Opgesteld:	LER	Gecontroleerd:	KER	Goedgekeurd:	RIW
Datum	17-8-2021	Datum	17-8-2021	Datum	17-8-2021

"For approval"

Expansion storage capacity TP3

Tank pit 3 - Pipe rack 3 and 4

Structural design / weight calculation

Klant	Neste Terminals	Klant projectnr.	2307
Project	Expansion storage capacity TP3	KH projectnr.	68685
Locatie	Vlaardingen		
Installatie	Tank pit 3	Revisie	0
documentnr.	2307-E80-CN-1731-0001	Datum	17-8-2021

Revision	Description	Date
0	Released for approval	17-8-2021

1 Index

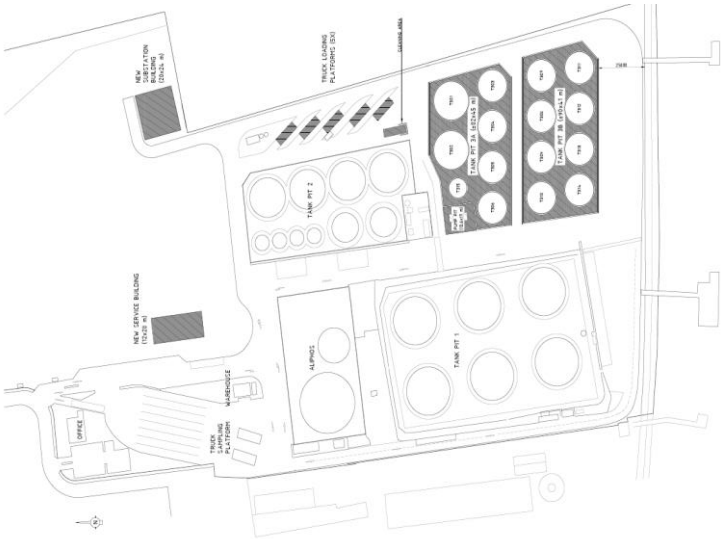
2 Introduction

Neste Terminal in Rotterdam has the intention to expand the storage capacity of their tank terminal in Rotterdam.

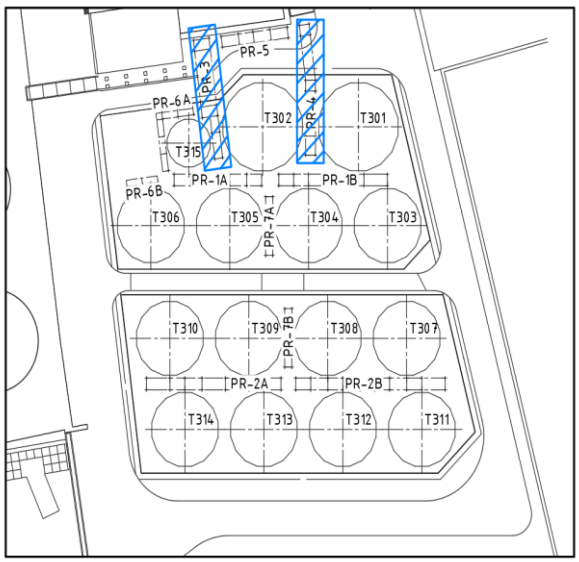
The expansion of the terminal consists of 15 tanks divided over two tank pits. There is a maintenance road between the two tank pits. Both tank pits are connected underground in order to guarantee the buffer capacity of the tank pits. The bund wall shall consist of either a retaining wall or sheet piling wall.

At the north-east side there is a new truck loading area with 5 bays.
The new tank pits are connected to the existing tank pit and new loading area by means of pipe racks.

On the north side of the new tank pits an recently built tank pit (built in 2017-2018) so called phase 1 is present. The tanks in this tank bund are founded on a crushed stone ring on a deep soil improvement.
At the westside also tank pit is present which is built in approximately 40 years ago (1960).



In this calculation the design of pipe rack 3 and 4 is checked and the piling load is determined.



3 General

3.1 Standards

NEN-EN 1990/NB	Eurocode 0: Basis of structural design
NEN-EN 1991	Eurocode 1: Actions on structures
NEN-EN 1991-1-1/NB	General actions - Densities, self-weight, imposed loads for buildings
NEN-EN 1991-1-4/NB	General actions - Wind actions
NEN-EN 1991-1-5/NB	General actions - Thermal actions
NEN-EN 1992	Eurocode 2: Design of concrete structures
NEN-EN 1992-1-1/NB	General rules and rules for buildings
NEN-EN 1993	Eurocode 3: Design of steel structures
NEN-EN 1993-1-1/NB	General rules and rules for buildings
NEN-EN 1993-1-8/NB	Design of joints
2305-000-JSD-1700-04 Rev.4	General rules for steel structure and civil works
2307-000-DC-1708-0004_0	Calculation Note Assumptions

3.2 Reference documents

drawings:

- 2307-E40-DW-0051-0003 TP3 3D view

other:

- FA01-D02-2101015 Geotechnical advice TP03 Neste

3.3 Used programs

SCIA Engineer, version: 20.0.2028
Microsoft Office

3.4 Basis

consequence class	*CC2*	
reliability class	*RC2*	
design working life	*50*	Years

materials

steel grade structural steel *S355* f_y = *355* N/mm²
concrete class *C30/37*

deformations limits

Steel structure:

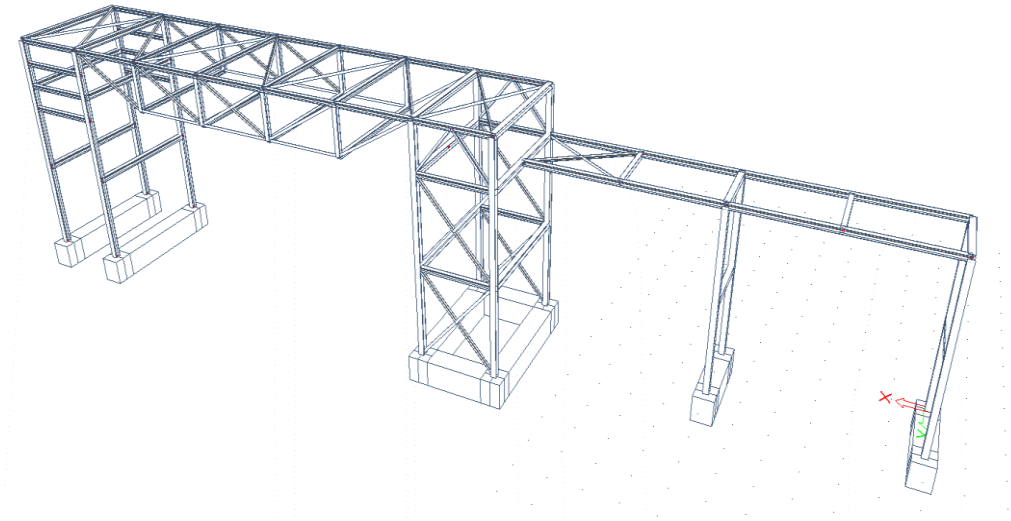
horizontal and vertical deflections	quasi permanent	$\omega_{lim} = l_{rep} / 250$
	frequent	$\omega_3 = l_{rep} / 333$
horizontal displacement pipe bridge	characteristic	$u = H / 250$

foundations

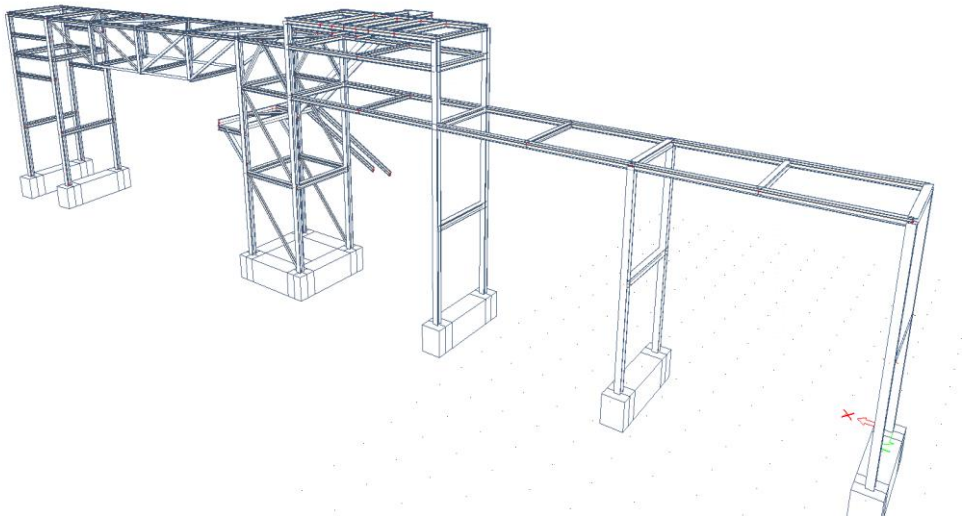
The springs constants are derived from the geotechnical advise. Because displacement is decisive the characteristic value is applied. For the horizontal spring constant see calculation pipe rack 1 and 2.

k_v = *50* MN/m
k_h = *10* MN/m

4 Structure



pipe rack 3



pipe rack 4

elevations

top of concrete			toc =	*2,880* +
top of steel:				
layer 3 piping			tos =	*8,500* +
layer 4 piping / cable tspacing			tos =	*10,00* +
<u>truss</u>				
span			l =	*13,0* m
span of pipe			l_s =	*5,2* m
width of pipe rack	w_1 =	*1,5* m	w_2 =	*4,0* m
<u>frames</u>				
center to centre frames at bracing			=	*2,5* m

5 Loads and load combinations

5.1 Dead load

grating	g_k =	*0,5*	kN/m²
railing	g_k =	*0,3*	kN/m

5.2 Equipment load

empty pipe	g_k =	*0,8*	kN/m²
operating	g_k =	*1,8*	kN/m²
cable tray	g_k =	*1,67*	kN/m²

5.3 WL - wind load

The reference height for the wind load on the pipe rack is increased due to the larger adjacent tanks.

top of high structure			h_{high} =	*16,5*	m
largest width of high structure			d_{large} =	*10*	m
radius	$h_{high} \leq 2d_{large}$ ->	h_{high}=	r =	16,5	m
reference height	$x \leq r$ ->	0,5r =	z_n =	8,25	m

terrain category	*II*	area not build on			
basic wind velocity		conform client spec.	v_b =	*30*	m/s
roughness length			z_0 =	0,2	m
			$z_{0,II}$ =	*0,05*	m
minimum height			z_{min} =	4	m
terrain factor			k_r =	0,209	
roughness factor			c_r(h) =	0,779	
orography factor			c_0(z) =	*1,00*	
mean wind velocity			$v_{m(h)}$ =	23,36	m/s
turbulence factor			k_l =	*1*	
turbulence intensity			I_v(h) =	0,269	
air density			ρ =	*1,25*	kg/m³
peak velocity pressure			q_p(z) =	0,983	

structural factor	$c_s c_d$ =	*1,0*	

wind load on structural members

force coefficient			c_f =	*2,0*	
h =	*133*	*152*	*160*	*180*	
q_k =	0,26	0,30	0,31	0,35	

wind load piping layer

force coefficient	c_f =	*0,8*	
width of pipe rack	b =	*4,0*	m
top layer			
diameter of largest pipe	D =	*0,215*	
wind load	q_k =	0,48	kN/m
bottom layer			
diameter of largest pipe	D =	*0,32*	
wind load	q_k =	0,57	kN/m

wind load on each cable tray

force coefficient	c_f =	*2,0*	
	h =	*0,1*	m
wind load	q_k =	0,20	kN/m

wind load on railing

effective wind height of handrailing	h =	*0,275*	m
wind moment	M_w =	*0,29*	kNm

5.4 Temperature load - pipe stress

longitudinal direction

vertical bracing	F_h =	*5*	%
top flange of support beam	F_h =	*10*	%
support beam	F_h =	*10*	kN

transverse direction

beams horizontal	F_h =	*7,5*	kN
vertical	F_v =	*15*	kN
frames	F_h =	*7,5*	kN

5.5 Accidental load - railing

load on top of railing	q =	*1,0*	kN/m
lever arm top of railing to center of beam	a =	*1,24*	m
torsional force at center line structural beam	T =	1,24	kNm/m

5.6 Combinations

	ψ_0	ψ_1	ψ_2
industrial - short term	*0,5*	*0,5*	*0,3*
wind	*0,6*	*0,2*	*0,0*
Temperature	*0,6*	*0,5*	*0,0*

$$ULS = \sum_{j\geq 1} \gamma_{G,j} G_{k,j} + \gamma_{Q,1}\psi_{0,1} Q_{k,1} + \sum_{i\geq 1} \gamma_{Q,i}\psi_{0,i} Q_{k,i}$$

$$ULS = \sum_{j\geq 1} \xi\gamma_{G,j} G_{k,j} + \gamma_{Q,1} Q_{k,1} + \sum_{i\geq 1} \gamma_{Q,i}\psi_{0,i} Q_{k,i}$$

ξ = *0,9* γ_G = *1,35* $\gamma_{G,inf}$ = *1,0* γ_Q = *1,5*

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

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

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

6 Calc

For the check of the cross sections see Scia reports

6.1 typical beam

section HEA140

load

equipment load				1,8	x 5,2	=	g_k =	9,36 kN/m
stress load							Q_k =	10 kN
wind load	*0,1*	x 2,0	x 1,0	x 0,98		=	Q_k =	0,26 kN/m

check top flange

stress load				0,1	x 9,36	=	q_k =	0,936 kN/m
length of beam							l =	4,0 m
characteristic value of bending moment					1/8 $q_k l^2$	=	M_k =	1,87 kNm
design value of bending moment				1,5	x 1,87	=	M_{Ed} =	2,81 kNm
parameters flange	t_f = *8,5*	b = *140* mm			1/6 $t_f b^2$	=	W =	27767 mm³
design resistance bending moment of flange					Wf_y	=	M_{Rd} =	9,86 kNm

0,28 < 1,0 Ok

6.2 frame in truss

load

wind load				5,2	x 0,57	=	Q_k =	2,94 kN
stress load							Q_k =	7,5 kN

rotation spring

The rotation stiffness of the connections is estimated using the functions and factors provided in the publication "Momentverbindingen" from the Staalbouwkunding Genootschap.

t_f = *8,5* mm

flexibility factor k_f = *8,5*

h = *133* x *1,0* = z = 133 mm $S_{j,ini}$ = 3,7 MNm/R

6.3 truss - horizontal

load

equipment load				2	x	1,8	x	2,6	x	2,0	=	$g_{k,V}$ =	18,7	kN
angle of vertical bracing								TAN(	1,5	/	2,6	) =	0,52	R
horizontal component of equipment load in bracing												$g_{k,H}$ =	32,4	kN
reaction force at ends of truss								2,0	x	18,7		R_v =	37,4	kN
horizontal component of reaction force in bracing												N_k =	64,9	kN
wind load - transverse	piping:	bottom						2,6	x	0,57	=	Q_k =	1,47	kN
		top						2,6	x	0,48	=	Q_k =	1,26	kN
	columns			2	x	1,5	x	0,26	=			Q_k =	0,78	kN
												Q_k =	3,51	kN
wind load - longitudinal	piping	bottom						4,0	x	0,57	=	Q_k =	2,27	kN
		top						4,0	x	0,48	=	Q_k =	1,93	kN
	frame	columns	*2*	x	4,0	x	0,30	=				Q_k =	2,39	kN
		beams	*1*	x	6,4	x	0,30	=				Q_k =	1,91	kN
													8,50	kN
pipe stress														
transverse												=	7,5	kN
longitudinal								0,05	x	18,7		=	0,94	kN

horizontal bracing

Check if bracing can be considered as rigid supports for buckling longitudinal beam (NB.NA.2)

stiffness

deflection with point loads 1MN							u =	*0,105*	m
spring constant				*1*	/	0,1	= k_{st} =	9,52	MN/m
buckling length			a_{st} =				L_{cr} =	2,6	m
cross sectional area							A =	*3142*	mm²
moment of inertia							I_z =	*389*	10^4mm^4
							N_{cr} =	1193	kN
relative slenderness							λ =	0,967	
boundary limits for relative slenderness		curve	c				$\lambda 1$ =	*0,41*	
							$\lambda 2$ =	*0,74*	
factor for number of fields			n_v =	*5*			ξ =	*0,276*	
design value of critical stiffness							k_{cr} =	4,16	MN/m
ratio							k_{cr}/k_{st} =	0,44	

0,44 < 1,00 Rigid supports

strength

imperfection factor							α =	*0,49*	
factor							ϕ =	1,16	
reduction factor							χ =	0,56	
buckling force longitudinal beam							$N_{b,Rd}$ =	623,8	kN
design value of force on support				*0,01*	x	624	$N_{st,Ed}$ =	6,24	kN

To take this force into account a the following force is applied in addition to the other wind and stress forces: F = *2,65* kN

6.4 Frame

rotation spring

t_f = *14* mm

flexibility factor, with endplate k_f = *11,5*

flexibility factor, with stiffeners in column k_f = *8,5*

top	h =	*171*	x	*1,3*	=	z =	222 mm	$S_{j,ini}$ =	12,6	MNm/R
top, incr.	h =	*171*	x	*1,8*	=	z =	308 mm	$S_{j,ini}$ =	24,2	MNm/R
other	h =	*171*	x	*1,5*	=	z =	257 mm	$S_{j,ini}$ =	22,8	MNm/R
other, incr	h =	*171*	x	*2,0*	=	z =	342 mm	$S_{j,ini}$ =	40,5	MNm/R
baseplate	320x320, tp=15, anchors 4x M24 4.6, s=220mm							$S_{j,ini}$ =	*15,0*	MNm/R
	320x320, tp=30, anchors 4x M30 4.6, s=220mm							$S_{j,ini}$ =	*25,0*	MNm/R

analysis type

imperfections ϕ = *0,005*

6.4.1 Pipe rack 3

high part - south side

	H_{Ed}	V_{Ed}	h	δu	α_{cr}	H/V		imperfection
8,50 - 10,0	*21*	*143*	1500	*6,3*	35	0,15	≥ 0,15	0,72 kN
5,70 - 8,50	*27*	*180*	2800	*17*	25	0,15	≥ 0,15	N/A
2,88 - 5,70	*31*	*201*	2820	*15*	30	0,16	≥ 0,15	N/A
				38,2				

high part - north side

	H_{Ed}	V_{Ed}	h	δu	α_{cr}	H/V		imperfection
8,50 - 10,0	*18*	*168*	1500	*5,8*	28	0,11	≥ 0,15	0,84 kN
5,70 - 8,50	*27*	*223*	2800	*16*	21	0,12	≥ 0,15	1,11 kN
2,88 - 5,70	*31*	*228*	2820	*15*	26	0,13	≥ 0,15	1,14 kN
				36,6				

low part	H_{Ed}	V_{Ed}	h	δu	α_{cr}	H/V		imperfection
5,70 - 8,50	*18*	*38*	2800	*9,4*	139	0,47	≥ 0,15	N/A
2,88 - 5,70	*21*	*42*	2820	*9,0*	155	0,49	≥ 0,15	N/A
				18,4				

Because the factor α_{cr} is larger than 10 the structure will be checked using a first order linear-elastic calculation. The buckling length will be the same as the system length.

deflection

high part

	h	ux	δu		δu,lim			
+ *10,0*	1,50	*26*	4,1	<	6,0	Ok	l / 366	
+ *8,50*	2,80	*22*	11,2	<	11,2	Not Ok	l / 250	acceptable
+ *5,70*	2,82	*11,0*	9,7	<	11,3	Ok	l / 291	
+ *2,88*		*1,3*						
overall	7,12		25	<	28,5	Ok	l / 285	

low part

+ *8,50*	2,80	*16*	7,9	<	11,2	Ok	l / 354
+ *5,70*	2,82	*8,5*	7,2	<	11,3	Ok	l / 392
+ *2,88*		*1,3*					
overall	5,62		15,1	<	22,5	Ok	l / 372

6.4.2 Pipe rack 4

high part - south side

	H_{Ed}	V_{Ed}	h	δu	α_{cr}	H/V		imperfection
8,50 - 10,0	*19*	*68*	1500	*6,3*	67	0,28	≥ 0,15	N/A
5,70 - 8,50	*35*	*98*	2800	*19*	55	0,36	≥ 0,15	N/A
2,88 - 5,70	*39*	*88*	2820	*17*	76	0,45	≥ 0,15	N/A
				41,4				

	H_{Ed}	V_{Ed}	h	δu	α_{cr}	H/V		imperfection
8,50 - 10,0	*17*	*67*	1500	*5,7*	65	0,25	≥ 0,15	N/A
5,70 - 8,5	*37*	*148*	2800	*18*	39	0,25	≥ 0,15	N/A
2,88 - 5,7	*41*	*160*	2820	*17*	43	0,26	≥ 0,15	N/A
				40,3				

high part - north side

	H_{Ed}	V_{Ed}	h	δu	α_{cr}	H/V		
8,50 - 10,0	*19*	*80*	1500	*6,7*	54	0,24	≥ 0,15	N/A
5,70 - 8,50	*33*	*115*	2800	*18*	45	0,29	≥ 0,15	N/A
3,65 - 5,70	*35*	*118*	2050	*11*	58	0,30	≥ 0,15	N/A
				35,2				

Because the factor α_{cr} is larger than 10 the structure will be checked using a first order linear-elastic calculation. The buckling length will be the same as the system length.

deflection

high part - south side

	h	ux	δu		δu,lim			
+ *10,0*	1,50	*31*	4,4	<	6,0	Ok	l / 341	
+ *8,50*	2,80	*26,5*	12,8	<	11,2	Not Ok	l / 219	acceptable
+ *5,70*	2,82	*13,7*	11,4	<	11,3	Not Ok	l / 247	acceptable
+ *2,88*		*2,3*						
overall	7,12		28,6	<	28,5	Not Ok	l / 249	acceptable

high part - north side

	h	ux	δu		δu,lim			
+ *10,0*	1,50	*25*	4,5	<	6,0	Ok	l / 333	
+ *8,50*	2,80	*21*	12	<	11,2	Not Ok	l / 233	acceptable
+ *5,70*	2,05	*8,9*	7	<	8,2	Ok	l / 293	
+ *3,65*		*1,9*						
overall	6,35		23,5	<	25,4	Ok	l / 270	

6.5 Foundation

	l	$u_{z,min}$	$u_{z,max}$	δu	δu,lim			limit = 0,003
high	*4,0*	*-0,3*	*-4,4*	4,1	12	Ok	l / 976	
low	*2,0*	*0*	*-1,6*	1,6	6	Ok	l / 1250	

7 Conclusion

The structures are checked with Scia engineer, see appendix A up to E. The results of the calculations are as follows.

member check		unity checks ULS	SLS
frames			
columns	HEB180	*0,4*	*1,14*
beams	HEA180	*0,3*	*0,10*

maximum displacement = *28,6* mm

reaction forces

tension	$R_{z,min}$ =	*-95*	kN
compression	$R_{z,max}$ =	*290*	kN
shear	R_{y} =	*30*	kN

Appendix A

Scia report - beams

KH Engineering

1. Table of contents

2. General

2.1. Project

Licence name	KH Engineering
Project	Neste - Rotterdam terminal expansion
Part	Tank pit 3 - Pipe rack 3 & 4
Description	Beams
Author	LER
Date	25. 06. 2021
Structure	Frame XYZ
No. of nodes :	6
No. of beams :	4
No. of slabs :	0
No. of solids :	0
No. of used profiles :	1
No. of load cases :	5
No. of used materials :	1
Acceleration of gravity [m/s^2]	9,810
National code	EC - EN

2.2. Setup manager

(STR/GEO) alternative

Combination	Eq.6.10a & Eq.6.10b

Psi factors

Load	Psi0	Psi1	Psi2
CategoryA	0.4	0.5	0.3
CategoryB	0.5	0.5	0.3
CategoryC	0.6	0.7	0.6
CategoryD	0.4	0.7	0.6
CategoryE	1	0.9	0.8
CategoryF	0.7	0.7	0.6
CategoryG	0.7	0.5	0.3
CategoryH	0	0	0
Snow	0	0.2	0
Wind	0.6	0.2	0
Temperature	0.6	0.5	0
Rain water	0	0	0
Construction loads	1	0	0.2

Load combination factors

Permanent action - unfavorable	1,35
Permanent action - favorable [-]	0,90
Leading variable action	1,50
Accompanying variable action	1,50
Reduction factor ksi [-]	0,89
Permanent action - unfavorable	1,00
Permanent action - favorable	1,00
Leading variable action	1,30
Accompanying variable action	1,30

