CO/ RC	Design		Equation No.	Description
17	HE A 120 | Euronorm 53-62						
	2891	2.455	RC1	0.00	≤ 1	CS100)	Negligible internal forces
	533	2.400	RC1	0.09	≤ 1	CS101)	Cross-section check - Tension acc. to 6.2.3
	2568	0.000	RC1	0.06	≤ 1	CS102)	Cross-section check - Compression acc. to 6.2.4
	2267	0.000	RC1	0.01	≤ 1	CS111)	Cross-section check - Bending about y-axis acc. to 6.2.5 - Class 1 or 2
	432	0.000	RC1	0.09	≤ 1	CS116)	Cross-section check - Bending about z-axis acc. to 6.2.5 - Class 1 or 2
	755	0.250	RC1	0.21	≤ 1	CS121)	Cross-section check - Shear force in z-axis acc. to 6.2.6
	286	3.000	RC1	0.05	≤ 1	CS123)	Cross-section check - Shear force in y-axis acc. to 6.2.6
	262	0.000	RC1	0.00	≤ 1	CS126)	Cross-section check - Shear buckling acc. to 6.2.6(6)
	2267	0.000	RC1	0.01	≤ 1	CS141)	Cross-section check - Bending and shear force acc. to 6.2.5 and 6.2.8
	432	0.000	RC1	0.09	≤ 1	CS151)	Cross-section check - Bending about z-axis and shear force acc. to 6.2.5 and 6.2.8
	500	1.200	RC1	0.27	≤ 1	CS161)	Cross-section check - Biaxial bending and shear force acc. to 6.2.6, 6.2.7 and 6.2.9
	2251	0.854	RC1	0.02	≤ 1	CS181)	Cross-section check - Bending, shear and axial force acc. to 6.2.9.1
	504	0.000	RC1	0.33	≤ 1	CS201)	Cross-section check - Bending about z-axis, shear and axial force acc. to 6.2.9.1
	286	3.000	RC1	0.59	≤ 1	CS221)	Cross-section check - Biaxial bending, shear and axial force acc. to 6.2.10 and 6.2.9
	2568	0.000	RC1	0.08	≤ 1	ST301)	Stability analysis - Flexural buckling about y-axis acc. to 6.3.1.1 and 6.3.1.2(4)
	491	0.000	RC1	0.07	≤ 1	ST311)	Stability analysis - Flexural buckling about z-axis acc. to 6.3.1.1 and 6.3.1.2(4)
	2568	0.000	RC1	0.12	≤ 1	ST312)	Stability analysis - Flexural buckling about z-axis acc. to 6.3.1.1 and 6.3.1.2
	2568	0.000	RC1	0.09	≤ 1	ST321)	Stability analysis - Torsional buckling acc. to 6.3.1.4 and 6.3.1.2(4)
	755	0.000	RC1	0.21	≤ 1	ST331)	Stability analysis - Lateral torsional buckling acc. to 6.3.2.1 and 6.3.2.3 - I-Section
	286	1.500	RC1	0.42	≤ 1	ST363)	Stability analysis - Biaxial bending acc. to 6.3.3, Method 2
	2568	1.195	RC1	0.44	≤ 1	ST364)	Stability analysis - Bending and compression acc. to 6.3.3, Method 2
26	HE A 240 | Euronorm 53-62						
	1679	0.000	RC1	0.07	≤ 1	CS101)	Cross-section check - Tension acc. to 6.2.3
	1678	2.424	RC1	0.08	≤ 1	CS102)	Cross-section check - Compression acc. to 6.2.4
	1595	0.000	RC1	0.09	≤ 1	CS111)	Cross-section check - Bending about y-axis acc. to 6.2.5 - Class 1 or 2
	669	2.906	RC1	0.03	≤ 1	CS116)	Cross-section check - Bending about z-axis acc. to 6.2.5 - Class 1 or 2
	2051	0.000	RC1	0.10	≤ 1	CS121)	Cross-section check - Shear force in z-axis acc. to 6.2.6
	725	0.000	RC1	0.03	≤ 1	CS123)	Cross-section check - Shear force in y-axis acc. to 6.2.6
	270	0.000	RC1	0.00	≤ 1	CS126)	Cross-section check - Shear buckling acc. to 6.2.6(6)
	1595	0.000	RC1	0.09	≤ 1	CS141)	Cross-section check - Bending and shear force acc. to 6.2.5 and 6.2.8
	669	2.906	RC1	0.03	≤ 1	CS151)	Cross-section check - Bending about z-axis and shear force acc. to 6.2.5 and 6.2.8
	2472	3.550	RC1	0.36	≤ 1	CS161)	Cross-section check - Biaxial bending and shear force acc. to 6.2.6, 6.2.7 and 6.2.9
	1540	4.210	RC1	0.16	≤ 1	CS181)	Cross-section check - Bending, shear and axial force acc. to 6.2.9.1
	2016	2.414	RC1	0.29	≤ 1	CS201)	Cross-section check - Bending about z-axis, shear and axial force acc. to 6.2.9.1
	725	2.834	RC1	0.56	≤ 1	CS221)	Cross-section check - Biaxial bending, shear and axial force acc. to 6.2.10 and 6.2.9
	2473	0.000	RC1	0.08	≤ 1	ST301)	Stability analysis - Flexural buckling about y-axis acc. to 6.3.1.1 and 6.3.1.2(4)
	2473	6.749	RC1	0.05	≤ 1	ST311)	Stability analysis - Flexural buckling about z-axis acc. to 6.3.1.1 and 6.3.1.2(4)
	2473	0.000	RC1	0.16	≤ 1	ST312)	Stability analysis - Flexural buckling about z-axis acc. to 6.3.1.1 and 6.3.1.2
	2473	0.000	RC1	0.08	≤ 1	ST321)	Stability analysis - Torsional buckling acc. to 6.3.1.4 and 6.3.1.2(4)
	2020	0.000	RC1	0.04	≤ 1	ST331)	Stability analysis - Lateral torsional buckling acc. to 6.3.2.1 and 6.3.2.3 - I-Section
	725	8.502	RC1	0.77	≤ 1	ST363)	Stability analysis - Biaxial bending acc. to 6.3.3, Method 2
	677	5.362	RC1	0.78	≤ 1	ST364)	Stability analysis - Bending and compression acc. to 6.3.3, Method 2

2.2 Design by Cross-Section

Sect. No.	Member No.	Location x [m]	LC/CO/ RC	Design		Equation No.	Description
52	QRO 100x5 | EN 10219-2:2006						
	2956	4.590	RC1	0.14	≤ 1	CS101)	Cross-section check - Tension acc. to 6.2.3
	2955	0.000	RC1	0.15	≤ 1	CS102)	Cross-section check - Compression acc. to 6.2.4
	2958	2.163	RC1	0.08	≤ 1	CS111)	Cross-section check - Bending about y-axis acc. to 6.2.5 - Class 1 or 2
	2802	4.327	RC1	0.01	≤ 1	CS121)	Cross-section check - Shear force in z-axis acc. to 6.2.6
	2788	0.000	RC1	0.00	≤ 1	CS126)	Cross-section check - Shear buckling acc. to 6.2.6(6)
	2958	2.163	RC1	0.08	≤ 1	CS141)	Cross-section check - Bending and shear force acc. to 6.2.5 and 6.2.8
	2796	2.419	RC1	0.08	≤ 1	CS181)	Cross-section check - Bending, shear and axial force acc. to 6.2.9.1
	2863	1.200	RC1	0.01	≤ 1	CS201)	Cross-section check - Bending about z-axis, shear and axial force acc. to 6.2.9.1
	2863	0.000	RC1	0.02	≤ 1	CS221)	Cross-section check - Biaxial bending, shear and axial force acc. to 6.2.10 and 6.2.9
	2794	4.327	RC1	0.06	≤ 1	ST301)	Stability analysis - Flexural buckling about y-axis acc. to 6.3.1.1 and 6.3.1.2(4)
	2955	0.000	RC1	0.51	≤ 1	ST302)	Stability analysis - Flexural buckling about y-axis acc. to 6.3.1.1 and 6.3.1.2
	2794	4.327	RC1	0.06	≤ 1	ST311)	Stability analysis - Flexural buckling about z-axis acc. to 6.3.1.1 and 6.3.1.2(4)
	2955	0.000	RC1	0.51	≤ 1	ST312)	Stability analysis - Flexural buckling about z-axis acc. to 6.3.1.1 and 6.3.1.2
	2955	1.087	RC1	0.60	≤ 1	ST364)	Stability analysis - Bending and compression acc. to 6.3.3, Method 2



6.3.4 pav. Metalinių konstrukcijų išnaudojimas

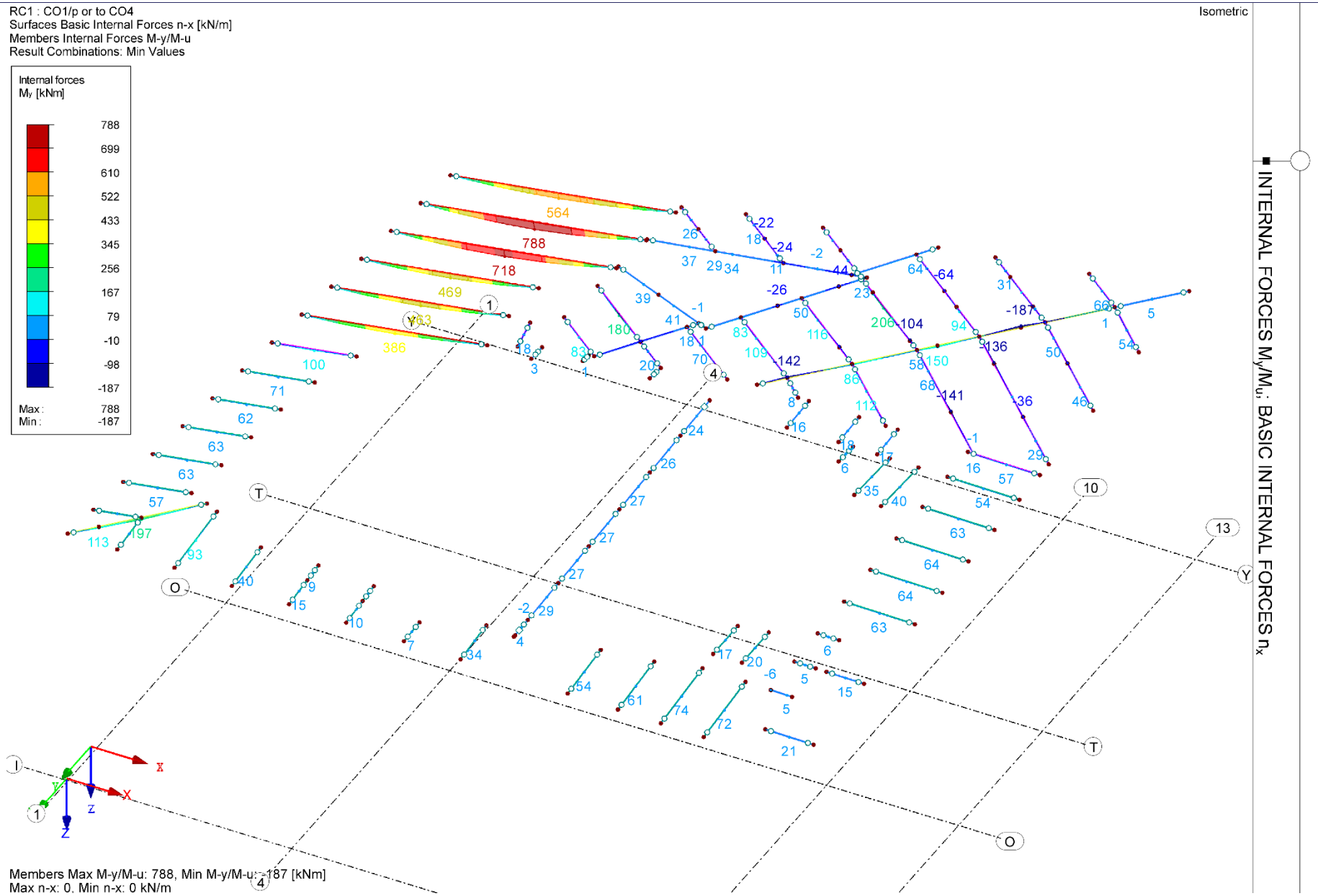
6.4 METALINIŲ STOGO SIJŲ SKAIČIAVIMAS (KONCERTŲ PASTATAS)

Maksimalios įrąžos veikiančios skerspjūvyje

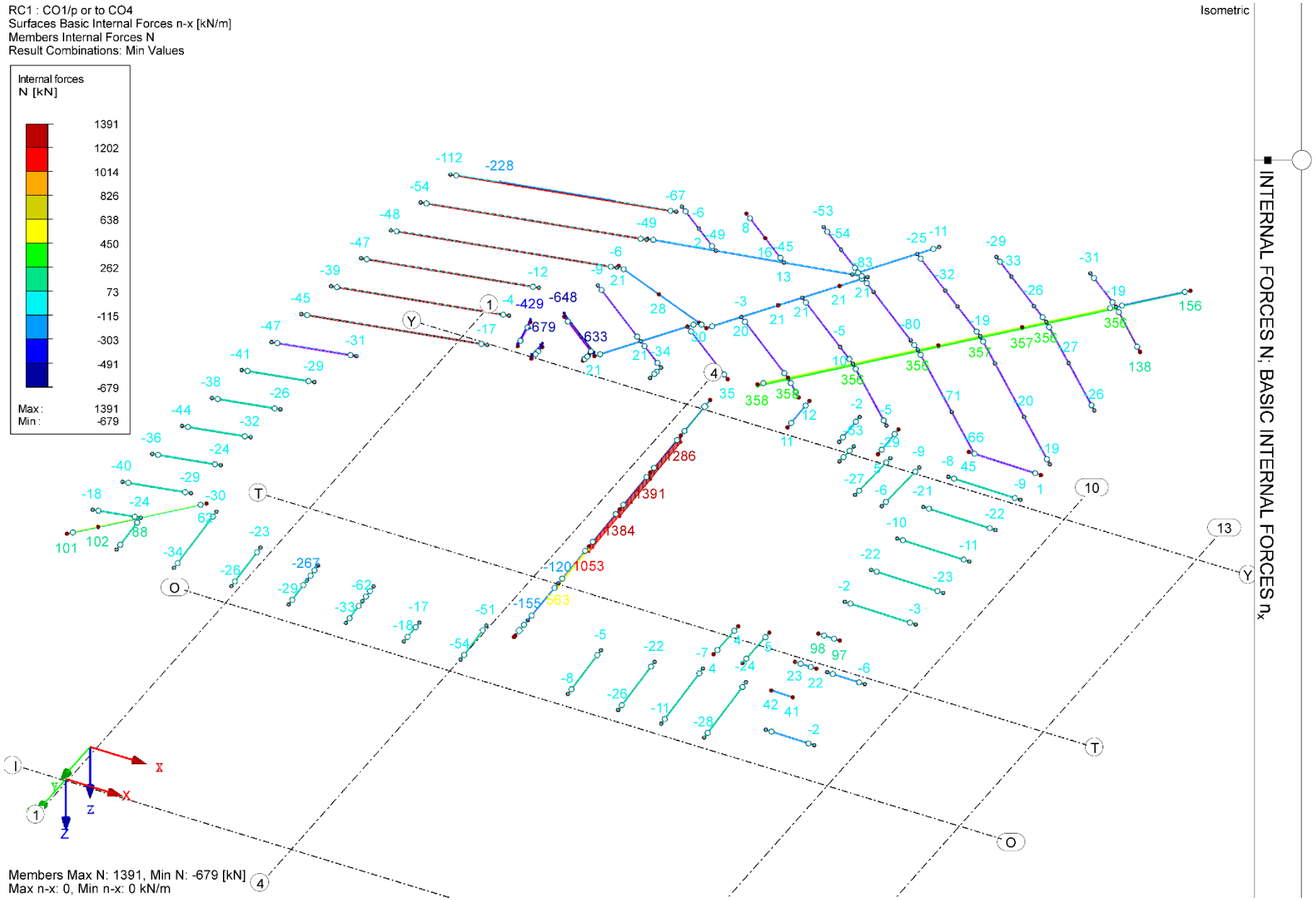
4.12 Cross-Sections - Internal Forces

Result Combinations

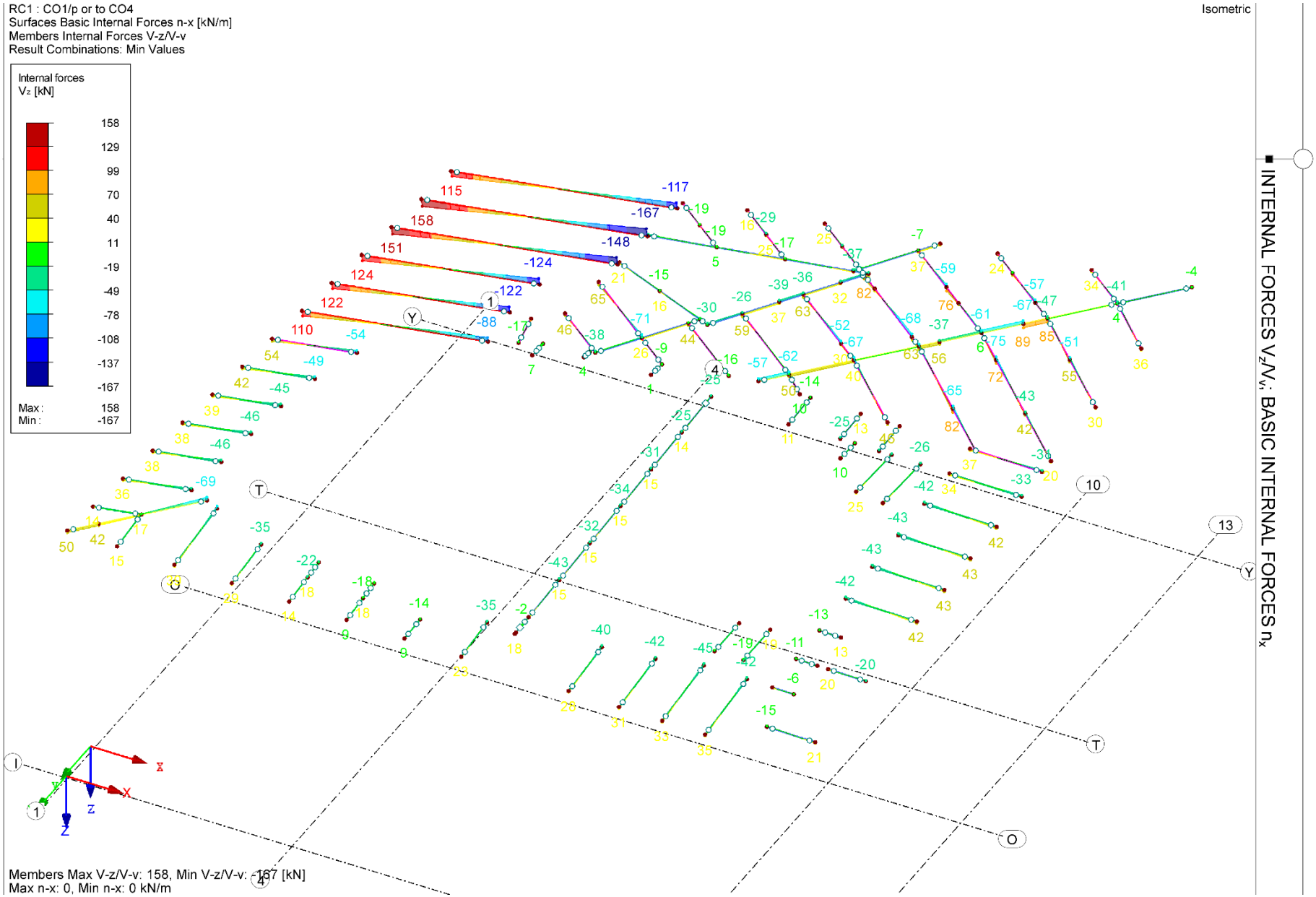
Member No.	RC	Node No.	Location x [m]		Forces [kN] N	V_y / V_u	V_z / V_v	Moments [kNm] M_T	M_y / M_u	M_z / M_v	Corresponding Load Cases
	Section No. 22: HE B 320 | Euronorm 53-62										
2086	RC1	4398	2.388	MAX N	> 390	2	-62	0	-142	-5	CO 1
2006	RC1	3361	0.000	MIN N	> 61	9	-10	0	197	45	CO 4
1537	RC1	3936	0.000	MAX V_y	117	> 17	50	0	0	0	CO 1
1537	RC1	3936	0.000	MIN V_y	101	> -22	51	0	0	0	CO 4
2088	RC1	4393	0.000	MAX V_z	380	0	> 92	0	-187	-6	CO 3
2006	RC1	1524	5.151	MIN V_z	189	-1	> -69	0	0	0	CO 3
2006	RC1	3361	0.000	MAX M_y	188	-1	-12	0	> 208	-3	CO 3
2088	RC1	4393	0.000	MIN M_y	380	0	92	0	> -187	-6	CO 3
185	RC1	372	0.000	MAX M_z	88	3	37	0	111	> 54	CO 4
1537	RC1	372	2.445	MIN M_z	117	17	42	0	113	> -42	CO 1
	Section No. 24: CAST(A) HE A 500-490 | Euronorm 53-62										
1993	RC1		13.889	MAX N	> 261	-1	-53	0	442	-6	CO 3
1993	RC1		4.192	MIN N	> -228	1	64	0	390	2	CO 1
1993	RC1		1.768	MAX V_y	121	> 3	98	0	187	-2	CO 3
1993	RC1		16.313	MIN V_y	123	> -3	-88	0	271	-8	CO 3
1994	RC1	784	0.000	MAX V_z	-54	0	> 158	0	0	0	CO 1
1994	RC1	3874	18.964	MIN V_z	-8	0	> -167	0	0	0	CO 1
1994	RC1		9.482	MAX M_y	-32	0	0	0	> 788	0	CO 1
1992	RC1	847	0.000	MIN M_y	-48	0	151	0	> 0	0	CO 1
1993	RC1		16.313	MAX M_z	-71	-1	-86	0	269	> 3	CO 1
1993	RC1		9.040	MIN M_z	256	1	9	0	564	> -9	CO 3
	Section No. 25: IPE 300 | Euronorm 19-57										
2003	RC1	3330	5.758	MAX N	> 94	0	-40	0	0	0	CO 4
2171	RC1	779	0.000	MIN N	> -267	0	18	0	0	0	CO 4
715	RC1	2236	0.000	MAX V_y	-265	> 1	-19	0	0	0	CO 4
275	RC1	3449	0.000	MIN V_y	-61	> 0	10	0	0	0	CO 1
284	RC1	1407	0.000	MAX V_z	-18	0	> 43	0	0	0	CO 1
2008	RC1	3882	7.368	MIN V_z	32	0	> -54	0	0	0	CO 1
2008	RC1		3.684	MAX M_y	30	0	3	0	> 93	0	CO 1
715	RC1	3946	0.001	MIN M_y	-265	1	-19	0	> 0	0	CO 4
715	RC1	2236	0.000	MAX M_z	-265	1	-19	0	0	> 0	CO 4
715	RC1	3946	0.001	MIN M_z	-265	1	-19	0	0	> 0	CO 4
	Section No. 56: HE B 280 | Euronorm 53-62										
2130	RC1		5.662	MAX N	> 176	0	-41	0	0	0	CO 2
2137	RC1	4448	0.000	MIN N	> -648	0	46	0	0	0	CO 3
2151	RC1	1477	0.000	MAX V_y	66	> 44	37	-1	0	0	CO 1
2152	RC1	4470	0.000	MIN V_y	18	> -2	29	0	15	-14	CO 1
2132	RC1	4525	0.000	MAX V_z	-68	0	> 82	0	-141	-3	CO 4
2134	RC1	4526	6.736	MIN V_z	-2	0	> -75	0	-136	0	CO 3
2118	RC1		2.964	MAX M_y	-67	0	-10	0	> 204	0	CO 1
2132	RC1	4525	0.000	MIN M_y	-68	0	82	0	> -141	-3	CO 4
2115	RC1	4514	6.717	MAX M_z	-8	0	-59	0	-64	> 1	CO 2
2151	RC1	4470	0.457	MIN M_z	66	44	34	-1	16	> -20	CO 1
	Section No. 57: HE B 240 | Euronorm 53-62										
2039	RC1	4375	4.930	MAX N	> 1432	-99	-31	0	0	0	CO 1
2180	RC1		1.970	MIN N	> -679	0	-3	0	0	0	CO 4
2035	RC1	4754	0.000	MAX V_y	0	> 796	18	-1	0	0	CO 1
2524	RC1	8440	0.000	MIN V_y	0	> -235	1	-1	3	-137	CO 1
2096	RC1	4420	0.000	MAX V_z	12	61	> 63	0	0	0	CO 1
2036	RC1	4370	4.930	MIN V_z	-98	0	> -43	0	0	0	CO 1
2099	RC1	4441	0.000	MAX M_y	24	4	-26	0	> 83	13	CO 1
2141	RC1	3870	0.000	MIN M_y	23	9	26	0	> -75	11	CO 1
2524	RC1		1.530	MAX M_z	-77	-6	-2	-1	-2	> 38	CO 4
2035	RC1	8440	0.200	MIN M_z	0	796	18	-1	4	> -159	CO 1



6.4.1 pav.Įrąžos elementuose (lenkimo momentas My)



6.4.2 pav. Įrąžos elementuose (ašinės jėgos N)



6.4.3 pav. Įrąžos elementuose (skersinės jėgos Vz)

Metalo konstrukcijų skaičiavimas

1.1 General Data

Members to design:	270,273-275,283-285,646,694,715,1536-1540,1543,1545,1548,1549,1551,1553,1559,1560,1569,1571,1573,1576,1593-1596,1600-1603,1607,1616-1626,1630,1638,1640,1641,1643-1653,1662,1663,1669-1680,1688,1935,1992-2014,2016-2028,2030-2034,2047-2049,2051,2086-2124,2126-2128,2130-2156,2161-2169,2171-2177,2180,2189,2190,2235,2236,2283,2284,2976-2978	
Sets of members to design:		
National Annex:	CEN	
Ultimate Limit State Design		
Load combinations to design:	CO1	1.35G + 1.35Gq1 + 1.35Gq2 + 1.3QiC + 1.3Qs + 1.3Qw1

1.2 Materials

Matl. No.	Material Description	E- Modulus E [kN/cm²]	Shear Modulus G [kN/cm²]	Poisson's Ratio ν [-]	Yield Stress f_{yk} [kN/cm²]	Max. Thickness t [mm]
2	Steel S 355 | EN 10025-2:2004-11	21000.00	8076.92	0.300	35.50	3.0
					35.50	16.0
					34.50	40.0
					33.50	63.0
					32.50	80.0
					31.50	100.0
					29.50	150.0
					28.50	200.0

1.3 Cross-Sections

Sect. No.	Matl. No.	Cross-Section Description	Cross-Section Type	Max Design Ratio	Comment
22	2	HE B 320 | Euronorm 53-62	I-section rolled	0.19	
24	2	CAST(A) HE A 500-490 | Euronorm 53-62	General	0.67	
	Type General - Only Class 3 and Class 4 possible				
25	2	IPE 300 | Euronorm 19-57	I-section rolled	0.42	
26	2	HE A 240 | Euronorm 53-62	I-section rolled	0.28	
52	2	QRO 100x5 | EN 10219-2:2006	Box rolled	0.10	
56	2	HE B 280 | Euronorm 53-62	I-section rolled	0.46	
57	2	HE B 240 | Euronorm 53-62	I-section rolled	0.20	
60	2	HE B 280 | Euronorm 53-62	I-section rolled	0.22	

1.4 Intermediate Lateral Restraints

Member No.	Restrain Type	Length L [m]	Intermediate Lateral Restraints [-]									
			Number	x_1	x_2	x_3	x_4	x_5	x_6	x_7	x_8	x_9
1992	Lateral (Upper Flange)	18.964	3	0.250	0.500	0.750						
1993	Lateral (Upper Flange)	18.964	3	0.250	0.500	0.750						
1994	Lateral (Upper Flange)	18.964	3	0.250	0.500	0.750						
1995	Lateral (Upper Flange)	14.934	3	0.250	0.500	0.750						
1996	Lateral (Upper Flange)	14.934	3	0.250	0.500	0.750						
1997	Lateral (Upper Flange)	15.606	3	0.250	0.500	0.750						
1998	Lateral (Upper Flange)	7.126	2	0.333	0.667							
2008	Lateral (Upper Flange)	7.368	1	0.500								
2149	Lateral (Upper Flange)	7.242	1	0.500								
2150	Lateral (Upper Flange)	7.242	1	0.500								