3. Structure

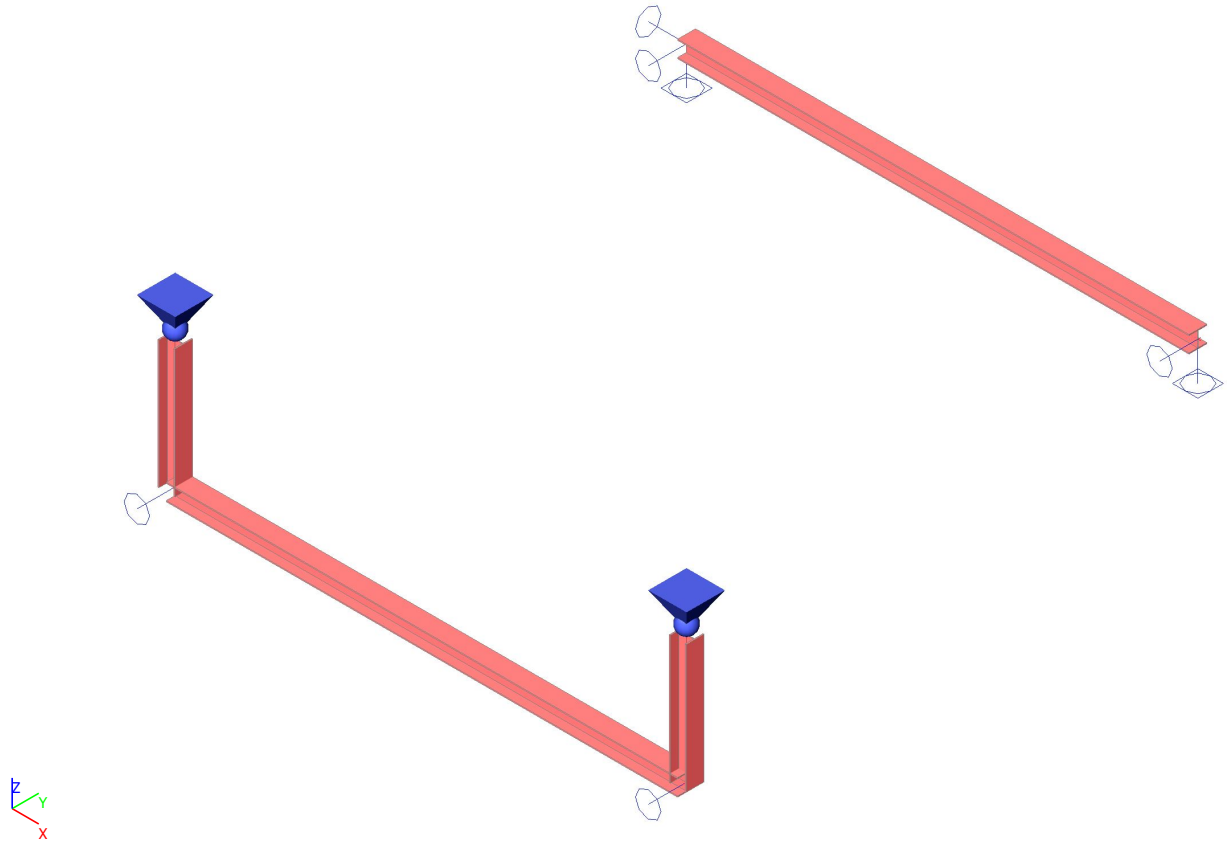
3.1. Cross-sections

Name	Type Detailed	Item material	Fabrication	A [m²]	A_y [m²] A_z [m²]	I_y [m⁴] I_z [m⁴]	$W_{el.y}$ [m³] $W_{el.z}$ [m³]	$W_{pl.y}$ [m³] $W_{pl.z}$ [m³]	Colour
CS2	HEA140	S 355	rolled	3,1400e-03	2,2882e-03 7,8192e-04	1,0300e-05 3,8900e-06	1,5500e-04 5,5600e-05	1,7333e-04 8,5000e-05	

3.2. Materials

Steel EC3

Name	ρ [kg/m³]	E_{mod} [MPa] G_{mod} [MPa]	μ α [m/mK]	Lower limit [mm]	Upper limit [mm]	F_y [MPa]	F_u [MPa]	Colour
S 355	7850,0	2,1000e+05 8,0769e+04	0.3 0,00	0 40	40 80	355,0 335,0	490,0 470,0	



3.3. Nodes

Name	Coord X [m]	Coord Y [m]	Coord Z [m]
N1	0,000	0,000	1,000
N2	0,000	0,000	0,000

Name	Coord X [m]	Coord Y [m]	Coord Z [m]
N3	4,000	0,000	1,000
N4	4,000	0,000	0,000

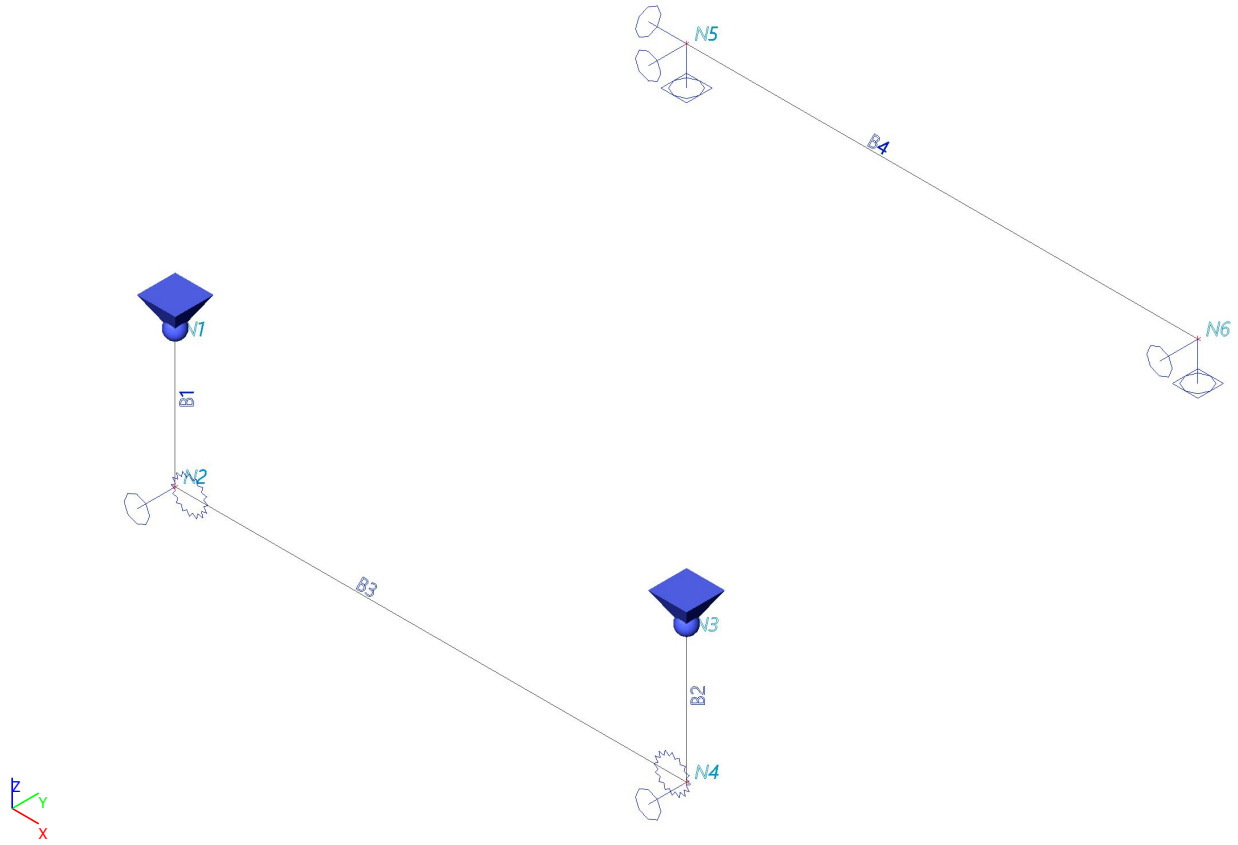
Name	Coord X [m]	Coord Y [m]	Coord Z [m]
N5	0,000	4,000	1,000
N6	4,000	4,000	1,000

3.4. Members

Name	Cross-section	Material	Length [m]	Beg. node	End node	Type	system length
B1	CS2 - HEA140	S 355	1,000	N1	N2	general (0)	BG2
B2	CS2 - HEA140	S 355	1,000	N3	N4	general (0)	BG2
B3	CS2 - HEA140	S 355	4,000	N2	N4	beam (80)	BG1
B4	CS2 - HEA140	S 355	4,000	N5	N6	beam (80)	BG1

3.5. System lengths and buckling groups

Name Description	Number of parts	Member(s) material	ky factor kz factor	Point of load application	Bow imperfection e0,y Bow imperfection e0,z
BG2	1	Steel, other	Factor Factor	In shear center	no bow imperfection no bow imperfection
BG1	1	Steel, other	Factor Factor	In shear center	no bow imperfection no bow imperfection



3.6. Hinges

Name	Member	Position	ux	uy	uz	fix	fiy	fiz	Stiff - fiy [MNm/rad]
H1	B3	Both	Rigid	Rigid	Rigid	Rigid	Flexible	Rigid	3,5000e+00

3.7. Nodal supports

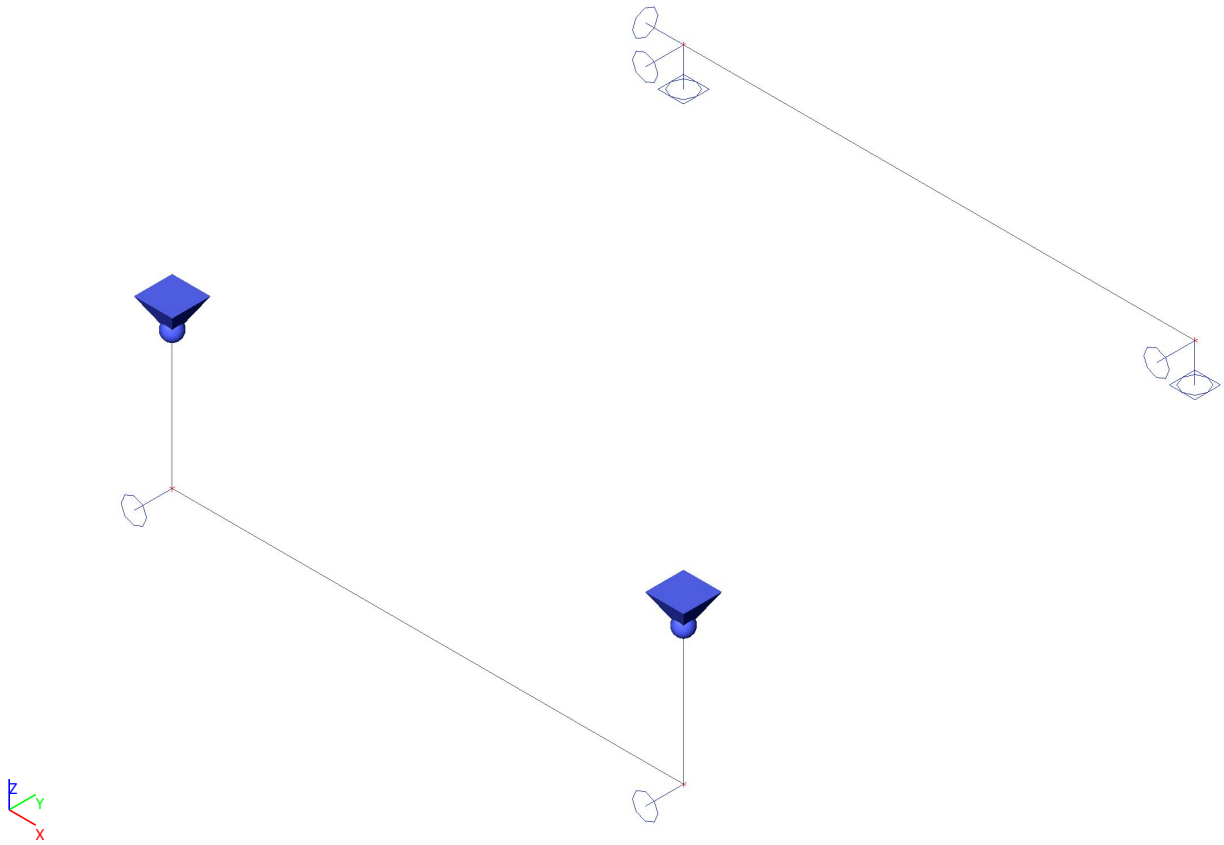
Name	Node	System	Type	X	Y	Z	Rx	Ry	Rz	Angle [deg]
Sn1	N1	GCS	Standard	Rigid	Rigid	Rigid	Free	Free	Free	Ry180.00
Sn2	N3	GCS	Standard	Rigid	Rigid	Rigid	Free	Free	Free	Ry180.00
Sn3	N2	GCS	Standard	Free	Rigid	Free	Free	Free	Free	
Sn4	N4	GCS	Standard	Free	Rigid	Free	Free	Free	Free	
Sn5	N5	GCS	Standard	Rigid	Rigid	Rigid	Free	Free	Rigid	
Sn6	N6	GCS	Standard	Free	Rigid	Rigid	Free	Free	Rigid	

4. Loads

4.1. Load cases

4.1.1. Load cases - DL

Name	Description	Action type	Load type	Load group	Direction
DL	Dead load - Self weight	Permanent	Self weight	LG1	-Z



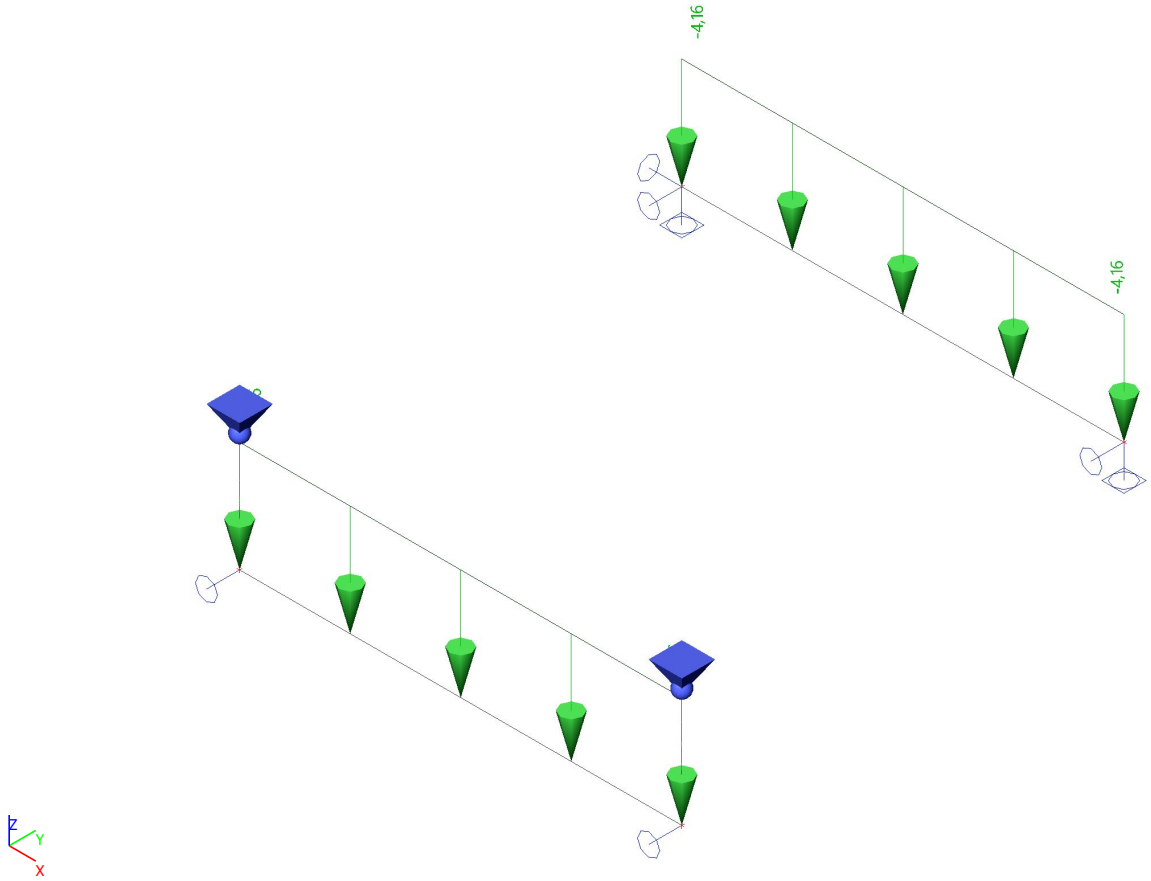
4.1.1.1. Resultant of reactions

Linear calculation
Load case: DL
Extreme: Global
Selection: All
System: Global

x [m]	y [m]	z [m]	Case	R_x [kN]	R_y [kN]	R_z [kN]	M_x [kNm]	M_y [kNm]	M_z [kNm]
2,000	1,333	0,667	DL	**0,00**	**0,00**	**2,42**	**0,64**	**0,00**	**0,00**

4.1.2. Load cases - EE

Name	Description	Action type	Load type	Load group
EE	Dead load - Empty	Permanent	Standard	LG1



4.1.2.1. Line force

Name	Member	Type	Sys.	Dir	Distr.	P1 [kN/m]	P2 [kN/m]	Pos x_1	Pos x_2	Coor	Loc	Orig	Ecc ey [m]	Ecc ez [m]
LF7	B4	Force	GCS	Z	Uniform	-4,16		0.000	1.000	Rela	Length	From start	0,000	0,000
LF8	B3	Force	GCS	Z	Uniform	-4,16		0.000	1.000	Rela	Length	From start	0,000	0,000

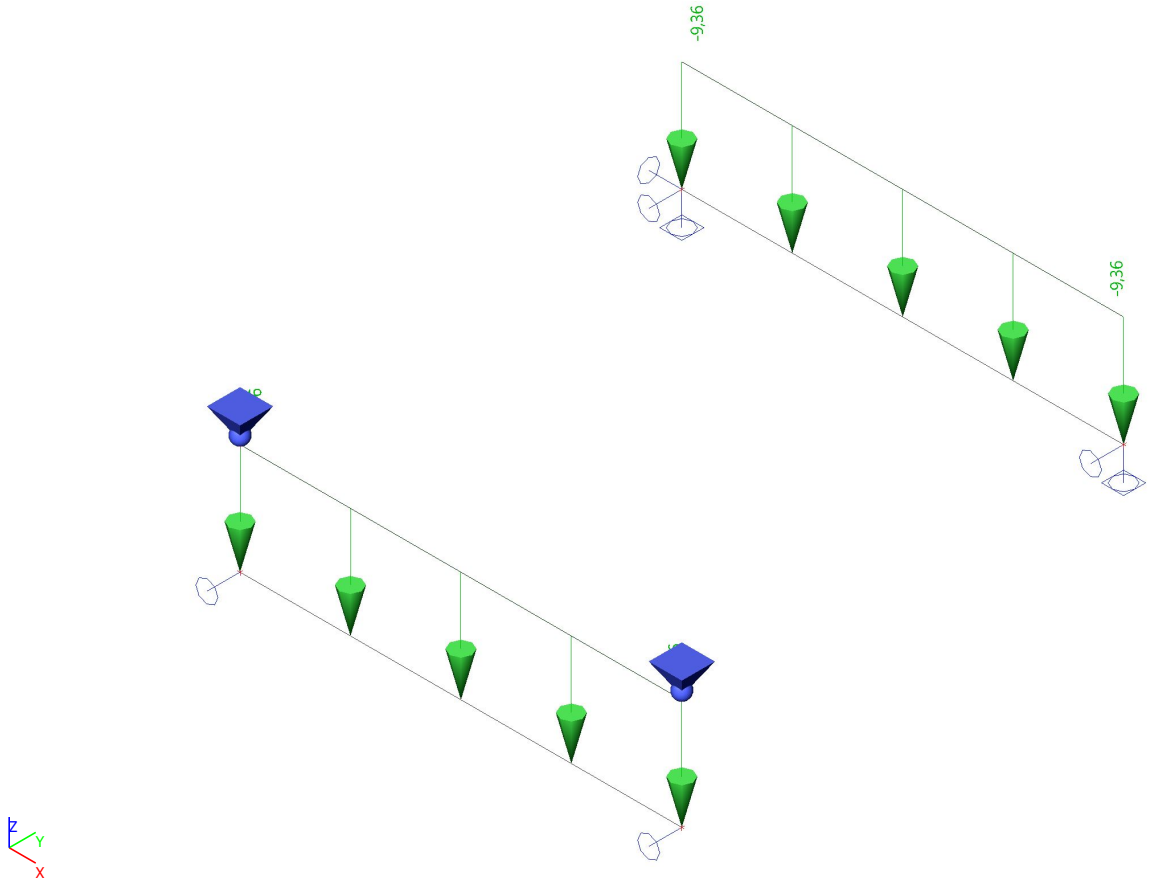
4.1.2.2. Resultant of reactions

Linear calculation
Load case: EE
Extreme: Global
Selection: All
System: Global

x [m]	y [m]	z [m]	Case	R_x [kN]	R_y [kN]	R_z [kN]	M_x [kNm]	M_y [kNm]	M_z [kNm]
2,000	1,333	0,667	EE	**0,00**	**0,00**	**33,28**	**22,19**	**0,00**	**0,00**

4.1.3. Load cases - EO

Name	Description	Action type	Load type	Load group
EO	Dead load - Operating	Permanent	Standard	LG1



4.1.3.1. Line force

Name	Member	Type	Sys.	Dir	Distr.	P1 [kN/m]	P2 [kN/m]	Pos x_1	Pos x_2	Coor	Loc	Orig	Ecc ey [m]	Ecc ez [m]
LF1	B3	Force	LCS	Z	Uniform	-9,36		0.000	1.000	Rela	Length	From start	0,000	0,000
LF5	B4	Force	LCS	Z	Uniform	-9,36		0.000	1.000	Rela	Length	From start	0,000	0,000

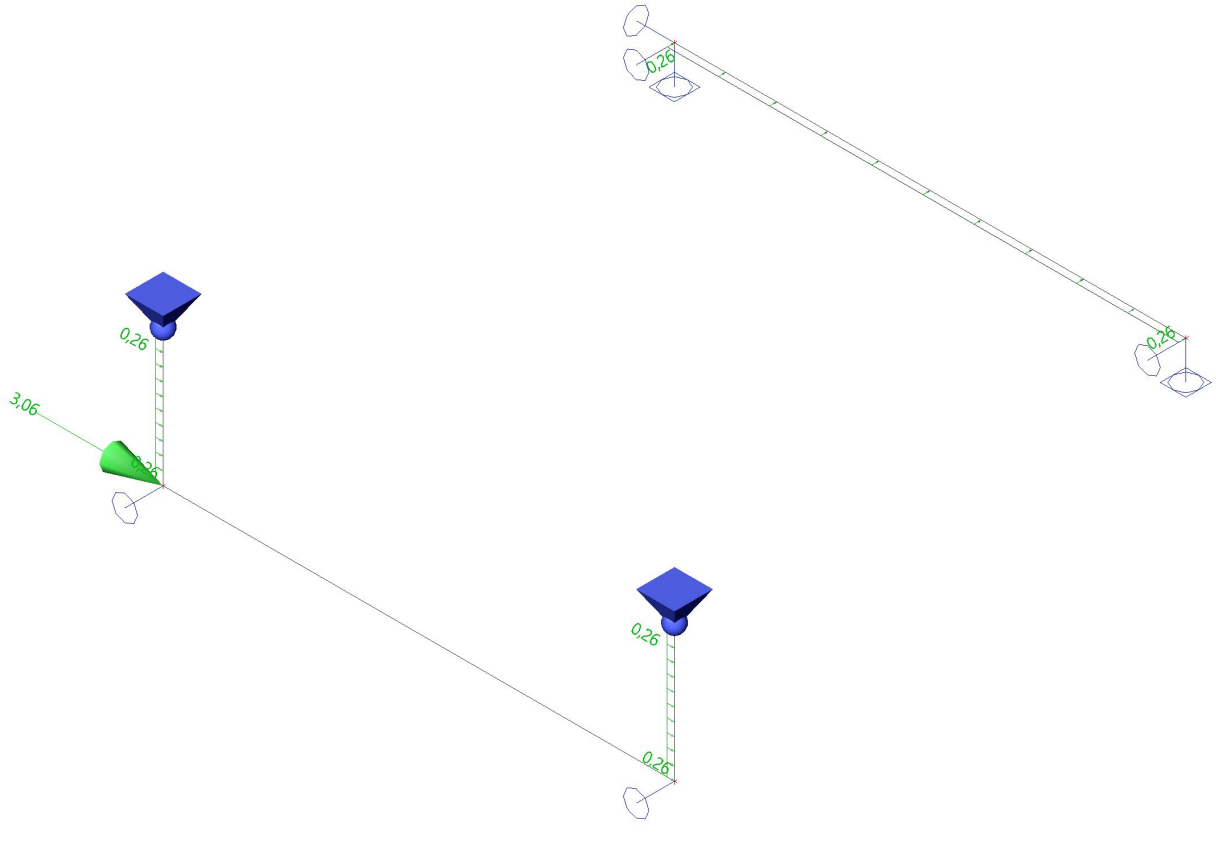
4.1.3.2. Resultant of reactions

Linear calculation
Load case: EO
Extreme: Global
Selection: All
System: Global

x [m]	y [m]	z [m]	Case	R_x [kN]	R_y [kN]	R_z [kN]	M_x [kNm]	M_y [kNm]	M_z [kNm]
2,000	1,333	0,667	EO	**0,00**	**0,00**	**74,88**	**49,92**	**0,00**	**0,00**