1.5 Effective Lengths - Members

Member	Buckling	Buckling About Axis y			Buckling About Axis z			Lateral-Torsional Buckling				
No.	Possible	Possible	$k_{cr,y}$	$L_{cr,y}$ [m]	Possible	$k_{cr,z}$	$L_{cr,z}$ [m]	Possible	k_z	k_w	L_w [m]	L_T [m]
270	x	x	1.00	4.256	x	1.00	4.256	-	1.0	1.0	4.256	4.256
273	x	x	1.00	5.970	x	1.00	5.970	-	1.0	1.0	5.970	5.970
274	x	x	1.00	5.973	x	1.00	5.973	-	1.0	1.0	5.973	5.973
275	x	x	1.00	2.320	x	1.00	2.320	-	1.0	1.0	2.320	2.320
283	x	x	1.00	5.939	x	1.00	5.939	-	1.0	1.0	5.939	5.939
284	x	x	1.00	6.036	x	1.00	6.036	-	1.0	1.0	6.036	6.036
285	x	x	1.00	6.036	x	1.00	6.036	-	1.0	1.0	6.036	6.036
646	x	x	1.00	6.036	x	1.00	6.036	-	1.0	1.0	6.036	6.036
694	x	x	1.00	0.963	x	1.00	0.963	-	1.0	1.0	0.963	0.963
715	x	x	1.00	0.001	x	1.00	0.001	-	1.0	1.0	0.001	0.001
1536	x	x	1.00	2.400	x	1.00	2.400	-	1.0	1.0	2.400	2.400
1537	x	x	1.00	2.445	x	1.00	2.445	-	1.0	1.0	2.445	2.445
1538	x	x	1.00	1.758	x	1.00	1.758	-	1.0	1.0	1.758	1.758
1539	x	x	1.00	2.380	x	1.00	2.380	-	1.0	1.0	2.380	2.380
1540	x	x	1.00	4.210	x	1.00	4.210	-	1.0	1.0	4.210	4.210
1543	x	x	1.00	2.903	x	1.00	2.903	-	1.0	1.0	2.903	2.903
1545	x	x	1.00	2.400	x	1.00	2.400	-	1.0	1.0	2.400	2.400
1548	x	x	1.00	2.400	x	1.00	2.400	-	1.0	1.0	2.400	2.400
1549	x	x	1.00	2.400	x	1.00	2.400	-	1.0	1.0	2.400	2.400
1551	x	x	1.00	2.400	x	1.00	2.400	-	1.0	1.0	2.400	2.400
1553	x	x	1.00	2.400	x	1.00	2.400	-	1.0	1.0	2.400	2.400
1559	x	x	1.00	2.400	x	1.00	2.400	-	1.0	1.0	2.400	2.400
1560	x	x	1.00	2.400	x	1.00	2.400	-	1.0	1.0	2.400	2.400
1569	x	x	1.00	2.450	x	1.00	2.450	-	1.0	1.0	2.450	2.450
1571	x	x	1.00	2.350	x	1.00	2.350	-	1.0	1.0	2.350	2.350
1573	x	x	1.00	2.400	x	1.00	2.400	-	1.0	1.0	2.400	2.400
1576	x	x	1.00	2.400	x	1.00	2.400	-	1.0	1.0	2.400	2.400
1593	x	x	1.00	3.601	x	1.00	3.601	-	1.0	1.0	3.601	3.601
1594	x	x	1.00	3.657	x	1.00	3.657	-	1.0	1.0	3.657	3.657
1595	x	x	1.00	1.144	x	1.00	1.144	-	1.0	1.0	1.144	1.144
1596	x	x	1.00	2.907	x	1.00	2.907	-	1.0	1.0	2.907	2.907
1600	x	x	1.00	2.400	x	1.00	2.400	-	1.0	1.0	2.400	2.400
1601	x	x	1.00	2.414	x	1.00	2.414	-	1.0	1.0	2.414	2.414
1602	x	x	1.00	2.414	x	1.00	2.414	-	1.0	1.0	2.414	2.414
1603	x	x	1.00	2.424	x	1.00	2.424	-	1.0	1.0	2.424	2.424
1607	x	x	1.00	2.404	x	1.00	2.404	-	1.0	1.0	2.404	2.404
1616	x	x	1.00	2.414	x	1.00	2.414	-	1.0	1.0	2.414	2.414
1617	x	x	1.00	2.414	x	1.00	2.414	-	1.0	1.0	2.414	2.414
1618	x	x	1.00	2.414	x	1.00	2.414	-	1.0	1.0	2.414	2.414
1619	x	x	1.00	2.414	x	1.00	2.414	-	1.0	1.0	2.414	2.414
1620	x	x	1.00	2.414	x	1.00	2.414	-	1.0	1.0	2.414	2.414
1621	x	x	1.00	2.414	x	1.00	2.414	-	1.0	1.0	2.414	2.414
1622	x	x	1.00	2.414	x	1.00	2.414	-	1.0	1.0	2.414	2.414
1623	x	x	1.00	2.414	x	1.00	2.414	-	1.0	1.0	2.414	2.414
1624	x	x	1.00	2.414	x	1.00	2.414	-	1.0	1.0	2.414	2.414
1625	x	x	1.00	2.414	x	1.00	2.414	-	1.0	1.0	2.414	2.414
1626	x	x	1.00	2.414	x	1.00	2.414	-	1.0	1.0	2.414	2.414
1630	x	x	1.00	2.414	x	1.00	2.414	-	1.0	1.0	2.414	2.414
1638	x	x	1.00	2.414	x	1.00	2.414	-	1.0	1.0	2.414	2.414
1640	x	x	1.00	2.414	x	1.00	2.414	-	1.0	1.0	2.414	2.414
1641	x	x	1.00	3.001	x	1.00	3.001	-	1.0	1.0	3.001	3.001
1643	x	x	1.00	2.414	x	1.00	2.414	-	1.0	1.0	2.414	2.414
1644	x	x	1.00	2.414	x	1.00	2.414	-	1.0	1.0	2.414	2.414
1645	x	x	1.00	2.414	x	1.00	2.414	-	1.0	1.0	2.414	2.414
1646	x	x	1.00	2.424	x	1.00	2.424	-	1.0	1.0	2.424	2.424
1647	x	x	1.00	2.424	x	1.00	2.424	-	1.0	1.0	2.424	2.424
1648	x	x	1.00	2.437	x	1.00	2.437	-	1.0	1.0	2.437	2.437
1649	x	x	1.00	2.412	x	1.00	2.412	-	1.0	1.0	2.412	2.412
1650	x	x	1.00	0.160	x	1.00	0.160	-	1.0	1.0	0.160	0.160
1651	x	x	1.00	2.424	x	1.00	2.424	-	1.0	1.0	2.424	2.424
1652	x	x	1.00	0.159	x	1.00	0.159	-	1.0	1.0	0.159	0.159
1653	x	x	1.00	2.437	x	1.00	2.437	-	1.0	1.0	2.437	2.437
1662	x	x	1.00	2.412	x	1.00	2.412	-	1.0	1.0	2.412	2.412
1663	x	x	1.00	2.707	x	1.00	2.707	-	1.0	1.0	2.707	2.707
1669	x	x	1.00	2.424	x	1.00	2.424	-	1.0	1.0	2.424	2.424
1670	x	x	1.00	0.223	x	1.00	0.223	-	1.0	1.0	0.223	0.223
1671	x	x	1.00	2.473	x	1.00	2.473	-	1.0	1.0	2.473	2.473

1.5 Effective Lengths - Members

Member	Buckling	Buckling About Axis y			Buckling About Axis z			Lateral-Torsional Buckling				
No.	Possible	Possible	$k_{cr,y}$	$L_{cr,y}$ [m]	Possible	$k_{cr,z}$	$L_{cr,z}$ [m]	Possible	k_z	k_w	L_w [m]	L_T [m]
1672	x	x	1.00	1.911	x	1.00	1.911	-	1.0	1.0	1.911	1.911
1673	x	x	1.00	2.412	x	1.00	2.412	-	1.0	1.0	2.412	2.412
1674	x	x	1.00	0.526	x	1.00	0.526	-	1.0	1.0	0.526	0.526
1675	x	x	1.00	0.227	x	1.00	0.227	-	1.0	1.0	0.227	0.227
1676	x	x	1.00	2.424	x	1.00	2.424	-	1.0	1.0	2.424	2.424
1677	x	x	1.00	2.424	x	1.00	2.424	-	1.0	1.0	2.424	2.424
1678	x	x	1.00	2.424	x	1.00	2.424	-	1.0	1.0	2.424	2.424
1679	x	x	1.00	2.424	x	1.00	2.424	-	1.0	1.0	2.424	2.424
1680	x	x	1.00	2.480	x	1.00	2.480	-	1.0	1.0	2.480	2.480
1688	x	x	1.00	3.341	x	1.00	3.341	-	1.0	1.0	3.341	3.341
1935	x	x	1.00	2.266	x	1.00	2.266	-	1.0	1.0	2.266	2.266
1992	x	x	1.00	18.964	x	1.00	18.964	-	1.0	1.0	18.964	18.964
1993	x	x	1.00	18.964	x	1.00	18.964	-	1.0	1.0	18.964	18.964
1994	x	x	1.00	18.964	x	1.00	18.964	-	1.0	1.0	18.964	18.964
1995	x	x	1.00	14.934	x	1.00	14.934	-	1.0	1.0	14.934	14.934
1996	x	x	1.00	14.934	x	1.00	14.934	-	1.0	1.0	14.934	14.934
1997	x	x	1.00	15.606	x	1.00	15.606	-	1.0	1.0	15.606	15.606
1998	x	x	1.00	7.126	x	1.00	7.126	-	1.0	1.0	7.126	7.126
1999	x	x	1.00	6.098	x	1.00	6.098	-	1.0	1.0	6.098	6.098
2000	x	x	1.00	5.758	x	1.00	5.758	-	1.0	1.0	5.758	5.758
2001	x	x	1.00	5.758	x	1.00	5.758	-	1.0	1.0	5.758	5.758
2002	x	x	1.00	5.758	x	1.00	5.758	-	1.0	1.0	5.758	5.758
2003	x	x	1.00	5.758	x	1.00	5.758	-	1.0	1.0	5.758	5.758
2004	x	x	1.00	4.041	x	1.00	4.041	-	1.0	1.0	4.041	4.041
2005	x	x	1.00	2.197	x	1.00	2.197	-	1.0	1.0	2.197	2.197
2006	x	x	1.00	5.151	x	1.00	5.151	-	1.0	1.0	5.151	5.151
2007	x	x	1.00	4.175	x	1.00	4.175	-	1.0	1.0	4.175	4.175
2008	x	x	1.00	7.368	x	1.00	7.368	-	1.0	1.0	7.368	7.368
2009	x	x	1.00	5.070	x	1.00	5.070	-	1.0	1.0	5.070	5.070
2010	x	x	1.00	3.173	x	1.00	3.173	-	1.0	1.0	3.173	3.173
2011	x	x	1.00	2.848	x	1.00	2.848	-	1.0	1.0	2.848	2.848
2012	x	x	1.00	2.512	x	1.00	2.512	-	1.0	1.0	2.512	2.512
2013	x	x	1.00	4.463	x	1.00	4.463	-	1.0	1.0	4.463	4.463
2014	x	x	1.00	2.400	x	1.00	2.400	-	1.0	1.0	2.400	2.400
2016	x	x	1.00	2.414	x	1.00	2.414	-	1.0	1.0	2.414	2.414
2017	x	x	1.00	2.414	x	1.00	2.414	-	1.0	1.0	2.414	2.414
2018	x	x	1.00	1.803	x	1.00	1.803	-	1.0	1.0	1.803	1.803
2019	x	x	1.00	2.424	x	1.00	2.424	-	1.0	1.0	2.424	2.424
2020	x	x	1.00	1.768	x	1.00	1.768	-	1.0	1.0	1.768	1.768
2021	x	x	1.00	1.911	x	1.00	1.911	-	1.0	1.0	1.911	1.911
2022	x	x	1.00	2.424	x	1.00	2.424	-	1.0	1.0	2.424	2.424
2023	x	x	1.00	2.368	x	1.00	2.368	-	1.0	1.0	2.368	2.368
2024	x	x	1.00	2.400	x	1.00	2.400	-	1.0	1.0	2.400	2.400
2025	x	x	1.00	1.725	x	1.00	1.725	-	1.0	1.0	1.725	1.725
2026	x	x	1.00	1.802	x	1.00	1.802	-	1.0	1.0	1.802	1.802
2027	x	x	1.00	3.012	x	1.00	3.012	-	1.0	1.0	3.012	3.012
2028	x	x	1.00	2.153	x	1.00	2.153	-	1.0	1.0	2.153	2.153
2030	x	x	1.00	4.205	x	1.00	4.205	-	1.0	1.0	4.205	4.205
2031	x	x	1.00	4.029	x	1.00	4.029	-	1.0	1.0	4.029	4.029
2032	x	x	1.00	1.430	x	1.00	1.430	-	1.0	1.0	1.430	1.430
2033	x	x	1.00	7.717	x	1.00	7.717	-	1.0	1.0	7.717	7.717
2034	x	x	1.00	4.805	x	1.00	4.805	-	1.0	1.0	4.805	4.805
2047	x	x	1.00	0.513	x	1.00	0.513	-	1.0	1.0	0.513	0.513
2048	x	x	1.00	2.265	x	1.00	2.265	-	1.0	1.0	2.265	2.265
2049	x	x	1.00	6.854	x	1.00	6.854	-	1.0	1.0	6.854	6.854
2051	x	x	1.00	0.331	x	1.00	0.331	-	1.0	1.0	0.331	0.331
2086	x	x	1.00	2.388	x	1.00	2.388	-	1.0	1.0	2.388	2.388
2087	x	x	1.00	5.476	x	1.00	5.476	-	1.0	1.0	5.476	5.476
2088	x	x	1.00	1.890	x	1.00	1.890	-	1.0	1.0	1.890	1.890
2089	x	x	1.00	1.611	x	1.00	1.611	-	1.0	1.0	1.611	1.611
2090	x	x	2.00	6.567	x	1.00	3.284	-	1.0	1.0	3.284	3.284
2091	x	x	2.00	6.567	x	1.00	3.284	-	1.0	1.0	3.284	3.284
2092	x	x	2.00	10.185	x	1.00	5.092	-	1.0	1.0	5.092	5.092
2093	x	x	2.00	10.185	x	1.00	5.092	-	1.0	1.0	5.092	5.092
2094	x	x	1.00	5.985	x	1.00	5.985	-	1.0	1.0	5.985	5.985
2095	x	x	1.00	1.289	x	1.00	1.289	-	1.0	1.0	1.289	1.289
2096	x	x	1.00	0.371	x	1.00	0.371	-	1.0	1.0	0.371	0.371

1.5 Effective Lengths - Members

Member	Buckling	Buckling About Axis y			Buckling About Axis z			Lateral-Torsional Buckling				
No.	Possible	Possible	$k_{cr,y}$	$L_{cr,y}$ [m]	Possible	$k_{cr,z}$	$L_{cr,z}$ [m]	Possible	k_z	k_w	L_w [m]	L_T [m]
2097	x	x	1.00	2.024	x	1.00	2.024	-	1.0	1.0	2.024	2.024
2098	x	x	2.00	4.094	x	1.00	2.047	-	1.0	1.0	2.047	2.047
2099	x	x	2.00	5.939	x	1.00	2.969	-	1.0	1.0	2.969	2.969
2100	x	x	2.00	6.315	x	1.00	3.158	-	1.0	1.0	3.158	3.158
2101	x	x	2.00	6.270	x	1.00	3.135	-	1.0	1.0	3.135	3.135
2102	x	x	1.00	5.985	x	1.00	5.985	-	1.0	1.0	5.985	5.985
2103	x	x	1.00	5.778	x	1.00	5.778	-	1.0	1.0	5.778	5.778
2104	x	x	1.00	5.778	x	1.00	5.778	-	1.0	1.0	5.778	5.778
2105	x	x	1.00	5.778	x	1.00	5.778	-	1.0	1.0	5.778	5.778
2106	x	x	1.00	4.045	x	1.00	4.045	-	1.0	1.0	4.045	4.045
2107	x	x	1.00	4.170	x	1.00	4.170	-	1.0	1.0	4.170	4.170
2108	x	x	1.00	4.170	x	1.00	4.170	-	1.0	1.0	4.170	4.170
2109	x	x	1.00	4.494	x	1.00	4.494	-	1.0	1.0	4.494	4.494
2110	x	x	1.00	4.495	x	1.00	4.495	-	1.0	1.0	4.495	4.495
2111	x	x	1.00	4.045	x	1.00	4.045	-	1.0	1.0	4.045	4.045
2112	x	x	1.00	11.137	x	1.00	11.137	-	1.0	1.0	11.137	11.137
2113	x	x	1.00	2.466	x	1.00	2.466	-	1.0	1.0	2.466	2.466
2114	x	x	1.00	9.013	x	1.00	9.013	-	1.0	1.0	9.013	9.013
2115	x	x	1.00	6.717	x	1.00	6.717	-	1.0	1.0	6.717	6.717
2116	x	x	1.00	6.149	x	1.00	6.149	-	1.0	1.0	6.149	6.149
2117	x	x	1.00	3.600	x	1.00	3.600	-	1.0	1.0	3.600	3.600
2118	x	x	1.00	8.893	x	1.00	8.893	-	1.0	1.0	8.893	8.893
2119	x	x	1.00	5.440	x	1.00	5.440	-	1.0	1.0	5.440	5.440
2120	x	x	1.00	5.389	x	1.00	5.389	-	1.0	1.0	5.389	5.389
2121	x	x	1.00	1.694	x	1.00	1.694	-	1.0	1.0	1.694	1.694
2122	x	x	1.00	2.918	x	1.00	2.918	-	1.0	1.0	2.918	2.918
2123	x	x	1.00	2.918	x	1.00	2.918	-	1.0	1.0	2.918	2.918
2124	x	x	1.00	3.082	x	1.00	3.082	-	1.0	1.0	3.082	3.082
2126	x	x	1.00	2.487	x	1.00	2.487	-	1.0	1.0	2.487	2.487
2127	x	x	1.00	7.791	x	1.00	7.791	-	1.0	1.0	7.791	7.791
2128	x	x	1.00	5.233	x	1.00	5.233	-	1.0	1.0	5.233	5.233
2130	x	x	1.00	5.662	x	1.00	5.662	-	1.0	1.0	5.662	5.662
2131	x	x	1.00	3.421	x	1.00	3.421	-	1.0	1.0	3.421	3.421
2132	x	x	1.00	7.863	x	1.00	7.863	-	1.0	1.0	7.863	7.863
2133	x	x	1.00	5.179	x	1.00	5.179	-	1.0	1.0	5.179	5.179
2134	x	x	1.00	6.736	x	1.00	6.736	-	1.0	1.0	6.736	6.736
2135	x	x	1.00	4.816	x	1.00	4.816	-	1.0	1.0	4.816	4.816
2136	x	x	1.00	10.271	x	1.00	10.271	-	1.0	1.0	10.271	10.271
2137	x	x	1.00	7.194	x	1.00	7.194	-	1.0	1.0	7.194	7.194
2138	x	x	1.00	9.637	x	1.00	9.637	-	1.0	1.0	9.637	9.637
2139	x	x	1.00	1.083	x	1.00	1.083	-	1.0	1.0	1.083	1.083
2140	x	x	1.00	3.953	x	1.00	3.953	-	1.0	1.0	3.953	3.953
2141	x	x	1.00	3.956	x	1.00	3.956	-	1.0	1.0	3.956	3.956
2142	x	x	1.00	1.000	x	1.00	1.000	-	1.0	1.0	1.000	1.000
2143	x	x	1.00	0.533	x	1.00	0.533	-	1.0	1.0	0.533	0.533
2144	x	x	1.00	1.865	x	1.00	1.865	-	1.0	1.0	1.865	1.865
2145	x	x	1.00	4.980	x	1.00	4.980	-	1.0	1.0	4.980	4.980
2146	x	x	1.00	5.847	x	1.00	5.847	-	1.0	1.0	5.847	5.847
2147	x	x	1.00	6.312	x	1.00	6.312	-	1.0	1.0	6.312	6.312
2148	x	x	1.00	5.722	x	1.00	5.722	-	1.0	1.0	5.722	5.722
2149	x	x	1.00	7.242	x	1.00	7.242	-	1.0	1.0	7.242	7.242
2150	x	x	1.00	7.242	x	1.00	7.242	-	1.0	1.0	7.242	7.242
2151	x	x	1.00	0.457	x	1.00	0.457	-	1.0	1.0	0.457	0.457
2152	x	x	1.00	5.579	x	1.00	5.579	-	1.0	1.0	5.579	5.579
2153	x	x	1.00	1.791	x	1.00	1.791	-	1.0	1.0	1.791	1.791
2154	x	x	1.00	3.151	x	1.00	3.151	-	1.0	1.0	3.151	3.151
2155	x	x	1.00	1.791	x	1.00	1.791	-	1.0	1.0	1.791	1.791
2156	x	x	1.00	1.791	x	1.00	1.791	-	1.0	1.0	1.791	1.791
2161	x	x	1.00	6.036	x	1.00	6.036	-	1.0	1.0	6.036	6.036
2162	x	x	1.00	4.321	x	1.00	4.321	-	1.0	1.0	4.321	4.321
2163	x	x	1.00	3.980	x	1.00	3.980	-	1.0	1.0	3.980	3.980
2164	x	x	1.00	4.210	x	1.00	4.210	-	1.0	1.0	4.210	4.210
2165	x	x	1.00	6.062	x	1.00	6.062	-	1.0	1.0	6.062	6.062
2166	x	x	1.00	5.718	x	1.00	5.718	-	1.0	1.0	5.718	5.718
2167	x	x	1.00	3.309	x	1.00	3.309	-	1.0	1.0	3.309	3.309
2168	x	x	1.00	3.309	x	1.00	3.309	-	1.0	1.0	3.309	3.309
2169	x	x	1.00	3.539	x	1.00	3.539	-	1.0	1.0	3.539	3.539

1.5 Effective Lengths - Members

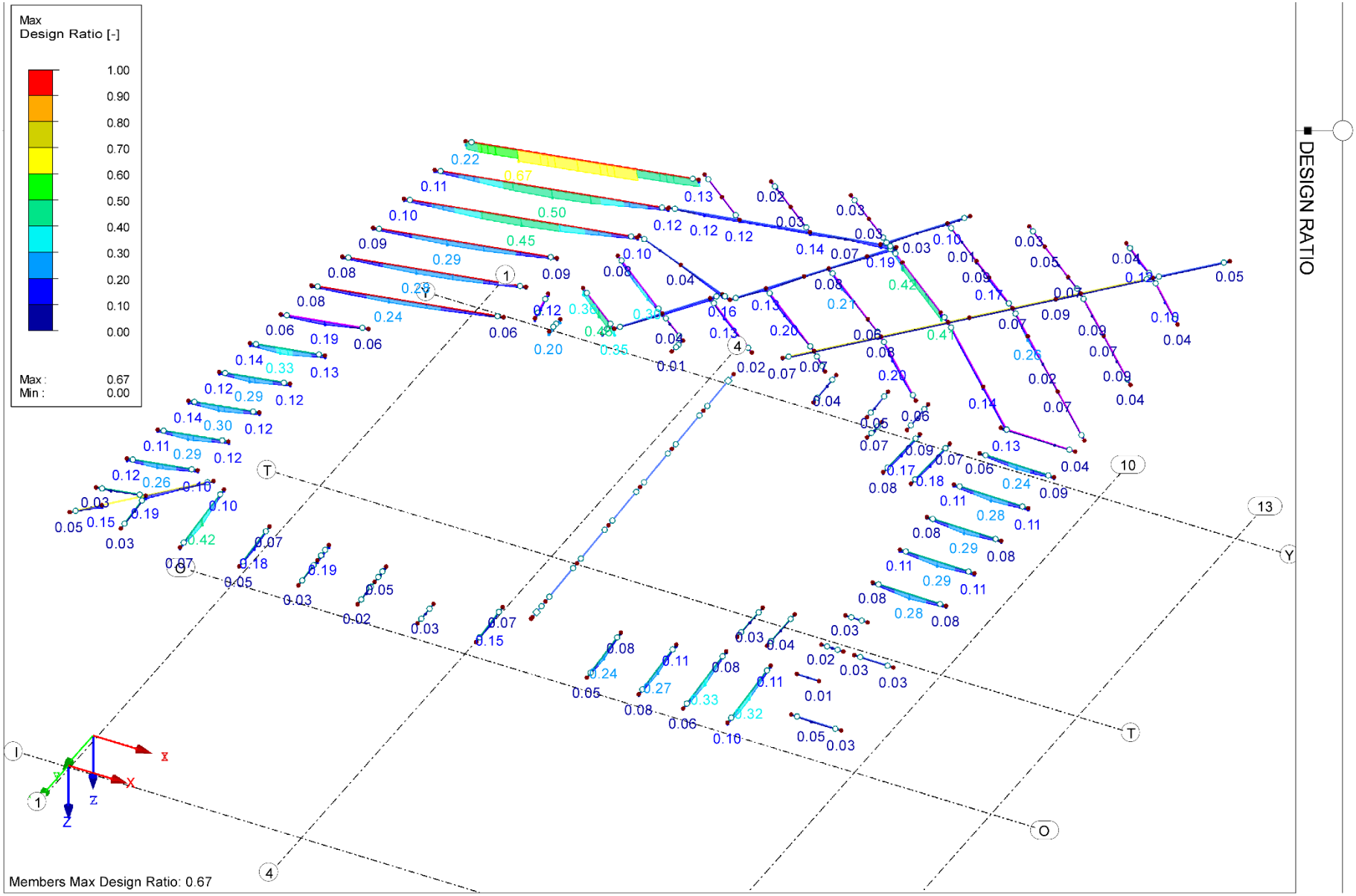
Member	Buckling	Buckling About Axis y			Buckling About Axis z			Lateral-Torsional Buckling				
No.	Possible	Possible	$k_{cr,y}$	$L_{cr,y}$ [m]	Possible	$k_{cr,z}$	$L_{cr,z}$ [m]	Possible	k_z	k_w	L_w [m]	L_T [m]
2171	x	x	1.00	1.937	x	1.00	1.937	-	1.0	1.0	1.937	1.937
2172	x	x	1.00	1.938	x	1.00	1.938	-	1.0	1.0	1.938	1.938
2173	x	x	1.00	3.601	x	1.00	3.601	-	1.0	1.0	3.601	3.601
2174	x	x	1.00	3.766	x	1.00	3.766	-	1.0	1.0	3.766	3.766
2175	x	x	1.00	4.256	x	1.00	4.256	-	1.0	1.0	4.256	4.256
2176	x	x	1.00	4.205	x	1.00	4.205	-	1.0	1.0	4.205	4.205
2177	x	x	1.00	3.304	x	1.00	3.304	-	1.0	1.0	3.304	3.304
2180	x	x	1.00	1.970	x	1.00	1.970	-	1.0	1.0	1.970	1.970
2189	x	x	1.00	1.802	x	1.00	1.802	-	1.0	1.0	1.802	1.802
2190	x	x	1.00	0.945	x	1.00	0.945	-	1.0	1.0	0.945	0.945
2235	x	x	1.00	1.765	x	1.00	1.765	-	1.0	1.0	1.765	1.765
2236	x	x	1.00	1.704	x	1.00	1.704	-	1.0	1.0	1.704	1.704
2283	x	x	1.00	3.927	x	1.00	3.927	-	1.0	1.0	3.927	3.927
2284	x	x	1.00	4.051	x	1.00	4.051	-	1.0	1.0	4.051	4.051
2976	x	x	1.00	2.414	x	1.00	2.414	x	1.0	1.0	2.414	2.414
2977	x	x	1.00	2.414	x	1.00	2.414	x	1.0	1.0	2.414	2.414
2978	x	x	1.00	1.717	x	1.00	1.717	x	1.0	1.0	1.717	1.717

2.2 Design by Cross-Section

Sect.	Member	Location	LC/CO/	Design		Equation	Description
No.	No.	x [m]	RC			No.	
22	HE B 320 | Euronorm 53-62						
	2086	2.388	CO1	0.07	≤ 1	CS101)	Cross-section check - Tension acc. to 6.2.3
	2088	0.000	CO1	0.09	≤ 1	CS121)	Cross-section check - Shear force in z-axis acc. to 6.2.6
	1537	0.000	CO1	0.01	≤ 1	CS123)	Cross-section check - Shear force in y-axis acc. to 6.2.6
	1537	0.000	CO1	0.00	≤ 1	CS126)	Cross-section check - Shear buckling acc. to 6.2.6(6)
	2092	2.546	CO1	0.03	≤ 1	CS181)	Cross-section check - Bending, shear and axial force acc. to 6.2.9.1
	2006	0.000	CO1	0.19	≤ 1	CS221)	Cross-section check - Biaxial bending, shear and axial force acc. to 6.2.10 and 6.2.9
24	CAST(A) HE A 500-490 | Euronorm 53-62						
	1993	4.192	CO1	0.04	≤ 1	CS102)	Cross-section check - Compression acc. to 6.2.4
	1993	0.000	CO1	0.02	≤ 1	CS103)	Cross-section check - Compression acc. to 6.2.4 - Class 4
	1996	11.947	CO1	0.18	≤ 1	CS112)	Cross-section check - Bending about y-axis acc. to 6.2.5 - Class 3
	1994	18.964	CO1	0.12	≤ 1	CS122)	Cross-section check - Shear force in z-axis acc. to 6.2.6(4) - Class 3 or 4
	1996	11.947	CO1	0.18	≤ 1	CS143)	Cross-section check - Bending and shear force acc. to 6.2.9.2 and 6.2.10 - Class 3 - General cross-section
	1994	9.482	CO1	0.50	≤ 1	CS183)	Cross-section check - Bending, shear and axial force acc. to 6.2.9.2 - Class 3 - General cross-section
	1993	9.040	CO1	0.40	≤ 1	CS223)	Cross-section check - Biaxial bending, shear and axial force acc. to 6.2.10 and 6.2.9 - Class 3 - General cross-section
	1993	0.000	CO1	0.03	≤ 1	ST303)	Stability analysis - Flexural buckling about y-axis acc. to 6.3.1.1 and 6.3.1.2(4) - Class 4
	1993	0.000	CO1	0.22	≤ 1	ST314)	Stability analysis - Flexural buckling about z-axis acc. to 6.3.1.1 and 6.3.1.2 - Class 4
	1993	4.192	CO1	0.67	≤ 1	ST354)	Stability analysis - Bending and compression acc. to 6.3.3, Method 1
25	IPE 300 | Euronorm 19-57						
	2008	7.368	CO1	0.02	≤ 1	CS101)	Cross-section check - Tension acc. to 6.2.3
	2171	0.969	CO1	0.12	≤ 1	CS102)	Cross-section check - Compression acc. to 6.2.4
	2171	0.000	CO1	0.12	≤ 1	CS103)	Cross-section check - Compression acc. to 6.2.4 - Class 4
	285	3.018	CO1	0.29	≤ 1	CS111)	Cross-section check - Bending about y-axis acc. to 6.2.5 - Class 1 or 2
	2008	7.368	CO1	0.10	≤ 1	CS121)	Cross-section check - Shear force in z-axis acc. to 6.2.6
	1999	6.098	CO1	0.13	≤ 1	CS122)	Cross-section check - Shear force in z-axis acc. to 6.2.6(4) - Class 3 or 4
	275	0.000	CO1	0.00	≤ 1	CS126)	Cross-section check - Shear buckling acc. to 6.2.6(6)
	285	3.018	CO1	0.29	≤ 1	CS141)	Cross-section check - Bending and shear force acc. to 6.2.5 and 6.2.8
	2008	3.684	CO1	0.42	≤ 1	CS181)	Cross-section check - Bending, shear and axial force acc. to 6.2.9.1
	2171	0.969	CO1	0.16	≤ 1	CS182)	Cross-section check - Bending, shear and axial force acc. to 6.2.9.2 - Class 3
	2171	0.000	CO1	0.12	≤ 1	ST303)	Stability analysis - Flexural buckling about y-axis acc. to 6.3.1.1 and 6.3.1.2(4) - Class 4
	715	0.000	CO1	0.12	≤ 1	ST313)	Stability analysis - Flexural buckling about z-axis acc. to 6.3.1.1 and 6.3.1.2(4) - Class 4
	2171	0.000	CO1	0.16	≤ 1	ST314)	Stability analysis - Flexural buckling about z-axis acc. to 6.3.1.1 and 6.3.1.2 - Class 4
	1999	2.414	CO1	0.33	≤ 1	ST364)	Stability analysis - Bending and compression acc. to 6.3.3, Method 2

2.2 Design by Cross-Section

Sect. No.	Member No.	Location x [m]	LC/CO/ RC	Design		Equation No.	Description
56	HE B 280 | Euronorm 53-62						
	2130	5.662	CO1	0.04	≤ 1	CS101)	Cross-section check - Tension acc. to 6.2.3
	2137	0.000	CO1	0.14	≤ 1	CS102)	Cross-section check - Compression acc. to 6.2.4
	2134	6.736	CO1	0.26	≤ 1	CS111)	Cross-section check - Bending about y-axis acc. to 6.2.5 - Class 1 or 2
	2132	0.000	CO1	0.10	≤ 1	CS121)	Cross-section check - Shear force in z-axis acc. to 6.2.6
	2151	0.000	CO1	0.02	≤ 1	CS123)	Cross-section check - Shear force in y-axis acc. to 6.2.6
	273	0.000	CO1	0.00	≤ 1	CS126)	Cross-section check - Shear buckling acc. to 6.2.6(6)
	2134	6.736	CO1	0.26	≤ 1	CS141)	Cross-section check - Bending and shear force acc. to 6.2.5 and 6.2.8
	2120	2.694	CO1	0.03	≤ 1	CS161)	Cross-section check - Biaxial bending and shear force acc. to 6.2.6, 6.2.7 and 6.2.9
	2118	2.964	CO1	0.38	≤ 1	CS181)	Cross-section check - Bending, shear and axial force acc. to 6.2.9.1
	2132	0.000	CO1	0.08	≤ 1	CS221)	Cross-section check - Biaxial bending, shear and axial force acc. to 6.2.10 and 6.2.9
	2283	0.000	CO1	0.10	≤ 1	ST301)	Stability analysis - Flexural buckling about y-axis acc. to 6.3.1.1 and 6.3.1.2(4)
	2137	0.000	CO1	0.19	≤ 1	ST302)	Stability analysis - Flexural buckling about y-axis acc. to 6.3.1.1 and 6.3.1.2
	2132	7.863	CO1	0.04	≤ 1	ST311)	Stability analysis - Flexural buckling about z-axis acc. to 6.3.1.1 and 6.3.1.2(4)
	2137	0.000	CO1	0.36	≤ 1	ST312)	Stability analysis - Flexural buckling about z-axis acc. to 6.3.1.1 and 6.3.1.2
	2137	3.597	CO1	0.46	≤ 1	ST364)	Stability analysis - Bending and compression acc. to 6.3.3, Method 2
57	HE B 240 | Euronorm 53-62						
	2146	5.847	CO1	0.05	≤ 1	CS101)	Cross-section check - Tension acc. to 6.2.3
	2180	1.970	CO1	0.18	≤ 1	CS102)	Cross-section check - Compression acc. to 6.2.4
	2284	2.398	CO1	0.05	≤ 1	CS111)	Cross-section check - Bending about y-axis acc. to 6.2.5 - Class 1 or 2
	2139	0.000	CO1	0.16	≤ 1	CS116)	Cross-section check - Bending about z-axis acc. to 6.2.5 - Class 1 or 2
	2096	0.000	CO1	0.09	≤ 1	CS121)	Cross-section check - Shear force in z-axis acc. to 6.2.6
	2096	0.000	CO1	0.04	≤ 1	CS123)	Cross-section check - Shear force in y-axis acc. to 6.2.6
	2094	0.000	CO1	0.00	≤ 1	CS126)	Cross-section check - Shear buckling acc. to 6.2.6(6)
	2284	2.398	CO1	0.05	≤ 1	CS141)	Cross-section check - Bending and shear force acc. to 6.2.5 and 6.2.8
	2139	0.000	CO1	0.16	≤ 1	CS151)	Cross-section check - Bending about z-axis and shear force acc. to 6.2.5 and 6.2.8
	2145	4.980	CO1	0.11	≤ 1	CS161)	Cross-section check - Biaxial bending and shear force acc. to 6.2.6, 6.2.7 and 6.2.9
	2180	0.985	CO1	0.19	≤ 1	CS181)	Cross-section check - Bending, shear and axial force acc. to 6.2.9.1
	2102	5.985	CO1	0.15	≤ 1	CS201)	Cross-section check - Bending about z-axis, shear and axial force acc. to 6.2.9.1
	2095	1.289	CO1	0.19	≤ 1	CS221)	Cross-section check - Biaxial bending, shear and axial force acc. to 6.2.10 and 6.2.9
	2180	1.970	CO1	0.18	≤ 1	ST301)	Stability analysis - Flexural buckling about y-axis acc. to 6.3.1.1 and 6.3.1.2(4)
	2180	1.970	CO1	0.20	≤ 1	ST311)	Stability analysis - Flexural buckling about z-axis acc. to 6.3.1.1 and 6.3.1.2(4)
	2095	1.289	CO1	0.16	≤ 1	ST364)	Stability analysis - Bending and compression acc. to 6.3.3, Method 2



6.4.4 pav. Metalinių konstrukcijų išnaudojimas

6.5 METALINIŲ SANTVARŲ SKAIČIAVIMAS (KONCERTŲ PASTATAS, DIDŽIOJI SALĖ)

Maksimalios įrąžos veikiančios skerspjūvyje

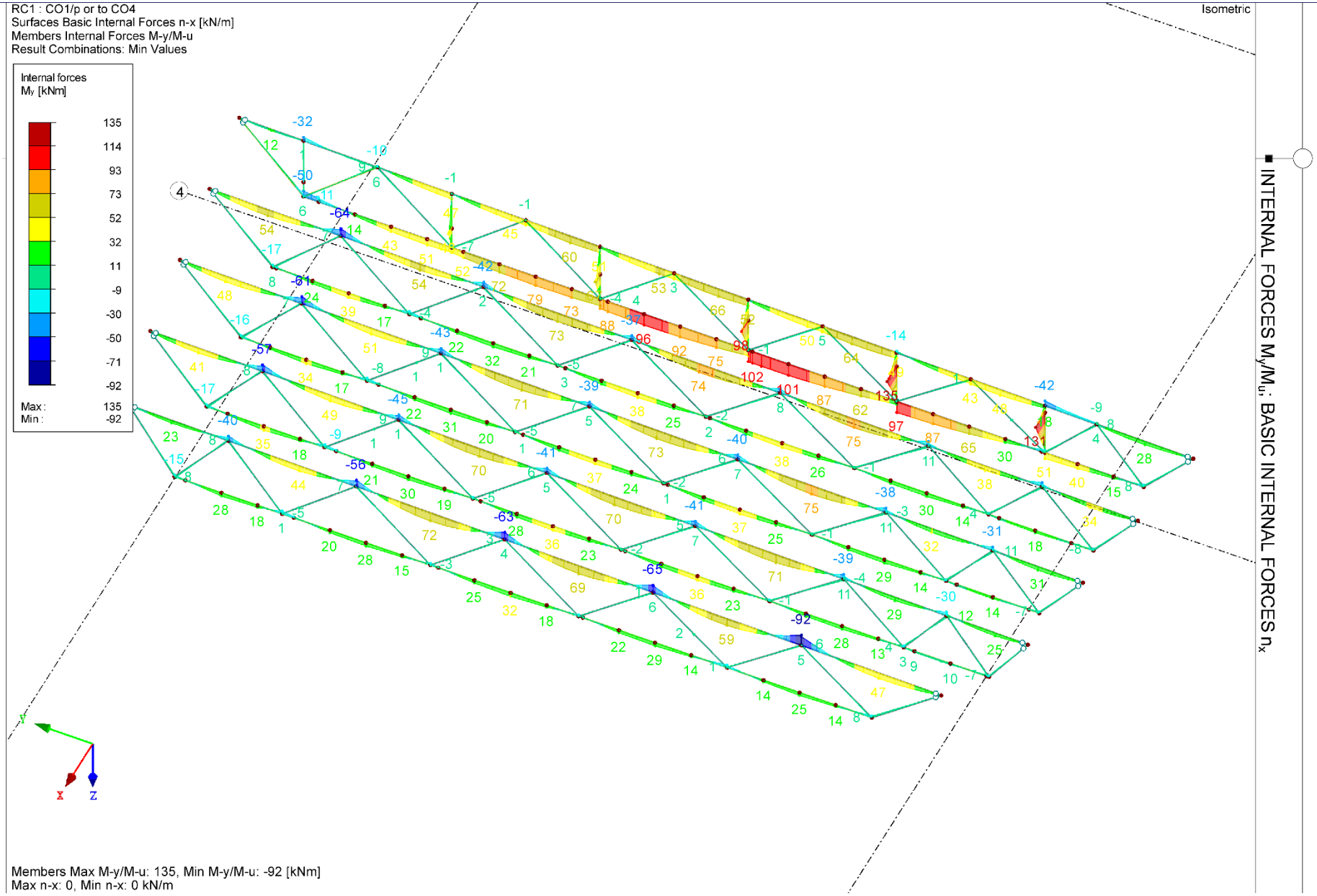
4.12 Cross-Sections - Internal Forces

Result Combinations

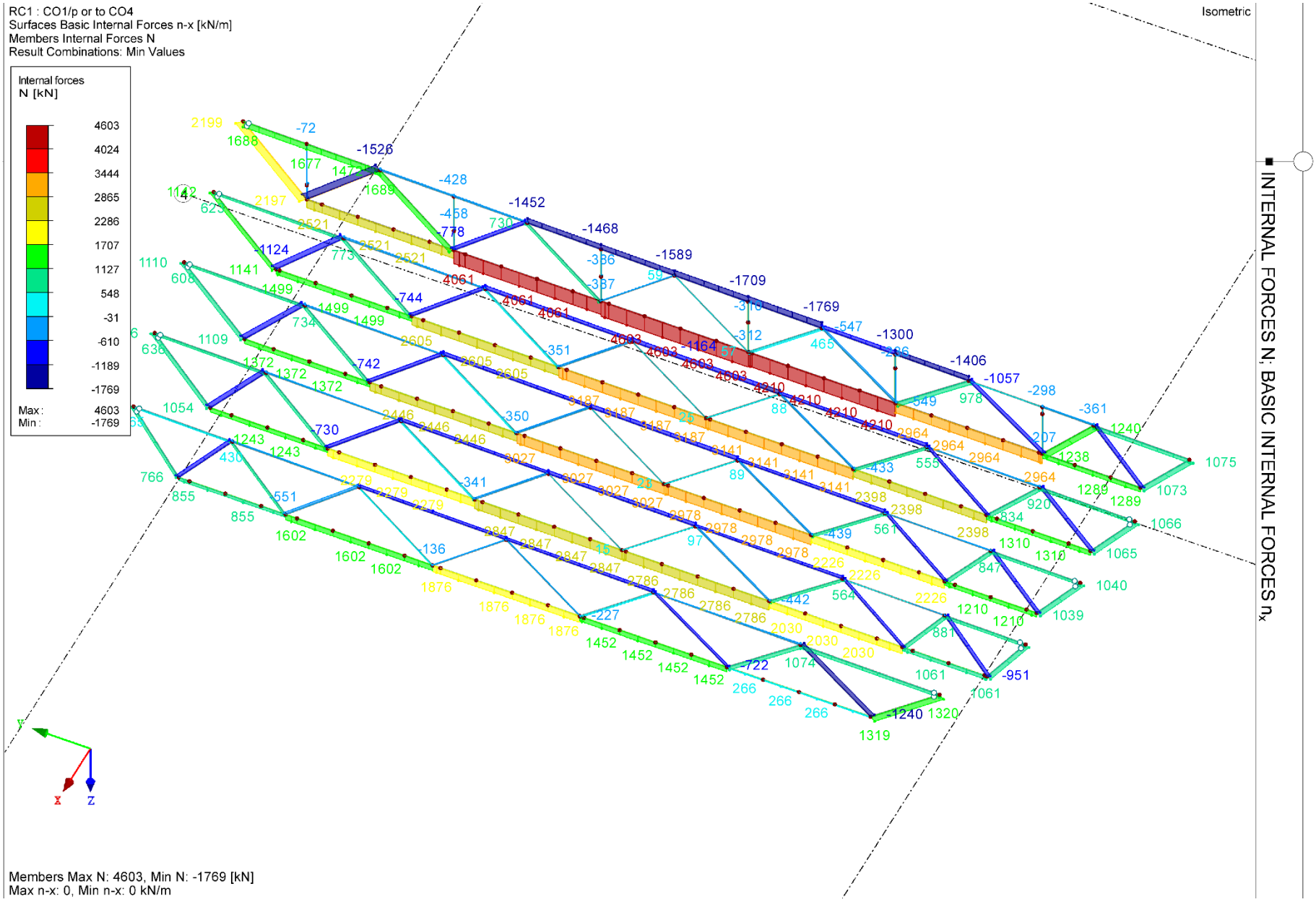
Member No.	RC	Node No.	Location x [m]		Forces [kN] N	V_y / V_u	V_z / V_v	Moments [kNm] M_T	M_y / M_u	M_z / M_v	Corresponding Load Cases
	Section No. 14: HE B 240 | Euronorm 53-62										
1610	RC1	3575	0.000	MAX N	> 3187	3	29	0	-4	3	CO 1
1556	RC1	3378	0.000	MIN N	> -550	23	-19	0	2	34	CO 1
1547	RC1	3352	0.309	MAX V_y	-126	> 325	-302	2	0	-65	CO 2
1552	RC1	3374	0.000	MIN V_y	-238	> -100	97	0	-13	-72	CO 2
1552	RC1	3374	0.000	MAX V_z	-238	-100	> 97	0	-13	-72	CO 2
1547	RC1	3471	0.000	MIN V_z	-127	325	> -302	2	93	35	CO 2
1552	RC1	3473	1.556	MAX M_y	-236	-100	97	0	> 138	84	CO 2
1750	RC1	3636	0.385	MIN M_y	1605	-1	-43	0	> -26	0	CO 2
1552	RC1	3473	1.556	MAX M_z	-236	-100	97	0	138	> 84	CO 2
1552	RC1	3374	0.000	MIN M_z	-238	-100	97	0	-13	> -72	CO 2
	Section No. 44: QRO 180x16 | EN 10219-2:2006										
960	RC1	2833	3.227	MAX N	> 2852	0	4	0	0	0	CO 4
959	RC1	2916	0.000	MIN N	> -2061	-47	0	0	0	-57	CO 4
963	RC1	2921	0.000	MAX V_y	-2007	> 47	0	0	0	57	CO 3
959	RC1	2916	0.000	MIN V_y	-2060	> -47	0	0	0	-57	CO 3
962	RC1	2920	0.000	MAX V_z	2226	0	> 23	0	-34	-1	CO 2
1058	RC1	2987	2.475	MIN V_z	-1916	45	> 0	0	0	-56	CO 3
1053	RC1	2983	3.227	MAX M_y	2110	0	20	0	> 35	0	CO 1
962	RC1	2920	0.000	MIN M_y	2226	0	23	0	> -34	-1	CO 2
1054	RC1	2983	2.475	MAX M_z	-1939	-46	0	0	0	> 58	CO 3
963	RC1	2926	2.475	MIN M_z	-2004	47	0	0	0	> -59	CO 3
	Section No. 48: HE B 300 | Euronorm 53-62										
1565	RC1	3462	0.000	MAX N	> 1705	-3	11	0	6	-2	CO 2
1562	RC1	3398	0.000	MIN N	> -1769	0	10	0	46	0	CO 4
1561	RC1	3381	0.000	MAX V_y	1016	> 83	260	0	-413	8	CO 2
1530	RC1	1382	2.129	MIN V_y	1704	> -104	-21	0	0	0	CO 2
1561	RC1	3381	0.000	MAX V_z	1001	79	> 261	0	-415	7	CO 4
1597	RC1	3352	1.719	MIN V_z	-284	-51	> -64	0	-48	10	CO 2
1561	RC1	3765	3.206	MAX M_y	1058	4	80	0	> 92	-1	CO 4
1561	RC1	3381	0.000	MIN M_y	1001	79	261	0	> -415	7	CO 4
1519	RC1	3352	0.000	MAX M_z	39	55	28	0	15	> 11	CO 2
1530	RC1		1.597	MIN M_z	1698	6	-9	0	9	> -31	CO 1
	Section No. 49: HE B 360 | Euronorm 53-62										
1524	RC1	3373	0.000	MAX N	> 4615	-47	16	0	84	-16	CO 1
1531	RC1	3357	0.000	MIN N	> 1289	-7	-4	0	44	-12	CO 4
1816	RC1	3703	0.000	MAX V_y	2970	> 68	-50	0	-26	-7	CO 2
1526	RC1	3374	0.000	MIN V_y	2970	> -75	-1	0	97	-15	CO 2
1527	RC1	3378	0.000	MAX V_z	2529	24	> 45	0	-50	7	CO 1
1816	RC1	3357	0.113	MIN V_z	2970	68	> -51	0	-32	-15	CO 2
1802	RC1	3687	0.000	MAX M_y	4210	-10	0	0	> 101	-8	CO 4
1527	RC1	3378	0.000	MIN M_y	2529	24	45	0	> -50	7	CO 1
1814	RC1	3701	1.200	MAX M_z	2970	-1	-32	0	24	> 7	CO 2
1524	RC1	3373	0.000	MIN M_z	4603	-49	16	0	85	> -17	CO 4
	Section No. 50: QRO 160x10 | EN 10219-2:2006										
1991	RC1	3523	0.000	MAX N	> 1322	-1	-2	0	0	0	CO 4
1977	RC1	3686	0.000	MIN N	> -1240	0	-4	0	8	-2	CO 4
1605	RC1	3518	0.000	MAX V_y	-1061	> 0	4	0	-5	0	CO 2
1991	RC1	3523	0.000	MIN V_y	1320	> -1	-2	0	0	0	CO 2
1654	RC1	3524	0.000	MAX V_z	754	0	> 9	0	-11	-1	CO 2
1953	RC1	3584	3.259	MIN V_z	560	0	> -6	0	-6	0	CO 1
1654	RC1	3537	2.517	MAX M_y	755	0	9	0	> 12	-1	CO 2
1654	RC1	3524	0.000	MIN M_y	754	0	9	0	> -11	-1	CO 2
1991	RC1	3686	3.093	MAX M_z	1319	-1	-4	0	-9	> 2	CO 2
1977	RC1	3686	0.000	MIN M_z	-1239	0	-4	0	8	> -2	CO 2
	Section No. 60: HE B 280 | Euronorm 53-62										
1988	RC1	3609	0.000	MAX N	> 1080	0	64	0	-78	-1	CO 2
1589	RC1	3538	0.000	MIN N	> -1205	0	55	0	-37	0	CO 4
1592	RC1		3.390	MAX V_y	641	> 20	-19	0	42	-3	CO 1
1592	RC1	3546	4.359	MIN V_y	630	> -38	-57	0	0	0	CO 2

4.12 Cross-Sections - Internal Forces

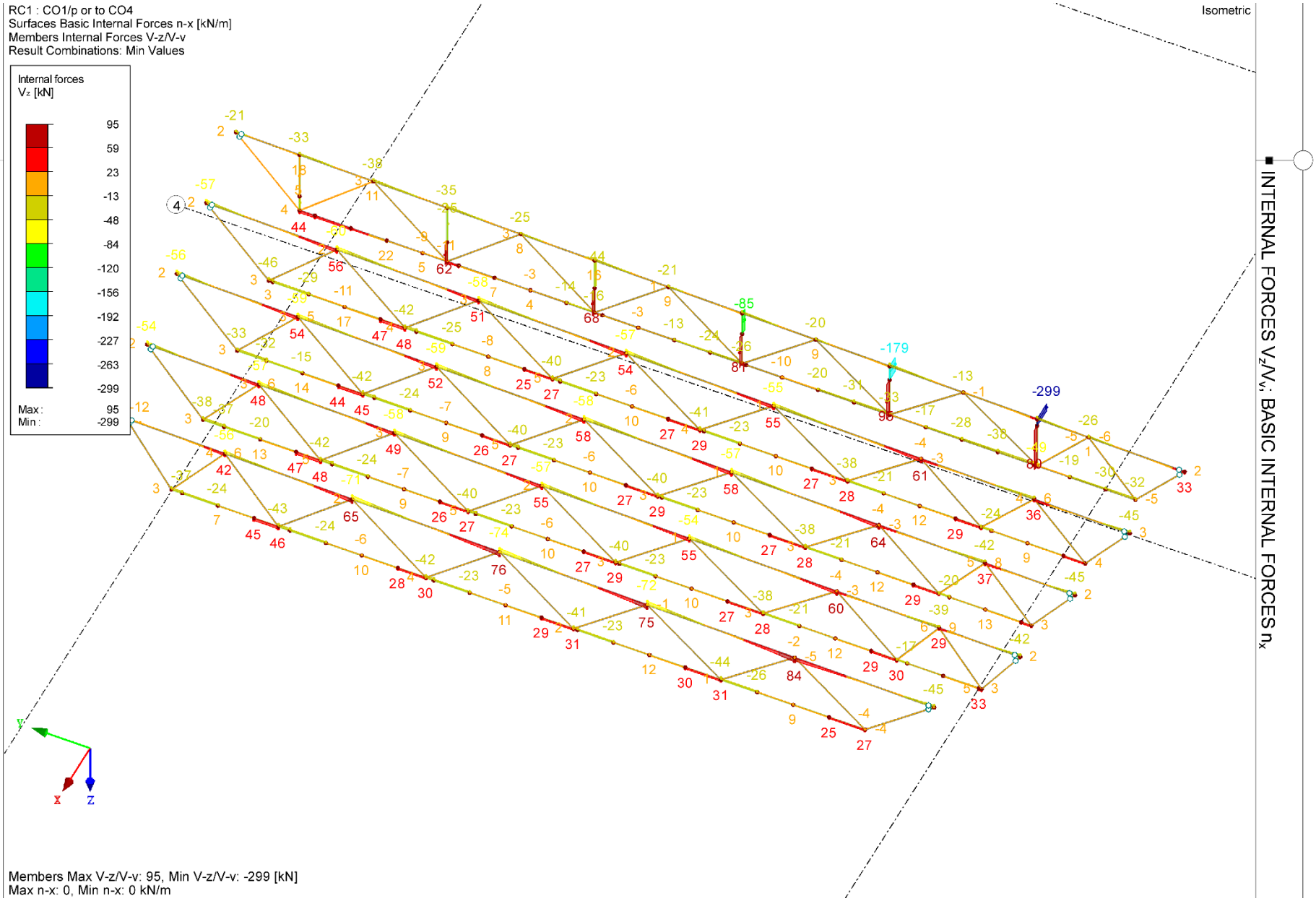
Member No.	RC	Node No.	Location x [m]		Forces [kN] N	V_y / V_u	V_z / V_v	Moments [kNm] M_T	M_y / M_u	M_z / M_v	Corresponding Load Cases
1664	RC1	3609	0.000	MAX V_z	-497	-1	> 84	0	-92	0	CO 4
1665	RC1	3626	4.925	MIN V_z	-736	0	> -74	0	-62	0	CO 2
1587	RC1		2.463	MAX M_y	-855	0	0	0	> 75	1	CO 4
1664	RC1	3609	0.000	MIN M_y	-497	-1	84	0	> -92	0	CO 4
1663	RC1		2.166	MAX M_z	810	3	-21	0	18	> 2	CO 4
1592	RC1		3.874	MIN M_z	634	5	-35	0	25	> -11	CO 2
	Section No. 61: QRO 160x12 | EN 10219-2:2006										
1932	RC1	3462	3.471	MAX N	> 1473	2	3	1	9	-2	CO 4
1532	RC1	3357	0.000	MIN N	> -1058	2	1	2	1	4	CO 1
1926	RC1	3374	0.000	MAX V_y	-548	> 3	2	2	1	7	CO 2
1989	RC1	3765	0.000	MIN V_y	1241	> -5	-9	-1	14	-3	CO 2
1932	RC1	3379	0.000	MAX V_z	1471	2	> 5	1	-7	5	CO 4
1544	RC1	3381	2.602	MIN V_z	1075	0	> -16	0	-34	1	CO 4
1989	RC1	3765	0.000	MAX M_y	1240	-5	-9	-1	> 14	-3	CO 4
1544	RC1	3381	2.602	MIN M_y	1075	0	-16	0	> -34	1	CO 4
1989	RC1	3357	2.690	MAX M_z	1239	-5	-10	-1	-10	> 10	CO 2
1989	RC1	3765	0.000	MIN M_z	1240	-5	-9	-1	14	> -3	CO 4



6.5.1 pav.Įrąžos elementuose (lenkimo momentas My)



6.5.2 pav. Įrąžos elementuose (ašinės jėgos N)



6.5.3 pav. Įrąžos elementuose (skersinės jėgos Vz)

DOKUMENTO ŽYMUO	LAPAS	LAPŲ	LAIDA
439-MKC-01-TP-SK2-BSPS-01	351	382	0

Metalo konstrukcijų skaičiavimas

1.1 General Data

Members to design:	1519-1535,1541,1542,1544,1546,1547,1550,1552,1554-1558,1561-1568,1570,1572,1574,1575,1577-1592,1597-1599,1604-1606,1608-1615,1627-1629,1631-1637,1639,1641,1642,1654-1661,1663-1668,1681-1687,1715-1753,1787,1792,1798-1800,1802,1805,1808,1810,1812-1870,1923-1934,1936-1991	
Sets of members to design:		
National Annex:	CEN	
Ultimate Limit State Design		
Load combinations to design:	CO1	1.35G + 1.35Gq1 + 1.35Gq2 + 1.3QiC + 1.3Qs + 1.3Qw1

1.2 Materials

Matl. No.	Material Description	E- Modulus E [kN/cm²]	Shear Modulus G [kN/cm²]	Poisson's Ratio ν [-]	Yield Stress f_{yk} [kN/cm²]	Max. Thickness t [mm]
2	Steel S 355 | EN 10025-2:2004-11	21000.00	8076.92	0.300	35.50	3.0
					35.50	16.0
					34.50	40.0
					33.50	63.0
					32.50	80.0
					31.50	100.0
					29.50	150.0
					28.50	200.0