4.1.4. Load cases - W

Name	Description	Spec	Action type	Load type	Load group	Duration	Master load case
W	Wind load	Standard	Variable	Static	LG2	Short	None



4.1.4.1. Point force in node

Name	Node	System	Dir	Type	Value - F [kN]
F2	N2	GCS	X	Force	3,06

4.1.4.2. Line force

Name	Member	Type	Sys.	Dir	Distr.	P1 [kN/m]	P2 [kN/m]	Pos x_1	Pos x_2	Coor	Loc	Orig	Ecc ey [m]	Ecc ez [m]
LF3	B2	Force	LCS	Z	Uniform	0,26		0.000	1.000	Rela	Length	From start	0,000	0,000
LF4	B1	Force	LCS	Z	Uniform	0,26		0.000	1.000	Rela	Length	From start	0,000	0,000
LF6	B4	Force	GCS	Y	Uniform	0,26		0.000	1.000	Rela	Length	From start	0,000	0,000

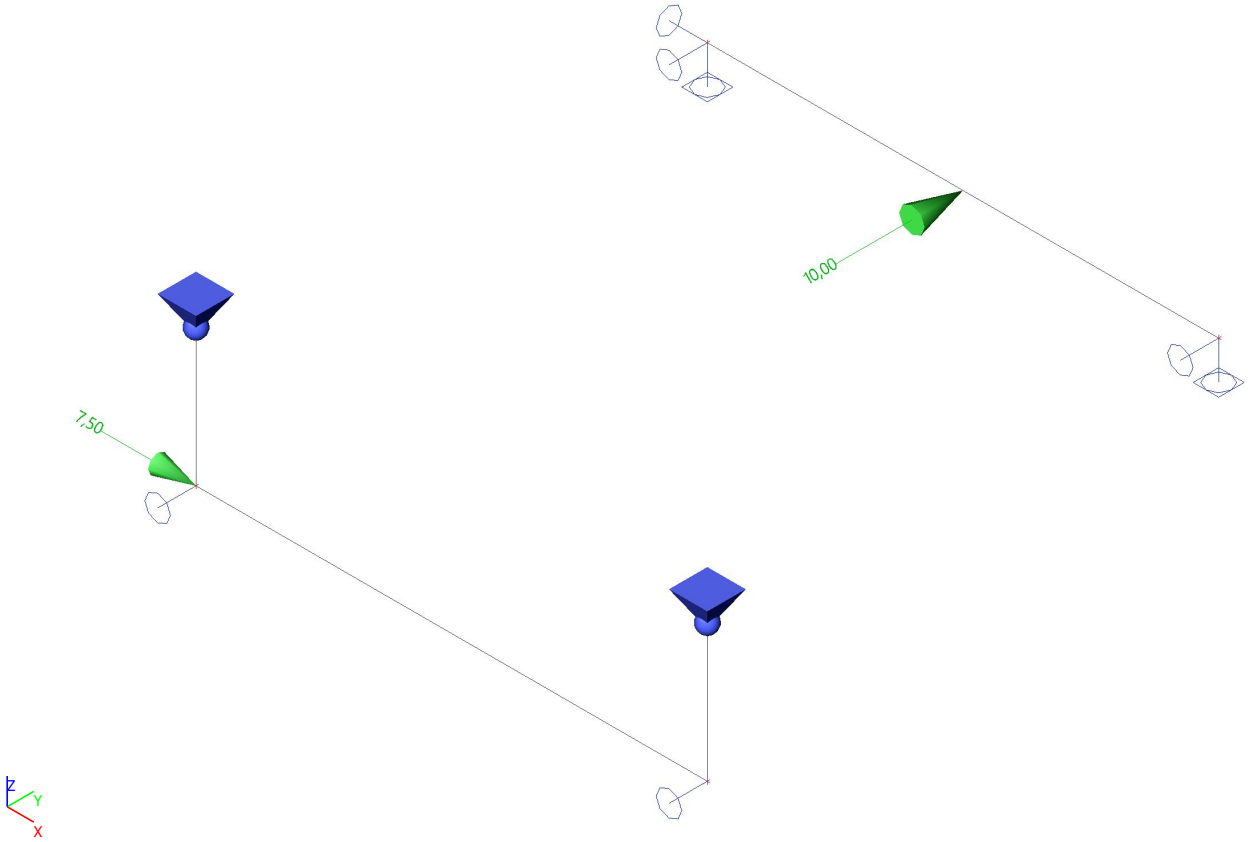
4.1.4.3. Resultant of reactions

Linear calculation
Load case: W
Extreme: Global
Selection: All
System: Global

x [m]	y [m]	z [m]	Case	R_x [kN]	R_y [kN]	R_z [kN]	M_x [kNm]	M_y [kNm]	M_z [kNm]
2,000	1,333	0,667	W	**-3,58**	**-1,04**	**0,00**	**0,35**	**2,13**	**-4,77**

4.1.5. Load cases - TLs

Name	Description	Spec	Action type	Load type	Load group	Duration	Master load case
TLs	Temperatuer load - pipe stress	Standard	Variable	Static	LG3	Short	None



4.1.5.1. Point force in node

Name	Node	System	Dir	Type	Value - F [kN]
F1	N2	GCS	X	Force	7,50

4.1.5.2. Point force on beam

Name	Member Load case	System Dir	Value - F [kN] Type	Pos x	Coor Orig	Rep (n) Regularly
Fb1	B4 TLs - Temperatuer load - pipe stress	GCS Y	10,00 Force	0.500	Rela From start	1

4.1.5.3. Resultant of reactions

Linear calculation
Load case: TLs
Extreme: Global
Selection: All
System: Global

x [m]	y [m]	z [m]	Case	R_x [kN]	R_y [kN]	R_z [kN]	M_x [kNm]	M_y [kNm]	M_z [kNm]
2,000	1,333	0,667	TLs	**-7,50**	**-10,00**	**0,00**	**3,33**	**5,00**	**-10,00**

4.2. Load groups

Name	Load	Relation	Type
LG1	Permanent		
LG2	Variable	Standard	Wind
LG3	Variable	Standard	Temperature

4.3. Combinations

Name	Description	Type	Load cases	Coeff. [-]
ULS_1		EN-ULS (STR/GEO) Set B	DL - Dead load - Self weight EO - Dead load - Operating W - Wind load TLs - Temperatuer load - pipe stress	1,00 1,00 1,00 1,00
ULS_2		EN-ULS (STR/GEO) Set B	DL - Dead load - Self weight EE - Dead load - Empty W - Wind load	1,00 1,00 1,00
Characteristic_1		EN-SLS Characteristic	DL - Dead load - Self weight EO - Dead load - Operating W - Wind load TLs - Temperatuer load - pipe stress	1,00 1,00 1,00 1,00
Characteristic_2		EN-SLS Characteristic	DL - Dead load - Self weight EE - Dead load - Empty W - Wind load	1,00 1,00 1,00

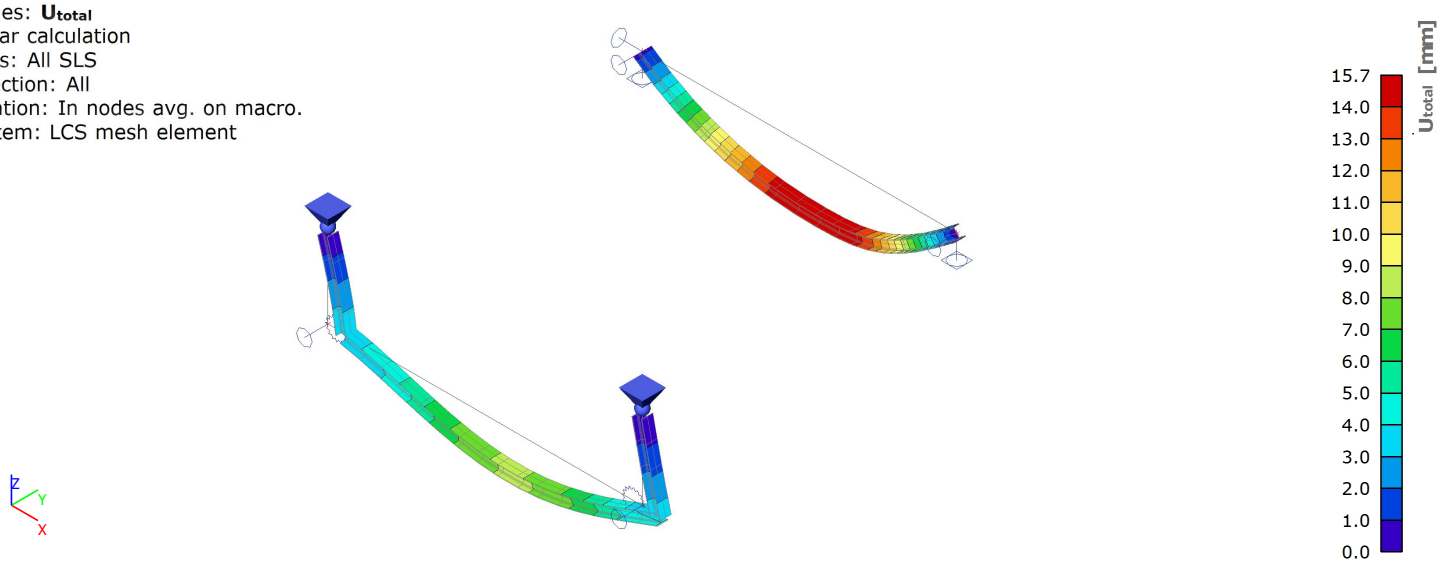
4.4. Result classes

Name	List
All ULS	ULS_1 - EN-ULS (STR/GEO) Set B ULS_2 - EN-ULS (STR/GEO) Set B
All SLS	Characteristic_1 - EN-SLS Characteristic Characteristic_2 - EN-SLS Characteristic
All ULS+SLS	ULS_1 - EN-ULS (STR/GEO) Set B ULS_2 - EN-ULS (STR/GEO) Set B Characteristic_1 - EN-SLS Characteristic Characteristic_2 - EN-SLS Characteristic

5. Results

5.1. 3D displacement; U_total

Values: **U_{total}**
Linear calculation
Class: All SLS
Selection: All
Location: In nodes avg. on macro.
System: LCS mesh element



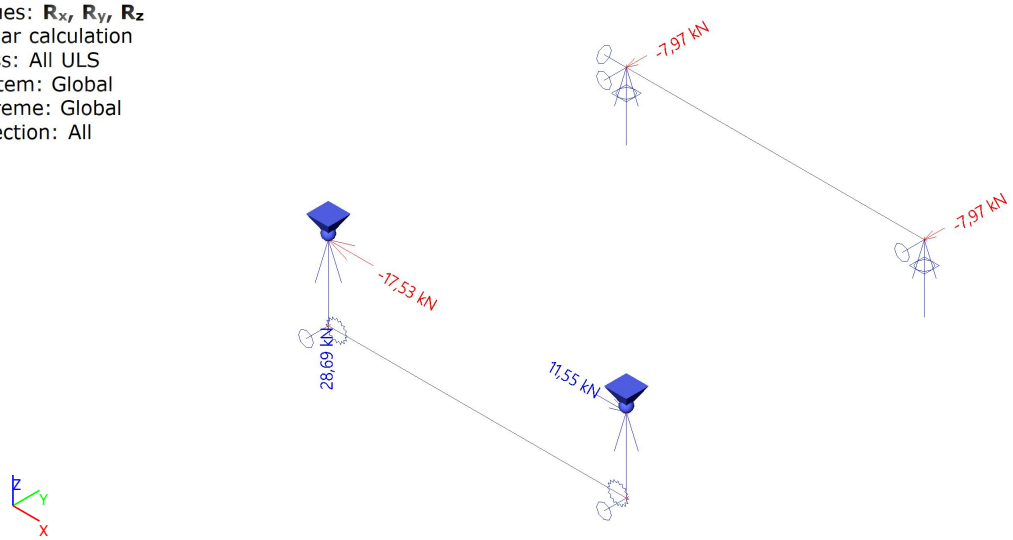
5.2. Reactions

Linear calculation
Class: All ULS
System: Global
Extreme: Global
Selection: All
Nodal reactions

Name	Case	R_x [kN]	R_y [kN]	R_z [kN]	M_x [kNm]	M_y [kNm]	M_z [kNm]	e_x [mm]	e_y [mm]
Sn2/N3	ULS_1/1	**11,55**	**0,00**	26,25	**0,00**	**0,00**	0,00	0,0	0,0
Sn3/N2	ULS_1/1	0,00	0,00	**0,00**	0,00	0,00	0,00	-	-
Sn1/N1	ULS_1/2	-16,55	0,00	**28,69**	0,00	0,00	0,00	0,0	0,0
Sn1/N1	ULS_1/3	**-17,53**	0,00	26,92	0,00	**0,00**	0,00	0,0	0,0
Sn5/N5	ULS_1/3	0,00	-7,97	23,07	0,00	0,00	**-7,81**	0,0	0,0
Sn6/N6	ULS_1/3	0,00	**-7,97**	23,07	0,00	0,00	**7,81**	0,0	0,0

Name	Combination key
ULS_1/1	1.35*DL + 1.35*DO
ULS_1/2	1.35*DL + 1.35*DO + 0.90*W + 0.90*TLs
ULS_1/3	1.20*DL + 1.20*DO + 0.90*W + 1.50*TLs

Values: **R_x, R_y, R_z**
Linear calculation
Class: All ULS
System: Global
Extreme: Global
Selection: All



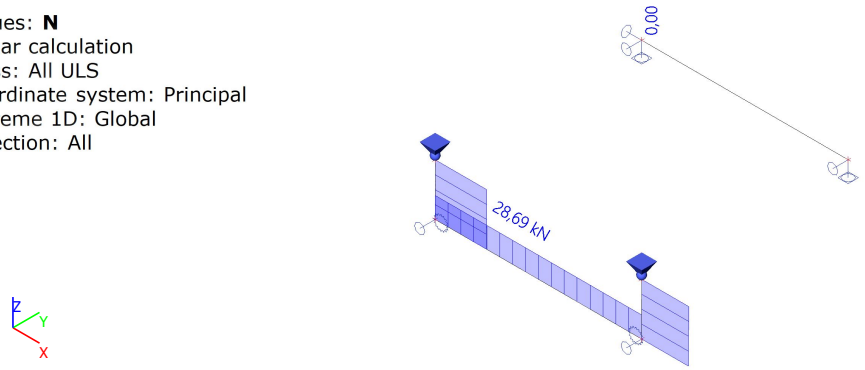
5.3. 1D internal forces

Linear calculation
Class: All ULS
Coordinate system: Principal
Extreme 1D: Global
Selection: All

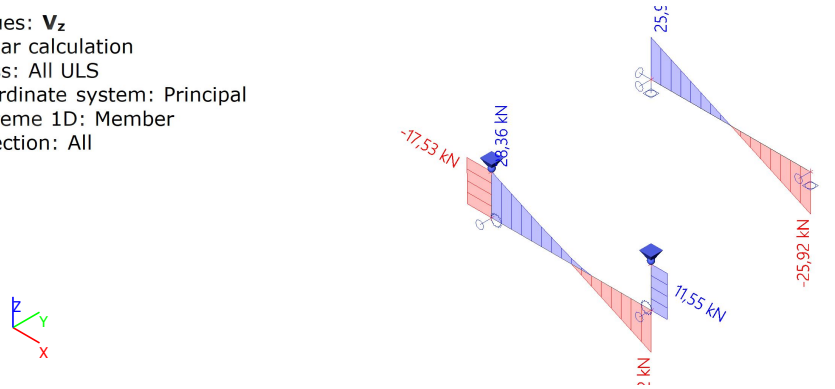
Name	dx [m]	Case	N [kN]	V_y [kN]	V_z [kN]	M_x [kNm]	M_y [kNm]	M_z [kNm]
B1	0,000	ULS_1/1	**28,69**	0,00	-16,55	**0,00**	0,00	0,00
B4	0,000	ULS_1/2	0,00	**-7,97**	23,07	0,00	0,00	7,81
B4	4,000	ULS_1/2	**0,00**	**7,97**	-23,07	0,00	0,00	**7,81**
B3	4,000	ULS_1/3	11,55	0,00	**-25,92**	0,00	-11,55	0,00
B3	0,000	ULS_1/1	6,81	0,00	**28,36**	0,00	-16,43	0,00
B1	1,000	ULS_1/2	26,63	0,00	-17,30	0,00	**-17,42**	0,00
B4	2,000-	ULS_1/3	0,00	0,00	0,00	0,00	**25,92**	0,00
B4	2,000-	ULS_1/2	0,00	-7,50	0,00	0,00	23,07	**-7,66**

Name	Combination key
ULS_1/1	1.35*DL + 1.35*DO + 0.90*W + 0.90*TLs
ULS_1/2	1.20*DL + 1.20*DO + 0.90*W + 1.50*TLs
ULS_1/3	1.35*DL + 1.35*DO

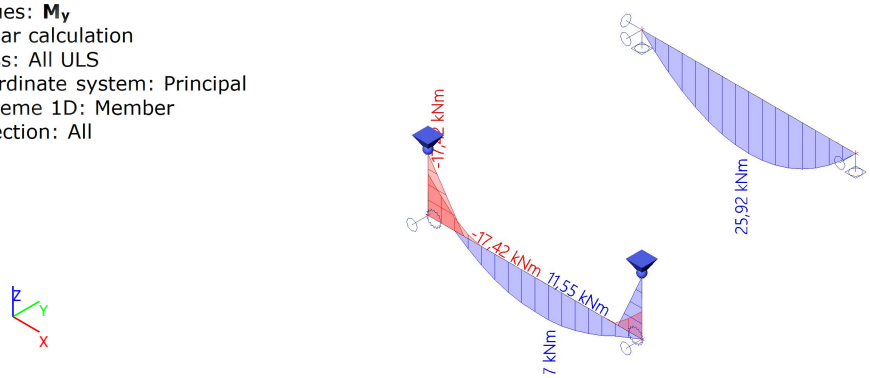
Values: **N**
Linear calculation
Class: All ULS
Coordinate system: Principal
Extreme 1D: Global
Selection: All



Values: **V_z**
Linear calculation
Class: All ULS
Coordinate system: Principal
Extreme 1D: Member
Selection: All



Values: **M_y**
Linear calculation
Class: All ULS
Coordinate system: Principal
Extreme 1D: Member
Selection: All



6. Chapter

6.1. Steel slenderness

Linear calculation

Member	CS Name	Part	Sway y Sway z	Ly [m] Lz [m]	ky [-] kz [-]	ly [m] lz [m]	Lam y [-] Lam z [-]	lyz [m]	l LTB [m]
B1	CS2	1	Yes No	1,000 1,000	1,00 1,00	1,000 1,000	17,46 28,41	1,000	1,000
B2	CS2	1	Yes No	1,000 1,000	1,00 1,00	1,000 1,000	17,46 28,41	1,000	1,000
B3	CS2	1	Yes No	4,000 4,000	1,00 1,00	4,000 4,000	69,84 113,64	4,000	4,000
B4	CS2	1	Yes No	4,000 4,000	1,00 1,00	4,000 4,000	69,84 113,64	4,000	4,000

6.2. EC-EN 1993 Steel check ULS

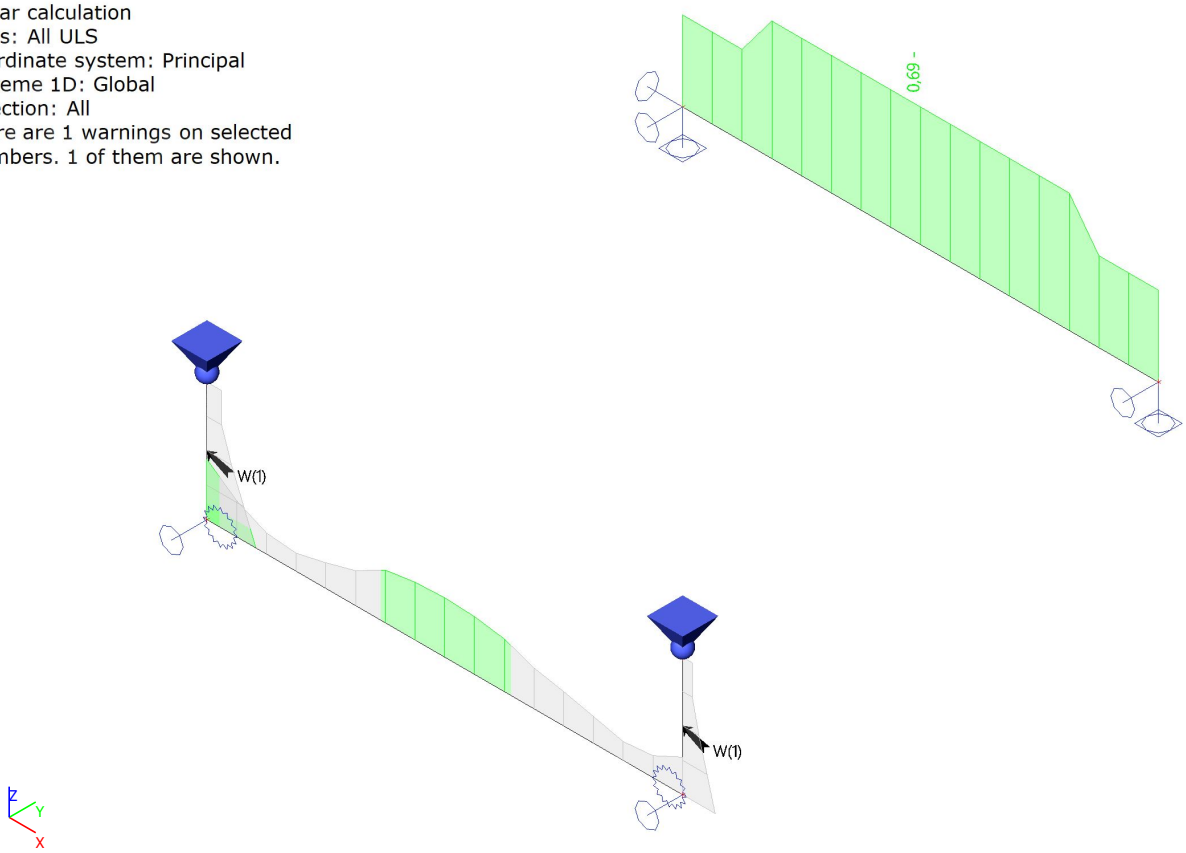
Linear calculation
Class: All ULS
Coordinate system: Principal
Extreme 1D: Cross-section
Selection: All
There are 1 warnings on selected members. 1 of them are shown.
Overall Unity Check

Name	dx [m]	Case	Cross-section	Material	$UC_{Overall}$ [-]	UC_{Sec} [-]	UC_{Stab} [-]
B4	2,000-	ULS_1/1	CS2 - HEA140	S 355	**0,69**	0,39	0,69

Name	Combination key
ULS_1/1	1.20*DL + 1.20*DO + 0.90*W + 1.50*TLs

E/W/N	Present on members
W30	B1, B2

Values: **$UC_{Overall}$**
Linear calculation
Class: All ULS
Coordinate system: Principal
Extreme 1D: Global
Selection: All
There are 1 warnings on selected members. 1 of them are shown.