1.3 Cross-Sections

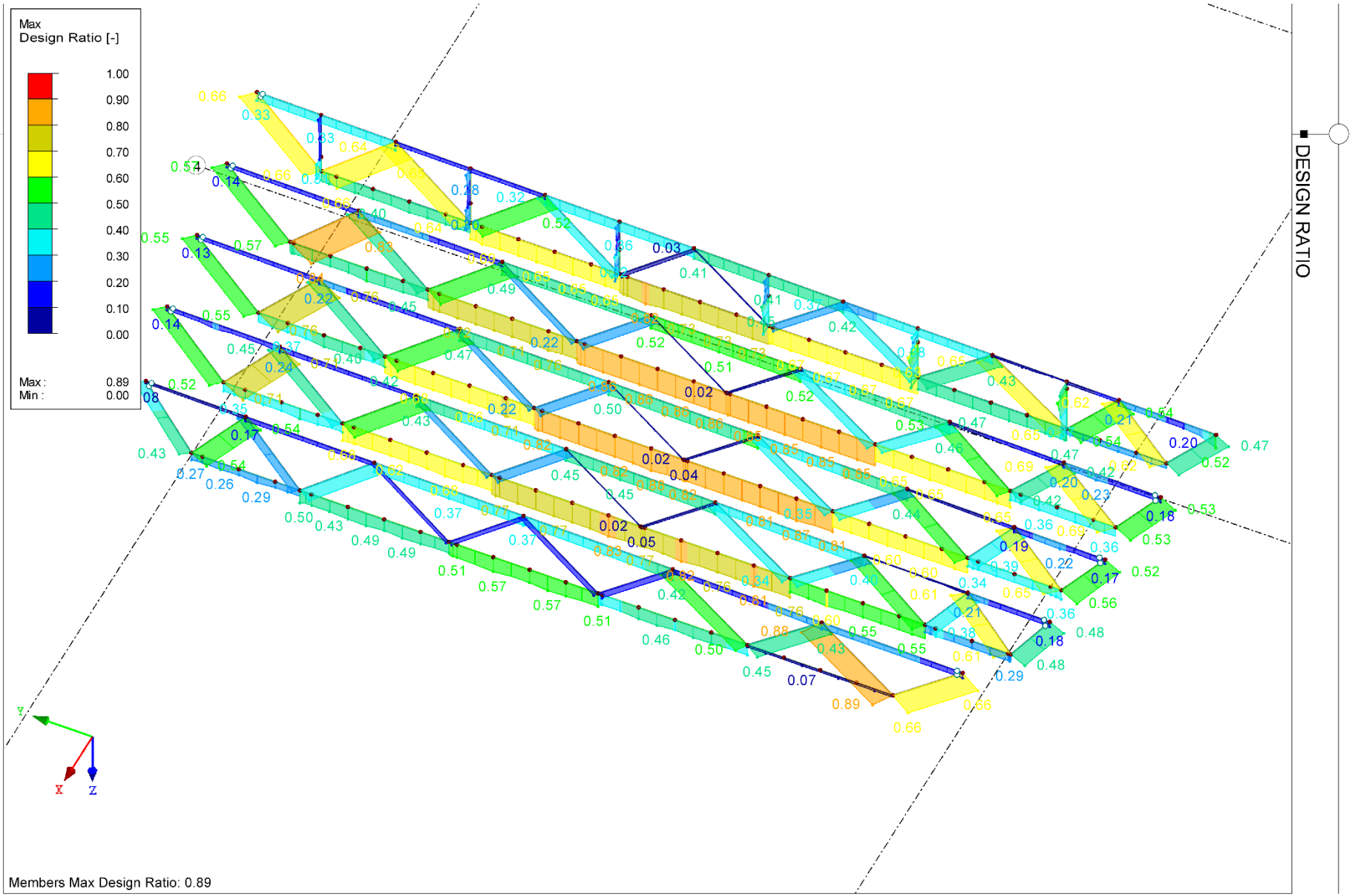
Sect. No.	Matl. No.	Cross-Section Description	Cross-Section Type	Max Design Ratio	Comment
14	2	HE B 240 | Euronorm 53-62	I-section rolled	0.88	
18	2	HE B 200 | Euronorm 53-62	I-section rolled	0.63	
44	2	QRO 180x16 | EN 10219-2:2006	Box rolled	0.66	
48	2	HE B 300 | Euronorm 53-62	I-section rolled	0.52	
49	2	HE B 360 | Euronorm 53-62	I-section rolled	0.82	
50	2	QRO 160x10 | EN 10219-2:2006	Box rolled	0.89	
60	2	HE B 280 | Euronorm 53-62	I-section rolled	0.52	
61	2	QRO 160x12 | EN 10219-2:2006	Box rolled	0.65	

2.2 Design by Cross-Section

Sect. No.	Member No.	Location x [m]	LC/CO/ RC	Design		Equation No.	Description
14	HE B 240 | Euronorm 53-62						
	1610	0.000	CO1	0.86	≤ 1	CS101)	Cross-section check - Tension acc. to 6.2.3
	1556	0.000	CO1	0.15	≤ 1	CS102)	Cross-section check - Compression acc. to 6.2.4
	1547	0.000	CO1	0.44	≤ 1	CS121)	Cross-section check - Shear force in z-axis acc. to 6.2.6
	1547	0.000	CO1	0.19	≤ 1	CS123)	Cross-section check - Shear force in y-axis acc. to 6.2.6
	1546	0.000	CO1	0.00	≤ 1	CS126)	Cross-section check - Shear buckling acc. to 6.2.6(6)
	1853	0.000	CO1	0.88	≤ 1	CS181)	Cross-section check - Bending, shear and axial force acc. to 6.2.9.1
	1851	1.200	CO1	0.57	≤ 1	CS201)	Cross-section check - Bending about z-axis, shear and axial force acc. to 6.2.9.1
	1552	1.556	CO1	0.63	≤ 1	CS221)	Cross-section check - Biaxial bending, shear and axial force acc. to 6.2.10 and 6.2.9
	1552	0.000	CO1	0.39	≤ 1	ST364)	Stability analysis - Bending and compression acc. to 6.3.3, Method 2
44	QRO 180x16 | EN 10219-2:2006						
	1934	3.297	CO1	0.66	≤ 1	CS101)	Cross-section check - Tension acc. to 6.2.3
	1933	3.471	CO1	0.46	≤ 1	CS102)	Cross-section check - Compression acc. to 6.2.4
	1933	0.000	CO1	0.01	≤ 1	CS121)	Cross-section check - Shear force in z-axis acc. to 6.2.6
	1933	0.000	CO1	0.00	≤ 1	CS126)	Cross-section check - Shear buckling acc. to 6.2.6(6)
	1933	0.000	CO1	0.00	≤ 1	CS221)	Cross-section check - Biaxial bending, shear and axial force acc. to 6.2.10 and 6.2.9
	1933	3.471	CO1	0.66	≤ 1	ST364)	Stability analysis - Bending and compression acc. to 6.3.3, Method 2
48	HE B 300 | Euronorm 53-62						
	1565	0.000	CO1	0.33	≤ 1	CS101)	Cross-section check - Tension acc. to 6.2.3

2.2 Design by Cross-Section

Sect. No.	Member No.	Location x [m]	LC/CO/ RC	Design		Equation No.	Description
	1562	0.000	CO1	0.34	≤ 1	CS102)	Cross-section check - Compression acc. to 6.2.4
	1561	0.000	CO1	0.27	≤ 1	CS121)	Cross-section check - Shear force in z-axis acc. to 6.2.6
	1530	2.129	CO1	0.04	≤ 1	CS123)	Cross-section check - Shear force in y-axis acc. to 6.2.6
	1519	0.000	CO1	0.00	≤ 1	CS126)	Cross-section check - Shear buckling acc. to 6.2.6(6)
	1562	0.493	CO1	0.40	≤ 1	CS181)	Cross-section check - Bending, shear and axial force acc. to 6.2.9.1
	1565	1.478	CO1	0.02	≤ 1	CS201)	Cross-section check - Bending about z-axis, shear and axial force acc. to 6.2.9.1
	1561	0.000	CO1	0.52	≤ 1	CS221)	Cross-section check - Biaxial bending, shear and axial force acc. to 6.2.10 and 6.2.9
	1562	0.000	CO1	0.42	≤ 1	ST364)	Stability analysis - Bending and compression acc. to 6.3.3, Method 2
49	HE B 360 | Euronorm 53-62						
	1524	0.000	CO1	0.73	≤ 1	CS101)	Cross-section check - Tension acc. to 6.2.3
	1816	0.113	CO1	0.04	≤ 1	CS121)	Cross-section check - Shear force in z-axis acc. to 6.2.6
	1526	0.000	CO1	0.03	≤ 1	CS123)	Cross-section check - Shear force in y-axis acc. to 6.2.6
	1524	0.000	CO1	0.00	≤ 1	CS126)	Cross-section check - Shear buckling acc. to 6.2.6(6)
	1577	0.600	CO1	0.82	≤ 1	CS181)	Cross-section check - Bending, shear and axial force acc. to 6.2.9.1
	1579	0.000	CO1	0.11	≤ 1	CS221)	Cross-section check - Biaxial bending, shear and axial force acc. to 6.2.10 and 6.2.9
50	QRO 160x10 | EN 10219-2:2006						
	1991	0.000	CO1	0.66	≤ 1	CS101)	Cross-section check - Tension acc. to 6.2.3
	1977	0.000	CO1	0.62	≤ 1	CS102)	Cross-section check - Compression acc. to 6.2.4
	1654	0.000	CO1	0.02	≤ 1	CS121)	Cross-section check - Shear force in z-axis acc. to 6.2.6
	1604	0.000	CO1	0.00	≤ 1	CS126)	Cross-section check - Shear buckling acc. to 6.2.6(6)
	1977	3.174	CO1	0.66	≤ 1	CS181)	Cross-section check - Bending, shear and axial force acc. to 6.2.9.1
	1959	3.416	CO1	0.37	≤ 1	CS201)	Cross-section check - Bending about z-axis, shear and axial force acc. to 6.2.9.1
	1654	2.517	CO1	0.02	≤ 1	CS221)	Cross-section check - Biaxial bending, shear and axial force acc. to 6.2.10 and 6.2.9
	1972	3.416	CO1	0.52	≤ 1	ST302)	Stability analysis - Flexural buckling about y-axis acc. to 6.3.1.1 and 6.3.1.2
	1972	3.416	CO1	0.52	≤ 1	ST312)	Stability analysis - Flexural buckling about z-axis acc. to 6.3.1.1 and 6.3.1.2
	1977	0.000	CO1	0.89	≤ 1	ST364)	Stability analysis - Bending and compression acc. to 6.3.3, Method 2
60	HE B 280 | Euronorm 53-62						
	1988	0.000	CO1	0.24	≤ 1	CS101)	Cross-section check - Tension acc. to 6.2.3
	1589	0.000	CO1	0.26	≤ 1	CS102)	Cross-section check - Compression acc. to 6.2.4
	1664	0.000	CO1	0.10	≤ 1	CS121)	Cross-section check - Shear force in z-axis acc. to 6.2.6
	1592	4.359	CO1	0.02	≤ 1	CS123)	Cross-section check - Shear force in y-axis acc. to 6.2.6
	1586	0.000	CO1	0.00	≤ 1	CS126)	Cross-section check - Shear buckling acc. to 6.2.6(6)
	1976	1.708	CO1	0.01	≤ 1	CS161)	Cross-section check - Biaxial bending and shear force acc. to 6.2.6, 6.2.7 and 6.2.9
	1589	2.686	CO1	0.38	≤ 1	CS181)	Cross-section check - Bending, shear and axial force acc. to 6.2.9.1
	1608	0.448	CO1	0.00	≤ 1	CS201)	Cross-section check - Bending about z-axis, shear and axial force acc. to 6.2.9.1
	1592	3.874	CO1	0.04	≤ 1	CS221)	Cross-section check - Biaxial bending, shear and axial force acc. to 6.2.10 and 6.2.9
	1589	0.000	CO1	0.52	≤ 1	ST364)	Stability analysis - Bending and compression acc. to 6.3.3, Method 2
61	QRO 160x12 | EN 10219-2:2006						
	1932	3.471	CO1	0.64	≤ 1	CS101)	Cross-section check - Tension acc. to 6.2.3
	1532	0.000	CO1	0.46	≤ 1	CS102)	Cross-section check - Compression acc. to 6.2.4
	1544	2.602	CO1	0.02	≤ 1	CS121)	Cross-section check - Shear force in z-axis acc. to 6.2.6
	1989	0.000	CO1	0.01	≤ 1	CS123)	Cross-section check - Shear force in y-axis acc. to 6.2.6
	1533	0.000	CO1	0.00	≤ 1	CS126)	Cross-section check - Shear buckling acc. to 6.2.6(6)
	1544	2.602	CO1	0.14	≤ 1	CS221)	Cross-section check - Biaxial bending, shear and axial force acc. to 6.2.10 and 6.2.9
	1532	0.000	CO1	0.65	≤ 1	ST302)	Stability analysis - Flexural buckling about y-axis acc. to 6.3.1.1 and 6.3.1.2
	1532	0.000	CO1	0.65	≤ 1	ST312)	Stability analysis - Flexural buckling about z-axis acc. to 6.3.1.1 and 6.3.1.2
	1990	0.000	CO1	0.62	≤ 1	ST364)	Stability analysis - Bending and compression acc. to 6.3.3, Method 2



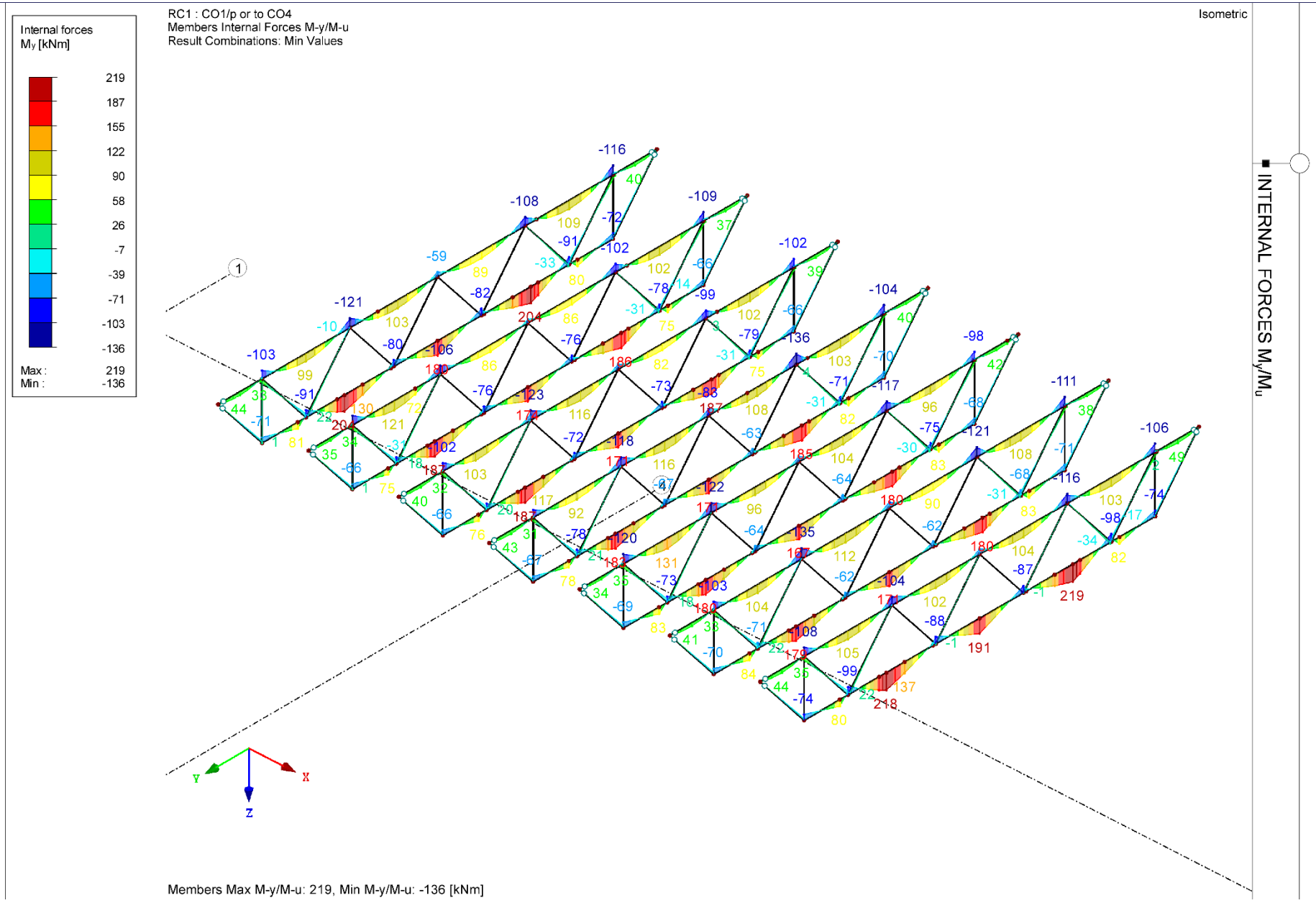
6.5.4 pav. Metalinių konstrukcijų išnaudojimas

Maksimalios įrąžos veikiančios skerspjūvyje

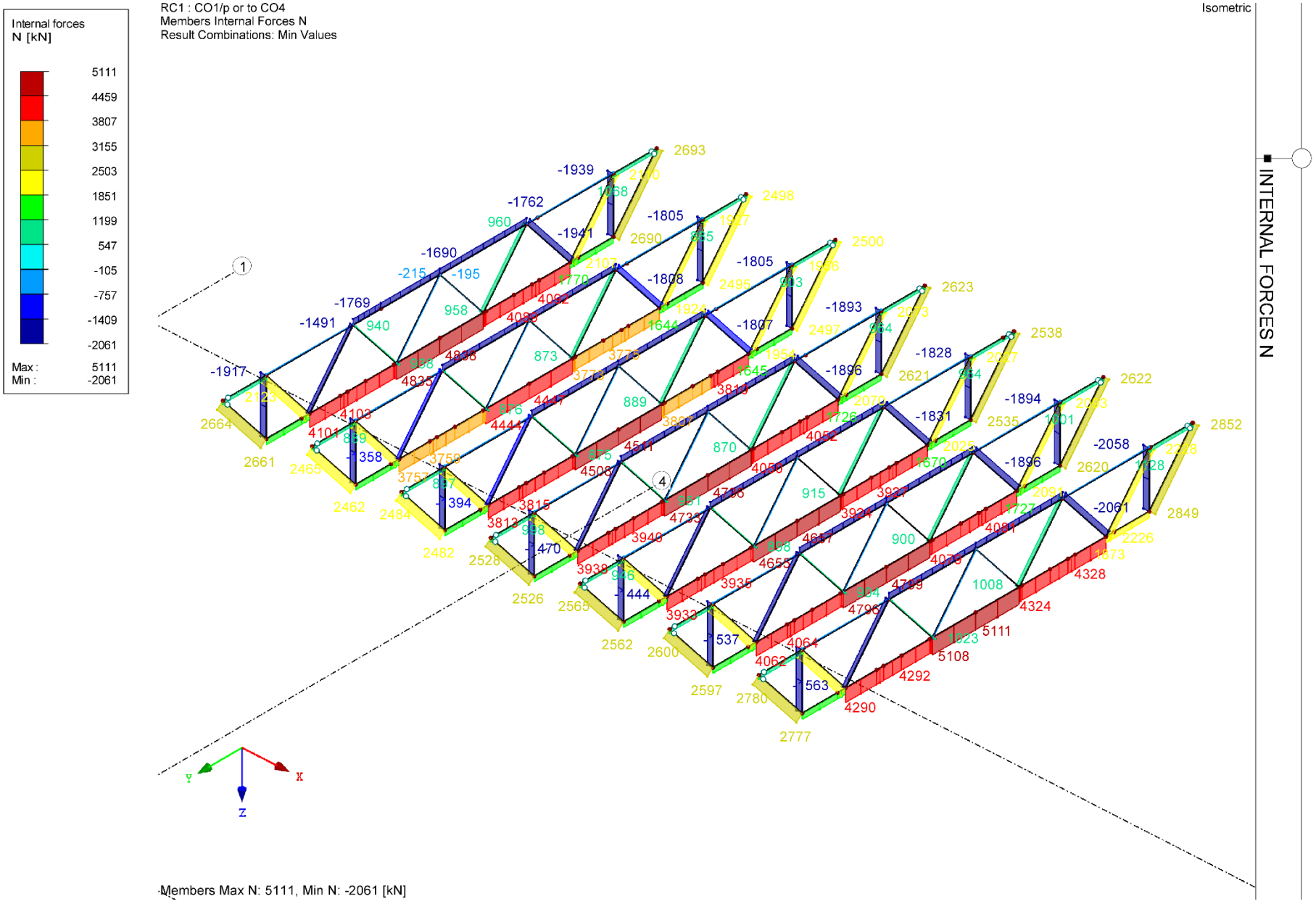
4.12 Cross-Sections - Internal Forces

Result Combinations

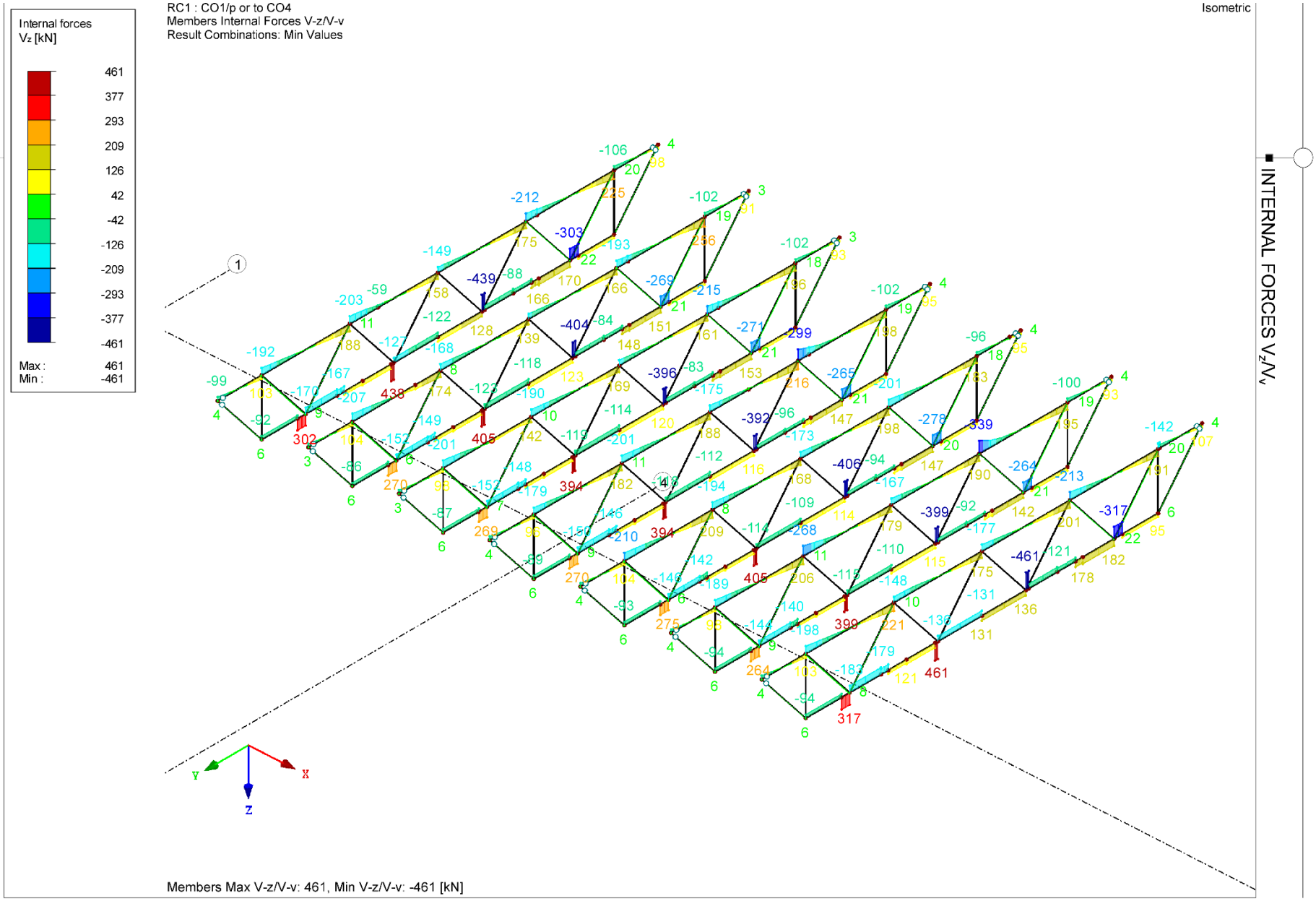
Member No.	RC	Node No.	Location x [m]		Forces [kN] N	V_y / V_u	V_z / V_v	Moments [kNm] M_T	M_y / M_u	M_z / M_v	Corresponding Load Cases
	Section No. 13: HE B 280 | Euronorm 53-62										
951	RC1	2926	0.000	MAX N	> 1154	-1	103	0	-14	1	CO 2
948	RC1	2923	0.000	MIN N	> -1860	0	201	0	-116	0	CO 3
921	RC1	2829	0.000	MAX V_y	933	> 26	95	0	0	0	CO 2
1046	RC1	2976	2.070	MIN V_y	1029	> -60	-99	0	0	0	CO 1
1017	RC1	2970	0.000	MAX V_z	-401	1	> 257	0	-109	0	CO 1
922	RC1	2910	4.141	MIN V_z	-242	0	> -339	0	-117	0	CO 2
900	RC1		2.071	MAX M_y	-336	0	-4	0	> 131	0	CO 3
873	RC1	2883	0.000	MIN M_y	-1815	2	216	0	> -136	0	CO 1
926	RC1		1.553	MAX M_z	976	4	-41	0	34	> 6	CO 2
1046	RC1		1.725	MIN M_z	1033	-4	-60	0	27	> -10	CO 1
	Section No. 15: QRO 160x12 | EN 10219-2:2006										
967	RC1	2925	3.227	MAX N	> 1026	-1	0	0	0	-3	CO 1
891	RC1	2879	0.000	MIN N	> -280	2	0	0	0	-1	CO 4
942	RC1	2906	0.000	MAX V_y	904	> 3	0	0	0	1	CO 2
1010	RC1	2959	3.227	MIN V_y	-212	> -1	0	0	0	-1	CO 3
966	RC1	2919	0.000	MAX V_z	-243	2	> 0	0	-1	0	CO 2
1061	RC1	2980	0.000	MIN V_z	-197	2	> 0	0	0	0	CO 3
1063	RC1	2979	0.000	MAX M_y	958	1	0	0	> 1	-2	CO 1
966	RC1	2919	0.000	MIN M_y	-243	2	0	0	> -1	0	CO 4
942	RC1	2906	0.000	MAX M_z	904	3	0	0	0	> 1	CO 2
942	RC1	2912	3.227	MIN M_z	906	1	0	0	0	> -6	CO 2
	Section No. 42: HE M 260 | Euronorm 53-62										
954	RC1	2918	0.000	MAX N	> 5113	-10	136	0	-85	-10	CO 4
1426	RC1	3173	0.000	MIN N	> 1628	2	-82	0	75	3	CO 1
1138	RC1	3006	0.000	MAX V_y	4104	> 12	88	0	130	-1	CO 1
1400	RC1	3247	0.000	MIN V_y	4325	> -14	-94	0	219	-14	CO 3
955	RC1	2919	0.000	MAX V_z	4296	-11	> 461	-1	-88	11	CO 2
1401	RC1	2918	0.129	MIN V_z	4320	-11	> -461	1	-87	-11	CO 2
821	RC1	3247	0.341	MAX M_y	4328	-14	150	1	> 219	8	CO 3
824	RC1	2920	1.471	MIN M_y	4290	-3	-183	1	> -99	4	CO 2
823	RC1	3241	0.859	MAX M_z	4293	-12	94	0	218	> 15	CO 2
1400	RC1	3247	0.000	MIN M_z	4324	-14	-94	0	219	> -14	CO 2
	Section No. 44: QRO 180x16 | EN 10219-2:2006										
960	RC1	2833	3.227	MAX N	> 2852	0	4	0	0	0	CO 4
959	RC1	2916	0.000	MIN N	> -2061	-47	0	0	0	-57	CO 4
963	RC1	2921	0.000	MAX V_y	-2007	> 47	0	0	0	57	CO 4
959	RC1	2916	0.000	MIN V_y	-2060	> -47	0	0	0	-57	CO 3
962	RC1	2920	0.000	MAX V_z	2226	0	> 23	0	-34	-1	CO 2
1058	RC1	2987	2.475	MIN V_z	-1917	45	> 0	0	0	-56	CO 3
1053	RC1	2983	3.227	MAX M_y	2110	0	20	0	> 35	0	CO 1
962	RC1	2920	0.000	MIN M_y	2226	0	23	0	> -34	-1	CO 2
1054	RC1	2983	2.475	MAX M_z	-1939	-46	0	0	0	> 58	CO 3
963	RC1	2926	2.475	MIN M_z	-2004	47	0	0	0	> -59	CO 3



6.6.1 pav.Įrąžos elementuose (lenkimo momentas My)



6.6.2 pav. Įrąžos elementuose (ašinės jėgos N)



6.6.3 pav. Įrąžos elementuose (skersinės jėgos Vz)

DOKUMENTO ŽYMUO	LAPAS	LAPŲ	LAIDA
439-MKC-01-TP-SK2-BSPS-01	358	382	0

Metalo konstrukcijų skaičiavimas

1.1 General Data

Members to design:	797-994,996-1020,1022-1340,1391-1486,2050,2076-2085	
Sets of members to design:		
National Annex:	CEN	
Ultimate Limit State Design		
Result combinations to design:	RC1	CO1/p or to CO4