6.3. EC-EN 1993 Steel Check SLS

Linear calculation
Class: All SLS
Coordinate system: Principal
Extreme 1D: Global
Selection: B1, B2
Limit setting

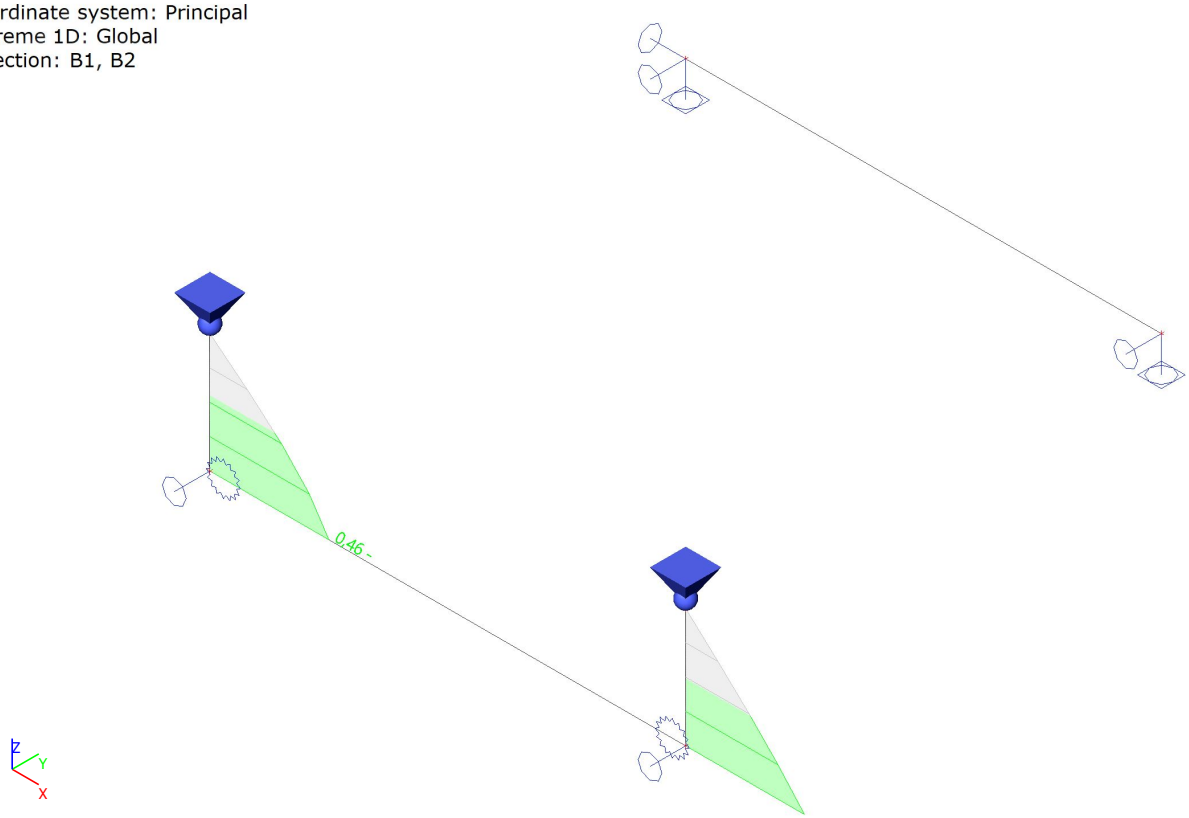
Name	dx [m]	$L_{def,y}$ [m] $L_{def,z}$ [m]	Total load y [1/xx] Total load z [1/xx]	Variable load y [1/xx] Variable load z [1/xx]	Lim. $u_{y,max}$ [mm] Lim. $u_{z,max}$ [mm]	Lim. $u_{y,var}$ [mm] Lim. $u_{z,var}$ [mm]
B1	0,000	**1,000**	1/250	1/250	4,0	4,0
		1,000	1/250	1/250	8,0	8,0

Linear calculation
Class: All SLS
Coordinate system: Principal
Extreme 1D: Global
Selection: B1, B2
Overall Unity Check

Name	dx [m]	Case	$u_{y,max}$ [mm] $u_{z,max}$ [mm]	$u_{y,var}$ [mm] $u_{z,var}$ [mm]	Lim. $u_{y,max}$ [mm] Lim. $u_{z,max}$ [mm]	Lim. $u_{y,var}$ [mm] Lim. $u_{z,var}$ [mm]	Check $u_{y,max}$ [-] Check $u_{z,max}$ [-]	Check $u_{y,var}$ [-] Check $u_{z,var}$ [-]	Camber dx u_z [mm] Camber [mm]	Check Overall [-]
B1	1,000	Characteristic_1/1	0,0	0,0	4,0	4,0	0,00	0,00	-	**0,46**
			3,7	3,7	8,0	8,0	0,46	0,46	-	

Name	Combination key
Characteristic_1/1	DL + DO + 0.60*W + TLs

Values: **Check Overall**
Linear calculation
Class: All SLS
Coordinate system: Principal
Extreme 1D: Global
Selection: B1, B2



6.4. EC-EN 1993 Steel Check SLS

Linear calculation
Class: All SLS
Coordinate system: Principal
Extreme 1D: Global
Selection: B3, B4
Limit setting

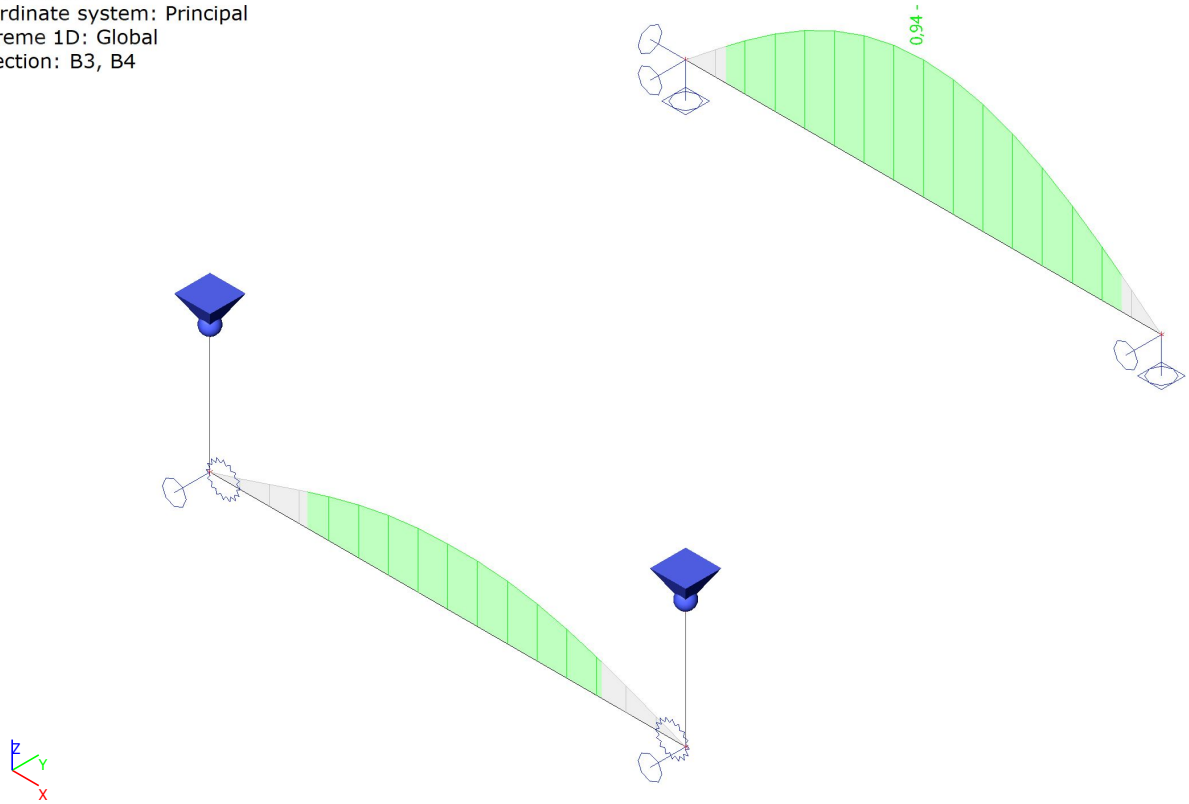
Name	dx [m]	$L_{def,y}$ [m] $L_{def,z}$ [m]	Total load y [1/xx] Total load z [1/xx]	Variable load y [1/xx] Variable load z [1/xx]	Lim. $u_{y,max}$ [mm] Lim. $u_{z,max}$ [mm]	Lim. $u_{y,var}$ [mm] Lim. $u_{z,var}$ [mm]
B3	0,000	**4,000**	1/250	1/333	16,0	12,0
		4,000	1/250	1/333	16,0	12,0

Linear calculation
Class: All SLS
Coordinate system: Principal
Extreme 1D: Global
Selection: B3, B4
Overall Unity Check

Name	dx [m]	Case	$u_{y,max}$ [mm] $u_{z,max}$ [mm]	$u_{y,var}$ [mm] $u_{z,var}$ [mm]	Lim. $u_{y,max}$ [mm] Lim. $u_{z,max}$ [mm]	Lim. $u_{y,var}$ [mm] Lim. $u_{z,var}$ [mm]	Check $u_{y,max}$ [-] Check $u_{z,max}$ [-]	Check $u_{y,var}$ [-] Check $u_{z,var}$ [-]	Camber dx u_z [mm] Camber [mm]	Check Overall [-]
B4	2,000-	Characteristic_1/1	4,3	4,3	16,0	12,0	0,27	0,35	-	**0,94**
			-15,1	0,0	16,0	12,0	0,94	0,00	-	

Name	Combination key
Characteristic_1/1	DL + DO + 0.60*W + TLs

Values: **Check Overall**
Linear calculation
Class: All SLS
Coordinate system: Principal
Extreme 1D: Global
Selection: B3, B4



Appendix B

Scia report - horizontal truss

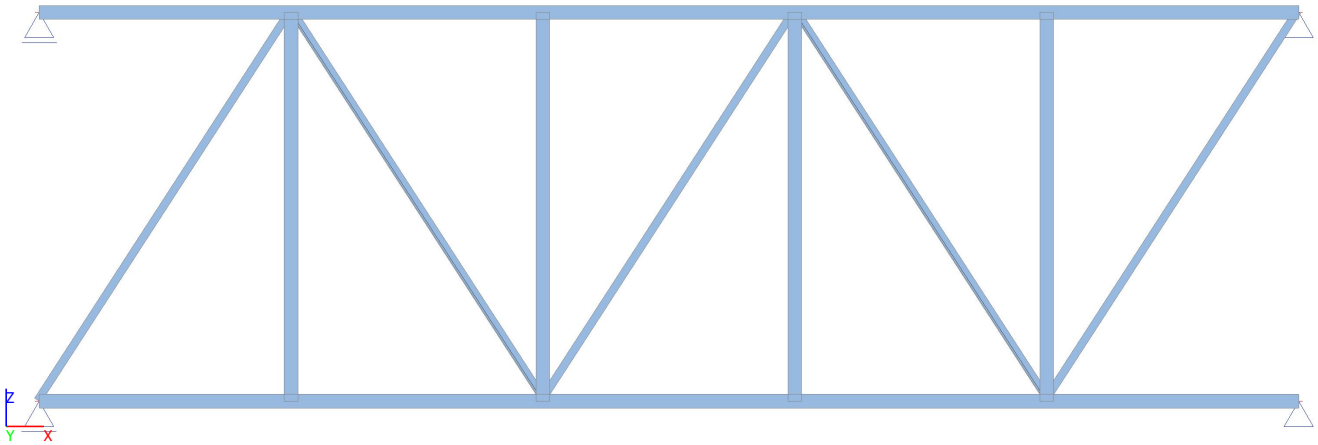
KH Engineering

1. Table of contents

2. General

2.1. Project

Licence name	KH Engineering
Project	Neste - Rotterdam terminal expansion
Part	Tank pit 3 - Pipe rack 3 & 4
Description	Horizontal truss
Author	LER
Date	08. 2021
Structure	Truss XZ
No. of nodes :	12
No. of beams :	11
No. of slabs :	0
No. of solids :	0
No. of used profiles :	2
No. of load cases :	7
No. of used materials :	1
Acceleration of gravity [m/s^2]	9,810
National code	EC - EN



2.2. Setup manager

(STR/GEO) alternative

Combination	Eq.6.10a & Eq.6.10b

Psi factors

Load	Psi0	Psi1	Psi2
CategoryA	0.4	0.5	0.3
CategoryB	0.5	0.5	0.3
CategoryC	0.6	0.7	0.6
CategoryD	0.4	0.7	0.6
CategoryE	1	0.9	0.8
CategoryF	0.7	0.7	0.6
CategoryG	0.7	0.5	0.3
CategoryH	0	0	0
Snow	0	0.2	0
Wind	0.6	0.2	0
Temperature	0.6	0.5	0
Rain water	0	0	0
Construction loads	1	0	0.2

Load combination factors

Permanent action - unfavorable	1,35
Permanent action - favorable [-]	0,90
Leading variable action	1,50
Accompanying variable action	1,50
Reduction factor ksi [-]	0,89
Permanent action - unfavorable	1,00
Permanent action - favorable	1,00
Leading variable action	1,30
Accompanying variable action	1,30

3. Structure

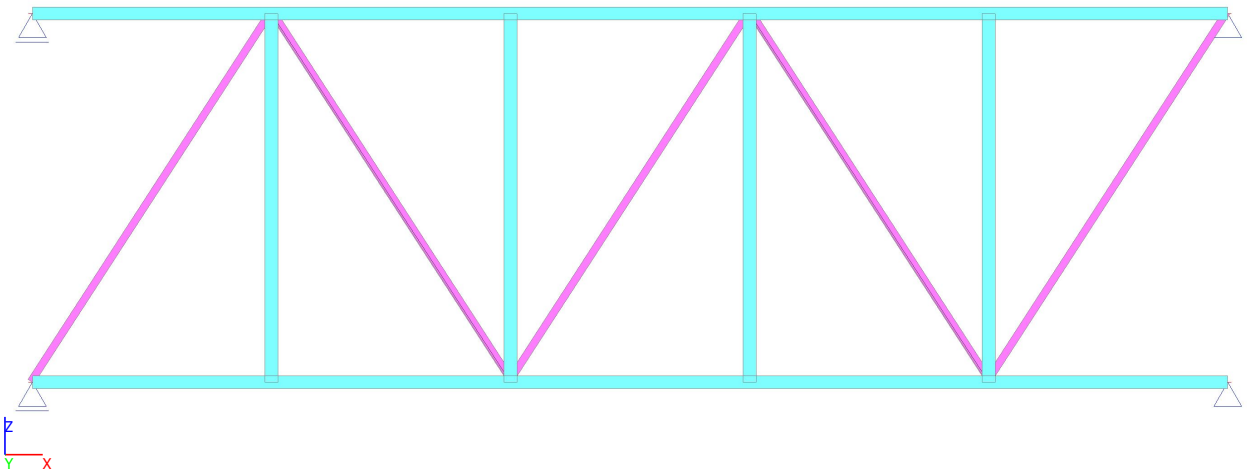
3.1. Cross-sections

Name	Type Detailed	Item material	Fabrication	A [m²]	A_y [m²] A_z [m²]	I_y [m⁴] I_z [m⁴]	$W_{el.y}$ [m³] $W_{el.z}$ [m³]	$W_{pl.y}$ [m³] $W_{pl.z}$ [m³]	Colour
CS2	HEA140	S 355	rolled	3,1400e-03	2,2882e-03 7,8192e-04	1,0300e-05 3,8900e-06	1,5500e-04 5,5600e-05	1,7333e-04 8,5000e-05	
CS3	HFLeq80x80x8	S 355	rolled	1,2270e-03	5,9851e-04 5,9851e-04	7,2218e-07 7,2218e-07	1,2570e-05 1,2570e-05	2,2946e-05 2,2946e-05	

3.2. Materials

Steel EC3

Name	ρ [kg/m³]	E_{mod} [MPa] G_{mod} [MPa]	μ α [m/mK]	Lower limit [mm]	Upper limit [mm]	F_y [MPa]	F_u [MPa]	Colour
S 355	7850,0	2,1000e+05 8,0769e+04	0.3 0,00	0 40	40 80	355,0 335,0	490,0 470,0	



3.3. Nodes

Name	Coord X [m]	Coord Z [m]
K1	0,000	0,000
K68	13,000	0,000
K69	0,000	4,000

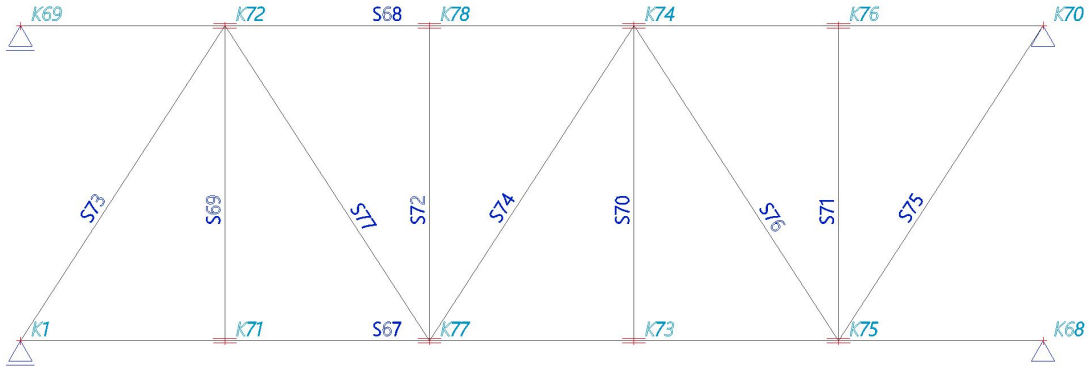
Name	Coord X [m]	Coord Z [m]
K70	13,000	4,000
K71	2,600	0,000
K72	2,600	4,000

Name	Coord X [m]	Coord Z [m]
K73	7,800	0,000
K74	7,800	4,000
K75	10,400	0,000

Name	Coord X [m]	Coord Z [m]
K76	10,400	4,000
K77	5,200	0,000
K78	5,200	4,000

3.4. Members

Name	Cross-section	Material	Length [m]	Beg. node	End node	Type
S67	CS2 - HEA140	S 355	13,000	K1	K68	general (0)
S68	CS2 - HEA140	S 355	13,000	K69	K70	general (0)
S69	CS2 - HEA140	S 355	4,000	K71	K72	general (0)
S70	CS2 - HEA140	S 355	4,000	K73	K74	general (0)
S71	CS2 - HEA140	S 355	4,000	K75	K76	general (0)
S72	CS2 - HEA140	S 355	4,000	K77	K78	general (0)
S73	CS3 - HFLeq80x80x8	S 355	4,771	K1	K72	general (0)
S74	CS3 - HFLeq80x80x8	S 355	4,771	K77	K74	general (0)
S75	CS3 - HFLeq80x80x8	S 355	4,771	K75	K70	general (0)
S76	CS3 - HFLeq80x80x8	S 355	4,771	K75	K74	general (0)
S77	CS3 - HFLeq80x80x8	S 355	4,771	K77	K72	general (0)



3.5. Nodal supports

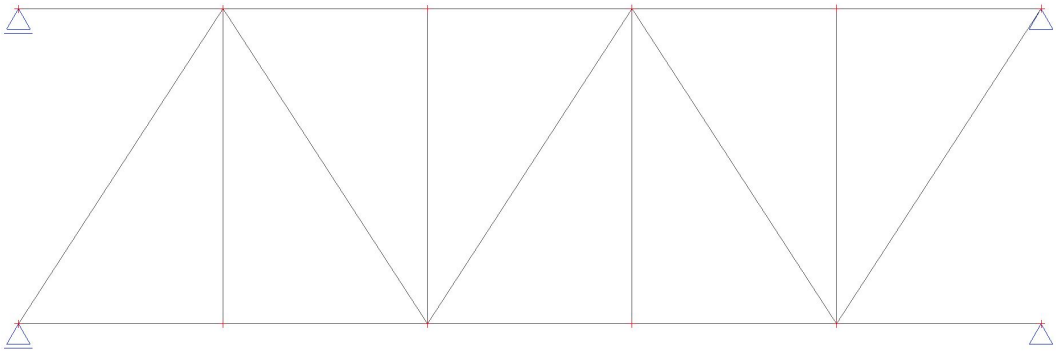
Name	Node	System	Type	X	Z
Sn3	K1	GCS	Standard	Free	Rigid
Sn15	K69	GCS	Standard	Free	Rigid
Sn16	K68	GCS	Standard	Rigid	Rigid
Sn17	K70	GCS	Standard	Rigid	Rigid

4. Loads

4.1. Load cases

4.1.1. Load cases - DL

Name	Description	Action type	Load type	Load group	Direction
DL	Dead load - self-weight	Permanent	Self weight	LG1	-Z



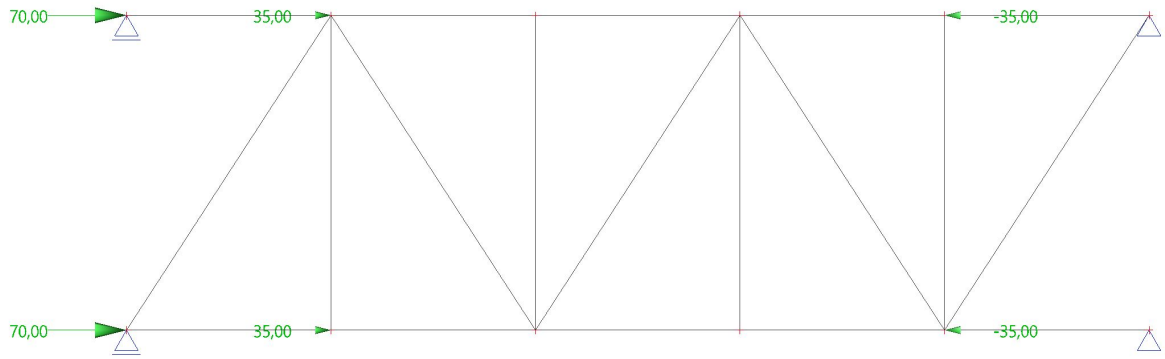
4.1.1.1. Resultant of reactions

Linear calculation
Load case: DL
Extreme: Global
Selection: All
System: Global

x [m]	y [m]	z [m]	Case	R_x [kN]	R_z [kN]
6,500	0,000	2,000	DL	**0,00**	**12,41**

4.1.2. Load cases - EO

Name	Description	Action type	Load type	Load group
EO	Equipment load - Operating	Permanent	Standard	LG1



4.1.2.1. Point force in node

Name	Node	Load case	System	Dir	Type	Value - F [kN]
Puntlast116	K1	EO - Equipment load - Operating	GCS	X	Force	70,00
Puntlast117	K69	EO - Equipment load - Operating	GCS	X	Force	70,00
Puntlast118	K71	EO - Equipment load - Operating	GCS	X	Force	35,00
Puntlast119	K72	EO - Equipment load - Operating	GCS	X	Force	35,00
Puntlast120	K75	EO - Equipment load - Operating	GCS	X	Force	-35,00
Puntlast121	K76	EO - Equipment load - Operating	GCS	X	Force	-35,00

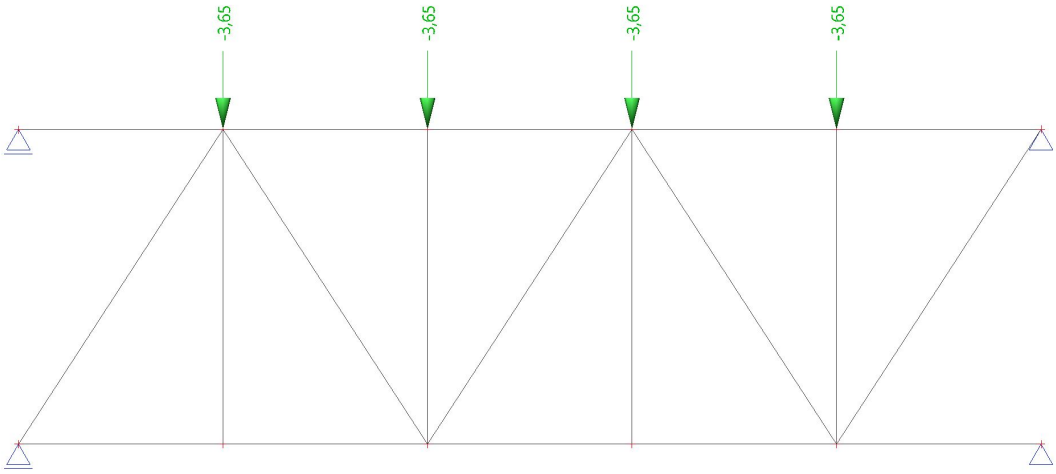
4.1.2.2. Resultant of reactions

Linear calculation
Load case: EO
Extreme: Global
Selection: All
System: Global

x [m]	y [m]	z [m]	Case	R_x [kN]	R_z [kN]
6,500	0,000	2,000	EO	**-140,00**	**0,00**

4.1.3. Load cases - Wx

Name	Description	Spec	Action type	Load type	Load group	Duration	Master load case
Wx	Wind load	Standard	Variable	Static	LG2	Short	None



4.1.3.1. Point force in node

Name	Node	Load case	System	Dir	Type	Value - F [kN]
Puntlast68	K72	Wx - Wind load	GCS	Z	Force	-3,65
Puntlast69	K78	Wx - Wind load	GCS	Z	Force	-3,65
Puntlast70	K74	Wx - Wind load	GCS	Z	Force	-3,65
Puntlast71	K76	Wx - Wind load	GCS	Z	Force	-3,65