1.2 Materials

Matl. No.	Material Description	E- Modulus E [kN/cm²]	Shear Modulus G [kN/cm²]	Poisson's Ratio ν [-]	Yield Stress f_{yk} [kN/cm²]	Max. Thickness t [mm]
2	Steel S 355 | EN 10025-2:2004-11	21000.00	8076.92	0.300	35.50	3.0
					35.50	16.0
					34.50	40.0
					33.50	63.0
					32.50	80.0
					31.50	100.0
					29.50	150.0
					28.50	200.0

1.3 Cross-Sections

Sect. No.	Matl. No.	Cross-Section Description	Cross-Section Type	Max Design Ratio	Comment
13	2	HE B 280 | Euronorm 53-62	I-section rolled	0.71	
15	2	QRO 160x12 | EN 10219-2:2006	Box rolled	0.46	
18	2	HE B 200 | Euronorm 53-62	I-section rolled	0.65	
42	2	HE M 260 | Euronorm 53-62	I-section rolled	0.77	
44	2	QRO 180x16 | EN 10219-2:2006	Box rolled	0.92	
58	2	HE A 120 | Euronorm 53-62	I-section rolled	0.30	

1.5 Effective Lengths - Members

Member	Buckling	Buckling About Axis y			Buckling About Axis z			Lateral-Torsional Buckling				
No.	Possible	Possible	$k_{cr,y}$	$L_{cr,y}$ [m]	Possible	$k_{cr,z}$	$L_{cr,z}$ [m]	Possible	k_z	k_w	L_w [m]	L_T [m]
797	x	x	12.14	4.141	x	1.00	0.341	-	1.0	1.0	0.341	0.341
798	x	x	3.09	4.141	x	1.00	1.341	-	1.0	1.0	1.341	1.341
799	x	x	4.82	4.141	x	1.00	0.859	-	1.0	1.0	0.859	0.859
800	x	x	2.82	4.141	x	1.00	1.471	-	1.0	1.0	1.471	1.471
801	x	x	3.45	4.141	x	1.00	1.200	-	1.0	1.0	1.200	1.200
802	x	x	8.45	4.141	x	1.00	0.490	-	1.0	1.0	0.490	0.490
803	x	x	3.45	4.141	x	1.00	1.200	-	1.0	1.0	1.200	1.200
804	x	x	11.05	4.141	x	1.00	0.375	-	1.0	1.0	0.375	0.375
805	x	x	12.14	4.141	x	1.00	0.341	-	1.0	1.0	0.341	0.341
806	x	x	3.09	4.141	x	1.00	1.341	-	1.0	1.0	1.341	1.341
807	x	x	4.82	4.141	x	1.00	0.859	-	1.0	1.0	0.859	0.859
808	x	x	2.82	4.141	x	1.00	1.471	-	1.0	1.0	1.471	1.471
809	x	x	3.45	4.141	x	1.00	1.200	-	1.0	1.0	1.200	1.200
810	x	x	8.45	4.141	x	1.00	0.490	-	1.0	1.0	0.490	0.490
811	x	x	3.45	4.141	x	1.00	1.200	-	1.0	1.0	1.200	1.200
812	x	x	11.05	4.141	x	1.00	0.375	-	1.0	1.0	0.375	0.375
813	x	x	12.14	4.141	x	1.00	0.341	-	1.0	1.0	0.341	0.341
814	x	x	3.09	4.141	x	1.00	1.341	-	1.0	1.0	1.341	1.341
815	x	x	4.82	4.141	x	1.00	0.859	-	1.0	1.0	0.859	0.859
816	x	x	2.82	4.141	x	1.00	1.471	-	1.0	1.0	1.471	1.471
817	x	x	3.45	4.141	x	1.00	1.200	-	1.0	1.0	1.200	1.200
818	x	x	8.45	4.141	x	1.00	0.490	-	1.0	1.0	0.490	0.490
819	x	x	3.45	4.141	x	1.00	1.200	-	1.0	1.0	1.200	1.200
820	x	x	11.05	4.141	x	1.00	0.375	-	1.0	1.0	0.375	0.375
821	x	x	12.14	4.141	x	1.00	0.341	-	1.0	1.0	0.341	0.341
822	x	x	3.09	4.141	x	1.00	1.341	-	1.0	1.0	1.341	1.341
823	x	x	4.82	4.141	x	1.00	0.859	-	1.0	1.0	0.859	0.859
824	x	x	2.82	4.141	x	1.00	1.471	-	1.0	1.0	1.471	1.471

1.5 Effective Lengths - Members

Member	Buckling	Buckling About Axis y			Buckling About Axis z			Lateral-Torsional Buckling				
No.	Possible	Possible	$k_{cr,y}$	$L_{cr,y}$ [m]	Possible	$k_{cr,z}$	$L_{cr,z}$ [m]	Possible	k_z	k_w	L_w [m]	L_T [m]
825	x	x	3.45	4.141	x	1.00	1.200	-	1.0	1.0	1.200	1.200
826	x	x	8.45	4.141	x	1.00	0.490	-	1.0	1.0	0.490	0.490
827	x	x	3.45	4.141	x	1.00	1.200	-	1.0	1.0	1.200	1.200
828	x	x	11.05	4.141	x	1.00	0.375	-	1.0	1.0	0.375	0.375
829	x	x	1.00	1.200	x	1.00	1.200	-	1.0	1.0	1.200	1.200
830	x	x	1.00	7.082	x	1.00	7.082	-	1.0	1.0	7.082	7.082
831	x	x	1.00	1.200	x	1.00	1.200	-	1.0	1.0	1.200	1.200
832	x	x	1.00	4.031	x	1.00	4.031	-	1.0	1.0	4.031	4.031
833	x	x	1.00	4.000	x	1.00	4.000	-	1.0	1.0	4.000	4.000
834	x	x	1.00	4.000	x	1.00	4.000	-	1.0	1.0	4.000	4.000
835	x	x	1.00	4.000	x	1.00	4.000	-	1.0	1.0	4.000	4.000
836	x	x	1.00	4.000	x	1.00	4.000	-	1.0	1.0	4.000	4.000
837	x	x	1.00	4.000	x	1.00	4.000	-	1.0	1.0	4.000	4.000
838	x	x	1.00	4.000	x	1.00	4.000	-	1.0	1.0	4.000	4.000
839	x	x	1.00	3.138	x	1.00	3.138	-	1.0	1.0	3.138	3.138
840	x	x	1.00	4.000	x	1.00	4.000	-	1.0	1.0	4.000	4.000
841	x	x	1.00	4.000	x	1.00	4.000	-	1.0	1.0	4.000	4.000
842	x	x	1.00	4.000	x	1.00	4.000	-	1.0	1.0	4.000	4.000
843	x	x	1.00	4.000	x	1.00	4.000	-	1.0	1.0	4.000	4.000
844	x	x	1.00	4.000	x	1.00	4.000	-	1.0	1.0	4.000	4.000
845	x	x	1.00	4.000	x	1.00	4.000	-	1.0	1.0	4.000	4.000
846	x	x	1.00	3.138	x	1.00	3.138	-	1.0	1.0	3.138	3.138
847	x	x	1.00	1.424	x	1.00	1.424	-	1.0	1.0	1.424	1.424
848	x	x	1.00	4.000	x	1.00	4.000	-	1.0	1.0	4.000	4.000
849	x	x	1.00	4.000	x	1.00	4.000	-	1.0	1.0	4.000	4.000
850	x	x	1.00	4.000	x	1.00	4.000	-	1.0	1.0	4.000	4.000
851	x	x	1.00	4.000	x	1.00	4.000	-	1.0	1.0	4.000	4.000
852	x	x	1.00	4.000	x	1.00	4.000	-	1.0	1.0	4.000	4.000
853	x	x	1.00	4.000	x	1.00	4.000	-	1.0	1.0	4.000	4.000
854	x	x	1.00	3.138	x	1.00	3.138	-	1.0	1.0	3.138	3.138
855	x	x	1.00	4.000	x	1.00	4.000	-	1.0	1.0	4.000	4.000
856	x	x	1.00	4.000	x	1.00	4.000	-	1.0	1.0	4.000	4.000
857	x	x	1.00	4.000	x	1.00	4.000	-	1.0	1.0	4.000	4.000
858	x	x	1.00	4.000	x	1.00	4.000	-	1.0	1.0	4.000	4.000
859	x	x	1.00	4.000	x	1.00	4.000	-	1.0	1.0	4.000	4.000
860	x	x	1.00	4.000	x	1.00	4.000	-	1.0	1.0	4.000	4.000
861	x	x	1.00	3.138	x	1.00	3.138	-	1.0	1.0	3.138	3.138
862	x	x	1.00	1.424	x	1.00	1.424	-	1.0	1.0	1.424	1.424
863	x	x	1.00	1.200	x	1.00	1.200	-	1.0	1.0	1.200	1.200
864	x	x	1.00	7.082	x	1.00	7.082	-	1.0	1.0	7.082	7.082
865	x	x	1.00	1.200	x	1.00	1.200	-	1.0	1.0	1.200	1.200
866	x	x	1.00	4.031	x	1.00	4.031	-	1.0	1.0	4.031	4.031
867	x	x	1.00	3.162	x	1.00	3.162	-	1.0	1.0	3.162	3.162
868	x	x	1.00	4.000	x	1.00	4.000	-	1.0	1.0	4.000	4.000
869	x	x	1.00	4.000	x	1.00	4.000	-	1.0	1.0	4.000	4.000
870	x	x	1.00	4.000	x	1.00	4.000	-	1.0	1.0	4.000	4.000
871	x	x	1.00	4.000	x	1.00	4.000	-	1.0	1.0	4.000	4.000
872	x	x	1.00	3.620	x	1.00	3.620	-	1.0	1.0	3.620	3.620
873	x	x	1.00	2.318	x	1.00	2.318	-	1.0	1.0	2.318	2.318
874	x	x	1.00	4.141	x	1.00	4.141	-	1.0	1.0	4.141	4.141
875	x	x	1.00	4.141	x	1.00	4.141	-	1.0	1.0	4.141	4.141
876	x	x	1.00	2.070	x	1.00	2.070	-	1.0	1.0	2.070	2.070
877	x	x	2.46	4.141	x	1.00	1.682	-	1.0	1.0	1.682	1.682
878	x	x	2.82	4.141	x	1.00	1.470	-	1.0	1.0	1.470	1.470
879	x	x	2.00	4.141	x	1.00	2.071	-	1.0	1.0	2.071	2.071
880	x	x	31.98	4.141	x	1.00	0.129	-	1.0	1.0	0.129	0.129
881	x	x	10.66	4.141	x	1.00	0.388	-	1.0	1.0	0.388	0.388
882	x	x	1.00	3.227	x	1.00	3.227	-	1.0	1.0	3.227	3.227
883	x	x	1.00	3.227	x	1.00	3.227	-	1.0	1.0	3.227	3.227
884	x	x	1.00	2.475	x	1.00	2.475	-	1.0	1.0	2.475	2.475
885	x	x	1.00	3.227	x	1.00	3.227	-	1.0	1.0	3.227	3.227
886	x	x	1.00	3.227	x	1.00	3.227	-	1.0	1.0	3.227	3.227
887	x	x	1.00	3.227	x	1.00	3.227	-	1.0	1.0	3.227	3.227
888	x	x	1.00	2.475	x	1.00	2.475	-	1.0	1.0	2.475	2.475
889	x	x	1.00	3.227	x	1.00	3.227	-	1.0	1.0	3.227	3.227
890	x	x	1.00	3.227	x	1.00	3.227	-	1.0	1.0	3.227	3.227
891	x	x	1.00	3.227	x	1.00	3.227	-	1.0	1.0	3.227	3.227

1.5 Effective Lengths - Members

Member	Buckling	Buckling About Axis y			Buckling About Axis z			Lateral-Torsional Buckling				
No.	Possible	Possible	$k_{cr,y}$	$L_{cr,y}$ [m]	Possible	$k_{cr,z}$	$L_{cr,z}$ [m]	Possible	k_z	k_w	L_w [m]	L_T [m]
892	x	x	1.00	3.227	x	1.00	3.227	-	1.0	1.0	3.227	3.227
893	x	x	1.00	3.227	x	1.00	3.227	-	1.0	1.0	3.227	3.227
894	x	x	10.89	4.141	x	1.00	0.380	-	1.0	1.0	0.380	0.380
895	x	x	8.35	4.141	x	1.00	0.496	-	1.0	1.0	0.496	0.496
896	x	x	1.00	2.070	x	1.00	2.070	-	1.0	1.0	2.070	2.070
897	x	x	1.00	4.141	x	1.00	4.141	-	1.0	1.0	4.141	4.141
898	x	x	1.00	4.141	x	1.00	4.141	-	1.0	1.0	4.141	4.141
899	x	x	1.00	4.141	x	1.00	4.141	-	1.0	1.0	4.141	4.141
900	x	x	1.00	4.141	x	1.00	4.141	-	1.0	1.0	4.141	4.141
901	x	x	1.00	2.070	x	1.00	2.070	-	1.0	1.0	2.070	2.070
902	x	x	2.46	4.141	x	1.00	1.682	-	1.0	1.0	1.682	1.682
903	x	x	2.82	4.141	x	1.00	1.470	-	1.0	1.0	1.470	1.470
904	x	x	2.00	4.141	x	1.00	2.071	-	1.0	1.0	2.071	2.071
905	x	x	31.98	4.141	x	1.00	0.129	-	1.0	1.0	0.129	0.129
906	x	x	10.66	4.141	x	1.00	0.388	-	1.0	1.0	0.388	0.388
907	x	x	1.00	3.227	x	1.00	3.227	-	1.0	1.0	3.227	3.227
908	x	x	1.00	3.227	x	1.00	3.227	-	1.0	1.0	3.227	3.227
909	x	x	1.00	2.475	x	1.00	2.475	-	1.0	1.0	2.475	2.475
910	x	x	1.00	3.227	x	1.00	3.227	-	1.0	1.0	3.227	3.227
911	x	x	1.00	3.227	x	1.00	3.227	-	1.0	1.0	3.227	3.227
912	x	x	1.00	3.227	x	1.00	3.227	-	1.0	1.0	3.227	3.227
913	x	x	1.00	2.475	x	1.00	2.475	-	1.0	1.0	2.475	2.475
914	x	x	1.00	3.227	x	1.00	3.227	-	1.0	1.0	3.227	3.227
915	x	x	1.00	3.227	x	1.00	3.227	-	1.0	1.0	3.227	3.227
916	x	x	1.00	3.227	x	1.00	3.227	-	1.0	1.0	3.227	3.227
917	x	x	1.00	3.227	x	1.00	3.227	-	1.0	1.0	3.227	3.227
918	x	x	1.00	3.227	x	1.00	3.227	-	1.0	1.0	3.227	3.227
919	x	x	10.89	4.141	x	1.00	0.380	-	1.0	1.0	0.380	0.380
920	x	x	8.35	4.141	x	1.00	0.496	-	1.0	1.0	0.496	0.496
921	x	x	1.00	0.524	x	1.00	0.524	-	1.0	1.0	0.524	0.524
922	x	x	1.00	4.141	x	1.00	4.141	-	1.0	1.0	4.141	4.141
923	x	x	1.00	4.141	x	1.00	4.141	-	1.0	1.0	4.141	4.141
924	x	x	1.00	4.141	x	1.00	4.141	-	1.0	1.0	4.141	4.141
925	x	x	1.00	4.141	x	1.00	4.141	-	1.0	1.0	4.141	4.141
926	x	x	1.00	2.070	x	1.00	2.070	-	1.0	1.0	2.070	2.070
927	x	x	2.46	4.141	x	1.00	1.682	-	1.0	1.0	1.682	1.682
928	x	x	2.82	4.141	x	1.00	1.470	-	1.0	1.0	1.470	1.470
929	x	x	2.00	4.141	x	1.00	2.071	-	1.0	1.0	2.071	2.071
930	x	x	31.98	4.141	x	1.00	0.129	-	1.0	1.0	0.129	0.129
931	x	x	10.66	4.141	x	1.00	0.388	-	1.0	1.0	0.388	0.388
932	x	x	1.00	3.227	x	1.00	3.227	-	1.0	1.0	3.227	3.227
933	x	x	1.00	3.227	x	1.00	3.227	-	1.0	1.0	3.227	3.227
934	x	x	1.00	2.475	x	1.00	2.475	-	1.0	1.0	2.475	2.475
935	x	x	1.00	3.227	x	1.00	3.227	-	1.0	1.0	3.227	3.227
936	x	x	1.00	3.227	x	1.00	3.227	-	1.0	1.0	3.227	3.227
937	x	x	1.00	3.227	x	1.00	3.227	-	1.0	1.0	3.227	3.227
938	x	x	1.00	2.475	x	1.00	2.475	-	1.0	1.0	2.475	2.475
939	x	x	1.00	3.227	x	1.00	3.227	-	1.0	1.0	3.227	3.227
940	x	x	1.00	3.227	x	1.00	3.227	-	1.0	1.0	3.227	3.227
941	x	x	1.00	3.227	x	1.00	3.227	-	1.0	1.0	3.227	3.227
942	x	x	1.00	3.227	x	1.00	3.227	-	1.0	1.0	3.227	3.227
943	x	x	1.00	3.227	x	1.00	3.227	-	1.0	1.0	3.227	3.227
944	x	x	10.89	4.141	x	1.00	0.380	-	1.0	1.0	0.380	0.380
945	x	x	8.35	4.141	x	1.00	0.496	-	1.0	1.0	0.496	0.496
946	x	x	1.00	2.070	x	1.00	2.070	-	1.0	1.0	2.070	2.070
947	x	x	1.00	4.141	x	1.00	4.141	-	1.0	1.0	4.141	4.141
948	x	x	1.00	4.141	x	1.00	4.141	-	1.0	1.0	4.141	4.141
949	x	x	1.00	4.141	x	1.00	4.141	-	1.0	1.0	4.141	4.141
950	x	x	1.00	4.141	x	1.00	4.141	-	1.0	1.0	4.141	4.141
951	x	x	1.00	2.070	x	1.00	2.070	-	1.0	1.0	2.070	2.070
952	x	x	2.46	4.141	x	1.00	1.682	-	1.0	1.0	1.682	1.682
953	x	x	2.82	4.141	x	1.00	1.470	-	1.0	1.0	1.470	1.470
954	x	x	2.00	4.141	x	1.00	2.071	-	1.0	1.0	2.071	2.071
955	x	x	31.98	4.141	x	1.00	0.129	-	1.0	1.0	0.129	0.129
956	x	x	10.66	4.141	x	1.00	0.388	-	1.0	1.0	0.388	0.388
957	x	x	1.00	3.227	x	1.00	3.227	-	1.0	1.0	3.227	3.227
958	x	x	1.00	3.227	x	1.00	3.227	-	1.0	1.0	3.227	3.227

1.5 Effective Lengths - Members

Member	Buckling	Buckling About Axis y			Buckling About Axis z			Lateral-Torsional Buckling				
No.	Possible	Possible	$k_{cr,y}$	$L_{cr,y}$ [m]	Possible	$k_{cr,z}$	$L_{cr,z}$ [m]	Possible	k_z	k_w	L_w [m]	L_T [m]
959	x	x	1.00	2.475	x	1.00	2.475	-	1.0	1.0	2.475	2.475
960	x	x	1.00	3.227	x	1.00	3.227	-	1.0	1.0	3.227	3.227
961	x	x	1.00	3.227	x	1.00	3.227	-	1.0	1.0	3.227	3.227
962	x	x	1.00	3.227	x	1.00	3.227	-	1.0	1.0	3.227	3.227
963	x	x	1.00	2.475	x	1.00	2.475	-	1.0	1.0	2.475	2.475
964	x	x	1.00	3.227	x	1.00	3.227	-	1.0	1.0	3.227	3.227
965	x	x	1.00	3.227	x	1.00	3.227	-	1.0	1.0	3.227	3.227
966	x	x	1.00	3.227	x	1.00	3.227	-	1.0	1.0	3.227	3.227
967	x	x	1.00	3.227	x	1.00	3.227	-	1.0	1.0	3.227	3.227
968	x	x	1.00	3.227	x	1.00	3.227	-	1.0	1.0	3.227	3.227
969	x	x	10.89	4.141	x	1.00	0.380	-	1.0	1.0	0.380	0.380
970	x	x	8.35	4.141	x	1.00	0.496	-	1.0	1.0	0.496	0.496
971	x	x	1.00	1.997	x	1.00	1.997	-	1.0	1.0	1.997	1.997
972	x	x	1.00	1.401	x	1.00	1.401	-	1.0	1.0	1.401	1.401
973	x	x	1.00	1.401	x	1.00	1.401	-	1.0	1.0	1.401	1.401
974	x	x	1.00	1.401	x	1.00	1.401	-	1.0	1.0	1.401	1.401
975	x	x	1.00	1.401	x	1.00	1.401	-	1.0	1.0	1.401	1.401
976	x	x	1.00	1.200	x	1.00	1.200	-	1.0	1.0	1.200	1.200
977	x	x	1.00	4.037	x	1.00	4.037	-	1.0	1.0	4.037	4.037
978	x	x	1.00	3.162	x	1.00	3.162	-	1.0	1.0	3.162	3.162
979	x	x	1.00	3.162	x	1.00	3.162	-	1.0	1.0	3.162	3.162
980	x	x	1.00	1.200	x	1.00	1.200	-	1.0	1.0	1.200	1.200
981	x	x	1.00	3.162	x	1.00	3.162	-	1.0	1.0	3.162	3.162
982	x	x	1.00	3.162	x	1.00	3.162	-	1.0	1.0	3.162	3.162
983	x	x	1.00	1.200	x	1.00	1.200	-	1.0	1.0	1.200	1.200
984	x	x	1.00	1.424	x	1.00	1.424	-	1.0	1.0	1.424	1.424
985	x	x	1.00	1.200	x	1.00	1.200	-	1.0	1.0	1.200	1.200
986	x	x	1.00	1.424	x	1.00	1.424	-	1.0	1.0	1.424	1.424
987	x	x	1.00	4.037	x	1.00	4.037	-	1.0	1.0	4.037	4.037
988	x	x	1.00	1.401	x	1.00	1.401	-	1.0	1.0	1.401	1.401
989	x	x	1.00	1.401	x	1.00	1.401	-	1.0	1.0	1.401	1.401
990	x	x	1.00	1.401	x	1.00	1.401	-	1.0	1.0	1.401	1.401
991	x	x	1.00	1.401	x	1.00	1.401	-	1.0	1.0	1.401	1.401
992	x	x	1.00	3.620	x	1.00	3.620	-	1.0	1.0	3.620	3.620
993	x	x	1.00	4.141	x	1.00	4.141	-	1.0	1.0	4.141	4.141
994	x	x	1.00	4.141	x	1.00	4.141	-	1.0	1.0	4.141	4.141
996	x	x	1.00	2.070	x	1.00	2.070	-	1.0	1.0	2.070	2.070
997	x	x	2.46	4.141	x	1.00	1.682	-	1.0	1.0	1.682	1.682
998	x	x	2.82	4.141	x	1.00	1.470	-	1.0	1.0	1.470	1.470
999	x	x	2.00	4.141	x	1.00	2.071	-	1.0	1.0	2.071	2.071
1000	x	x	31.98	4.141	x	1.00	0.129	-	1.0	1.0	0.129	0.129
1001	x	x	10.66	4.141	x	1.00	0.388	-	1.0	1.0	0.388	0.388
1002	x	x	1.00	3.227	x	1.00	3.227	-	1.0	1.0	3.227	3.227
1003	x	x	1.00	3.227	x	1.00	3.227	-	1.0	1.0	3.227	3.227
1004	x	x	1.00	2.475	x	1.00	2.475	-	1.0	1.0	2.475	2.475
1005	x	x	1.00	3.227	x	1.00	3.227	-	1.0	1.0	3.227	3.227
1006	x	x	1.00	3.227	x	1.00	3.227	-	1.0	1.0	3.227	3.227
1007	x	x	1.00	3.227	x	1.00	3.227	-	1.0	1.0	3.227	3.227
1008	x	x	1.00	2.475	x	1.00	2.475	-	1.0	1.0	2.475	2.475
1009	x	x	1.00	3.227	x	1.00	3.227	-	1.0	1.0	3.227	3.227
1010	x	x	1.00	3.227	x	1.00	3.227	-	1.0	1.0	3.227	3.227
1011	x	x	1.00	3.227	x	1.00	3.227	-	1.0	1.0	3.227	3.227
1012	x	x	1.00	3.227	x	1.00	3.227	-	1.0	1.0	3.227	3.227
1013	x	x	1.00	3.227	x	1.00	3.227	-	1.0	1.0	3.227	3.227
1014	x	x	10.89	4.141	x	1.00	0.380	-	1.0	1.0	0.380	0.380
1015	x	x	8.35	4.141	x	1.00	0.496	-	1.0	1.0	0.496	0.496
1016	x	x	1.00	2.070	x	1.00	2.070	-	1.0	1.0	2.070	2.070
1017	x	x	1.00	3.620	x	1.00	3.620	-	1.0	1.0	3.620	3.620
1018	x	x	1.00	4.141	x	1.00	4.141	-	1.0	1.0	4.141	4.141
1019	x	x	1.00	4.141	x	1.00	4.141	-	1.0	1.0	4.141	4.141
1020	x	x	1.00	1.180	x	1.00	1.180	-	1.0	1.0	1.180	1.180
1022	x	x	2.46	4.141	x	1.00	1.682	-	1.0	1.0	1.682	1.682
1023	x	x	2.82	4.141	x	1.00	1.470	-	1.0	1.0	1.470	1.470
1024	x	x	2.00	4.141	x	1.00	2.071	-	1.0	1.0	2.071	2.071
1025	x	x	31.98	4.141	x	1.00	0.129	-	1.0	1.0	0.129	0.129
1026	x	x	10.66	4.141	x	1.00	0.388	-	1.0	1.0	0.388	0.388
1027	x	x	1.00	3.227	x	1.00	3.227	-	1.0	1.0	3.227	3.227

1.5 Effective Lengths - Members

Member	Buckling	Buckling About Axis y			Buckling About Axis z			Lateral-Torsional Buckling				
No.	Possible	Possible	$k_{cr,y}$	$L_{cr,y}$ [m]	Possible	$k_{cr,z}$	$L_{cr,z}$ [m]	Possible	k_z	k_w	L_w [m]	L_T [m]
1028	x	x	1.00	3.227	x	1.00	3.227	-	1.0	1.0	3.227	3.227
1029	x	x	1.00	2.475	x	1.00	2.475	-	1.0	1.0	2.475	2.475
1030	x	x	1.00	3.227	x	1.00	3.227	-	1.0	1.0	3.227	3.227
1031	x	x	1.00	3.227	x	1.00	3.227	-	1.0	1.0	3.227	3.227
1032	x	x	1.00	3.227	x	1.00	3.227	-	1.0	1.0	3.227	3.227
1033	x	x	1.00	2.475	x	1.00	2.475	-	1.0	1.0	2.475	2.475
1034	x	x	1.00	3.227	x	1.00	3.227	-	1.0	1.0	3.227	3.227
1035	x	x	1.00	3.227	x	1.00	3.227	-	1.0	1.0	3.227	3.227
1036	x	x	1.00	3.227	x	1.00	3.227	-	1.0	1.0	3.227	3.227
1037	x	x	1.00	3.227	x	1.00	3.227	-	1.0	1.0	3.227	3.227
1038	x	x	1.00	3.227	x	1.00	3.227	-	1.0	1.0	3.227	3.227
1039	x	x	10.89	4.141	x	1.00	0.380	-	1.0	1.0	0.380	0.380
1040	x	x	8.35	4.141	x	1.00	0.496	-	1.0	1.0	0.496	0.496
1041	x	x	1.00	2.070	x	1.00	2.070	-	1.0	1.0	2.070	2.070
1042	x	x	1.00	3.620	x	1.00	3.620	-	1.0	1.0	3.620	3.620
1043	x	x	1.00	4.141	x	1.00	4.141	-	1.0	1.0	4.141	4.141
1044	x	x	1.00	2.818	x	1.00	2.818	-	1.0	1.0	2.818	2.818
1045	x	x	1.00	4.141	x	1.00	4.141	-	1.0	1.0	4.141	4.141
1046	x	x	1.00	2.070	x	1.00	2.070	-	1.0	1.0	2.070	2.070
1047	x	x	2.46	4.141	x	1.00	1.682	-	1.0	1.0	1.682	1.682
1048	x	x	2.82	4.141	x	1.00	1.470	-	1.0	1.0	1.470	1.470
1049	x	x	2.00	4.141	x	1.00	2.071	-	1.0	1.0	2.071	2.071
1050	x	x	31.98	4.141	x	1.00	0.129	-	1.0	1.0	0.129	0.129
1051	x	x	10.66	4.141	x	1.00	0.388	-	1.0	1.0	0.388	0.388
1052	x	x	1.00	3.227	x	1.00	3.227	-	1.0	1.0	3.227	3.227
1053	x	x	1.00	3.227	x	1.00	3.227	-	1.0	1.0	3.227	3.227
1054	x	x	1.00	2.475	x	1.00	2.475	-	1.0	1.0	2.475	2.475
1055	x	x	1.00	3.227	x	1.00	3.227	-	1.0	1.0	3.227	3.227
1056	x	x	1.00	3.227	x	1.00	3.227	-	1.0	1.0	3.227	3.227
1057	x	x	1.00	3.227	x	1.00	3.227	-	1.0	1.0	3.227	3.227
1058	x	x	1.00	2.475	x	1.00	2.475	-	1.0	1.0	2.475	2.475
1059	x	x	1.00	3.227	x	1.00	3.227	-	1.0	1.0	3.227	3.227
1060	x	x	1.00	3.227	x	1.00	3.227	-	1.0	1.0	3.227	3.227
1061	x	x	1.00	3.227	x	1.00	3.227	-	1.0	1.0	3.227	3.227
1062	x	x	1.00	3.227	x	1.00	3.227	-	1.0	1.0	3.227	3.227
1063	x	x	1.00	3.227	x	1.00	3.227	-	1.0	1.0	3.227	3.227
1064	x	x	10.89	4.141	x	1.00	0.380	-	1.0	1.0	0.380	0.380
1065	x	x	8.35	4.141	x	1.00	0.496	-	1.0	1.0	0.496	0.496
1066	x	x	1.00	2.070	x	1.00	2.070	-	1.0	1.0	2.070	2.070
1067	x	x	1.42	4.000	x	1.00	2.824	-	1.0	1.0	2.824	2.824
1068	x	x	1.42	4.000	x	1.00	2.824	-	1.0	1.0	2.824	2.824
1069	x	x	1.42	4.000	x	1.00	2.824	-	1.0	1.0	2.824	2.824
1070	x	x	1.42	4.000	x	1.00	2.824	-	1.0	1.0	2.824	2.824
1071	x	x	1.00	4.000	x	1.00	4.000	-	1.0	1.0	4.000	4.000
1072	x	x	1.42	4.000	x	1.00	2.824	-	1.0	1.0	2.824	2.824
1073	x	x	1.42	4.000	x	1.00	2.824	-	1.0	1.0	2.824	2.824
1074	x	x	1.42	4.000	x	1.00	2.824	-	1.0	1.0	2.824	2.824
1075	x	x	1.00	3.755	x	1.00	3.755	-	1.0	1.0	3.755	3.755
1076	x	x	1.00	3.755	x	1.00	3.755	-	1.0	1.0	3.755	3.755
1077	x	x	1.00	3.755	x	1.00	3.755	-	1.0	1.0	3.755	3.755
1078	x	x	1.00	3.755	x	1.00	3.755	-	1.0	1.0	3.755	3.755
1079	x	x	1.00	3.755	x	1.00	3.755	-	1.0	1.0	3.755	3.755
1080	x	x	1.00	3.755	x	1.00	3.755	-	1.0	1.0	3.755	3.755
1081	x	x	1.00	3.755	x	1.00	3.755	-	1.0	1.0	3.755	3.755
1082	x	x	1.00	3.755	x	1.00	3.755	-	1.0	1.0	3.755	3.755
1083	x	x	1.00	3.755	x	1.00	3.755	-	1.0	1.0	3.755	3.755
1084	x	x	1.00	3.755	x	1.00	3.755	-	1.0	1.0	3.755	3.755
1085	x	x	1.00	3.755	x	1.00	3.755	-	1.0	1.0	3.755	3.755
1086	x	x	1.00	3.755	x	1.00	3.755	-	1.0	1.0	3.755	3.755
1087	x	x	1.00	3.755	x	1.00	3.755	-	1.0	1.0	3.755	3.755
1088	x	x	1.00	3.755	x	1.00	3.755	-	1.0	1.0	3.755	3.755
1089	x	x	1.00	4.000	x	1.00	4.000	-	1.0	1.0	4.000	4.000
1090	x	x	1.00	3.138	x	1.00	3.138	-	1.0	1.0	3.138	3.138
1091	x	x	1.00	1.424	x	1.00	1.424	-	1.0	1.0	1.424	1.424
1092	x	x	1.00	3.162	x	1.00	3.162	-	1.0	1.0	3.162	3.162
1093	x	x	1.00	4.000	x	1.00	4.000	-	1.0	1.0	4.000	4.000
1094	x	x	1.00	4.000	x	1.00	4.000	-	1.0	1.0	4.000	4.000

1.5 Effective Lengths - Members

Member	Buckling	Buckling About Axis y			Buckling About Axis z			Lateral-Torsional Buckling				
No.	Possible	Possible	$k_{cr,y}$	$L_{cr,y}$ [m]	Possible	$k_{cr,z}$	$L_{cr,z}$ [m]	Possible	k_z	k_w	L_w [m]	L_T [m]
1095	x	x	1.00	4.000	x	1.00	4.000	-	1.0	1.0	4.000	4.000
1096	x	x	1.00	4.000	x	1.00	4.000	-	1.0	1.0	4.000	4.000
1097	x	x	1.00	4.000	x	1.00	4.000	-	1.0	1.0	4.000	4.000
1098	x	x	1.00	4.000	x	1.00	4.000	-	1.0	1.0	4.000	4.000
1099	x	x	1.00	3.138	x	1.00	3.138	-	1.0	1.0	3.138	3.138
1100	x	x	1.00	1.424	x	1.00	1.424	-	1.0	1.0	1.424	1.424
1101	x	x	1.00	3.162	x	1.00	3.162	-	1.0	1.0	3.162	3.162
1102	x	x	1.00	4.000	x	1.00	4.000	-	1.0	1.0	4.000	4.000
1103	x	x	1.00	4.000	x	1.00	4.000	-	1.0	1.0	4.000	4.000
1104	x	x	1.00	4.000	x	1.00	4.000	-	1.0	1.0	4.000	4.000
1105	x	x	1.00	4.000	x	1.00	4.000	-	1.0	1.0	4.000	4.000
1106	x	x	1.00	4.000	x	1.00	4.000	-	1.0	1.0	4.000	4.000
1107	x	x	1.00	4.000	x	1.00	4.000	-	1.0	1.0	4.000	4.000
1108	x	x	1.00	3.138	x	1.00	3.138	-	1.0	1.0	3.138	3.138
1109	x	x	1.00	1.424	x	1.00	1.424	-	1.0	1.0	1.424	1.424
1110	x	x	1.00	3.162	x	1.00	3.162	-	1.0	1.0	3.162	3.162
1111	x	x	1.00	4.000	x	1.00	4.000	-	1.0	1.0	4.000	4.000
1112	x	x	1.00	4.000	x	1.00	4.000	-	1.0	1.0	4.000	4.000
1113	x	x	1.00	4.000	x	1.00	4.000	-	1.0	1.0	4.000	4.000
1114	x	x	1.00	4.000	x	1.00	4.000	-	1.0	1.0	4.000	4.000
1115	x	x	1.00	4.000	x	1.00	4.000	-	1.0	1.0	4.000	4.000
1116	x	x	1.00	4.000	x	1.00	4.000	-	1.0	1.0	4.000	4.000
1117	x	x	1.00	3.138	x	1.00	3.138	-	1.0	1.0	3.138	3.138
1118	x	x	1.00	1.424	x	1.00	1.424	-	1.0	1.0	1.424	1.424
1119	x	x	12.14	4.141	x	1.00	0.341	-	1.0	1.0	0.341	0.341
1120	x	x	3.09	4.141	x	1.00	1.341	-	1.0	1.0	1.341	1.341
1121	x	x	4.82	4.141	x	1.00	0.859	-	1.0	1.0	0.859	0.859
1122	x	x	2.82	4.141	x	1.00	1.471	-	1.0	1.0	1.471	1.471
1123	x	x	3.45	4.141	x	1.00	1.200	-	1.0	1.0	1.200	1.200
1124	x	x	8.45	4.141	x	1.00	0.490	-	1.0	1.0	0.490	0.490
1125	x	x	3.45	4.141	x	1.00	1.200	-	1.0	1.0	1.200	1.200
1126	x	x	11.05	4.141	x	1.00	0.375	-	1.0	1.0	0.375	0.375
1127	x	x	12.14	4.141	x	1.00	0.341	-	1.0	1.0	0.341	0.341
1128	x	x	3.09	4.141	x	1.00	1.341	-	1.0	1.0	1.341	1.341
1129	x	x	4.82	4.141	x	1.00	0.859	-	1.0	1.0	0.859	0.859
1130	x	x	2.82	4.141	x	1.00	1.471	-	1.0	1.0	1.471	1.471
1131	x	x	3.45	4.141	x	1.00	1.200	-	1.0	1.0	1.200	1.200
1132	x	x	8.45	4.141	x	1.00	0.490	-	1.0	1.0	0.490	0.490
1133	x	x	3.45	4.141	x	1.00	1.200	-	1.0	1.0	1.200	1.200
1134	x	x	11.05	4.141	x	1.00	0.375	-	1.0	1.0	0.375	0.375
1135	x	x	12.14	4.141	x	1.00	0.341	-	1.0	1.0	0.341	0.341
1136	x	x	3.09	4.141	x	1.00	1.341	-	1.0	1.0	1.341	1.341
1137	x	x	2.00	4.141	x	1.00	2.071	-	1.0	1.0	2.071	2.071
1138	x	x	4.82	4.141	x	1.00	0.859	-	1.0	1.0	0.859	0.859
1139	x	x	2.82	4.141	x	1.00	1.471	-	1.0	1.0	1.471	1.471
1140	x	x	3.45	4.141	x	1.00	1.200	-	1.0	1.0	1.200	1.200
1141	x	x	8.45	4.141	x	1.00	0.490	-	1.0	1.0	0.490	0.490
1142	x	x	3.45	4.141	x	1.00	1.200	-	1.0	1.0	1.200	1.200
1143	x	x	11.05	4.141	x	1.00	0.375	-	1.0	1.0	0.375	0.375
1144	x	x	2.30	4.000	x	1.00	1.738	-	1.0	1.0	1.738	1.738
1145	x	x	8.67	4.000	x	1.00	0.462	-	1.0	1.0	0.462	0.462
1146	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1147	x	x	2.99	4.000	x	1.00	1.338	-	1.0	1.0	1.338	1.338
1148	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1149	x	x	4.26	4.000	x	1.00	0.938	-	1.0	1.0	0.938	0.938
1150	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1151	x	x	7.43	4.000	x	1.00	0.538	-	1.0	1.0	0.538	0.538
1152	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1153	x	x	28.88	4.000	x	1.00	0.138	-	1.0	1.0	0.138	0.138
1154	x	x	2.06	4.000	x	1.00	1.938	-	1.0	1.0	1.938	1.938
1155	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1156	x	x	2.60	4.000	x	1.00	1.538	-	1.0	1.0	1.538	1.538
1157	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1158	x	x	2.35	4.000	x	1.00	1.701	-	1.0	1.0	1.701	1.701
1159	x	x	2.30	4.000	x	1.00	1.739	-	1.0	1.0	1.739	1.739
1160	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1161	x	x	2.99	4.000	x	1.00	1.339	-	1.0	1.0	1.339	1.339

1.5 Effective Lengths - Members

Member	Buckling	Buckling About Axis y			Buckling About Axis z			Lateral-Torsional Buckling				
No.	Possible	Possible	$k_{cr,y}$	$L_{cr,y}$ [m]	Possible	$k_{cr,z}$	$L_{cr,z}$ [m]	Possible	k_z	k_w	L_w [m]	L_T [m]
1162	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1163	x	x	4.26	4.000	x	1.00	0.939	-	1.0	1.0	0.939	0.939
1164	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1165	x	x	7.43	4.000	x	1.00	0.539	-	1.0	1.0	0.539	0.539
1166	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1167	x	x	28.88	4.000	x	1.00	0.139	-	1.0	1.0	0.139	0.139
1168	x	x	2.06	4.000	x	1.00	1.939	-	1.0	1.0	1.939	1.939
1169	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1170	x	x	2.60	4.000	x	1.00	1.539	-	1.0	1.0	1.539	1.539
1171	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1172	x	x	2.35	4.000	x	1.00	1.701	-	1.0	1.0	1.701	1.701
1173	x	x	2.30	4.000	x	1.00	1.739	-	1.0	1.0	1.739	1.739
1174	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1175	x	x	2.99	4.000	x	1.00	1.339	-	1.0	1.0	1.339	1.339
1176	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1177	x	x	4.26	4.000	x	1.00	0.939	-	1.0	1.0	0.939	0.939
1178	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1179	x	x	7.43	4.000	x	1.00	0.539	-	1.0	1.0	0.539	0.539
1180	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1181	x	x	28.88	4.000	x	1.00	0.139	-	1.0	1.0	0.139	0.139
1182	x	x	2.06	4.000	x	1.00	1.939	-	1.0	1.0	1.939	1.939
1183	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1184	x	x	2.60	4.000	x	1.00	1.539	-	1.0	1.0	1.539	1.539
1185	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1186	x	x	2.35	4.000	x	1.00	1.701	-	1.0	1.0	1.701	1.701
1187	x	x	2.30	4.000	x	1.00	1.739	-	1.0	1.0	1.739	1.739
1188	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1189	x	x	2.99	4.000	x	1.00	1.339	-	1.0	1.0	1.339	1.339
1190	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1191	x	x	4.26	4.000	x	1.00	0.939	-	1.0	1.0	0.939	0.939
1192	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1193	x	x	7.43	4.000	x	1.00	0.539	-	1.0	1.0	0.539	0.539
1194	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1195	x	x	28.87	4.000	x	1.00	0.139	-	1.0	1.0	0.139	0.139
1196	x	x	2.06	4.000	x	1.00	1.939	-	1.0	1.0	1.939	1.939
1197	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1198	x	x	2.60	4.000	x	1.00	1.539	-	1.0	1.0	1.539	1.539
1199	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1200	x	x	2.35	4.000	x	1.00	1.701	-	1.0	1.0	1.701	1.701
1201	x	x	2.30	4.000	x	1.00	1.738	-	1.0	1.0	1.738	1.738
1202	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1203	x	x	2.99	4.000	x	1.00	1.338	-	1.0	1.0	1.338	1.338
1204	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1205	x	x	4.26	4.000	x	1.00	0.938	-	1.0	1.0	0.938	0.938
1206	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1207	x	x	7.43	4.000	x	1.00	0.538	-	1.0	1.0	0.538	0.538
1208	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1209	x	x	28.89	4.000	x	1.00	0.138	-	1.0	1.0	0.138	0.138
1210	x	x	2.06	4.000	x	1.00	1.938	-	1.0	1.0	1.938	1.938
1211	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1212	x	x	2.60	4.000	x	1.00	1.538	-	1.0	1.0	1.538	1.538
1213	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1214	x	x	2.35	4.000	x	1.00	1.701	-	1.0	1.0	1.701	1.701
1215	x	x	2.30	4.000	x	1.00	1.738	-	1.0	1.0	1.738	1.738
1216	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1217	x	x	2.99	4.000	x	1.00	1.338	-	1.0	1.0	1.338	1.338
1218	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1219	x	x	4.26	4.000	x	1.00	0.938	-	1.0	1.0	0.938	0.938
1220	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1221	x	x	7.43	4.000	x	1.00	0.538	-	1.0	1.0	0.538	0.538
1222	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1223	x	x	28.89	4.000	x	1.00	0.138	-	1.0	1.0	0.138	0.138
1224	x	x	2.06	4.000	x	1.00	1.938	-	1.0	1.0	1.938	1.938
1225	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1226	x	x	2.60	4.000	x	1.00	1.538	-	1.0	1.0	1.538	1.538
1227	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1228	x	x	2.35	4.000	x	1.00	1.701	-	1.0	1.0	1.701	1.701

1.5 Effective Lengths - Members

Member	Buckling	Buckling About Axis y			Buckling About Axis z			Lateral-Torsional Buckling				
No.	Possible	Possible	$k_{cr,y}$	$L_{cr,y}$ [m]	Possible	$k_{cr,z}$	$L_{cr,z}$ [m]	Possible	k_z	k_w	L_w [m]	L_T [m]
1229	x	x	2.30	4.000	x	1.00	1.738	-	1.0	1.0	1.738	1.738
1230	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1231	x	x	2.99	4.000	x	1.00	1.338	-	1.0	1.0	1.338	1.338
1232	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1233	x	x	4.26	4.000	x	1.00	0.938	-	1.0	1.0	0.938	0.938
1234	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1235	x	x	7.43	4.000	x	1.00	0.538	-	1.0	1.0	0.538	0.538
1236	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1237	x	x	28.90	4.000	x	1.00	0.138	-	1.0	1.0	0.138	0.138
1238	x	x	2.06	4.000	x	1.00	1.938	-	1.0	1.0	1.938	1.938
1239	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1240	x	x	2.60	4.000	x	1.00	1.538	-	1.0	1.0	1.538	1.538
1241	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1242	x	x	2.35	4.000	x	1.00	1.701	-	1.0	1.0	1.701	1.701
1243	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1244	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1245	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1246	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1247	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1248	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1249	x	x	1.00	3.750	x	1.00	3.750	-	1.0	1.0	3.750	3.750
1250	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1251	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1252	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1253	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1254	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1255	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1256	x	x	1.00	3.750	x	1.00	3.750	-	1.0	1.0	3.750	3.750
1257	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1258	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1259	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1260	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1261	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1262	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1263	x	x	1.00	3.750	x	1.00	3.750	-	1.0	1.0	3.750	3.750
1264	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1265	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1266	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1267	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1268	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1269	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1270	x	x	1.00	3.750	x	1.00	3.750	-	1.0	1.0	3.750	3.750
1271	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1272	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1273	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1274	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1275	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1276	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1277	x	x	1.00	3.750	x	1.00	3.750	-	1.0	1.0	3.750	3.750
1278	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1279	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1280	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1281	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1282	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1283	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1284	x	x	1.00	3.750	x	1.00	3.750	-	1.0	1.0	3.750	3.750
1285	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1286	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1287	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1288	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1289	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1290	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1291	x	x	1.00	3.750	x	1.00	3.750	-	1.0	1.0	3.750	3.750
1292	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1293	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1294	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1295	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200

1.5 Effective Lengths - Members

Member	Buckling	Buckling About Axis y			Buckling About Axis z			Lateral-Torsional Buckling				
No.	Possible	Possible	$k_{cr,y}$	$L_{cr,y}$ [m]	Possible	$k_{cr,z}$	$L_{cr,z}$ [m]	Possible	k_z	k_w	L_w [m]	L_T [m]
1296	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1297	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1298	x	x	1.00	3.750	x	1.00	3.750	-	1.0	1.0	3.750	3.750
1299	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1300	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1301	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1302	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1303	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1304	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1305	x	x	1.00	3.750	x	1.00	3.750	-	1.0	1.0	3.750	3.750
1306	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1307	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1308	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1309	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1310	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1311	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1312	x	x	1.00	3.750	x	1.00	3.750	-	1.0	1.0	3.750	3.750
1313	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1314	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1315	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1316	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1317	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1318	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1319	x	x	1.00	3.750	x	1.00	3.750	-	1.0	1.0	3.750	3.750
1320	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1321	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1322	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1323	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1324	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1325	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1326	x	x	1.00	3.750	x	1.00	3.750	-	1.0	1.0	3.750	3.750
1327	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1328	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1329	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1330	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1331	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1332	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1333	x	x	1.00	3.750	x	1.00	3.750	-	1.0	1.0	3.750	3.750
1334	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1335	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1336	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1337	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1338	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1339	x	x	1.82	4.000	x	1.00	2.200	-	1.0	1.0	2.200	2.200
1340	x	x	1.00	3.750	x	1.00	3.750	-	1.0	1.0	3.750	3.750
1391	x	x	4.82	4.141	x	1.00	0.859	-	1.0	1.0	0.859	0.859
1392	x	x	31.98	4.141	x	1.00	0.129	-	1.0	1.0	0.129	0.129
1393	x	x	12.15	4.141	x	1.00	0.341	-	1.0	1.0	0.341	0.341
1394	x	x	4.82	4.141	x	1.00	0.859	-	1.0	1.0	0.859	0.859
1395	x	x	31.98	4.141	x	1.00	0.129	-	1.0	1.0	0.129	0.129
1396	x	x	12.15	4.141	x	1.00	0.341	-	1.0	1.0	0.341	0.341
1397	x	x	4.82	4.141	x	1.00	0.859	-	1.0	1.0	0.859	0.859
1398	x	x	31.98	4.141	x	1.00	0.129	-	1.0	1.0	0.129	0.129
1399	x	x	12.15	4.141	x	1.00	0.341	-	1.0	1.0	0.341	0.341
1400	x	x	4.82	4.141	x	1.00	0.859	-	1.0	1.0	0.859	0.859
1401	x	x	31.98	4.141	x	1.00	0.129	-	1.0	1.0	0.129	0.129
1402	x	x	12.15	4.141	x	1.00	0.341	-	1.0	1.0	0.341	0.341
1403	x	x	10.66	4.141	x	1.00	0.388	-	1.0	1.0	0.388	0.388
1404	x	x	2.00	4.141	x	1.00	2.071	-	1.0	1.0	2.071	2.071
1405	x	x	3.09	4.141	x	1.00	1.341	-	1.0	1.0	1.341	1.341
1406	x	x	2.46	4.141	x	1.00	1.682	-	1.0	1.0	1.682	1.682
1407	x	x	10.66	4.141	x	1.00	0.388	-	1.0	1.0	0.388	0.388
1408	x	x	2.00	4.141	x	1.00	2.071	-	1.0	1.0	2.071	2.071
1409	x	x	3.09	4.141	x	1.00	1.341	-	1.0	1.0	1.341	1.341
1410	x	x	2.46	4.141	x	1.00	1.682	-	1.0	1.0	1.682	1.682
1411	x	x	10.66	4.141	x	1.00	0.388	-	1.0	1.0	0.388	0.388
1412	x	x	2.00	4.141	x	1.00	2.071	-	1.0	1.0	2.071	2.071

1.5 Effective Lengths - Members

Member	Buckling	Buckling About Axis y			Buckling About Axis z			Lateral-Torsional Buckling				
No.	Possible	Possible	$k_{cr,y}$	$L_{cr,y}$ [m]	Possible	$k_{cr,z}$	$L_{cr,z}$ [m]	Possible	k_z	k_w	L_w [m]	L_T [m]
1413	x	x	3.09	4.141	x	1.00	1.341	-	1.0	1.0	1.341	1.341
1414	x	x	2.46	4.141	x	1.00	1.682	-	1.0	1.0	1.682	1.682
1415	x	x	10.66	4.141	x	1.00	0.388	-	1.0	1.0	0.388	0.388
1416	x	x	2.00	4.141	x	1.00	2.071	-	1.0	1.0	2.071	2.071
1417	x	x	3.09	4.141	x	1.00	1.341	-	1.0	1.0	1.341	1.341
1418	x	x	2.46	4.141	x	1.00	1.682	-	1.0	1.0	1.682	1.682
1419	x	x	10.66	4.141	x	1.00	0.388	-	1.0	1.0	0.388	0.388
1420	x	x	2.00	4.141	x	1.00	2.071	-	1.0	1.0	2.071	2.071
1421	x	x	3.09	4.141	x	1.00	1.341	-	1.0	1.0	1.341	1.341
1422	x	x	2.46	4.141	x	1.00	1.682	-	1.0	1.0	1.682	1.682
1423	x	x	10.66	4.141	x	1.00	0.388	-	1.0	1.0	0.388	0.388
1424	x	x	2.00	4.141	x	1.00	2.071	-	1.0	1.0	2.071	2.071
1425	x	x	3.09	4.141	x	1.00	1.341	-	1.0	1.0	1.341	1.341
1426	x	x	2.46	4.141	x	1.00	1.682	-	1.0	1.0	1.682	1.682
1427	x	x	10.66	4.141	x	1.00	0.388	-	1.0	1.0	0.388	0.388
1428	x	x	3.09	4.141	x	1.00	1.341	-	1.0	1.0	1.341	1.341
1429	x	x	2.46	4.141	x	1.00	1.682	-	1.0	1.0	1.682	1.682
1430	x	x	4.82	4.141	x	1.00	0.859	-	1.0	1.0	0.859	0.859
1431	x	x	31.98	4.141	x	1.00	0.129	-	1.0	1.0	0.129	0.129
1432	x	x	12.15	4.141	x	1.00	0.341	-	1.0	1.0	0.341	0.341
1433	x	x	4.82	4.141	x	1.00	0.859	-	1.0	1.0	0.859	0.859
1434	x	x	31.98	4.141	x	1.00	0.129	-	1.0	1.0	0.129	0.129
1435	x	x	12.15	4.141	x	1.00	0.341	-	1.0	1.0	0.341	0.341
1436	x	x	4.82	4.141	x	1.00	0.859	-	1.0	1.0	0.859	0.859
1437	x	x	31.98	4.141	x	1.00	0.129	-	1.0	1.0	0.129	0.129
1438	x	x	12.15	4.141	x	1.00	0.341	-	1.0	1.0	0.341	0.341
1439	x	x	4.64	4.000	x	1.00	0.862	-	1.0	1.0	0.862	0.862
1440	x	x	3.17	4.000	x	1.00	1.262	-	1.0	1.0	1.262	1.262
1441	x	x	2.41	4.000	x	1.00	1.662	-	1.0	1.0	1.662	1.662
1442	x	x	1.94	4.000	x	1.00	2.062	-	1.0	1.0	2.062	2.062
1443	x	x	15.30	4.000	x	1.00	0.262	-	1.0	1.0	0.262	0.262
1444	x	x	6.05	4.000	x	1.00	0.662	-	1.0	1.0	0.662	0.662
1445	x	x	8.67	4.000	x	1.00	0.461	-	1.0	1.0	0.461	0.461
1446	x	x	4.64	4.000	x	1.00	0.861	-	1.0	1.0	0.861	0.861
1447	x	x	3.17	4.000	x	1.00	1.261	-	1.0	1.0	1.261	1.261
1448	x	x	2.41	4.000	x	1.00	1.661	-	1.0	1.0	1.661	1.661
1449	x	x	1.94	4.000	x	1.00	2.061	-	1.0	1.0	2.061	2.061
1450	x	x	15.30	4.000	x	1.00	0.261	-	1.0	1.0	0.261	0.261
1451	x	x	6.05	4.000	x	1.00	0.661	-	1.0	1.0	0.661	0.661
1452	x	x	8.67	4.000	x	1.00	0.461	-	1.0	1.0	0.461	0.461
1453	x	x	4.64	4.000	x	1.00	0.861	-	1.0	1.0	0.861	0.861
1454	x	x	3.17	4.000	x	1.00	1.261	-	1.0	1.0	1.261	1.261
1455	x	x	2.41	4.000	x	1.00	1.661	-	1.0	1.0	1.661	1.661
1456	x	x	1.94	4.000	x	1.00	2.061	-	1.0	1.0	2.061	2.061
1457	x	x	15.30	4.000	x	1.00	0.261	-	1.0	1.0	0.261	0.261
1458	x	x	6.05	4.000	x	1.00	0.661	-	1.0	1.0	0.661	0.661
1459	x	x	8.67	4.000	x	1.00	0.461	-	1.0	1.0	0.461	0.461
1460	x	x	4.64	4.000	x	1.00	0.861	-	1.0	1.0	0.861	0.861
1461	x	x	3.17	4.000	x	1.00	1.261	-	1.0	1.0	1.261	1.261
1462	x	x	2.41	4.000	x	1.00	1.661	-	1.0	1.0	1.661	1.661
1463	x	x	1.94	4.000	x	1.00	2.061	-	1.0	1.0	2.061	2.061
1464	x	x	15.30	4.000	x	1.00	0.261	-	1.0	1.0	0.261	0.261
1465	x	x	6.05	4.000	x	1.00	0.661	-	1.0	1.0	0.661	0.661
1466	x	x	8.67	4.000	x	1.00	0.462	-	1.0	1.0	0.462	0.462
1467	x	x	4.64	4.000	x	1.00	0.862	-	1.0	1.0	0.862	0.862
1468	x	x	3.17	4.000	x	1.00	1.262	-	1.0	1.0	1.262	1.262
1469	x	x	2.41	4.000	x	1.00	1.662	-	1.0	1.0	1.662	1.662
1470	x	x	1.94	4.000	x	1.00	2.062	-	1.0	1.0	2.062	2.062
1471	x	x	15.29	4.000	x	1.00	0.262	-	1.0	1.0	0.262	0.262
1472	x	x	6.05	4.000	x	1.00	0.662	-	1.0	1.0	0.662	0.662
1473	x	x	8.67	4.000	x	1.00	0.462	-	1.0	1.0	0.462	0.462
1474	x	x	4.64	4.000	x	1.00	0.862	-	1.0	1.0	0.862	0.862
1475	x	x	3.17	4.000	x	1.00	1.262	-	1.0	1.0	1.262	1.262
1476	x	x	2.41	4.000	x	1.00	1.662	-	1.0	1.0	1.662	1.662
1477	x	x	1.94	4.000	x	1.00	2.062	-	1.0	1.0	2.062	2.062
1478	x	x	15.29	4.000	x	1.00	0.262	-	1.0	1.0	0.262	0.262
1479	x	x	6.05	4.000	x	1.00	0.662	-	1.0	1.0	0.662	0.662