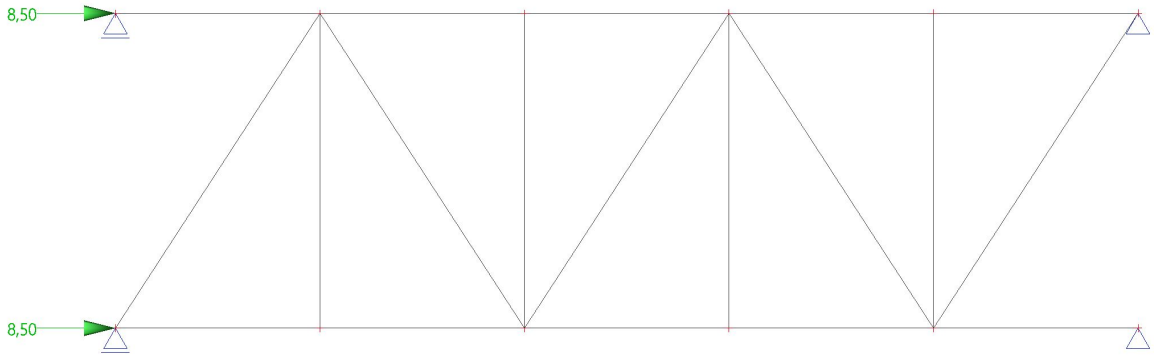
4.1.3.2. Resultant of reactions

Linear calculation
Load case: Wx
Extreme: Global
Selection: All
System: Global

x [m]	y [m]	z [m]	Case	R_x [kN]	R_z [kN]
6,500	0,000	2,000	Wx	**0,00**	**14,60**

4.1.4. Load cases - Wy

Name	Description	Spec	Action type	Load type	Load group	Duration	Master load case
Wy	Wind load	Standard	Variable	Static	LG2	Short	None



4.1.4.1. Point force in node

Name	Node	Load case	System	Dir	Type	Value - F [kN]
Puntlast135	K69	Wy - Wind load	GCS	X	Force	8,50
Puntlast136	K1	Wy - Wind load	GCS	X	Force	8,50

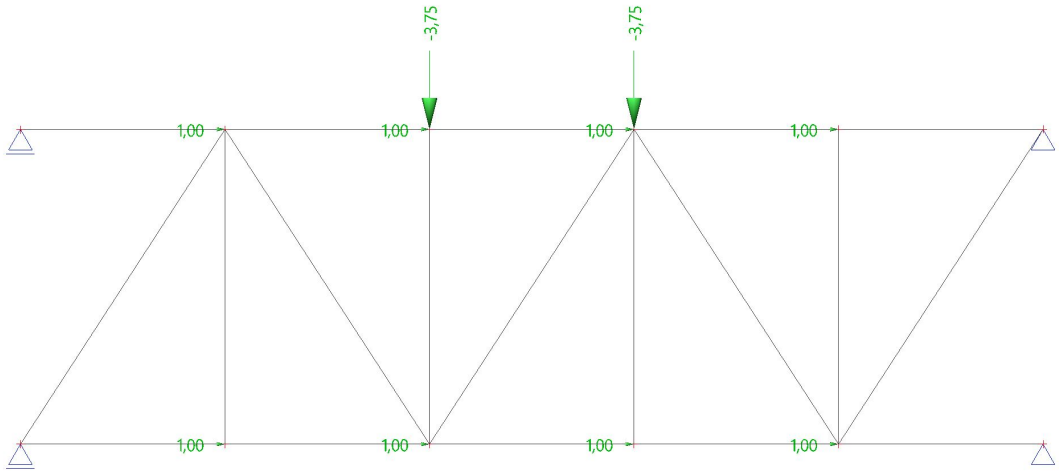
4.1.4.2. Resultant of reactions

Linear calculation
Load case: Wy
Extreme: Global
Selection: All
System: Global

x [m]	y [m]	z [m]	Case	R_x [kN]	R_z [kN]
6,500	0,000	2,000	Wy	**-17,00**	**0,00**

4.1.5. Load cases - TLs

Name	Description	Spec	Action type	Load type	Load group	Duration	Master load case
TLs	Temperature load - stress	Standard	Variable	Static	LG3	Short	None



4.1.5.1. Point force in node

Name	Node	Load case	System	Dir	Type	Value - F [kN]
Puntlast86	K74	TLs - Temperature load - stress	GCS	Z	Force	-3,75
Puntlast122	K78	TLs - Temperature load - stress	GCS	Z	Force	-3,75
Puntlast127	K72	TLs - Temperature load - stress	GCS	X	Force	1,00
Puntlast128	K71	TLs - Temperature load - stress	GCS	X	Force	1,00
Puntlast129	K78	TLs - Temperature load - stress	GCS	X	Force	1,00
Puntlast130	K77	TLs - Temperature load - stress	GCS	X	Force	1,00
Puntlast131	K73	TLs - Temperature load - stress	GCS	X	Force	1,00
Puntlast132	K74	TLs - Temperature load - stress	GCS	X	Force	1,00
Puntlast133	K76	TLs - Temperature load - stress	GCS	X	Force	1,00
Puntlast134	K75	TLs - Temperature load - stress	GCS	X	Force	1,00

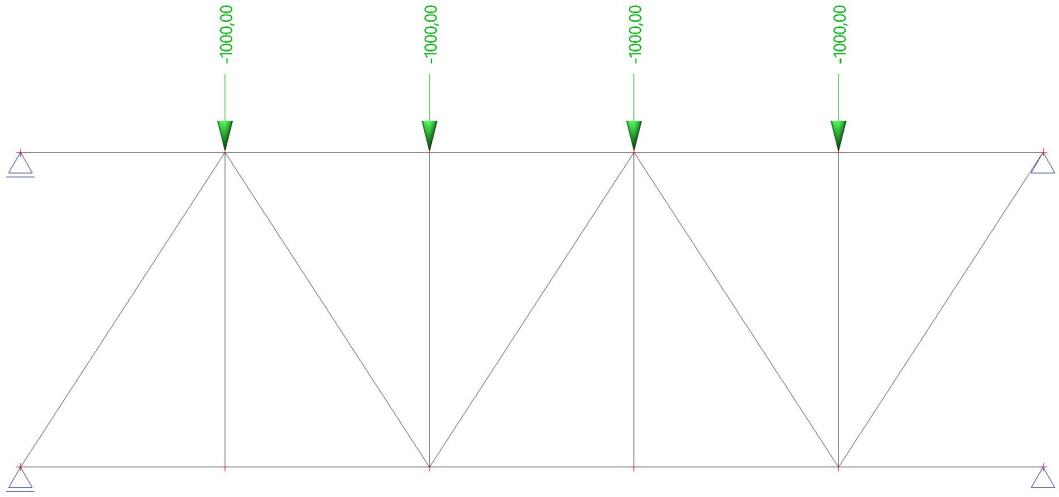
4.1.5.2. Resultant of reactions

Linear calculation
Load case: TLs
Extreme: Global
Selection: All
System: Global

x [m]	y [m]	z [m]	Case	R_x [kN]	R_z [kN]
6,500	0,000	2,000	TLs	**-8,00**	**7,50**

4.1.6. Load cases - LC1

Name	Description	Action type	Load type	Load group
LC1	Load case 1	Permanent	Standard	LG1



4.1.6.1. Point force in node

Name	Node	Load case	System	Dir	Type	Value - F [kN]
Puntlast112	K72	LC1 - Load case 1	GCS	Z	Force	-1000,00
Puntlast113	K74	LC1 - Load case 1	GCS	Z	Force	-1000,00
Puntlast114	K76	LC1 - Load case 1	GCS	Z	Force	-1000,00
Puntlast115	K78	LC1 - Load case 1	GCS	Z	Force	-1000,00

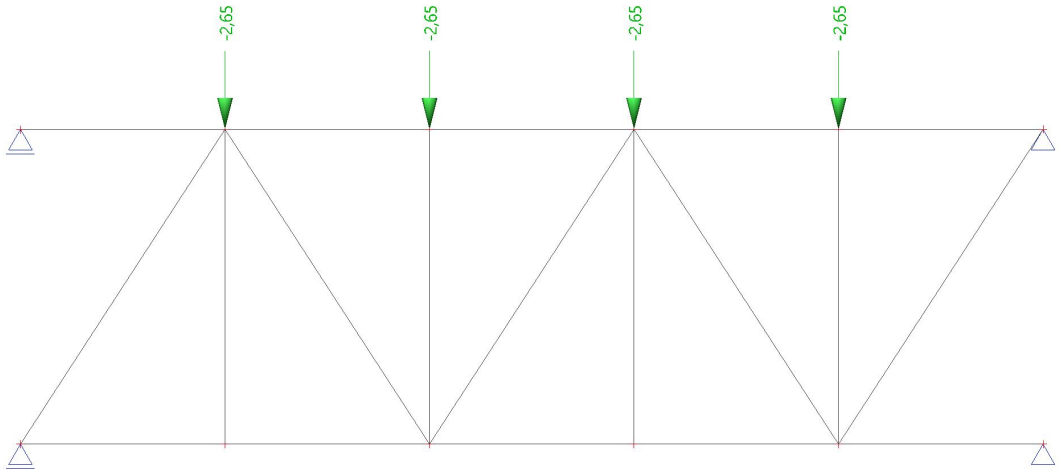
4.1.6.2. Resultant of reactions

Linear calculation
Load case: LC1
Extreme: Global
Selection: All
System: Global

x [m]	y [m]	z [m]	Case	R_x [kN]	R_z [kN]
6,500	0,000	2,000	LC1	**0,00**	**4000,00**

4.1.7. Load cases - LC2

Name	Description	Action type	Load type	Load group
LC2	Load case 2	Permanent	Standard	LG1



4.1.7.1. Point force in node

Name	Node	Load case	System	Dir	Type	Value - F [kN]
Puntlast123	K72	LC2 - Load case 2	GCS	Z	Force	-2,65
Puntlast124	K74	LC2 - Load case 2	GCS	Z	Force	-2,65
Puntlast125	K76	LC2 - Load case 2	GCS	Z	Force	-2,65
Puntlast126	K78	LC2 - Load case 2	GCS	Z	Force	-2,65

4.1.7.2. Resultant of reactions

Linear calculation
Load case: LC2
Extreme: Global
Selection: All
System: Global

x [m]	y [m]	z [m]	Case	R_x [kN]	R_z [kN]
6,500	0,000	2,000	LC2	**0,00**	**10,60**

4.2. Load groups

Name	Load	Relation	Type
LG1	Permanent		
LG2	Variable	Exclusive	Wind
LG3	Variable	Standard	Temperature

4.3. Combinations

Name	Description	Type	Load cases	Coeff. [-]
ULS		EN-ULS (STR/GEO) Set B	DL - Dead load - self-weight EO - Equipment load - Operating Wx - Wind load Wy - Wind load TLs - Temperature load - stress LC2 - Load case 2	1,00 1,00 1,00 1,00 1,00 1,00
Characteristic		EN-SLS Characteristic	DL - Dead load - self-weight EO - Equipment load - Operating Wx - Wind load Wy - Wind load TLs - Temperature load - stress LC2 - Load case 2	1,00 1,00 1,00 1,00 1,00 1,00

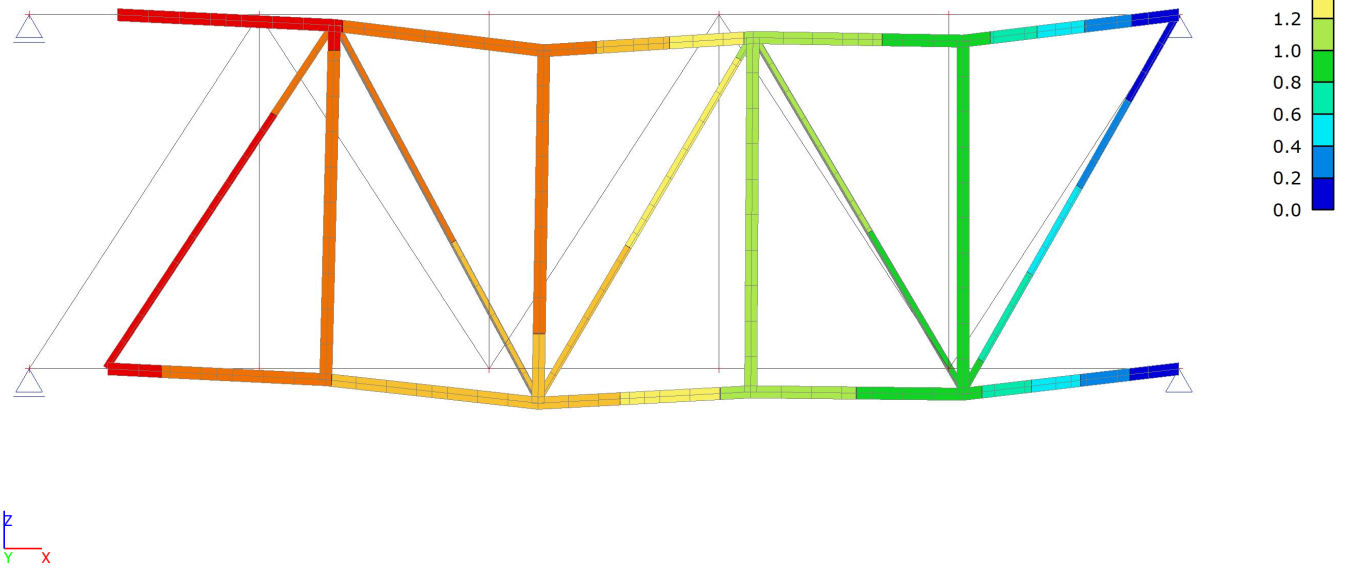
4.4. Result classes

Name	List
Alle UGT	ULS - EN-ULS (STR/GEO) Set B
Alle BGT	Characteristic - EN-SLS Characteristic
Alle UGT+BGT	ULS - EN-ULS (STR/GEO) Set B Characteristic - EN-SLS Characteristic

5. results

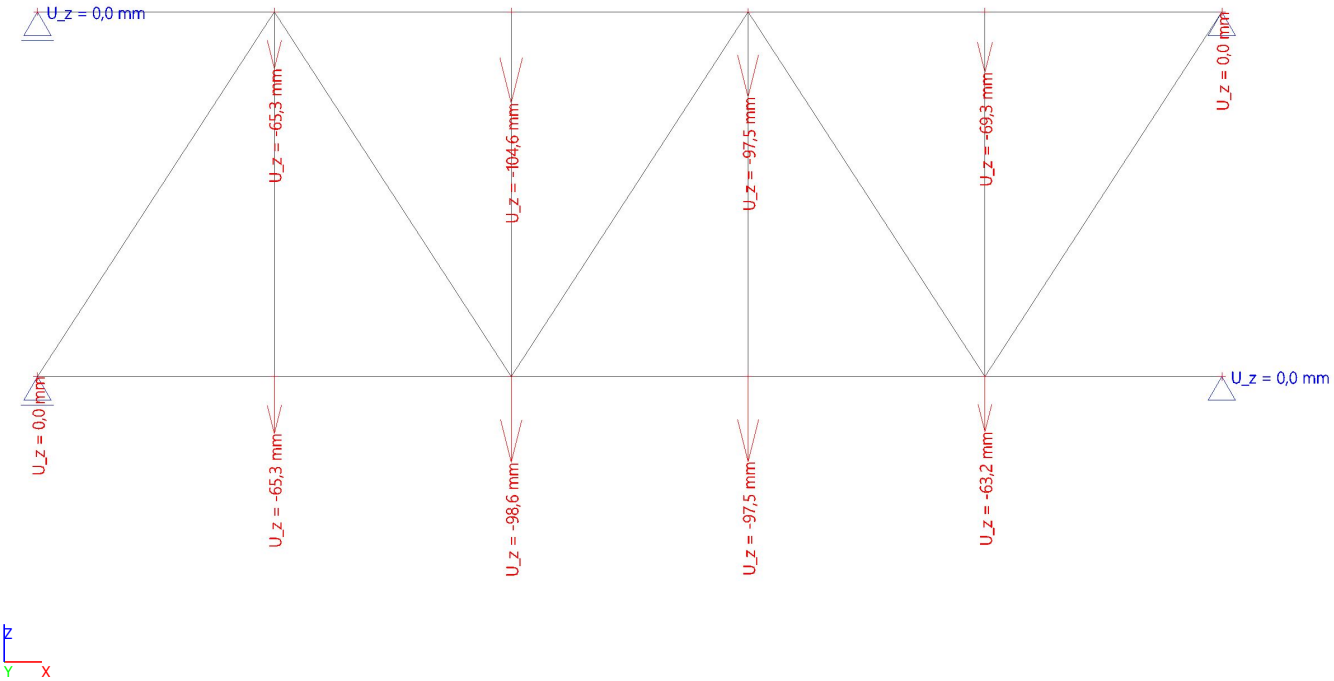
5.1. 3D displacement; U_total

Values: **U_{total}**
Linear calculation
Class: Alle BGT
Selection: All
Location: In nodes avg. on macro.
System: LCS mesh element



5.2. Displacement of nodes; U_z

Values: **U_z**
Linear calculation
Load case: LC1
Extreme: Node
Selection: All



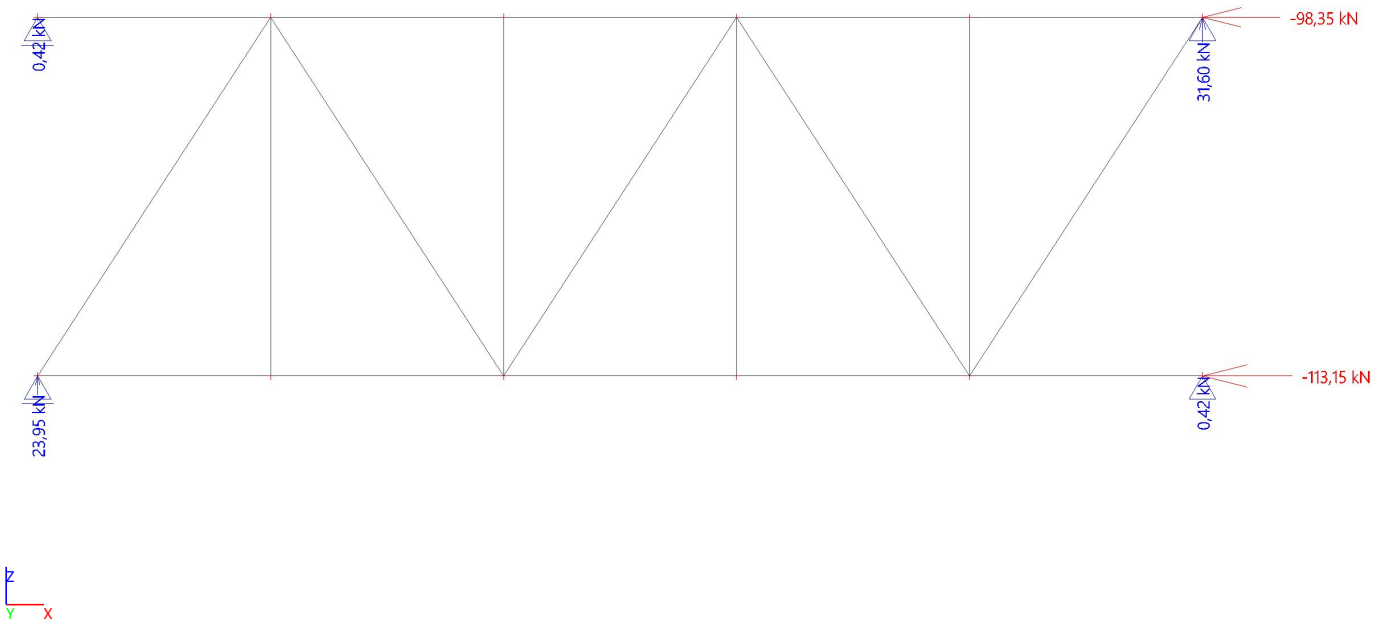
5.3. Reactions

Linear calculation
Class: Alle UGT
System: Global
Extreme: Global
Selection: All
Nodal reactions

Name	Case	R_x [kN]	R_z [kN]
Sn16/K68	ULS/1	**-113,15**	0,42
Sn15/K69	ULS/2	**0,00**	**0,28**
Sn17/K70	ULS/3	-75,27	**31,60**

Name	Combination key
ULS/1	1.35*DL + 1.35*EO + 0.90*TLs + 0.90*Wy + 1.35*LC2
ULS/2	0.90*DL + 0.90*EO + 0.90*LC2
ULS/3	1.20*DL + 1.20*EO + 1.50*Wx + 0.90*TLs + 1.20*LC2

Values: R_x, R_z
Linear calculation
Class: Alle UGT
System: Global
Extreme: Mesh
Selection: All



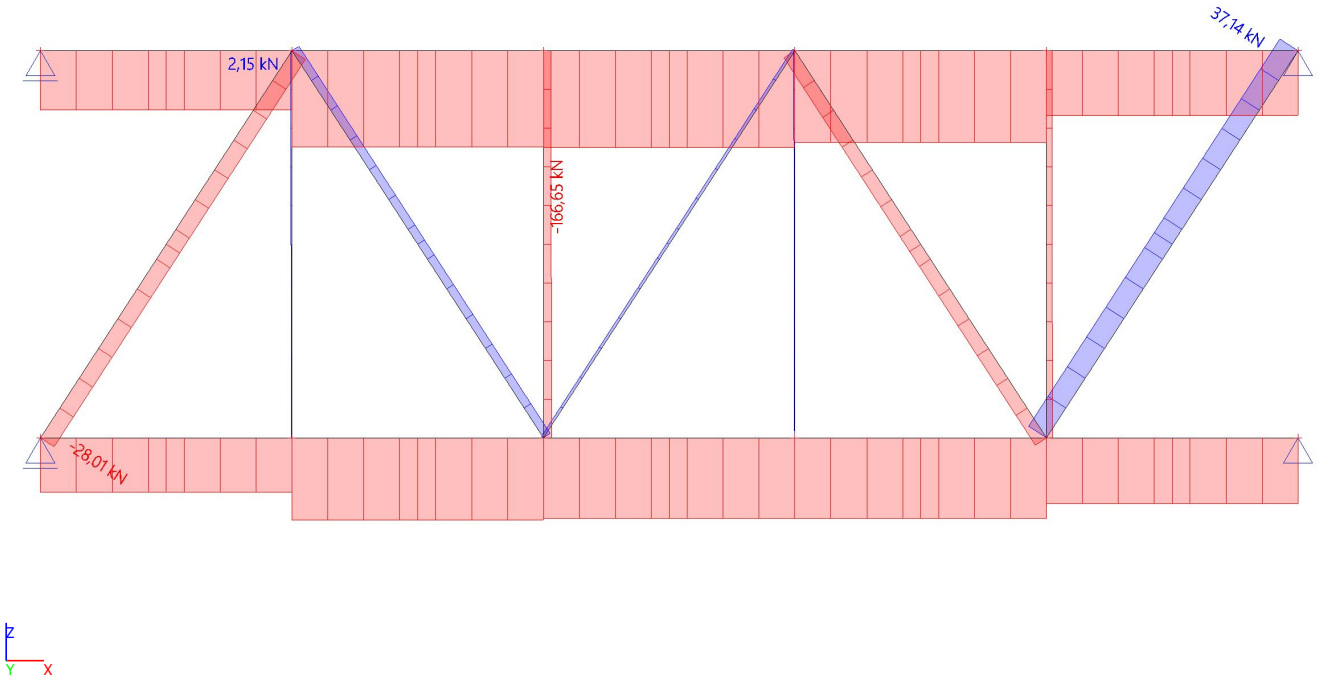
5.4. 1D internal forces

Linear calculation
Class: Alle UGT
Coordinate system: Member
Extreme 1D: Cross-section
Selection: All

Name	dx [m]	Case	Cross-section	N [kN]
S68	5,200+	ULS/1	CS2 - HEA140	**-166,65**
S69	4,000	ULS/2	CS2 - HEA140	**2,15**
S73	0,000	ULS/3	CS3 - HFLeq80x80x8	**-28,01**
S75	4,771	ULS/3	CS3 - HFLeq80x80x8	**37,14**

Name	Combination key
ULS/1	1.35*DL + 1.35*EO + 0.90*TLs + 0.90*Wy + 1.35*LC2
ULS/2	1.35*DL + 1.35*EO + 1.35*LC2
ULS/3	1.20*DL + 1.20*EO + 1.50*Wx + 0.90*TLs + 1.20*LC2

Values: **N**
Linear calculation
Class: Alle UGT
Coordinate system: Member
Extreme 1D: Cross-section
Selection: All



6. Steel check

6.1. Steel slenderness

Linear calculation

Member	CS Name	Part	Sway y	Sway z	Ly [m]	Lz [m]	ky [-]	kz [-]	Iy [m]	Iz [m]	Lam y [-]	Lam z [-]	Iyz [m]	I LTB [m]
S67	CS2	1	Yes	No	2,600	2,600	1,00	1,00	2,600	2,600	45,40	73,87	2,600	2,600
S67	CS2	2	Yes	No	2,600	2,600	1,00	1,00	2,600	2,600	45,40	73,87	2,600	2,600
S67	CS2	3	Yes	No	2,600	2,600	1,00	1,00	2,600	2,600	45,40	73,87	2,600	2,600
S67	CS2	4	Yes	No	2,600	2,600	1,00	1,00	2,600	2,600	45,40	73,87	2,600	2,600
S67	CS2	5	Yes	No	2,600	2,600	1,00	1,00	2,600	2,600	45,40	73,87	2,600	2,600
S68	CS2	1	Yes	No	2,600	2,600	1,00	1,00	2,600	2,600	45,40	73,87	2,600	2,600
S68	CS2	2	Yes	No	2,600	2,600	1,00	1,00	2,600	2,600	45,40	73,87	2,600	2,600
S68	CS2	3	Yes	No	2,600	2,600	1,00	1,00	2,600	2,600	45,40	73,87	2,600	2,600
S68	CS2	4	Yes	No	2,600	2,600	1,00	1,00	2,600	2,600	45,40	73,87	2,600	2,600
S68	CS2	5	Yes	No	2,600	2,600	1,00	1,00	2,600	2,600	45,40	73,87	2,600	2,600
S69	CS2	1	Yes	No	4,000	4,000	1,00	1,00	4,000	4,000	69,84	113,64	4,000	4,000
S70	CS2	1	Yes	No	4,000	4,000	1,00	1,00	4,000	4,000	69,84	113,64	4,000	4,000
S71	CS2	1	Yes	No	4,000	4,000	1,00	1,00	4,000	4,000	69,84	113,64	4,000	4,000
S72	CS2	1	Yes	No	4,000	4,000	1,00	1,00	4,000	4,000	69,84	113,64	4,000	4,000
S73	CS3	1	Yes	No	4,771	4,771	1,00	1,00	4,771	4,771	196,65	196,65	4,771	4,771
S74	CS3	1	Yes	No	4,771	4,771	1,00	1,00	4,771	4,771	196,65	196,65	4,771	4,771
S75	CS3	1	Yes	No	4,771	4,771	1,00	1,00	4,771	4,771	196,65	196,65	4,771	4,771
S76	CS3	1	Yes	No	4,771	4,771	1,00	1,00	4,771	4,771	196,65	196,65	4,771	4,771
S77	CS3	1	Yes	No	4,771	4,771	1,00	1,00	4,771	4,771	196,65	196,65	4,771	4,771

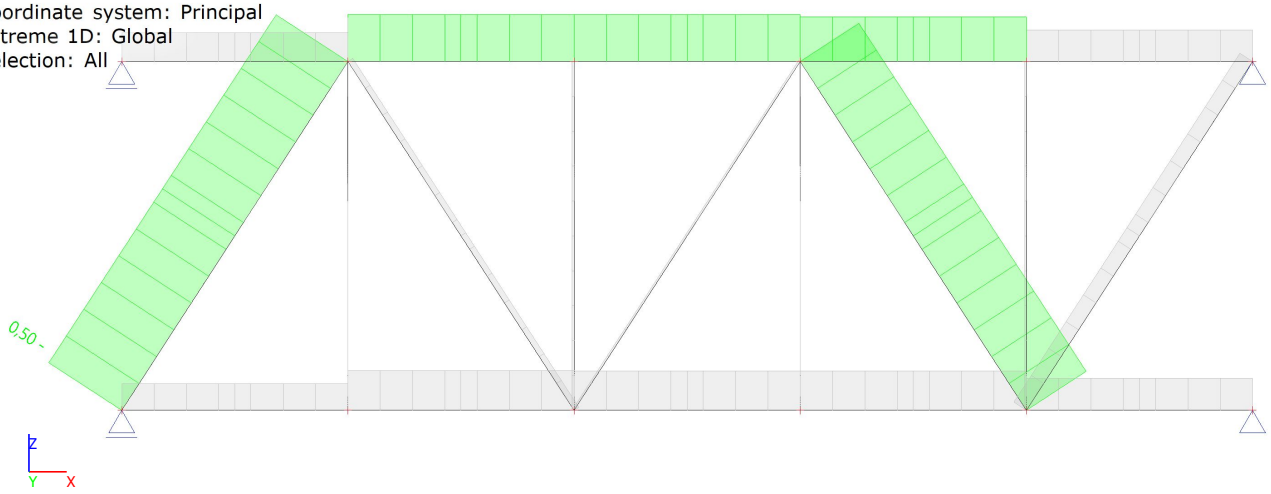
6.2. EC-EN 1993 Steel check ULS

Linear calculation
Class: Alle UGT
Coordinate system: Principal
Extreme 1D: Cross-section
Selection: All
Overall Unity Check

Name	dx [m]	Case	Cross-section	Material	$UC_{Overall}$ [-]	UC_{Sec} [-]	UC_{Stab} [-]
S68	5,200+	ULS/1	CS2 - HEA140	S 355	**0,27**	0,15	0,27
S73	0,000	ULS/2	CS3 - HFLeq80x80x8	S 355	**0,50**	0,06	0,50

Name	Combination key
ULS/1	1.35*DL + 1.35*EO + 0.90*TLs + 0.90*Wy + 1.35*LC2
ULS/2	1.20*DL + 1.20*EO + 1.50*Wx + 0.90*TLs + 1.20*LC2

Values: **$UC_{Overall}$**
Linear calculation
Class: Alle UGT
Coordinate system: Principal
Extreme 1D: Global
Selection: All



Appendix C

Scia report - platform

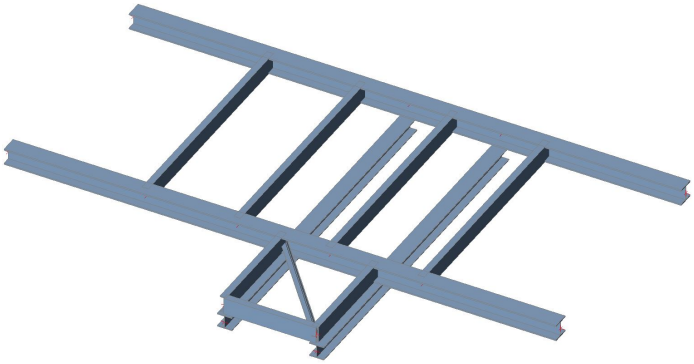
KH Engineering

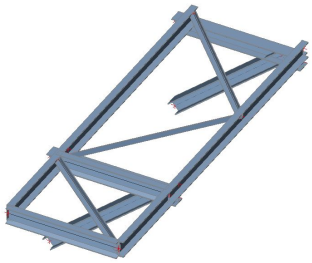
1. Table of contents

2. General

2.1. Project

Licence name	KH Engineering
Project	Neste - Rotterdam terminal expansion
Part	Tank pit 3 - Pipe rack 3 & 4
Description	Platform
Author	LER
Date	08. 2021
Structure	General XYZ
No. of nodes :	53
No. of beams :	43
No. of slabs :	0
No. of solids :	0
No. of used profiles :	6
No. of load cases :	10
No. of used materials :	2
Acceleration of gravity [m/s^2]	9,810
National code	EC - EN





2.2. Setup manager

(STR/GEO) alternative

Combination	Eq.6.10a & Eq.6.10b

Psi factors

Load	Psi0	Psi1	Psi2
CategoryA	0.4	0.5	0.3
CategoryB	0.5	0.5	0.3
CategoryC	0.6	0.7	0.6
CategoryD	0.4	0.7	0.6
CategoryE	1	0.9	0.8
CategoryF	0.7	0.7	0.6
CategoryG	0.7	0.5	0.3
CategoryH	0	0	0
Snow	0	0.2	0
Wind	0	0.2	0
Temperature	0	0.5	0
Rain water	0	0	0
Construction loads	1	0	0.2

Load combination factors

Permanent action - unfavorable	1,35
Permanent action - favorable [-]	0,90
Leading variable action	1,50
Accompanying variable action	1,50
Reduction factor ksi [-]	0,89
Permanent action - unfavorable	1,00

Permanent action - favorable	1,00
Leading variable action	1,30
Accompanying variable action	1,30

2.3. Wind pressures

Name	WP1
Input	user
Height / Pressure	0,000[m] / 1,00[kN/m ^{2}] 1,000[m] / 1,00[kN/m ^{2}]

Drawing

3. Structure

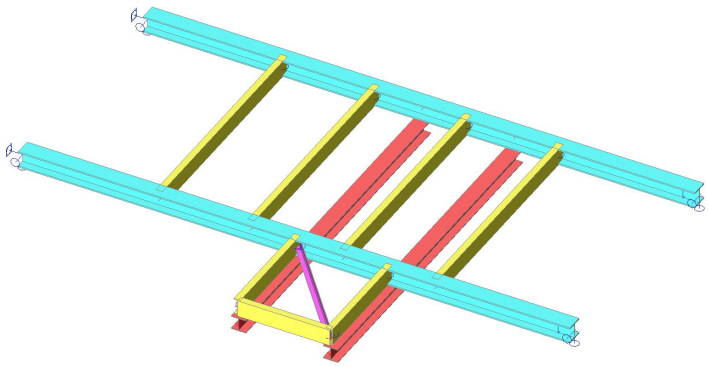
3.1. Cross-sections

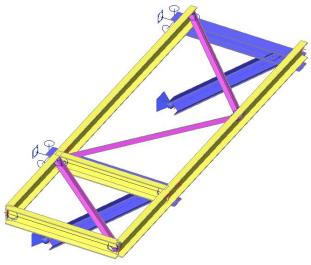
Name	Type Detailed	Item material	Fabrication	A [m²]	A_y [m²] A_z [m²]	I_y [m⁴] I_z [m⁴]	$W_{el.y}$ [m³] $W_{el.z}$ [m³]	$W_{pl.y}$ [m³] $W_{pl.z}$ [m³]	Colour
CS1	HEB180	S 355	rolled	6,5250e-03	4,8159e-03 1,6236e-03	3,8310e-05 1,3630e-05	4,2570e-04 1,5140e-04	4,8140e-04 2,3100e-04	
CS2	HFLeq60x60x6	S 355	rolled	6,9090e-04	5,7999e-04 5,8516e-04	3,6140e-07 9,4400e-08	8,5150e-06 3,9562e-06	1,3551e-05 6,9893e-06	
CS3	UNP180	S 355	rolled	2,8000e-03	1,4920e-03 1,4353e-03	1,3500e-05 1,1400e-06	1,5000e-04 2,2400e-05	1,7920e-04 4,2900e-05	
CS4	HEA160	S 355	rolled	3,8800e-03	2,8071e-03 9,8390e-04	1,6700e-05 6,1600e-06	2,2000e-04 7,7000e-05	2,4500e-04 1,1750e-04	
Dummy	RD50	Dummy	rolled	1,9429e-01	1,7638e-03 1,7638e-03	2,9736e-05 2,9736e-05	1,1895e-03 1,1895e-03	2,0300e-03 2,0300e-03	
CS5	HEA140	S 355	rolled	3,1400e-03	2,2882e-03 7,8192e-04	1,0300e-05 3,8900e-06	1,5500e-04 5,5600e-05	1,7333e-04 8,5000e-05	

3.2. Materials

Steel EC3

Name	ρ [kg/m³]	E_{mod} [MPa] G_{mod} [MPa]	μ α [m/mK]	Lower limit [mm]	Upper limit [mm]	F_y [MPa]	F_u [MPa]	Colour
S 355	7850,0	2,1000e+05 8,0769e+04	0.3 0,00	0 40	40 80	355,0 335,0	490,0 470,0	
Dummy	7850,0	1,0000e+10 3,8462e+09	0.3 0,00	0 40	40 80	355,0 335,0	490,0 470,0	





3.3. Nodes

Name	Coord X [m]	Coord Y [m]	Coord Z [m]
N1	0,000	0,000	1,500
N2	6,000	0,000	1,500
N3	6,000	2,500	1,500
N4	0,000	2,500	1,500
N5	3,000	-1,200	1,300
N6	3,000	2,500	1,300
N7	4,000	-1,200	1,300
N8	4,000	2,500	1,300
N9	3,000	-1,200	1,500
N10	4,000	-1,200	1,500
N11	3,000	0,000	1,500
N12	4,000	0,000	1,500
N13	2,500	0,000	1,500

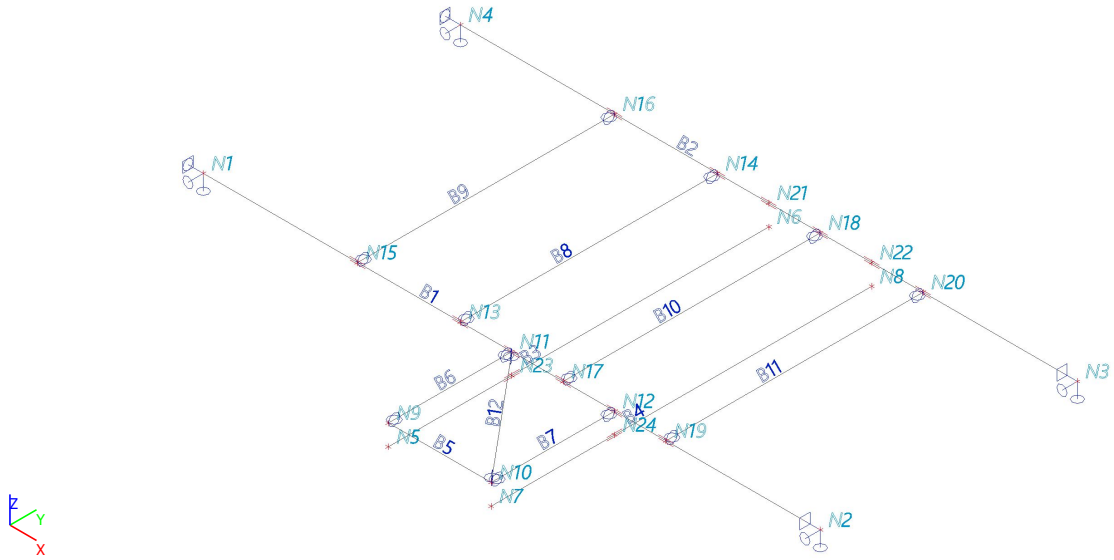
Name	Coord X [m]	Coord Y [m]	Coord Z [m]
N14	2,500	2,500	1,500
N15	1,500	0,000	1,500
N16	1,500	2,500	1,500
N17	3,500	0,000	1,500
N18	3,500	2,500	1,500
N19	4,500	0,000	1,500
N20	4,500	2,500	1,500
N21	3,000	2,500	1,500
N22	4,000	2,500	1,500
N23	3,000	0,000	1,300
N24	4,000	0,000	1,300
N29	3,000	2,500	1,400
N30	4,000	2,500	1,400

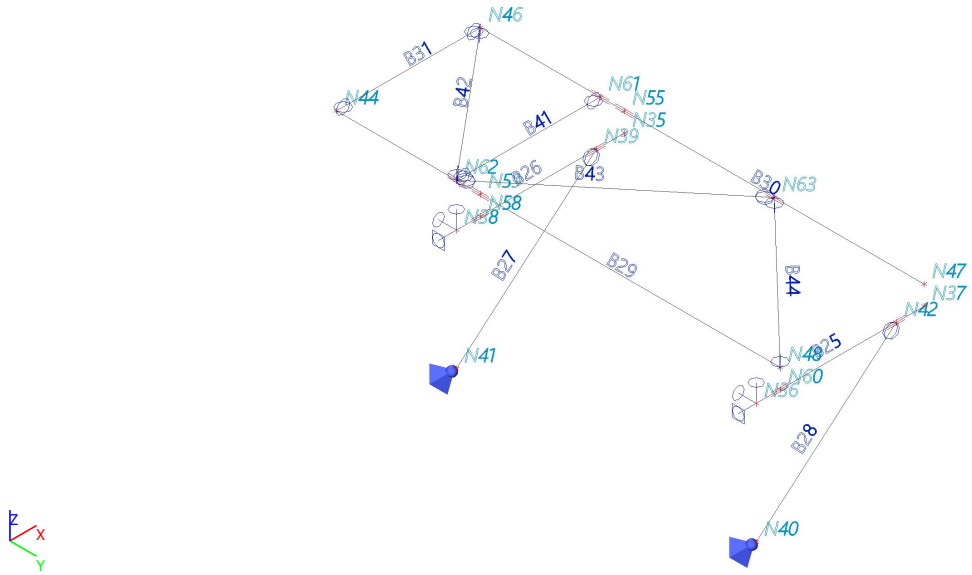
Name	Coord X [m]	Coord Y [m]	Coord Z [m]
N31	3,000	0,000	1,400
N32	3,000	-1,200	1,400
N33	4,000	-1,200	1,400
N34	4,000	0,000	1,400
N35	11,400	0,000	1,500
N36	10,000	2,500	1,500
N37	11,400	2,500	1,500
N38	10,000	0,000	1,500
N39	11,167	0,000	1,500
N40	10,000	2,500	0,500
N41	10,000	0,000	0,500
N42	11,167	2,500	1,500
N44	10,200	-1,200	1,660

Name	Coord X [m]	Coord Y [m]	Coord Z [m]
N46	11,400	-1,200	1,660
N47	11,400	2,500	1,660
N48	10,200	2,500	1,660
N52	11,400	0,000	1,580
N54	11,400	2,500	1,580

Name	Coord X [m]	Coord Y [m]	Coord Z [m]
N55	11,400	0,000	1,660
N56	10,200	0,000	1,580
N57	10,200	2,500	1,580
N58	10,200	0,000	1,500
N59	10,200	0,000	1,660

Name	Coord X [m]	Coord Y [m]	Coord Z [m]
N60	10,200	2,500	1,500
N61	11,400	-0,200	1,660
N62	10,200	-0,200	1,660
N63	11,400	1,250	1,660





3.4. Members

Name	Cross-section	Material	Length [m]	Beg. node	End node	Type	system length
B1	CS1 - HEB180	S 355	6,000	N1	N2	general (0)	BG3
B2	CS1 - HEB180	S 355	6,000	N4	N3	general (0)	BG3
B3	CS4 - HEA160	S 355	3,700	N5	N6	general (0)	BG2
B4	CS4 - HEA160	S 355	3,700	N7	N8	general (0)	BG2
B5	CS3 - UNP180	S 355	1,000	N9	N10	general (0)	BG1
B6	CS3 - UNP180	S 355	1,200	N9	N11	general (0)	BG1
B7	CS3 - UNP180	S 355	1,200	N10	N12	general (0)	BG1
B8	CS3 - UNP180	S 355	2,500	N13	N14	general (0)	BG1
B9	CS3 - UNP180	S 355	2,500	N15	N16	general (0)	BG1
B10	CS3 - UNP180	S 355	2,500	N17	N18	general (0)	BG1
B11	CS3 - UNP180	S 355	2,500	N19	N20	general (0)	BG1

Name	Cross-section	Material	Length [m]	Beg. node	End node	Type	system length
B12	CS2 - HFLeq60x60x6	S 355	1,562	N10	N11	general (0)	BG1
B13	Dummy - RD50	Dummy	0,100	N5	N32	general (0)	Default
B14	Dummy - RD50	Dummy	0,100	N23	N31	general (0)	Default
B15	Dummy - RD50	Dummy	0,100	N6	N29	general (0)	Default
B16	Dummy - RD50	Dummy	0,100	N8	N30	general (0)	Default
B17	Dummy - RD50	Dummy	0,100	N24	N34	general (0)	Default
B18	Dummy - RD50	Dummy	0,100	N7	N33	general (0)	Default
B19	Dummy - RD50	Dummy	0,100	N29	N21	general (0)	Default
B20	Dummy - RD50	Dummy	0,100	N30	N22	general (0)	Default
B21	Dummy - RD50	Dummy	0,100	N31	N11	general (0)	Default
B22	Dummy - RD50	Dummy	0,100	N32	N9	general (0)	Default
B23	Dummy - RD50	Dummy	0,100	N33	N10	general (0)	Default
B24	Dummy - RD50	Dummy	0,100	N34	N12	general (0)	Default
B25	CS5 - HEA140	S 355	1,400	N36	N37	general (0)	BG9
B26	CS5 - HEA140	S 355	1,400	N38	N35	general (0)	BG9
B27	CS5 - HEA140	S 355	1,537	N41	N39	general (0)	BG1
B28	CS5 - HEA140	S 355	1,537	N40	N42	general (0)	BG1
B29	CS3 - UNP180	S 355	3,700	N48	N44	general (0)	BG10
B30	CS3 - UNP180	S 355	3,700	N47	N46	general (0)	BG8
B31	CS3 - UNP180	S 355	1,200	N46	N44	general (0)	BG1
B33	Dummy - RD50	Dummy	0,080	N35	N52	general (0)	Default
B34	Dummy - RD50	Dummy	0,080	N55	N52	general (0)	Default
B35	Dummy - RD50	Dummy	0,080	N37	N54	general (0)	Default
B36	Dummy - RD50	Dummy	0,080	N54	N47	general (0)	Default
B37	Dummy - RD50	Dummy	0,080	N58	N56	general (0)	Default
B38	Dummy - RD50	Dummy	0,080	N59	N56	general (0)	Default
B39	Dummy - RD50	Dummy	0,080	N60	N57	general (0)	Default
B40	Dummy - RD50	Dummy	0,080	N57	N48	general (0)	Default
B41	CS3 - UNP180	S 355	1,200	N61	N62	general (0)	BG1
B42	CS2 - HFLeq60x60x6	S 355	1,562	N46	N62	general (0)	BG1
B43	CS2 - HFLeq60x60x6	S 355	1,882	N62	N63	general (0)	BG1
B44	CS2 - HFLeq60x60x6	S 355	1,733	N63	N48	general (0)	BG1

3.5. System lengths and buckling groups

Name Description	Number of parts	Member(s) material	ky factor kz factor	Point of load application	Bow imperfection e0,y Bow imperfection e0,z
BG1	1	Steel, other	Factor Factor	In shear center	no bow imperfection no bow imperfection
BG2	2	Steel, other	Factor Factor	In shear center	no bow imperfection no bow imperfection
BG3	7	Steel, other	Factor Factor	In shear center	no bow imperfection no bow imperfection
BG8	4	Steel, other	Factor Calculate	In shear center	no bow imperfection no bow imperfection
BG9	3	Steel, other	Factor Factor	In shear center	no bow imperfection no bow imperfection
BG10	3	Steel, other	Factor Factor	In shear center	no bow imperfection no bow imperfection

3.6. Hinges

Name	Member	Position	ux	uy	uz	fix	fiy	fiz
H1	B10	Both	Rigid	Rigid	Rigid	Rigid	Free	Free
H2	B8	Both	Rigid	Rigid	Rigid	Rigid	Free	Free
H3	B9	Both	Rigid	Rigid	Rigid	Rigid	Free	Free
H4	B11	Both	Rigid	Rigid	Rigid	Rigid	Free	Free
H7	B6	Both	Rigid	Rigid	Rigid	Rigid	Free	Free
H8	B7	Both	Rigid	Rigid	Rigid	Rigid	Free	Free
H10	B12	Both	Rigid	Rigid	Rigid	Rigid	Free	Free
H12	B14	End	Rigid	Rigid	Rigid	Free	Rigid	Free
H13	B15	End	Rigid	Rigid	Rigid	Free	Rigid	Free
H14	B16	End	Rigid	Rigid	Rigid	Free	Rigid	Free
H15	B17	End	Rigid	Rigid	Rigid	Free	Rigid	Free
H16	B18	End	Rigid	Rigid	Rigid	Free	Rigid	Free
H11	B13	End	Rigid	Rigid	Rigid	Free	Rigid	Free
H20	B33	End	Rigid	Rigid	Rigid	Free	Rigid	Free
H21	B35	End	Rigid	Rigid	Rigid	Free	Rigid	Free
H22	B37	End	Rigid	Rigid	Rigid	Free	Rigid	Free
H23	B39	End	Rigid	Rigid	Rigid	Free	Rigid	Free
H24	B41	Both	Rigid	Rigid	Rigid	Rigid	Free	Free
H25	B27	End	Rigid	Rigid	Rigid	Rigid	Free	Free
H26	B28	End	Rigid	Rigid	Rigid	Rigid	Free	Free
H27	B44	Both	Rigid	Rigid	Rigid	Rigid	Free	Free
H28	B43	Both	Rigid	Rigid	Rigid	Rigid	Free	Free

Name	Member	Position	ux	uy	uz	fix	fiy	fiz
H29	B42	Both	Rigid	Rigid	Rigid	Rigid	Free	Free
H30	B31	Both	Rigid	Rigid	Rigid	Rigid	Free	Free

3.7. Nodal supports

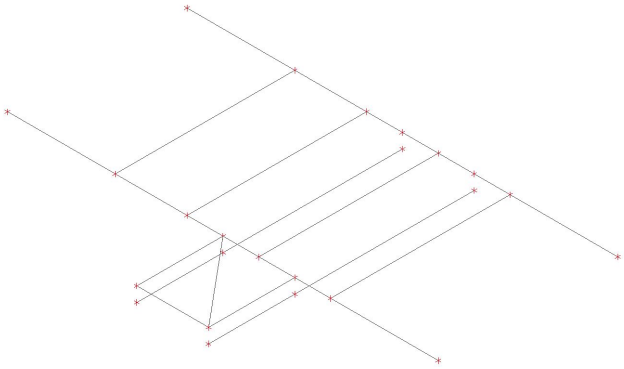
Name	Node	System	Type	X	Y	Z	Rx	Ry	Rz	Angle [deg]
Sn1	N1	GCS	Standard	Rigid	Rigid	Rigid	Rigid	Free	Free	
Sn2	N4	GCS	Standard	Rigid	Rigid	Rigid	Rigid	Free	Free	
Sn3	N3	GCS	Standard	Free	Rigid	Rigid	Rigid	Free	Free	
Sn4	N2	GCS	Standard	Free	Rigid	Rigid	Rigid	Free	Free	
Sn5	N38	GCS	Standard	Rigid	Rigid	Rigid	Free	Free	Rigid	Ry90.00
Sn6	N41	GCS	Standard	Rigid	Rigid	Rigid	Free	Free	Free	Ry90.00
Sn7	N36	GCS	Standard	Rigid	Rigid	Rigid	Free	Free	Rigid	Ry90.00
Sn8	N40	GCS	Standard	Rigid	Rigid	Rigid	Free	Free	Free	Ry90.00