1.5 Effective Lengths - Members

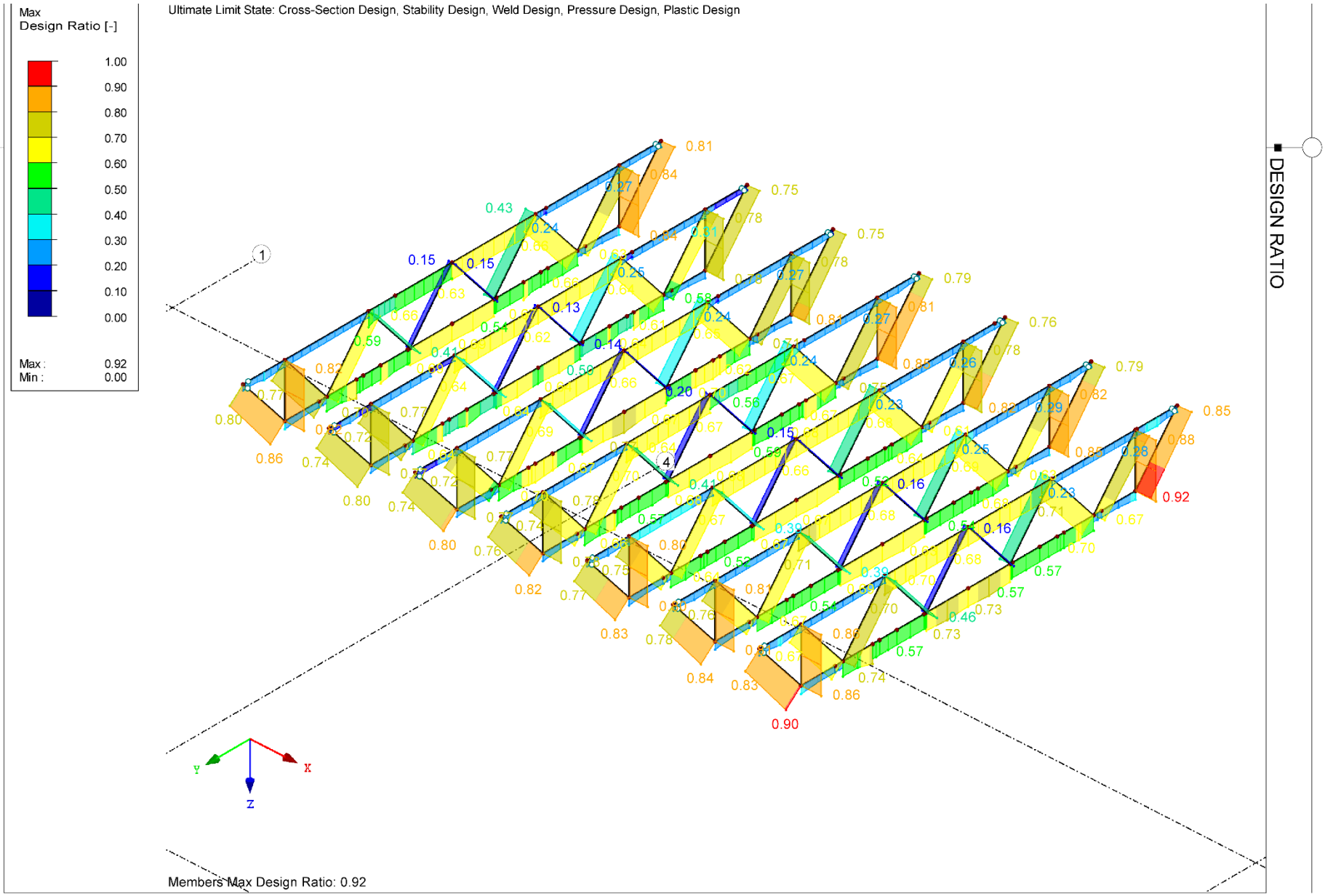
Member No.	Buckling Possible	Buckling About Axis y			Buckling About Axis z			Lateral-Torsional Buckling				
		Possible	$k_{cr,y}$	$L_{cr,y}$ [m]	Possible	$k_{cr,z}$	$L_{cr,z}$ [m]	Possible	k_z	k_w	L_w [m]	L_T [m]
1480	x	x	8.67	4.000	x	1.00	0.462	-	1.0	1.0	0.462	0.462
1481	x	x	4.64	4.000	x	1.00	0.862	-	1.0	1.0	0.862	0.862
1482	x	x	3.17	4.000	x	1.00	1.262	-	1.0	1.0	1.262	1.262
1483	x	x	2.41	4.000	x	1.00	1.662	-	1.0	1.0	1.662	1.662
1484	x	x	1.94	4.000	x	1.00	2.062	-	1.0	1.0	2.062	2.062
1485	x	x	15.29	4.000	x	1.00	0.262	-	1.0	1.0	0.262	0.262
1486	x	x	6.05	4.000	x	1.00	0.662	-	1.0	1.0	0.662	0.662
2050	x	x	1.00	0.521	x	1.00	0.521	-	1.0	1.0	0.521	0.521
2076	x	x	1.00	1.823	x	1.00	1.823	-	1.0	1.0	1.823	1.823
2077	x	x	1.00	0.073	x	1.00	0.073	-	1.0	1.0	0.073	0.073
2078	x	x	1.00	0.521	x	1.00	0.521	-	1.0	1.0	0.521	0.521
2079	x	x	1.00	4.141	x	1.00	4.141	-	1.0	1.0	4.141	4.141
2080	x	x	1.00	0.521	x	1.00	0.521	-	1.0	1.0	0.521	0.521
2081	x	x	1.00	2.961	x	1.00	2.961	-	1.0	1.0	2.961	2.961
2082	x	x	1.00	2.070	x	1.00	2.070	-	1.0	1.0	2.070	2.070
2083	x	x	1.00	0.521	x	1.00	0.521	-	1.0	1.0	0.521	0.521
2084	x	x	1.00	1.323	x	1.00	1.323	-	1.0	1.0	1.323	1.323
2085	x	x	1.00	1.546	x	1.00	1.546	-	1.0	1.0	1.546	1.546

2.2 Design by Cross-Section

Sect. No.	Member No.	Location x [m]	LC/CO/ RC	Design		Equation No.	Description
13	HE B 280 | Euronorm 53-62						
	951	0.000	RC1	0.25	≤ 1	CS101)	Cross-section check - Tension acc. to 6.2.3
	948	0.000	RC1	0.41	≤ 1	CS102)	Cross-section check - Compression acc. to 6.2.4
	922	4.141	RC1	0.41	≤ 1	CS121)	Cross-section check - Shear force in z-axis acc. to 6.2.6
	1046	2.070	RC1	0.03	≤ 1	CS123)	Cross-section check - Shear force in y-axis acc. to 6.2.6
	872	0.000	RC1	0.00	≤ 1	CS126)	Cross-section check - Shear buckling acc. to 6.2.6(6)
	873	0.000	RC1	0.63	≤ 1	CS181)	Cross-section check - Bending, shear and axial force acc. to 6.2.9.1
	994	4.141	RC1	0.11	≤ 1	CS221)	Cross-section check - Biaxial bending, shear and axial force acc. to 6.2.10 and 6.2.9
	948	0.000	RC1	0.71	≤ 1	ST364)	Stability analysis - Bending and compression acc. to 6.3.3, Method 2
15	QRO 160x12 | EN 10219-2:2006						
	967	3.227	RC1	0.45	≤ 1	CS101)	Cross-section check - Tension acc. to 6.2.3
	891	0.000	RC1	0.12	≤ 1	CS102)	Cross-section check - Compression acc. to 6.2.4
	942	0.000	RC1	0.00	≤ 1	CS123)	Cross-section check - Shear force in y-axis acc. to 6.2.6
	967	3.227	RC1	0.46	≤ 1	CS201)	Cross-section check - Bending about z-axis, shear and axial force acc. to 6.2.9.1
	1061	3.227	RC1	0.00	≤ 1	CS221)	Cross-section check - Biaxial bending, shear and axial force acc. to 6.2.10 and 6.2.9
	891	0.000	RC1	0.20	≤ 1	ST364)	Stability analysis - Bending and compression acc. to 6.3.3, Method 2
18	HE B 200 | Euronorm 53-62						
	1235	0.000	RC1	0.01	≤ 1	CS101)	Cross-section check - Tension acc. to 6.2.3
	1193	0.000	RC1	0.01	≤ 1	CS102)	Cross-section check - Compression acc. to 6.2.4
	1454	0.000	RC1	0.32	≤ 1	CS111)	Cross-section check - Bending about y-axis acc. to 6.2.5 - Class 1 or 2
	1339	2.200	RC1	0.21	≤ 1	CS116)	Cross-section check - Bending about z-axis acc. to 6.2.5 - Class 1 or 2
	1486	0.000	RC1	0.48	≤ 1	CS121)	Cross-section check - Shear force in z-axis acc. to 6.2.6
	1334	0.000	RC1	0.02	≤ 1	CS123)	Cross-section check - Shear force in y-axis acc. to 6.2.6
	1067	0.000	RC1	0.00	≤ 1	CS126)	Cross-section check - Shear buckling acc. to 6.2.6(6)
	1454	0.000	RC1	0.32	≤ 1	CS141)	Cross-section check - Bending and shear force acc. to 6.2.5 and 6.2.8
	1339	2.200	RC1	0.21	≤ 1	CS151)	Cross-section check - Bending about z-axis and shear force acc. to 6.2.5 and 6.2.8
	1242	0.000	RC1	0.65	≤ 1	CS161)	Cross-section check - Biaxial bending and shear force acc. to 6.2.6, 6.2.7 and 6.2.9
	1460	0.000	RC1	0.56	≤ 1	CS181)	Cross-section check - Bending, shear and axial force acc. to 6.2.9.1
	1241	2.200	RC1	0.55	≤ 1	CS221)	Cross-section check - Biaxial bending, shear and axial force acc. to 6.2.10 and 6.2.9
	1195	0.000	RC1	0.42	≤ 1	ST364)	Stability analysis - Bending and compression acc. to 6.3.3, Method 2
42	HE M 260 | Euronorm 53-62						
	954	0.000	RC1	0.67	≤ 1	CS101)	Cross-section check - Tension acc. to 6.2.3
	1401	0.129	RC1	0.34	≤ 1	CS121)	Cross-section check - Shear force in z-axis acc. to 6.2.6
	1400	0.000	RC1	0.00	≤ 1	CS123)	Cross-section check - Shear force in y-axis acc. to 6.2.6
	797	0.000	RC1	0.00	≤ 1	CS126)	Cross-section check - Shear buckling acc. to 6.2.6(6)

2.2 Design by Cross-Section

Sect. No.	Member No.	Location x [m]	LC/CO/ RC	Design		Equation No.	Description
	999	2.071	RC1	0.77	≤ 1	CS181)	Cross-section check - Bending, shear and axial force acc. to 6.2.9.1
	954	2.071	RC1	0.36	≤ 1	CS221)	Cross-section check - Biaxial bending, shear and axial force acc. to 6.2.10 and 6.2.9
44	QRO 180x16 | EN 10219-2:2006						
	960	3.227	RC1	0.85	≤ 1	CS101)	Cross-section check - Tension acc. to 6.2.3
	959	0.000	RC1	0.62	≤ 1	CS102)	Cross-section check - Compression acc. to 6.2.4
	962	0.000	RC1	0.02	≤ 1	CS121)	Cross-section check - Shear force in z-axis acc. to 6.2.6
	963	0.000	RC1	0.05	≤ 1	CS123)	Cross-section check - Shear force in y-axis acc. to 6.2.6
	882	0.000	RC1	0.00	≤ 1	CS126)	Cross-section check - Shear buckling acc. to 6.2.6(6)
	960	0.000	RC1	0.92	≤ 1	CS181)	Cross-section check - Bending, shear and axial force acc. to 6.2.9.1
	959	2.475	RC1	0.86	≤ 1	CS201)	Cross-section check - Bending about z-axis, shear and axial force acc. to 6.2.9.1
	1058	0.000	RC1	0.19	≤ 1	CS221)	Cross-section check - Biaxial bending, shear and axial force acc. to 6.2.10 and 6.2.9
	959	0.000	RC1	0.88	≤ 1	ST364)	Stability analysis - Bending and compression acc. to 6.3.3, Method 2
58	HE A 120 | Euronorm 53-62						
	1096	0.000	RC1	0.02	≤ 1	CS101)	Cross-section check - Tension acc. to 6.2.3
	973	0.000	RC1	0.02	≤ 1	CS102)	Cross-section check - Compression acc. to 6.2.4
	1124	0.000	RC1	0.21	≤ 1	CS111)	Cross-section check - Bending about y-axis acc. to 6.2.5 - Class 1 or 2
	980	1.200	RC1	0.07	≤ 1	CS116)	Cross-section check - Bending about z-axis acc. to 6.2.5 - Class 1 or 2
	1143	0.375	RC1	0.15	≤ 1	CS121)	Cross-section check - Shear force in z-axis acc. to 6.2.6
	826	0.000	RC1	0.01	≤ 1	CS123)	Cross-section check - Shear force in y-axis acc. to 6.2.6
	801	0.000	RC1	0.00	≤ 1	CS126)	Cross-section check - Shear buckling acc. to 6.2.6(6)
	1124	0.000	RC1	0.21	≤ 1	CS141)	Cross-section check - Bending and shear force acc. to 6.2.5 and 6.2.8
	980	1.200	RC1	0.07	≤ 1	CS151)	Cross-section check - Bending about z-axis and shear force acc. to 6.2.5 and 6.2.8
	1099	3.138	RC1	0.28	≤ 1	CS161)	Cross-section check - Biaxial bending and shear force acc. to 6.2.6, 6.2.7 and 6.2.9
	853	4.000	RC1	0.28	≤ 1	CS181)	Cross-section check - Bending, shear and axial force acc. to 6.2.9.1
	1108	3.138	RC1	0.29	≤ 1	CS221)	Cross-section check - Biaxial bending, shear and axial force acc. to 6.2.10 and 6.2.9
	973	0.000	RC1	0.02	≤ 1	ST301)	Stability analysis - Flexural buckling about y-axis acc. to 6.3.1.1 and 6.3.1.2(4)
	973	0.000	RC1	0.03	≤ 1	ST311)	Stability analysis - Flexural buckling about z-axis acc. to 6.3.1.1 and 6.3.1.2(4)
	1117	0.000	RC1	0.30	≤ 1	ST364)	Stability analysis - Bending and compression acc. to 6.3.3, Method 2



6.6.4 pav. Metalinių konstrukcijų išnaudojimas

DOKUMENTO ŽYMUO	LAPAS	LAPŲ	LAIDA
439-MKC-01-TP-SK2-BSPS-01	371	382	0

6.7 METALINIŲ SUDĖTINIŲ STOGO SIJŲ SKAIČIAVIMAS (KONCERTŲ PASTATAS, DIDŽIOJI SALĖ)

Maksimalios įrąžos veikiančios skerspjūvyje

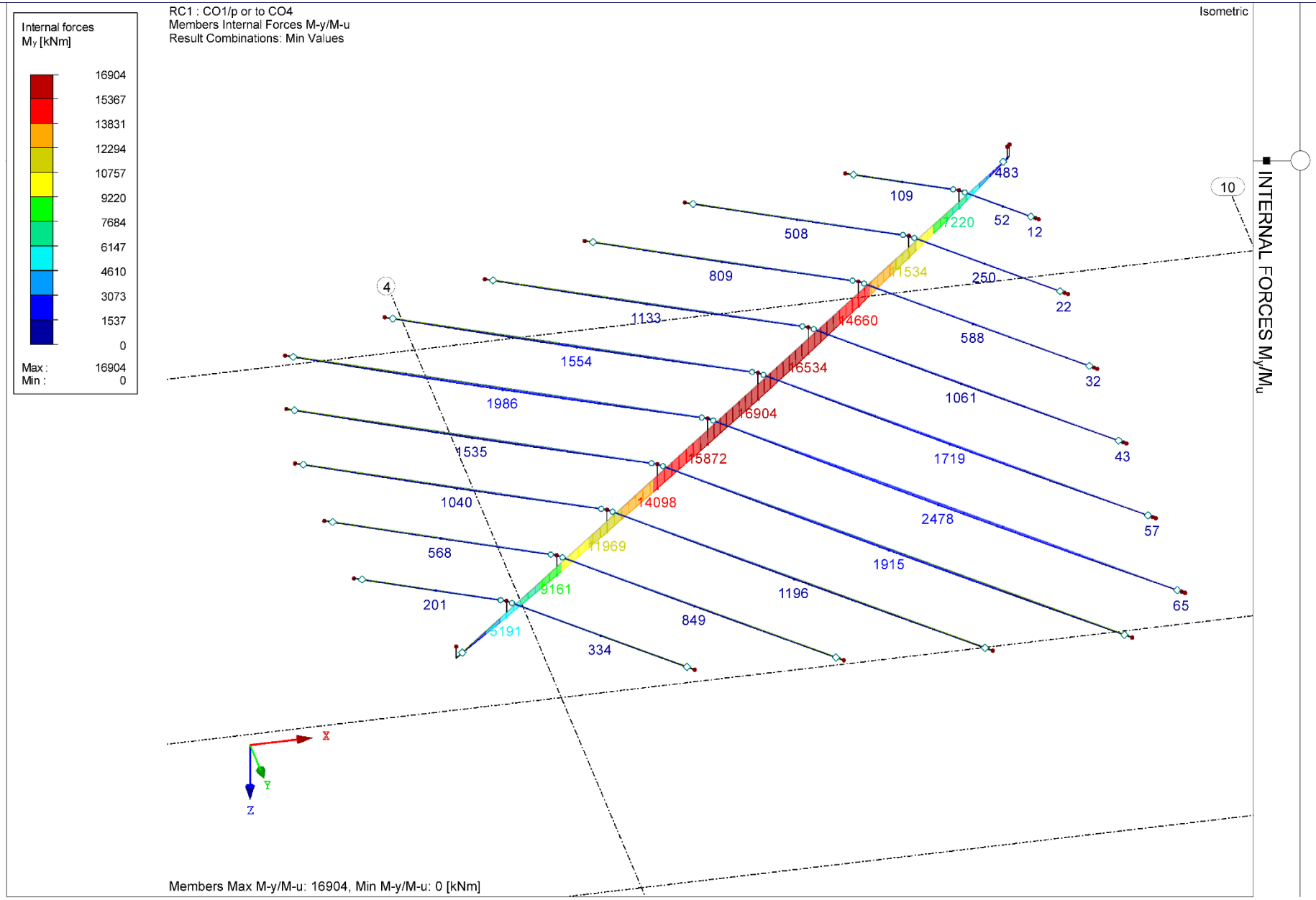
4.12 Cross-Sections - Internal Forces

Result Combinations

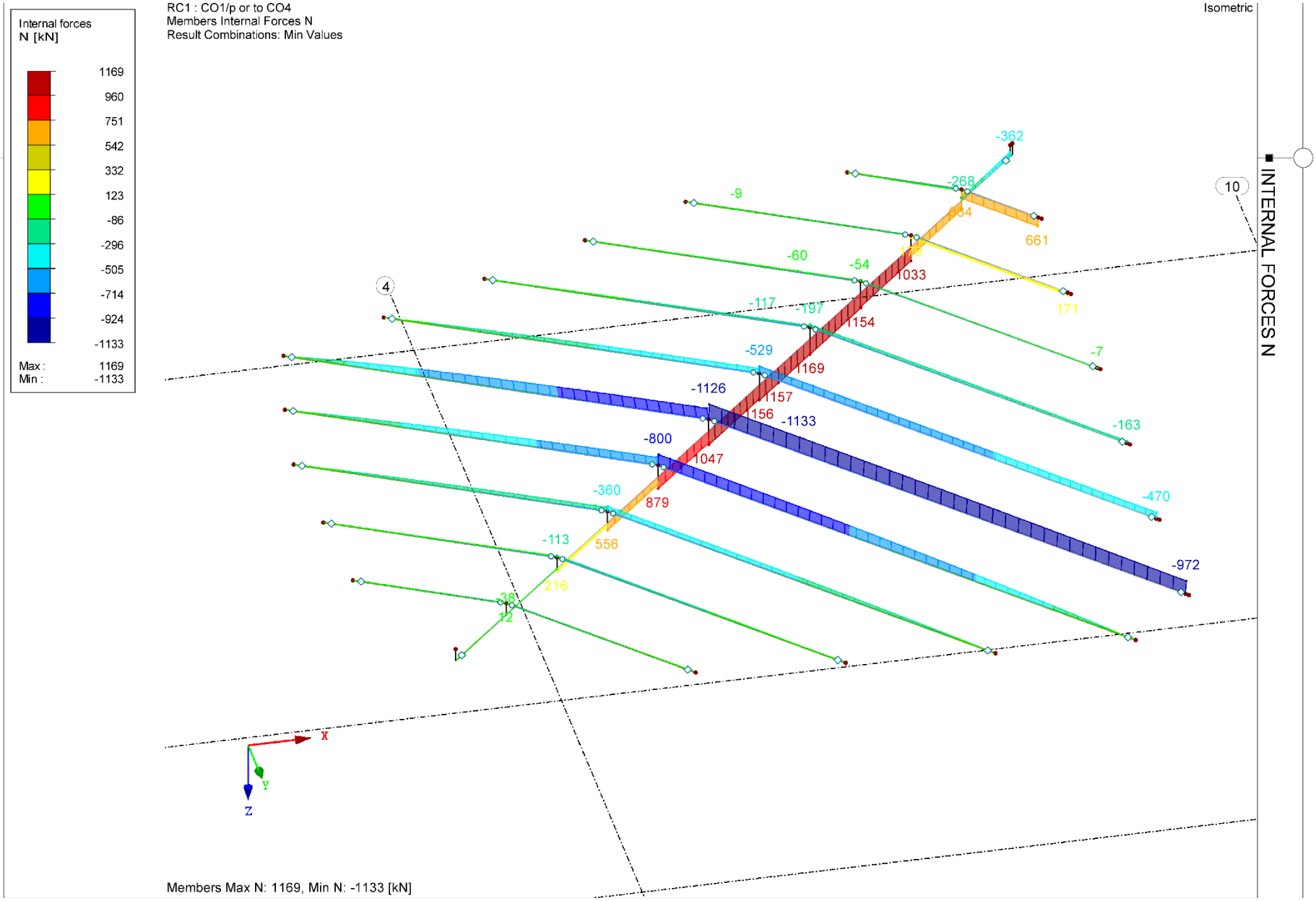
Member No.	RC	Node No.	Location x [m]		Forces [kN] N	V_y / V_u	V_z / V_v	Moments [kNm] M_T	M_y / M_u	M_z / M_v	Corresponding Load Cases
	Section No. 19: BOX(A) 450/50/25/300/2000/450/50/10/10										
1689	RC1	4365	0.000	MAX N	> 2690	-605	-2176	-280	-1037	-113	CO 3
1488	RC1	3397	0.000	MIN N	> 0	129	1488	87	0	0	CO 1
1493	RC1	3652	0.000	MAX V_y	1446	> 691	79	368	15805	-13	CO 4
1689	RC1		0.071	MIN V_y	2421	> -794	-2148	-374	-1057	-60	CO 1
1488	RC1	3648	3.554	MAX V_z	5	-63	> 1542	-9	5290	-31	CO 3
1689	RC1	3381	0.143	MIN V_z	1174	-72	> -2281	-14	-587	0	CO 2
1493	RC1	3653	3.554	MAX M_y	1457	288	403	167	> 16965	-54	CO 2
1689	RC1		0.071	MIN M_y	2475	-784	-2141	-370	> -1085	-64	CO 3
1492	RC1		3.046	MAX M_z	1233	128	737	86	15523	> 134	CO 4
1498	RC1		2.193	MIN M_z	2286	16	-2113	30	1776	> -342	CO 1
	Section No. 20: BOX(A) 250/30/10/200/500/250/30/5/5										
1508	RC1	4366	0.137	MAX N	> 0	252	235	-30	32	-35	CO 3
1504	RC1	3471	0.000	MIN N	> 0	558	78	-60	0	0	CO 2
1504	RC1	3471	0.000	MAX V_y	0	> 558	78	-60	0	0	CO 2
1505	RC1	3472	0.000	MIN V_y	0	> 175	315	-22	0	0	CO 1
1505	RC1	3472	0.000	MAX V_z	0	175	> 315	-22	0	0	CO 1
1504	RC1	4374	0.137	MIN V_z	0	558	> 78	-60	11	-77	CO 2
1505	RC1	4369	0.137	MAX M_y	0	175	314	-22	> 43	-24	CO 1
1504	RC1	3471	0.000	MIN M_y	0	551	78	-60	> 0	0	CO 3
1504	RC1	3471	0.000	MAX M_z	0	557	78	-60	0	> 0	CO 1
1504	RC1	4374	0.137	MIN M_z	0	558	78	-60	11	> -77	CO 2
	Section No. 45: BOX(A) 250/40/15/200/500/250/40/5/5										
1503	RC1	4370	0.137	MAX N	> 0	152	403	-20	55	-21	CO 4
1503	RC1	3470	0.000	MIN N	> 0	142	404	-20	0	0	CO 2
1503	RC1	3470	0.000	MAX V_y	0	> 152	404	-20	0	0	CO 4
1502	RC1	3419	0.000	MIN V_y	0	> -16	475	-5	0	0	CO 1
1502	RC1	3419	0.000	MAX V_z	0	-16	> 475	-5	0	0	CO 1
1503	RC1	4370	0.137	MIN V_z	0	152	> 403	-20	55	-21	CO 4
1502	RC1	4367	0.137	MAX M_y	0	-16	475	-5	> 65	2	CO 1
1502	RC1	3419	0.000	MIN M_y	0	-14	475	-5	> 0	0	CO 2
1502	RC1	4367	0.137	MAX M_z	0	-16	475	-5	65	> 2	CO 1
1503	RC1	4370	0.137	MIN M_z	0	152	403	-20	55	> -21	CO 4
	Section No. 60: HE B 280 | Euronorm 53-62										
1988	RC1	3609	0.000	MAX N	> 1080	0	64	0	-78	-1	CO 2
1589	RC1	3538	0.000	MIN N	> -1205	0	55	0	-37	0	CO 4
1592	RC1		3.390	MAX V_y	641	> 20	-19	0	42	-3	CO 1
1592	RC1	3546	4.359	MIN V_y	630	> -38	-57	0	0	0	CO 2
1664	RC1	3609	0.000	MAX V_z	-497	-1	> 84	0	-92	0	CO 4
1665	RC1	3626	4.925	MIN V_z	-736	0	> -74	0	-62	0	CO 2
1587	RC1		2.463	MAX M_y	-855	0	0	0	> 75	1	CO 4
1664	RC1	3609	0.000	MIN M_y	-497	-1	84	0	> -92	0	CO 4
1663	RC1		2.166	MAX M_z	810	3	-21	0	18	> 2	CO 4
1592	RC1		3.874	MIN M_z	634	5	-35	0	25	> -11	CO 2
	Section No. 61: QRO 160x12 | EN 10219-2:2006										
1932	RC1	3462	3.471	MAX N	> 1473	2	3	1	9	-2	CO 4
1532	RC1	3357	0.000	MIN N	> -1058	2	1	2	1	4	CO 1
1926	RC1	3374	0.000	MAX V_y	-548	> 3	2	2	1	7	CO 2
1989	RC1	3765	0.000	MIN V_y	1241	> -5	-9	-1	14	-3	CO 2
1932	RC1	3379	0.000	MAX V_z	1471	2	> 5	1	-7	5	CO 4
1544	RC1	3381	2.602	MIN V_z	1075	0	> -16	0	-34	1	CO 4
1989	RC1	3765	0.000	MAX M_y	1240	-5	-9	-1	> 14	-3	CO 4
1544	RC1	3381	2.602	MIN M_y	1075	0	-16	0	> -34	1	CO 4
1989	RC1	3357	2.690	MAX M_z	1239	-5	-10	-1	-10	> 10	CO 2
1989	RC1	3765	0.000	MIN M_z	1240	-5	-9	-1	14	> -3	CO 4
	Section No.20 - 21 : BOX(A) 250/30/10/200/500/250/30/5/5 - BOX(A) 250/30/10/200/1000/250/30/5/5										