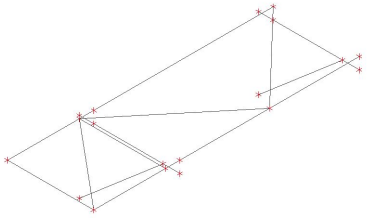
4. Loads

4.1. Load cases

4.1.1. Load cases - DL

Name	Description	Action type	Load type	Load group	Direction
DL	Dead load - sef-weight	Permanent	Self weight	LG1	-Z





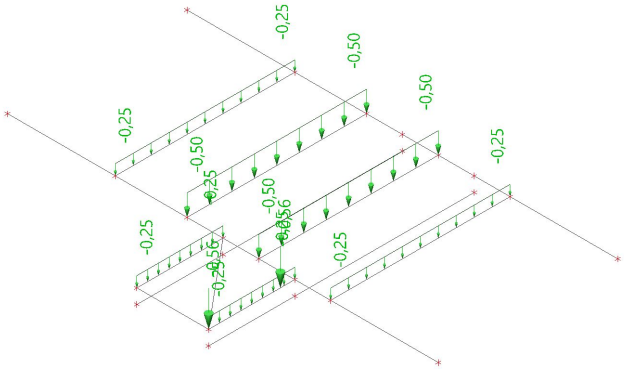
4.1.1.1. Resultant of reactions

Linear calculation
Load case: DL
Extreme: Global
Selection: All
System: Global

x [m]	y [m]	z [m]	Case	R_x [kN]	R_y [kN]	R_z [kN]	M_x [kNm]	M_y [kNm]	M_z [kNm]
6,500	1,250	1,250	DL	**0,00**	**0,00**	**42,43**	**-19,56**	**33,89**	**-0,01**

4.1.2. Load cases - DL1

Name	Description	Action type	Load type	Load group
DL1	Dead load - grating	Permanent	Standard	LG1



4.1.2.1. Point force on beam

Name	Member	System	Dir	Value - F [kN]	Type	Pos x [m]	Coor	Orig	Rep (n)
Fb1	B7	GCS	Z	-0,56	Force	0,000	Abso	From start	2
Fb11	B31	GCS	Z	-0,56	Force	0,000	Abso	From start	2
Fb20	B29	GCS	Z	-0,56	Force	0,000	Abso	From end	2

4.1.2.2. Line force

Name	Member	Type	Sys.	Dir	Distr.	P1 [kN/m]	P2 [kN/m]	Pos x_1	Pos x_2	Coor	Loc	Orig	Ecc ey [m]	Ecc ez [m]
LF1	B9	Force	LCS	Z	Uniform	-0,25		0.000	1.000	Rela	Length	From start	0,000	0,000
LF2	B11	Force	LCS	Z	Uniform	-0,25		0.000	1.000	Rela	Length	From start	0,000	0,000
LF3	B8	Force	LCS	Z	Uniform	-0,50		0.000	1.000	Rela	Length	From start	0,000	0,000
LF4	B10	Force	LCS	Z	Uniform	-0,50		0.000	1.000	Rela	Length	From start	0,000	0,000
LF5	B6	Force	LCS	Z	Uniform	-0,25		0.000	1.000	Rela	Length	From start	0,000	0,000
LF6	B7	Force	LCS	Z	Uniform	-0,25		0.000	1.000	Rela	Length	From start	0,000	0,000
LF72	B31	Force	GCS	Z	Uniform	-0,25		0.000	1.000	Rela	Length	From start	0,000	0,000
LF73	B41	Force	GCS	Z	Uniform	-0,25		0.000	1.000	Rela	Length	From start	0,000	0,000

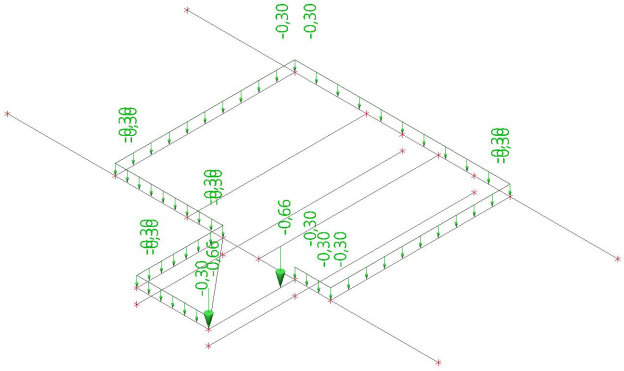
4.1.2.3. Resultant of reactions

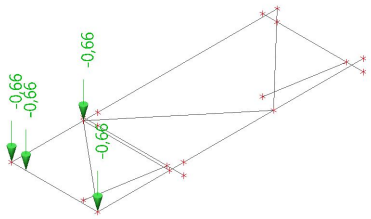
Linear calculation
Load case: DL1
Extreme: Global
Selection: All
System: Global

x [m]	y [m]	z [m]	Case	R_x [kN]	R_y [kN]	R_z [kN]	M_x [kNm]	M_y [kNm]	M_z [kNm]
6,500	1,250	1,250	DL1	**0,00**	**0,00**	**8,29**	**-9,36**	**6,02**	**0,00**

4.1.3. Load cases - DL2

Name	Description	Action type	Load type	Load group
DL2	Dead load - railing	Permanent	Standard	LG1





4.1.3.1. Point force on beam

Name	Member	System	Dir	Value - F [kN]	Type	Pos x [m]	Coor	Orig	Rep (n)
Fb2	B7	GCS	Z	-0,66	Force	0,000	Abso	From start	2
Fb13	B31	GCS	Z	-0,66	Force	0,000	Abso	From start	2
Fb21	B29	GCS	Z	-0,66	Force	0,000	Abso	From end	2

4.1.3.2. Line force

Name	Member	Type	Sys.	Dir	Distr.	P1 [kN/m]	P2 [kN/m]	Pos x_1	Pos x_2	Coor	Loc	Orig	Ecc ey [m]	Ecc ez [m]
LF7	B9	Force	LCS	Z	Uniform	-0,30		0.000	1.000	Rela	Length	From start	0,000	0,000
LF8	B11	Force	LCS	Z	Uniform	-0,30		0.000	1.000	Rela	Length	From start	0,000	0,000
LF9	B2	Force	LCS	Z	Uniform	-0,30		1.500	4.500	Abso	Length	From start	0,000	0,000
LF10	B6	Force	LCS	Z	Uniform	-0,30		0.000	1.000	Rela	Length	From start	0,000	0,000
LF11	B5	Force	LCS	Z	Uniform	-0,30		0.000	1.000	Rela	Length	From start	0,000	0,000
LF12	B1	Force	LCS	Z	Uniform	-0,30		1.500	3.000	Abso	Length	From start	0,000	0,000
LF13	B1	Force	LCS	Z	Uniform	-0,30		4.000	4.500	Abso	Length	From start	0,000	0,000

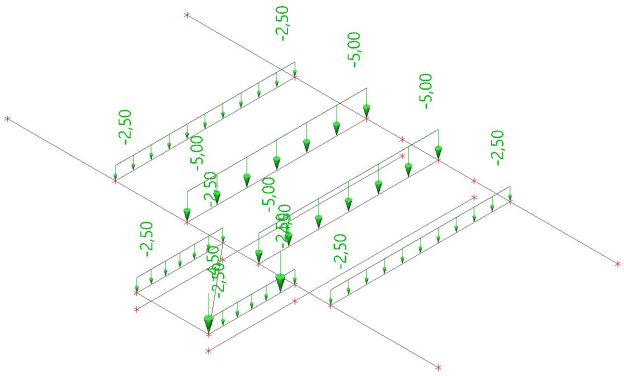
4.1.3.3. Resultant of reactions

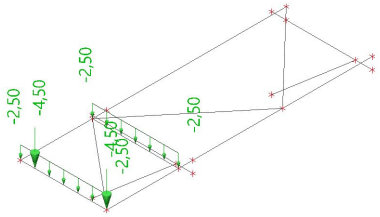
Linear calculation
Load case: DL2
Extreme: Global
Selection: All
System: Global

x [m]	y [m]	z [m]	Case	R_x [kN]	R_y [kN]	R_z [kN]	M_x [kNm]	M_y [kNm]	M_z [kNm]
6,500	1,250	1,250	DL2	**0,00**	**0,00**	**7,60**	**-9,37**	**5,37**	**0,00**

4.1.4. Load cases - LL

Name	Description	Spec	Action type	Load type	Load group	Duration	Master load case
LL	Imposed load	Standard	Variable	Static	LG2	Short	None





4.1.4.1. Point force on beam

Name	Member	System	Dir	Value - F [kN]	Type	Pos x [m]	Coor	Orig	Rep (n)
Fb3	B7	GCS	Z	-4,50	Force	0,000	Abso	From start	2
Fb15	B31	GCS	Z	-4,50	Force	0,000	Abso	From start	2

4.1.4.2. Line force

Name	Member	Type	Sys.	Dir	Distr.	P1 [kN/m]	P2 [kN/m]	Pos x_1	Pos x_2	Coor	Loc	Orig	Ecc ey [m]	Ecc ez [m]
LF14	B9	Force	LCS	Z	Uniform	-2,50		0.000	1.000	Rela	Length	From start	0,000	0,000
LF15	B8	Force	LCS	Z	Uniform	-5,00		0.000	1.000	Rela	Length	From start	0,000	0,000
LF16	B10	Force	LCS	Z	Uniform	-5,00		0.000	1.000	Rela	Length	From start	0,000	0,000
LF17	B11	Force	LCS	Z	Uniform	-2,50		0.000	1.000	Rela	Length	From start	0,000	0,000
LF18	B6	Force	LCS	Z	Uniform	-2,50		0.000	1.000	Rela	Length	From start	0,000	0,000
LF19	B7	Force	LCS	Z	Uniform	-2,50		0.000	1.000	Rela	Length	From start	0,000	0,000
LF70	B31	Force	GCS	Z	Uniform	-2,50		0.000	1.000	Rela	Length	From start	0,000	0,000
LF71	B41	Force	GCS	Z	Uniform	-2,50		0.000	1.000	Rela	Length	From start	0,000	0,000

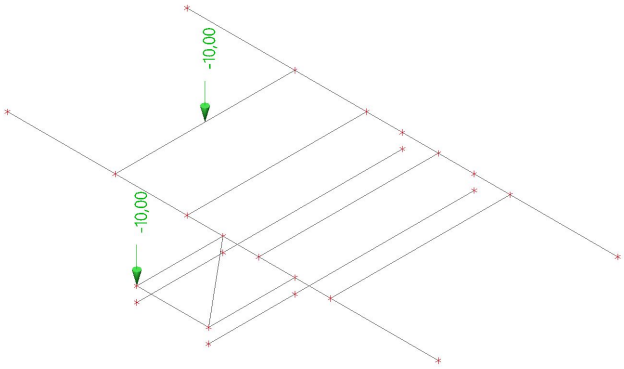
4.1.4.3. Resultant of reactions

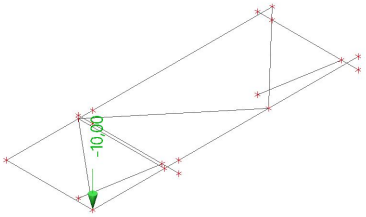
Linear calculation
Load case: LL
Extreme: Global
Selection: All
System: Global

x [m]	y [m]	z [m]	Case	R_x [kN]	R_y [kN]	R_z [kN]	M_x [kNm]	M_y [kNm]	M_z [kNm]
6,500	1,250	1,250	LL	**0,00**	**0,00**	**67,27**	**-62,05**	**105,65**	**-0,01**

4.1.5. Load cases - LL1

Name	Description	Spec	Action type	Load type	Load group	Duration	Master load case
LL1	Imposed load	Standard	Variable	Static	LG2	Short	None





4.1.5.1. Point force in node

Name	Node	Load case	System	Dir	Type	Value - F [kN]
F1	N9	LL1 - Imposed load	GCS	Z	Force	-10,00
F3	N46	LL1 - Imposed load	GCS	Z	Force	-10,00

4.1.5.2. Point force on beam

Name	Member	System	Dir	Value - F [kN]	Type	Pos x	Coor	Orig	Rep (n)
Fb9	B9	GCS	Z	-10,00	Force	0.500	Rela	From start	1

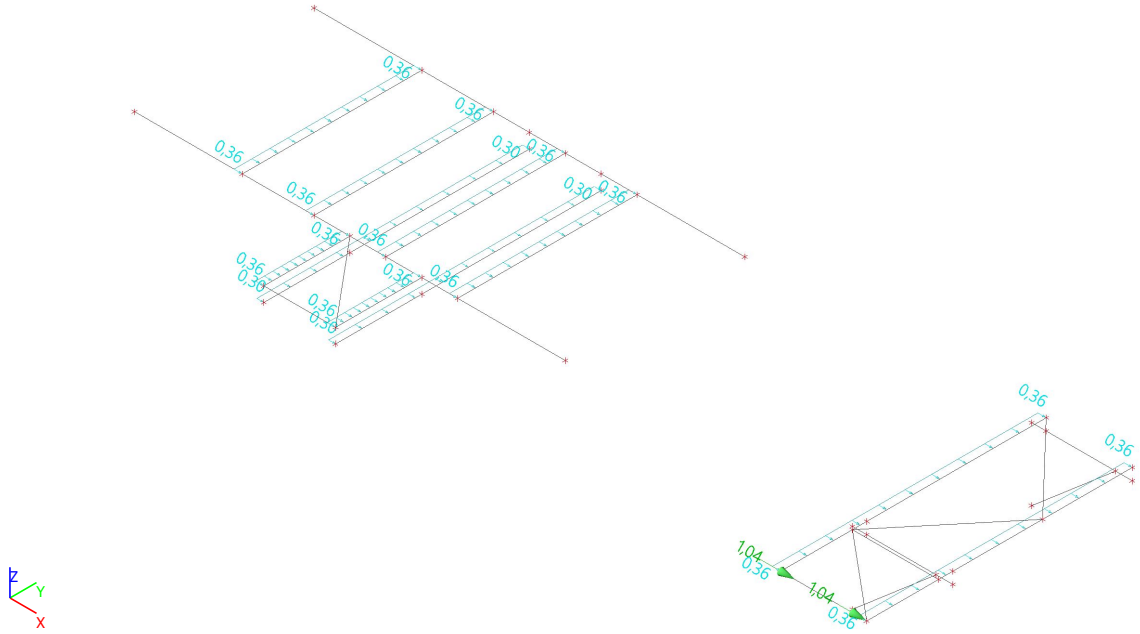
4.1.5.3. Resultant of reactions

Linear calculation
Load case: LL1
Extreme: Global
Selection: All
System: Global

x [m]	y [m]	z [m]	Case	R_x [kN]	R_y [kN]	R_z [kN]	M_x [kNm]	M_y [kNm]	M_z [kNm]
6,500	1,250	1,250	LL1	**0,00**	**0,00**	**29,90**	**-48,79**	**35,68**	**0,00**

4.1.6. Load cases - Wx

Name	Description	Spec	Action type	Load type	Load group	Duration	Master load case
Wx	Wind load - beams	Standard	Variable	Static	LG3	Short	None



4.1.6.1. Point force on beam

Name	Member	System	Dir	Value - F [kN]	Type	Pos x [m]	Coor	Orig	Rep (n)
Fb16	B31	GCS	X	1,04	Force	0,000	Abso	From start	2

4.1.6.2. Line force

Name	Member	Type	Sys.	Dir	Distr.	P1 [kN/m]	P2 [kN/m]	Pos x_1	Pos x_2	Coor	Loc	Orig	Ecc ey [m]	Ecc ez [m]
LF35	B9	Wind	GCS	X	Uniform	0,36	0,36	0.000	1.000	Rela	Length	From start	0,000	0,000
LF36	B8	Wind	GCS	X	Uniform	0,36	0,36	0.000	1.000	Rela	Length	From start	0,000	0,000
LF37	B10	Wind	GCS	X	Uniform	0,36	0,36	0.000	1.000	Rela	Length	From start	0,000	0,000
LF38	B4	Wind	GCS	X	Uniform	0,30	0,30	0.000	1.000	Rela	Length	From start	0,000	0,000
LF39	B11	Wind	GCS	X	Uniform	0,36	0,36	0.000	1.000	Rela	Length	From start	0,000	0,000
LF40	B3	Wind	GCS	X	Uniform	0,30	0,30	0.000	1.000	Rela	Length	From start	0,000	0,000
LF41	B6	Wind	GCS	X	Uniform	0,36	0,36	0.000	1.000	Rela	Length	From start	0,000	0,000
LF42	B7	Wind	GCS	X	Uniform	0,36	0,36	0.000	1.000	Rela	Length	From start	0,000	0,000
LF64	B30	Wind	GCS	X	Uniform	0,36	0,36	0.000	1.000	Rela	Length	From start	0,000	0,000
LF65	B29	Wind	GCS	X	Uniform	0,36	0,36	0.000	1.000	Rela	Length	From start	0,000	0,000

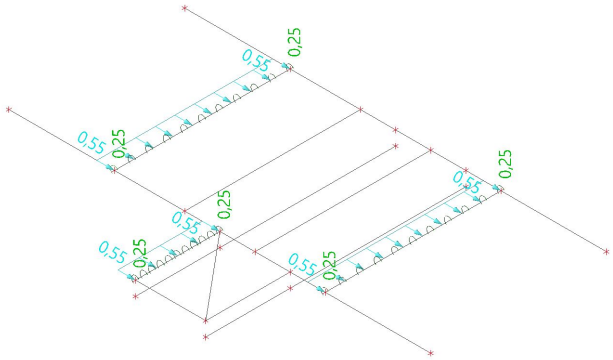
4.1.6.3. Resultant of reactions

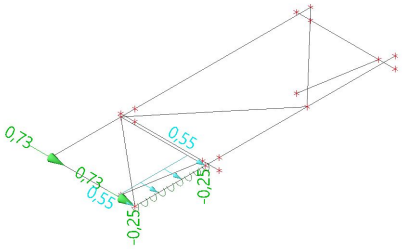
Linear calculation
Load case: Wx
Extreme: Global
Selection: All
System: Global

x [m]	y [m]	z [m]	Case	R_x [kN]	R_y [kN]	R_z [kN]	M_x [kNm]	M_y [kNm]	M_z [kNm]
6,500	1,250	1,250	Wx	**-11,46**	**0,00**	**0,00**	**0,00**	**-3,17**	**-9,65**

4.1.7. Load cases - Wx1

Name	Description	Spec	Action type	Load type	Load group	Duration	Master load case
Wx1	Wind load - railing	Standard	Variable	Static	LG3	Short	None





4.1.7.1. Point force on beam

Name	Member	System	Dir	Value - F [kN]	Type	Pos x [m]	Coor	Orig	Rep (n)
Fb17	B31	GCS	X	0,73	Force	0,000	Abso	From start	2

4.1.7.2. Line moment

Name	Type	System	Dir	Distribution	Value - M_1 [kNm/m]	Value - M_2 [kNm/m]	Pos x_1	Pos x_2	Coor	Loc	Orig
LM5	Moment	LCS	Mx	Uniform	0,25		0.000	1.000	Rela	Length	From start
LM6	Moment	LCS	Mx	Uniform	0,25		0.000	1.000	Rela	Length	From start
LM7	Moment	LCS	Mx	Uniform	0,25		0.000	1.000	Rela	Length	From start
LM22	Moment	LCS	Mx	Uniform	-0,25		0.000	1.000	Abso	Length	From end

4.1.7.3. Line force

Name	Member	Type	Sys.	Dir	Distr.	P1 [kN/m]	P2 [kN/m]	Pos x_1	Pos x_2	Coor	Loc	Orig	Ecc ey [m]	Ecc ez [m]
LF43	B9	Wind	GCS	X	Uniform	0,55	0,55	0.000	1.000	Rela	Length	From start	0,000	0,000
LF44	B11	Wind	GCS	X	Uniform	0,55	0,55	0.000	1.000	Rela	Length	From start	0,000	0,000
LF45	B6	Wind	GCS	X	Uniform	0,55	0,55	0.000	1.000	Rela	Length	From start	0,000	0,000
LF66	B30	Wind	GCS	X	Uniform	0,55	0,55	0.000	1.000	Abso	Length	From end	0,000	0,000

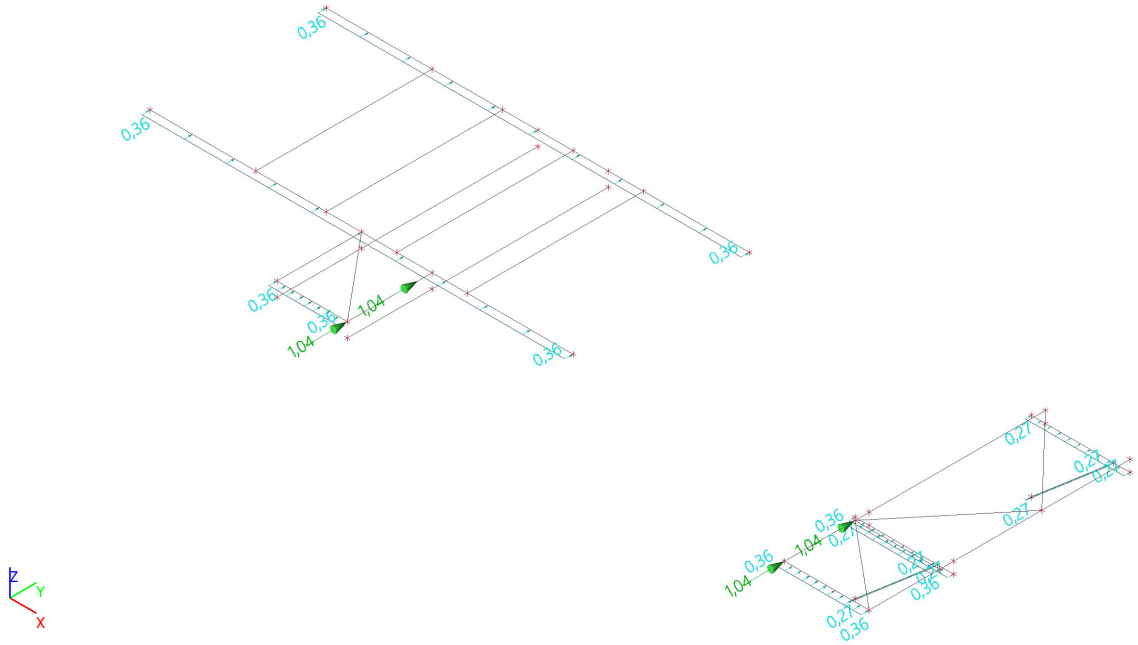
4.1.7.4. Resultant of reactions

Linear calculation
Load case: Wx1
Extreme: Global
Selection: All
System: Global

x [m]	y [m]	z [m]	Case	R_x [kN]	R_y [kN]	R_z [kN]	M_x [kNm]	M_y [kNm]	M_z [kNm]
6,500	1,250	1,250	Wx1	**-5,42**	**0,00**	**0,00**	**0,00**	**-3,48**	**-5,87**

4.1.8. Load cases - Wy

Name	Description	Spec	Action type	Load type	Load group	Duration	Master load case
Wy	Wind load - beams	Standard	Variable	Static	LG3	Short	None



4.1.8.1. Point force on beam

Name	Member	System	Dir	Value - F [kN]	Type	Pos x [m]	Coor	Orig	Rep (n)
Fb4	B7	GCS	Y	1,04	Force	0,000	Abso	From start	2
Fb22	B29	GCS	Y	1,04	Force	0,000	Abso	From end	2