4.12 Cross-Sections - Internal Forces

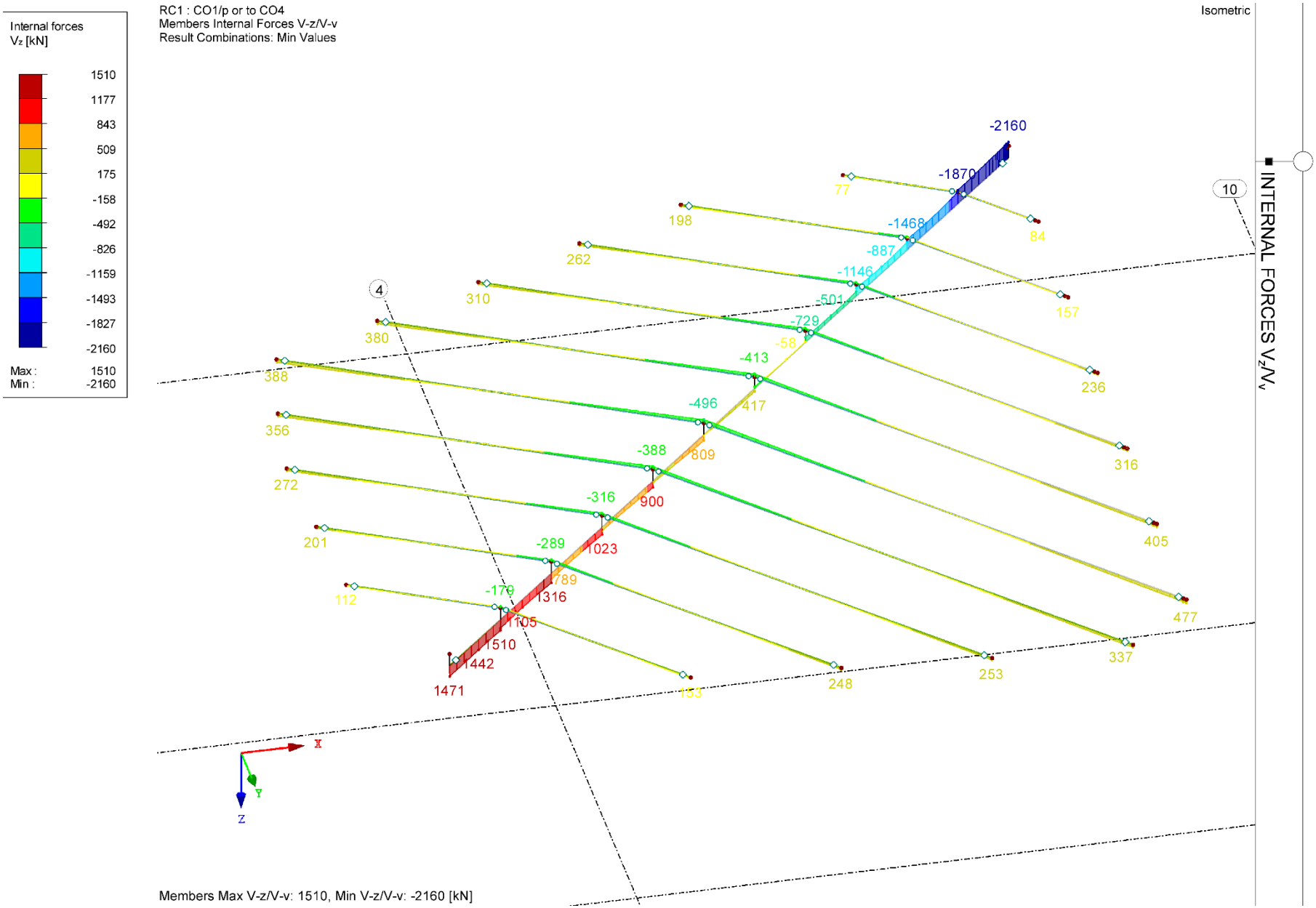
Member No.	RC	Node No.	Location x [m]		Forces [kN] N	V_y / V_u	V_z / V_v	Moments [kNm] M_T	M_y / M_u	M_z / M_v	Corresponding Load Cases
1795	RC1	3657	3.280	MAX N	> 679	67	-72	-60	0	0	CO 1
1500	RC1		16.062	MIN N	> -350	9	-277	27	145	18	CO 1
1513	RC1	3350	0.000	MAX V_y	0	> 248	311	17	0	0	CO 4
1811	RC1	4366	0.000	MIN V_y	7	> -253	215	-30	32	-53	CO 1
1513	RC1	3350	0.000	MAX V_z	0	248	> 311	17	0	0	CO 4
1513	RC1	3654	14.136	MIN V_z	-105	13	> -328	17	0	0	CO 1
1500	RC1		8.533	MAX M_y	-288	-1	-4	27	> 1196	-3	CO 4
1499	RC1	2186	0.000	MIN M_y	0	126	252	46	> 0	0	CO 1
1509	RC1		0.505	MAX M_z	-13	-20	261	-34	135	> 45	CO 4
1797	RC1	4375	0.000	MIN M_z	196	-172	127	-38	21	> -82	CO 2
	Section No.45 - 46 : BOX(A) 250/40/15/200/500/250/40/5/5 - BOX(A) 250/40/15/200/1000/250/40/5/5										
1501	RC1	3406	0.000	MAX N	> 0	607	319	19	0	0	CO 1
1690	RC1		16.512	MIN N	> -1118	-3	-302	-6	1526	-2	CO 1
1501	RC1	3406	0.000	MAX V_y	0	> 607	319	19	0	0	CO 1
1510	RC1	3331	0.000	MIN V_y	0	> -341	360	-31	0	0	CO 4
1690	RC1	4367	0.000	MAX V_z	-954	232	> 429	-6	63	2	CO 1
1690	RC1	3652	20.364	MIN V_z	-1107	30	> -496	-6	0	0	CO 4
1690	RC1		10.457	MAX M_y	-1095	-1	-12	-6	> 2479	-8	CO 1
1501	RC1	3406	0.000	MIN M_y	0	607	319	19	> 0	0	CO 1
1510	RC1		0.507	MAX M_z	-18	-44	343	-31	178	> 90	CO 1
1512	RC1		0.494	MIN M_z	-12	61	348	4	179	> -96	CO 4



6.7.1 pav.Įrąžos elementuose (lenkimo momentas My)



6.7.2 pav. Įrąžos elementuose (ašinės jėgos N)



6.7.3 pav. Įrąžos elementuose (skersinės jėgos Vz)

1.1 General Data

Members to design:	1488-1518,1689-1691,1795-1797,1811	
Sets of members to design:		
National Annex:	CEN	
Ultimate Limit State Design		
Result combinations to design:	RC1	CO1/p or to CO4

1.2 Materials

Matl. No.	Material Description	E- Modulus E [kN/cm²]	Shear Modulus G [kN/cm²]	Poisson's Ratio ν [-]	Yield Stress f_{yk} [kN/cm²]	Max. Thickness t [mm]
2	Steel S 355 | EN 10025-2:2004-11	21000.00	8076.92	0.300	35.50	3.0
					35.50	16.0
					34.50	40.0
					33.50	63.0
					32.50	80.0
					31.50	100.0
					29.50	150.0
					28.50	200.0

1.3 Cross-Sections

Sect. No.	Matl. No.	Cross-Section Description	Cross-Section Type	Max Design Ratio	Comment
19	2	BOX(A) 450/50/25/300/2000/450/50/10/10	General	0.77	
20	2	BOX(A) 250/30/10/200/500/250/30/5/5	General	0.58	
21	2	BOX(A) 250/30/10/200/1000/250/30/5/5	General	0.58	
45	2	BOX(A) 250/40/15/200/500/250/40/5/5	General	0.99	
46	2	BOX(A) 250/40/15/200/1000/250/40/5/5	General	0.99	

1.4 Intermediate Lateral Restraints

Member No.	Restrain Type	Length L [m]	Intermediate Lateral Restraints [-]									
			Number	x_1	x_2	x_3	x_4	x_5	x_6	x_7	x_8	x_9
1499	Lateral (Upper Flange)	12.326	3	0.250	0.500	0.750						
1500	Lateral (Upper Flange)	16.564	3	0.250	0.500	0.750						
1501	Lateral (Upper Flange)	20.393	3	0.250	0.500	0.750						
1509	Lateral (Upper Flange)	13.635	3	0.250	0.500	0.750						
1510	Lateral (Upper Flange)	16.213	3	0.250	0.500	0.750						
1511	Lateral (Upper Flange)	18.476	3	0.250	0.500	0.750						
1512	Lateral (Upper Flange)	16.309	3	0.250	0.500	0.750						
1513	Lateral (Upper Flange)	14.136	3	0.250	0.500	0.750						
1515	Lateral (Upper Flange)	10.152	3	0.250	0.500	0.750						
1517	Lateral (Upper Flange)	11.963	3	0.250	0.500	0.750						
1690	Lateral (Upper Flange)	20.364	3	0.250	0.500	0.750						
1796	Lateral (Upper Flange)	13.530	3	0.250	0.500	0.750						
1811	Lateral (Upper Flange)	10.113	3	0.250	0.500	0.750						

1.5 Effective Lengths - Members

Member	Buckling	Buckling About Axis y			Buckling About Axis z			Lateral-Torsional Buckling				
No.	Possible	Possible	$k_{cr,y}$	$L_{cr,y}$ [m]	Possible	$k_{cr,z}$	$L_{cr,z}$ [m]	Possible	k_z	k_w	L_w [m]	L_T [m]
1488	x	x	11.00	39.092	x	1.00	3.554	-	1.0	1.0	3.554	3.554
1489	x	x	11.00	39.092	x	1.00	3.554	-	1.0	1.0	3.554	3.554
1490	x	x	11.00	39.092	x	1.00	3.554	-	1.0	1.0	3.554	3.554
1491	x	x	11.00	39.092	x	1.00	3.554	-	1.0	1.0	3.554	3.554
1492	x	x	11.00	39.092	x	1.00	3.554	-	1.0	1.0	3.554	3.554
1493	x	x	11.00	39.092	x	1.00	3.554	-	1.0	1.0	3.554	3.554
1494	x	x	11.00	39.092	x	1.00	3.554	-	1.0	1.0	3.554	3.554
1495	x	x	11.00	39.092	x	1.00	3.554	-	1.0	1.0	3.554	3.554
1496	x	x	11.00	39.092	x	1.00	3.554	-	1.0	1.0	3.554	3.554
1497	x	x	11.00	39.092	x	1.00	3.554	-	1.0	1.0	3.554	3.554
1498	x	x	11.46	39.092	x	1.00	3.411	-	1.0	1.0	3.411	3.411
1499	x	x	1.00	12.326	x	0.08	1.000	-	1.0	1.0	12.326	12.326
1500	x	x	1.00	16.564	x	0.06	1.000	-	1.0	1.0	16.564	16.564
1501	x	x	1.00	20.393	x	0.05	1.000	-	1.0	1.0	20.393	20.393
1502	x	x	1.00	0.137	x	1.00	0.137	-	1.0	1.0	0.137	0.137
1503	x	x	1.00	0.137	x	7.28	1.000	-	1.0	1.0	0.137	0.137
1504	x	x	1.00	0.137	x	7.28	1.000	-	1.0	1.0	0.137	0.137
1505	x	x	1.00	0.137	x	7.28	1.000	-	1.0	1.0	0.137	0.137
1506	x	x	1.00	8.085	x	0.12	1.000	-	1.0	1.0	8.085	8.085
1507	x	x	1.00	0.137	x	7.28	1.000	-	1.0	1.0	0.137	0.137
1508	x	x	1.00	0.137	x	7.28	1.000	-	1.0	1.0	0.137	0.137
1509	x	x	1.00	13.635	x	0.07	1.000	-	1.0	1.0	13.635	13.635
1510	x	x	1.00	16.213	x	0.06	1.000	-	1.0	1.0	16.213	16.213
1511	x	x	1.00	18.476	x	0.05	1.000	-	1.0	1.0	18.476	18.476
1512	x	x	1.00	16.309	x	0.06	1.000	-	1.0	1.0	16.309	16.309
1513	x	x	1.00	14.136	x	0.07	1.000	-	1.0	1.0	14.136	14.136
1514	x	x	1.00	4.969	x	0.20	1.000	-	1.0	1.0	4.969	4.969
1515	x	x	1.00	10.152	x	0.10	1.000	-	1.0	1.0	10.152	10.152
1516	x	x	1.00	6.668	x	0.15	1.000	-	1.0	1.0	6.668	6.668
1517	x	x	1.00	11.963	x	0.08	1.000	-	1.0	1.0	11.963	11.963
1518	x	x	1.00	9.788	x	0.10	1.000	-	1.0	1.0	9.788	9.788
1689	x	x	273.58	39.092	x	1.00	0.143	-	1.0	1.0	0.143	0.143
1690	x	x	1.00	20.364	x	0.05	1.000	-	1.0	1.0	20.364	20.364
1691	x	x	1.00	16.947	x	0.06	1.000	-	1.0	1.0	16.947	16.947
1795	x	x	1.00	3.280	x	0.30	1.000	-	1.0	1.0	3.280	3.280
1796	x	x	1.00	13.530	x	0.07	1.000	-	1.0	1.0	13.530	13.530
1797	x	x	1.00	6.696	x	0.15	1.000	-	1.0	1.0	6.696	6.696
1811	x	x	1.00	10.113	x	0.10	1.000	-	1.0	1.0	10.113	10.113

2.2 Design by Cross-Section

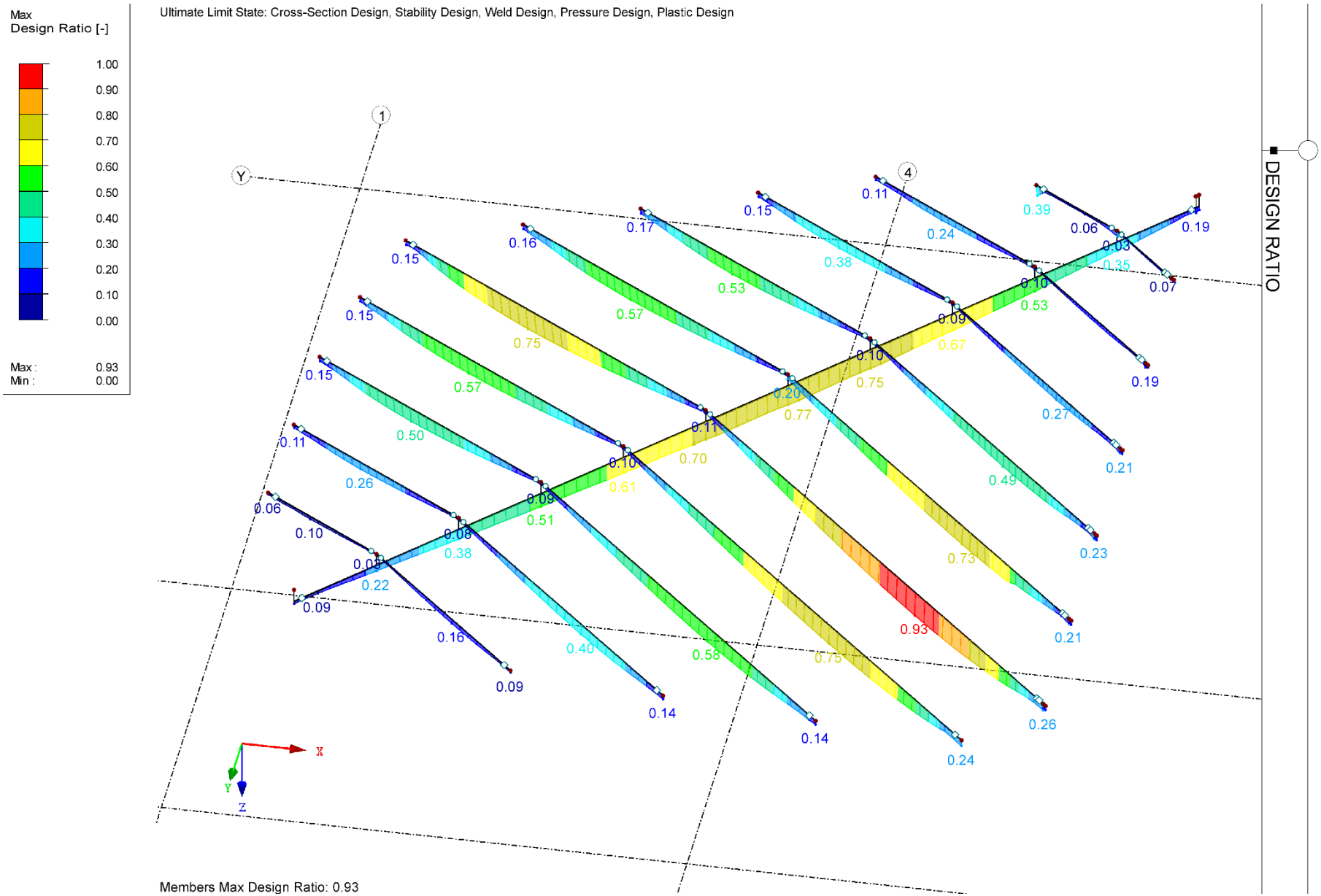
Sect.	Member	Location	LC/CO/	Design		Equation	Description
No.	No.	x [m]	RC			No.	
19	BOX(A) 450/50/25/300/2000/450/50/10/10						
	1689	0.000	RC1	0.06	≤ 1	CS101)	Cross-section check - Tension acc. to 6.2.3
	1689	0.143	RC1	0.14	≤ 1	CS122)	Cross-section check - Shear force in z-axis acc. to 6.2.6(4) - Class 3 or 4
	1689	0.071	RC1	0.19	≤ 1	CS124)	Cross-section check - Shear force in y-axis acc. to 6.2.6(4) - Class 3 or 4
	1488	3.554	RC1	0.23	≤ 1	CS163)	Cross-section check - Biaxial bending and shear force acc. to 6.2.9.2 and 6.2.10 - Class 3 - General cross-section
	1488	0.508	RC1	0.04	≤ 1	CS165)	Cross-section check - Biaxial bending and shear force acc. to 6.2.9.3 and 6.2.10 - Class 4
	1493	3.110	RC1	0.73	≤ 1	CS183)	Cross-section check - Bending, shear and axial force acc. to 6.2.9.2 - Class 3 - General cross-section
	1498	3.045	RC1	0.10	≤ 1	CS203)	Cross-section check - Bending about z-axis, shear and axial force acc. to 6.2.9.2 - Class 3 - General cross-section
	1494	0.444	RC1	0.77	≤ 1	CS223)	Cross-section check - Biaxial bending, shear and axial force acc. to 6.2.10 and 6.2.9 - Class 3 - General cross-section
20	BOX(A) 250/30/10/200/500/250/30/5/5						
	1795	0.000	RC1	0.08	≤ 1	CS101)	Cross-section check - Tension acc. to 6.2.3
	1500	12.549	RC1	0.03	≤ 1	CS102)	Cross-section check - Compression acc. to 6.2.4
	1500	16.564	RC1	0.04	≤ 1	CS103)	Cross-section check - Compression acc. to 6.2.4 - Class 4
	1518	1.468	RC1	0.14	≤ 1	CS112)	Cross-section check - Bending about y-axis acc. to 6.2.5 - Class 3
	1505	0.000	RC1	0.18	≤ 1	CS122)	Cross-section check - Shear force in z-axis acc. to 6.2.6(4) - Class 3 or 4
	1504	0.000	RC1	0.36	≤ 1	CS124)	Cross-section check - Shear force in y-axis acc. to 6.2.6(4) - Class 3 or 4
	1514	0.000	RC1	0.32	≤ 1	CS131)	Cross-section check - Torsion acc. to 6.2.7
	1514	0.000	RC1	0.35	≤ 1	CS133)	Cross-section check - Torsion and shear force acc. to 6.2.7(5)
	1514	0.000	RC1	0.40	≤ 1	CS138)	Cross-section check - Torsion and shear force acc. to 6.2.7(5)

2.2 Design by Cross-Section

Sect. No.	Member No.	Location x [m]	LC/CO/ RC	Design		Equation No.	Description
	1518	1.468	RC1	0.15	≤ 1	CS143)	Cross-section check - Bending and shear force acc. to 6.2.9.2 and 6.2.10 - Class 3 - General cross-section
	1811	3.827	RC1	0.28	≤ 1	CS163)	Cross-section check - Biaxial bending and shear force acc. to 6.2.9.2 and 6.2.10 - Class 3 - General cross-section
	1504	0.137	RC1	0.18	≤ 1	CS165)	Cross-section check - Biaxial bending and shear force acc. to 6.2.9.3 and 6.2.10 - Class 4
	1513	5.554	RC1	0.53	≤ 1	CS183)	Cross-section check - Bending, shear and axial force acc. to 6.2.9.2 - Class 3 - General cross-section
	1509	11.110	RC1	0.24	≤ 1	CS191)	Cross-section check - Bending, shear and axial force acc. to 6.2.9.3 - Class 4
	1500	6.525	RC1	0.58	≤ 1	CS223)	Cross-section check - Biaxial bending, shear and axial force acc. to 6.2.10 and 6.2.9 - Class 3 - General cross-section
	1500	13.051	RC1	0.31	≤ 1	CS231)	Cross-section check - Biaxial bending, shear and axial force acc. to 6.2.10 and 6.2.9.3 - Class 4
	1500	10.541	RC1	0.04	≤ 1	ST302)	Stability analysis - Flexural buckling about y-axis acc. to 6.3.1.1 and 6.3.1.2
	1500	16.564	RC1	0.05	≤ 1	ST304)	Stability analysis - Flexural buckling about y-axis acc. to 6.3.1.1 and 6.3.1.2 - Class 4
	1500	6.525	RC1	0.58	≤ 1	ST371)	Stability analysis - Bending and compression acc. to 6.3.4, General Method
21	BOX(A) 250/30/10/200/1000/250/30/5/5						
	1795	0.000	RC1	0.08	≤ 1	CS101)	Cross-section check - Tension acc. to 6.2.3
	1500	12.549	RC1	0.03	≤ 1	CS102)	Cross-section check - Compression acc. to 6.2.4
	1500	16.564	RC1	0.04	≤ 1	CS103)	Cross-section check - Compression acc. to 6.2.4 - Class 4
	1518	1.468	RC1	0.14	≤ 1	CS112)	Cross-section check - Bending about y-axis acc. to 6.2.5 - Class 3
	1513	0.000	RC1	0.18	≤ 1	CS122)	Cross-section check - Shear force in z-axis acc. to 6.2.6(4) - Class 3 or 4
	1811	0.000	RC1	0.33	≤ 1	CS124)	Cross-section check - Shear force in y-axis acc. to 6.2.6(4) - Class 3 or 4
	1514	0.000	RC1	0.32	≤ 1	CS131)	Cross-section check - Torsion acc. to 6.2.7
	1514	0.000	RC1	0.35	≤ 1	CS133)	Cross-section check - Torsion and shear force acc. to 6.2.7(5)
	1514	0.000	RC1	0.40	≤ 1	CS138)	Cross-section check - Torsion and shear force acc. to 6.2.7(5)
	1518	1.468	RC1	0.15	≤ 1	CS143)	Cross-section check - Bending and shear force acc. to 6.2.9.2 and 6.2.10 - Class 3 - General cross-section
	1811	3.827	RC1	0.28	≤ 1	CS163)	Cross-section check - Biaxial bending and shear force acc. to 6.2.9.2 and 6.2.10 - Class 3 - General cross-section
	1811	0.000	RC1	0.14	≤ 1	CS165)	Cross-section check - Biaxial bending and shear force acc. to 6.2.9.3 and 6.2.10 - Class 4
	1513	5.554	RC1	0.53	≤ 1	CS183)	Cross-section check - Bending, shear and axial force acc. to 6.2.9.2 - Class 3 - General cross-section
	1509	11.110	RC1	0.24	≤ 1	CS191)	Cross-section check - Bending, shear and axial force acc. to 6.2.9.3 - Class 4
	1500	6.525	RC1	0.58	≤ 1	CS223)	Cross-section check - Biaxial bending, shear and axial force acc. to 6.2.10 and 6.2.9 - Class 3 - General cross-section
	1500	13.051	RC1	0.31	≤ 1	CS231)	Cross-section check - Biaxial bending, shear and axial force acc. to 6.2.10 and 6.2.9.3 - Class 4
	1500	10.541	RC1	0.04	≤ 1	ST302)	Stability analysis - Flexural buckling about y-axis acc. to 6.3.1.1 and 6.3.1.2
	1500	16.564	RC1	0.05	≤ 1	ST304)	Stability analysis - Flexural buckling about y-axis acc. to 6.3.1.1 and 6.3.1.2 - Class 4
	1500	6.525	RC1	0.58	≤ 1	ST371)	Stability analysis - Bending and compression acc. to 6.3.4, General Method
45	BOX(A) 250/40/15/200/500/250/40/5/5						
	1690	0.000	RC1	0.08	≤ 1	CS102)	Cross-section check - Compression acc. to 6.2.4
	1690	20.364	RC1	0.09	≤ 1	CS103)	Cross-section check - Compression acc. to 6.2.4 - Class 4
	1502	0.137	RC1	0.04	≤ 1	CS112)	Cross-section check - Bending about y-axis acc. to 6.2.5 - Class 3
	1502	0.000	RC1	0.18	≤ 1	CS122)	Cross-section check - Shear force in z-axis acc. to 6.2.6(4) - Class 3 or 4
	1501	0.000	RC1	0.27	≤ 1	CS124)	Cross-section check - Shear force in y-axis acc. to 6.2.6(4) - Class 3 or 4
	1502	0.137	RC1	0.04	≤ 1	CS143)	Cross-section check - Bending and shear force acc. to 6.2.9.2 and 6.2.10 - Class 3 - General cross-section
	1512	0.494	RC1	0.24	≤ 1	CS163)	Cross-section check - Biaxial bending and shear force acc. to 6.2.9.2 and 6.2.10 - Class 3 - General cross-section
	1511	7.490	RC1	0.74	≤ 1	CS183)	Cross-section check - Bending, shear and axial force acc. to 6.2.9.2 - Class 3 - General cross-section
	1511	17.976	RC1	0.10	≤ 1	CS191)	Cross-section check - Bending, shear and axial force acc. to 6.2.9.3 - Class 4
	1690	7.705	RC1	0.96	≤ 1	CS223)	Cross-section check - Biaxial bending, shear and axial force acc. to 6.2.10 and 6.2.9 - Class 3 - General cross-section
	1690	19.263	RC1	0.20	≤ 1	CS231)	Cross-section check - Biaxial bending, shear and axial force acc. to 6.2.10 and 6.2.9.3 - Class 4
	1690	0.000	RC1	0.23	≤ 1	ST302)	Stability analysis - Flexural buckling about y-axis acc. to 6.3.1.1 and 6.3.1.2

2.2 Design by Cross-Section

Sect. No.	Member No.	Location x [m]	LC/CO/ RC	Design		Equation No.	Description
	1690	20.364	RC1	0.11	≤ 1	ST304)	Stability analysis - Flexural buckling about y-axis acc. to 6.3.1.1 and 6.3.1.2 - Class 4
	1690	7.705	RC1	0.99	≤ 1	ST371)	Stability analysis - Bending and compression acc. to 6.3.4, General Method
46	BOX(A) 250/40/15/200/1000/250/40/5/5						
	1690	0.000	RC1	0.08	≤ 1	CS102)	Cross-section check - Compression acc. to 6.2.4
	1690	20.364	RC1	0.09	≤ 1	CS103)	Cross-section check - Compression acc. to 6.2.4 - Class 4
	1690	0.000	RC1	0.17	≤ 1	CS122)	Cross-section check - Shear force in z-axis acc. to 6.2.6(4) - Class 3 or 4
	1501	0.000	RC1	0.27	≤ 1	CS124)	Cross-section check - Shear force in y-axis acc. to 6.2.6(4) - Class 3 or 4
	1512	0.494	RC1	0.24	≤ 1	CS163)	Cross-section check - Biaxial bending and shear force acc. to 6.2.9.2 and 6.2.10 - Class 3 - General cross-section
	1511	7.490	RC1	0.74	≤ 1	CS183)	Cross-section check - Bending, shear and axial force acc. to 6.2.9.2 - Class 3 - General cross-section
	1511	17.976	RC1	0.10	≤ 1	CS191)	Cross-section check - Bending, shear and axial force acc. to 6.2.9.3 - Class 4
	1690	7.705	RC1	0.96	≤ 1	CS223)	Cross-section check - Biaxial bending, shear and axial force acc. to 6.2.10 and 6.2.9 - Class 3 - General cross-section
	1690	19.263	RC1	0.20	≤ 1	CS231)	Cross-section check - Biaxial bending, shear and axial force acc. to 6.2.10 and 6.2.9.3 - Class 4
	1690	0.000	RC1	0.23	≤ 1	ST302)	Stability analysis - Flexural buckling about y-axis acc. to 6.3.1.1 and 6.3.1.2
	1690	20.364	RC1	0.11	≤ 1	ST304)	Stability analysis - Flexural buckling about y-axis acc. to 6.3.1.1 and 6.3.1.2 - Class 4
	1690	7.705	RC1	0.99	≤ 1	ST371)	Stability analysis - Bending and compression acc. to 6.3.4, General Method



6.7.4 pav. Metalinių konstrukcijų išnaudojimas

7. IŠVADOS

1. Pastato geometrija ir laikančių gelžbetoninio bei metalo elementų skerspjūviai gali priimti užduotas apkrovas, veikiančias eksploatacijos metu.
2. Skaičiavimais parinkti monolitinio gelžbetonio elementų skerspjūviai leidžia atlikti jų armavimą atsižvelgiant į LST EN 1992-1-1 “Eurokodas 2. Gelžbetoninių konstrukcijų projektavimas“ reikalavimus.
3. Metalinių konstrukcijų parinkti skerspjūviai leidžia atlikti mazgų detalizaciją bei atitinka LST EN 1993-1-1 “Eurokodas 3. Metalinių konstrukcijų projektavimas“ reikalavimus.
4. Maksimalūs gelžbetoninių konstrukcijų poslinkiai neviršija leistinų maksimalių reikšmių pagal LST EN 1992-1-1 “Eurokodas 2. Gelžbetoninių konstrukcijų projektavimas“ ir LST EN 1993-1-1 “Eurokodas 3. Metalinių konstrukcijų projektavimas“ . Erdvinis pastato skaičiavimas parodė, kad pastatas atitinka reikiamą statinio standumą.