4.1.8.2. Line force

Name	Member	Type	Sys.	Dir	Distr.	P1 [kN/m]	P2 [kN/m]	Pos x_1	Pos x_2	Coor	Loc	Orig	Ecc ey [m]	Ecc ez [m]
LF20	B1	Wind	LCS	Y	Uniform	0,36	0,36	0.000	1.000	Rela	Length	From start	0,000	0,000
LF21	B2	Wind	LCS	Y	Uniform	0,36	0,36	0.000	1.000	Rela	Length	From start	0,000	0,000
LF22	B5	Wind	LCS	Y	Uniform	0,36	0,36	0.000	1.000	Rela	Length	From start	0,000	0,000
LF48	B25	Wind	LCS	Y	Uniform	0,27	0,27	0.000	1.000	Rela	Length	From start	0,000	0,000
LF52	B26	Wind	LCS	Y	Uniform	0,27	0,27	0.000	1.000	Rela	Length	From start	0,000	0,000
LF57	B27	Wind	LCS	Y	Uniform	0,27	0,27	0.000	1.000	Rela	Length	From start	0,000	0,000
LF61	B28	Wind	LCS	Y	Uniform	0,27	0,27	0.000	1.000	Rela	Length	From start	0,000	0,000
LF67	B31	Wind	GCS	Y	Uniform	0,36	0,36	0.000	1.000	Rela	Length	From start	0,000	0,000
LF68	B41	Wind	GCS	Y	Uniform	0,36	0,36	0.000	1.000	Rela	Length	From start	0,000	0,000

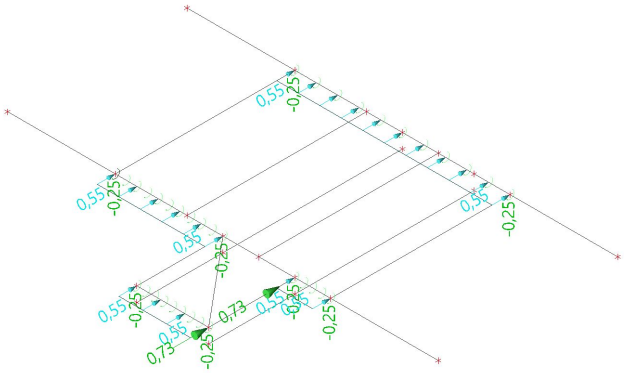
4.1.8.3. Resultant of reactions

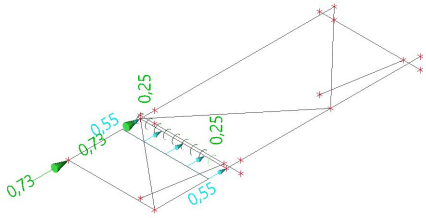
Linear calculation
Load case: Wy
Extreme: Global
Selection: All
System: Global

x [m]	y [m]	z [m]	Case	R_x [kN]	R_y [kN]	R_z [kN]	M_x [kNm]	M_y [kNm]	M_z [kNm]
6,500	1,250	1,250	Wy	**0,00**	**-11,32**	**0,00**	**2,89**	**0,00**	**3,68**

4.1.9. Load cases - Wy1

Name	Description	Spec	Action type	Load type	Load group	Duration	Master load case
Wy1	Wind load - railing	Standard	Variable	Static	LG3	Short	None





4.1.9.1. Point force on beam

Name	Member	System	Dir	Value - F [kN]	Type	Pos x [m]	Coor	Orig	Rep (n)
Fb5	B7	GCS	Y	0,73	Force	0,000	Abso	From start	2
Fb23	B29	GCS	Y	0,73	Force	0,000	Abso	From end	2

4.1.9.2. Line moment

Name	Type	System	Dir	Distribution	Value - M_1 [kNm/m]	Value - M_2 [kNm/m]	Pos x_1 [m]	Pos x_2 [m]	Coor	Loc	Orig
LM1	Moment	LCS	Mx	Uniform	-0,25		1,500	3,000	Abso	Length	From start
LM2	Moment	LCS	Mx	Uniform	-0,25		1,500	4,500	Abso	Length	From start
LM3	Moment	LCS	Mx	Uniform	-0,25		0.000	1.000	Rela	Length	From start
LM4	Moment	LCS	Mx	Uniform	-0,25		4,000	4,500	Abso	Length	From start
LM15	Moment	LCS	Mx	Uniform	-0,25		1,500	4,500	Abso	Length	From start
LM17	Moment	LCS	Mx	Uniform	-0,25		1,500	3,000	Abso	Length	From start
LM18	Moment	LCS	Mx	Uniform	-0,25		4,000	4,500	Abso	Length	From start
LM21	Moment	LCS	Mx	Uniform	0,25		0,000	1,000	Abso	Length	From end

4.1.9.3. Line force

Name	Member	Type	Sys.	Dir	Distr.	P1 [kN/m]	P2 [kN/m]	Pos x_1 [m]	Pos x_2 [m]	Coor	Loc	Orig	Ecc ey [m]	Ecc ez [m]
LF23	B1	Wind	LCS	Y	Uniform	0,55	0,55	1,500	3,000	Abso	Length	From start	0,000	0,000
LF24	B2	Wind	LCS	Y	Uniform	0,55	0,55	1,500	4,500	Abso	Length	From start	0,000	0,000
LF25	B5	Wind	LCS	Y	Uniform	0,55	0,55	0.000	1.000	Rela	Length	From start	0,000	0,000
LF46	B1	Wind	GCS	Y	Uniform	0,55	0,55	4,000	4,500	Abso	Length	From start	0,000	0,000
LF69	B41	Wind	GCS	Y	Uniform	0,55	0,55	0.000	1.000	Rela	Length	From start	0,000	0,000

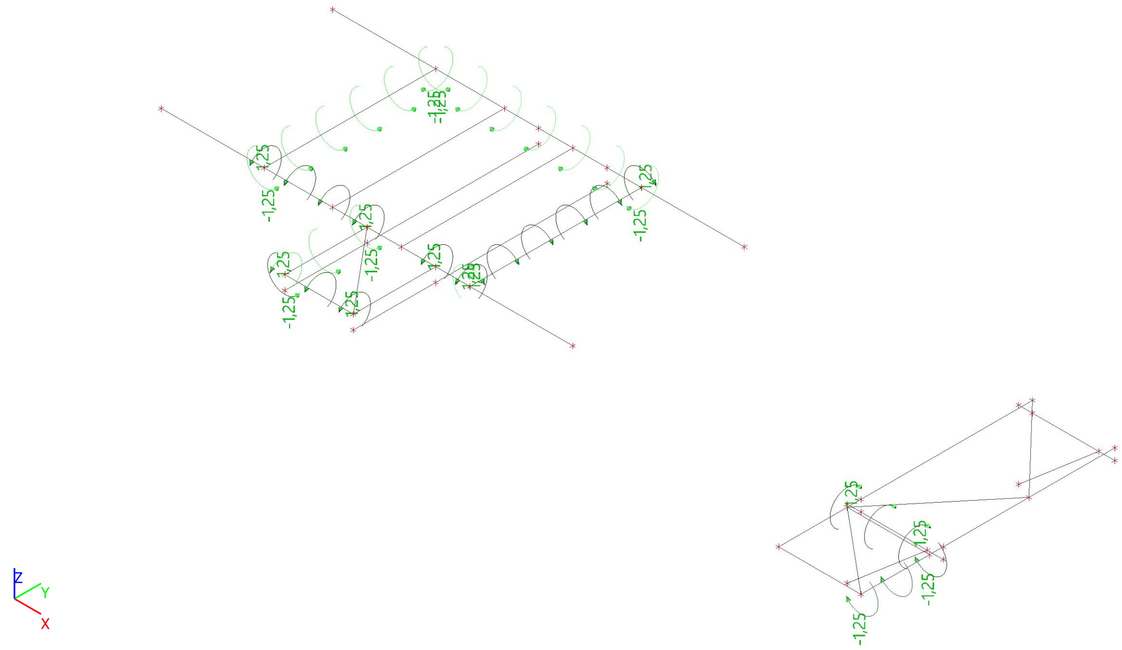
4.1.9.4. Resultant of reactions

Linear calculation
Load case: Wy1
Extreme: Global
Selection: All
System: Global

x [m]	y [m]	z [m]	Case	R_x [kN]	R_y [kN]	R_z [kN]	M_x [kNm]	M_y [kNm]	M_z [kNm]
6,500	1,250	1,250	Wy1	**0,00**	**-6,89**	**0,00**	**3,81**	**0,00**	**6,99**

4.1.10. *Load cases - A*

Name	Description	Spec	Action type	Load type	Load group	Duration	Master load case
A	railing	Standard	Variable	Static	LG4	Short	None



4.1.10.1. Line moment

Name	Type	System	Dir	Distribution	Value - M_1 [kNm/m]	Value - M_2 [kNm/m]	Pos x_1	Pos x_2	Coor	Loc	Orig
LM8	Moment	LCS	Mx	Uniform	-1,25		0.000	1.000	Rela	Length	From start
LM9	Moment	LCS	Mx	Uniform	-1,25		1.500	4.500	Abso	Length	From start
LM10	Moment	LCS	Mx	Uniform	1,25		0.000	1.000	Rela	Length	From start
LM11	Moment	LCS	Mx	Uniform	1,25		1.500	3.000	Abso	Length	From start
LM12	Moment	LCS	Mx	Uniform	-1,25		0.000	1.000	Rela	Length	From start
LM13	Moment	LCS	Mx	Uniform	1,25		0.000	1.000	Rela	Length	From start
LM14	Moment	LCS	Mx	Uniform	1,25		4.000	4.500	Abso	Length	From start
LM16	Moment	LCS	Mx	Uniform	-1,25		1.500	4.500	Abso	Length	From start
LM19	Moment	LCS	Mx	Uniform	1,25		1.500	3.000	Abso	Length	From start
LM20	Moment	LCS	Mx	Uniform	1,25		4.000	4.500	Abso	Length	From start
LM23	Moment	LCS	Mx	Uniform	1,25		0.000	1.000	Abso	Length	From end
LM24	Moment	LCS	Mx	Uniform	-1,25		0.000	1.000	Abso	Length	From end

4.1.10.2. Resultant of reactions

Linear calculation
Load case: A
Extreme: Global
Selection: All
System: Global

x [m]	y [m]	z [m]	Case	R_x [kN]	R_y [kN]	R_z [kN]	M_x [kNm]	M_y [kNm]	M_z [kNm]
6,500	1,250	1,250	A	**0,00**	**0,00**	**0,01**	**1,24**	**0,28**	**0,00**

4.2. Load groups

Name	Load	Relation	Type
LG1	Permanent		
LG2	Variable	Exclusive	Cat B : Offices
LG3	Variable	Together	Wind
LG4	Accidental	Exclusive	

4.3. Combinations

Name	Description	Type	Load cases	Coeff. [-]
ULS		EN-ULS (STR/GEO) Set B	DL - Dead load - sef-weight DL1 - Dead load - grating DL2 - Dead load - railing LL - Imposed load LL1 - Imposed load Wy - Wind load - beams Wy1 - Wind load - railing	1,00 1,00 1,00 1,00 1,00 1,00 1,00
ULS_A		EN-Accidental 1	DL - Dead load - sef-weight DL1 - Dead load - grating DL2 - Dead load - railing LL - Imposed load LL1 - Imposed load Wy - Wind load - beams Wy1 - Wind load - railing A - railing	1,00 1,00 1,00 1,00 1,00 1,00 1,00 1,00
Characteristic		EN-SLS Characteristic	DL - Dead load - sef-weight DL1 - Dead load - grating DL2 - Dead load - railing LL - Imposed load LL1 - Imposed load Wy - Wind load - beams Wy1 - Wind load - railing	1,00 1,00 1,00 1,00 1,00 1,00 1,00
Quasi		EN-SLS Quasi-permanent	DL - Dead load - sef-weight DL1 - Dead load - grating DL2 - Dead load - railing LL - Imposed load LL1 - Imposed load Wy - Wind load - beams Wy1 - Wind load - railing	1,00 1,00 1,00 1,00 1,00 1,00 1,00
Frequent		EN-SLS Frequent	DL - Dead load - sef-weight DL1 - Dead load - grating DL2 - Dead load - railing LL - Imposed load LL1 - Imposed load Wy - Wind load - beams Wy1 - Wind load - railing	1,00 1,00 1,00 1,00 1,00 1,00 1,00
ULS1		EN-ULS (STR/GEO) Set B	DL - Dead load - sef-weight DL1 - Dead load - grating DL2 - Dead load - railing LL - Imposed load LL1 - Imposed load Wx - Wind load - beams Wx1 - Wind load - railing	1,00 1,00 1,00 1,00 1,00 1,00 1,00
ULS_A1		EN-Accidental 1	DL - Dead load - sef-weight DL1 - Dead load - grating DL2 - Dead load - railing LL - Imposed load LL1 - Imposed load Wx - Wind load - beams Wx1 - Wind load - railing A - railing	1,00 1,00 1,00 1,00 1,00 1,00 1,00 1,00
Characteristic1		EN-SLS Characteristic	DL - Dead load - sef-weight DL1 - Dead load - grating DL2 - Dead load - railing LL - Imposed load LL1 - Imposed load Wx - Wind load - beams Wx1 - Wind load - railing	1,00 1,00 1,00 1,00 1,00 1,00 1,00
Quasi1		EN-SLS Quasi-permanent	DL - Dead load - sef-weight DL1 - Dead load - grating DL2 - Dead load - railing LL - Imposed load LL1 - Imposed load Wx - Wind load - beams Wx1 - Wind load - railing	1,00 1,00 1,00 1,00 1,00 1,00 1,00
Frequent1		EN-SLS Frequent	DL - Dead load - sef-weight	1,00

Name	Description	Type	Load cases	Coeff. [-]
			DL1 - Dead load - grating	1,00
			DL2 - Dead load - railing	1,00
			LL - Imposed load	1,00
			LL1 - Imposed load	1,00
			Wx - Wind load - beams	1,00
			Wx1 - Wind load - railing	1,00

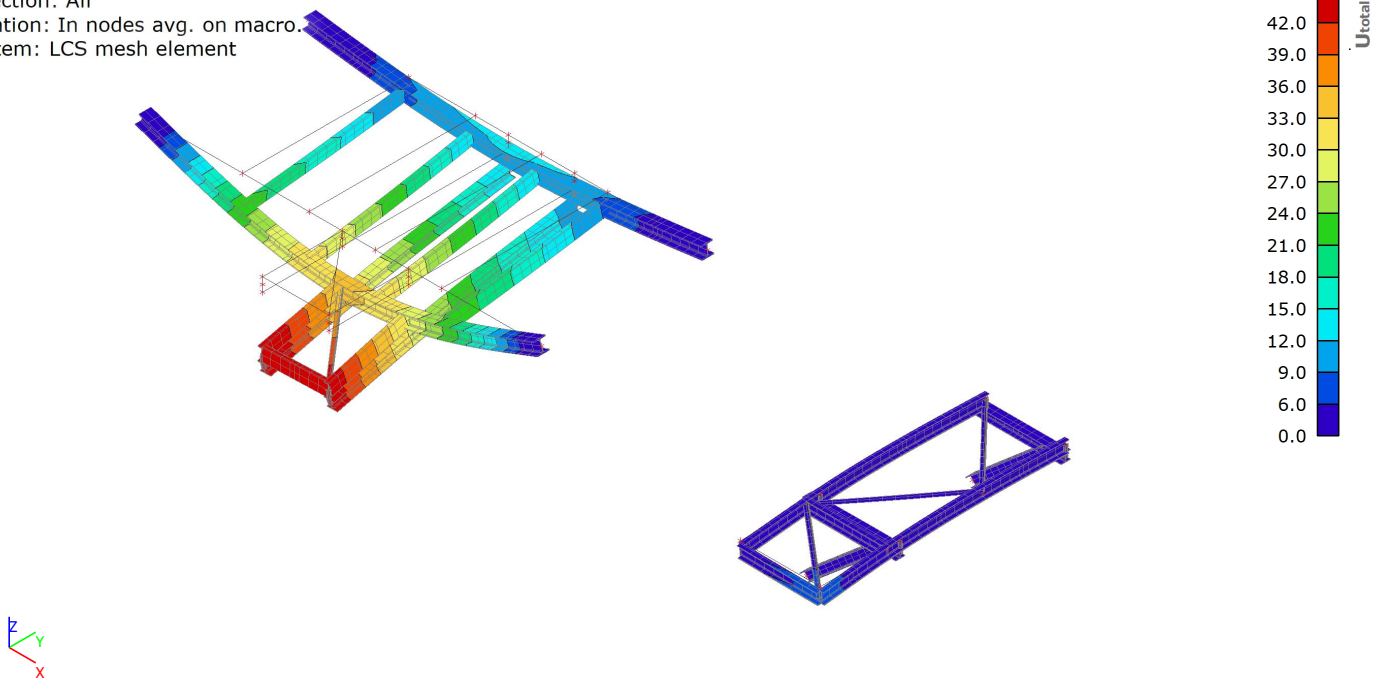
4.4. Result classes

Name	List
All ULS	ULS - EN-ULS (STR/GEO) Set B ULS_A - EN-Accidental 1 ULS1 - EN-ULS (STR/GEO) Set B ULS_A1 - EN-Accidental 1
Quasi	Quasi - EN-SLS Quasi-permanent Quasi1 - EN-SLS Quasi-permanent
Frequent	Frequent - EN-SLS Frequent Frequent1 - EN-SLS Frequent
Characteristic	Characteristic - EN-SLS Characteristic Characteristic1 - EN-SLS Characteristic

5. Results

5.1. 3D displacement; U_total

Values: **U_{total}**
Linear calculation
Class: Characteristic
Selection: All
Location: In nodes avg. on macro.
System: LCS mesh element



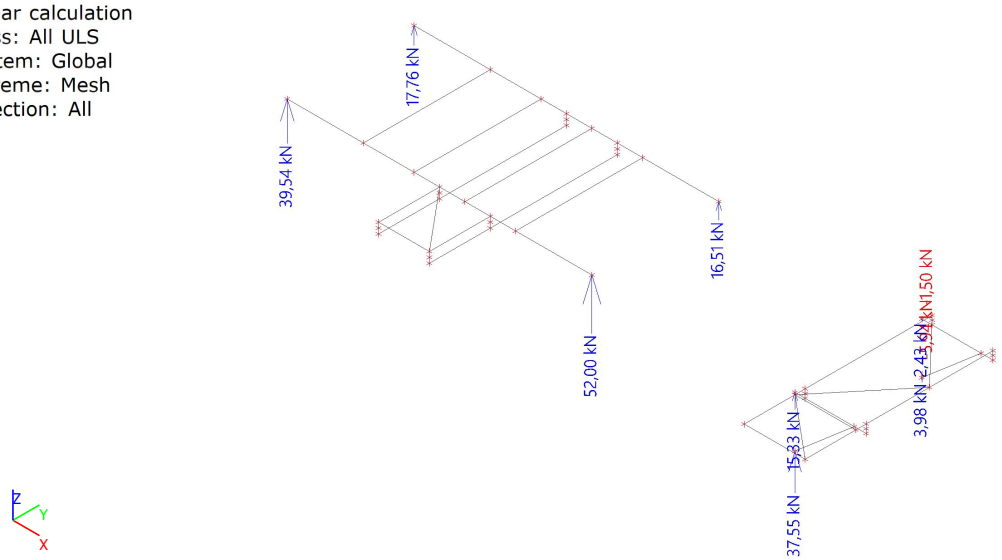
5.2. Reactions

Linear calculation
Class: All ULS
System: Global
Extreme: Global
Selection: All
Nodal reactions

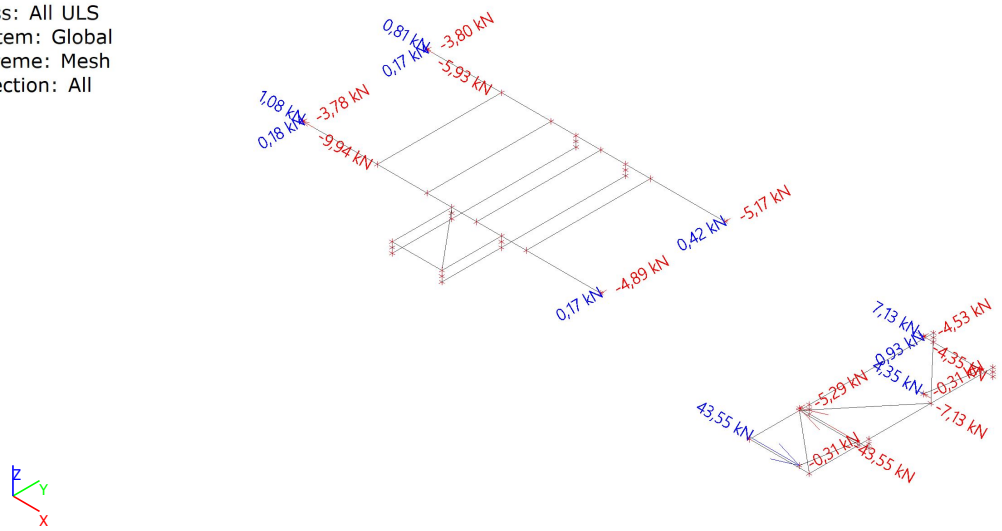
Name	Case	R_x [kN]	R_y [kN]	R_z [kN]	M_x [kNm]	M_y [kNm]	M_z [kNm]	e_x [mm]	e_y [mm]
Sn5/N38	ULS/1	**-43,55**	-0,09	2,73	0,01	0,00	0,00	2,6	0,0
Sn6/N41	ULS/1	**43,55**	0,00	37,55	0,00	**0,00**	**0,00**	0,0	0,0
Sn5/N38	ULS/2	-28,09	**-5,29**	10,65	0,35	0,00	0,00	33,2	0,0
Sn7/N36	ULS/3	3,97	**0,93**	-1,24	-0,07	0,00	0,00	60,0	0,0
Sn8/N40	ULS/4	-7,13	0,00	**-5,94**	0,00	0,00	0,00	0,0	0,0
Sn4/N2	ULS/3	0,00	-0,13	**52,00**	0,05	0,00	0,00	1,0	0,0
Sn1/N1	ULS_A1/5	-1,29	0,11	12,96	**-0,48**	0,00	0,00	-37,2	0,0
Sn4/N2	ULS/2	0,00	-4,89	36,07	**0,60**	0,00	0,00	16,7	0,0

Name	Combination key
ULS/1	1.20*DL + 1.20*DL1 + 1.20*DL2 + 1.50*LL1
ULS/2	1.20*DL + 1.20*DL1 + 1.20*DL2 + 0.75*LL + 1.50*Wy + 1.50*Wy1
ULS/3	1.20*DL + 1.20*DL1 + 1.20*DL2 + 1.50*LL
ULS/4	0.90*DL + 0.90*DL1 + 0.90*DL2 + 1.50*LL1
ULS_A1/5	DL + DL1 + DL2 + A + 0.20*Wx + 0.20*Wx1

Values: **R_z**
Linear calculation
Class: All ULS
System: Global
Extreme: Mesh
Selection: All



Values: **R_y, R_x**
Linear calculation
Class: All ULS
System: Global
Extreme: Mesh
Selection: All



6. Steel check

6.1. Steel slenderness

Linear calculation

Member	CS Name	Part	Sway y	Sway z	Ly [m]	Lz [m]	ky [-]	kz [-]	Iy [m]	Iz [m]	Lam y [-]	Lam z [-]	Iyz [m]	l LTB [m]
B1	CS1	1	Yes	No	6,000	6,000	1,00	1,00	6,000	6,000	78,30	131,28	6,000	1,500
B1	CS1	2	Yes	No	6,000	6,000	1,00	1,00	6,000	6,000	78,30	131,28	6,000	1,000
B1	CS1	3	Yes	No	6,000	6,000	1,00	1,00	6,000	6,000	78,30	131,28	6,000	1,000
B1	CS1	4	Yes	No	6,000	6,000	1,00	1,00	6,000	6,000	78,30	131,28	6,000	1,000
B1	CS1	5	Yes	No	6,000	6,000	1,00	1,00	6,000	6,000	78,30	131,28	6,000	1,000
B1	CS1	6	Yes	No	6,000	6,000	1,00	1,00	6,000	6,000	78,30	131,28	6,000	1,000
B1	CS1	7	Yes	No	6,000	6,000	1,00	1,00	6,000	6,000	78,30	131,28	6,000	1,500
B2	CS1	1	Yes	No	6,000	6,000	1,00	1,00	6,000	6,000	78,30	131,28	6,000	1,500
B2	CS1	2	Yes	No	6,000	6,000	1,00	1,00	6,000	6,000	78,30	131,28	6,000	1,000
B2	CS1	3	Yes	No	6,000	6,000	1,00	1,00	6,000	6,000	78,30	131,28	6,000	1,000
B2	CS1	4	Yes	No	6,000	6,000	1,00	1,00	6,000	6,000	78,30	131,28	6,000	1,000
B2	CS1	5	Yes	No	6,000	6,000	1,00	1,00	6,000	6,000	78,30	131,28	6,000	1,000
B2	CS1	6	Yes	No	6,000	6,000	1,00	1,00	6,000	6,000	78,30	131,28	6,000	1,000
B2	CS1	7	Yes	No	6,000	6,000	1,00	1,00	6,000	6,000	78,30	131,28	6,000	1,500
B3	CS4	1	Yes	No	1,200	1,200	1,00	1,00	1,200	1,200	18,29	30,12	1,200	1,200
B3	CS4	2	Yes	No	2,500	2,500	2,00	1,00	5,000	2,500	76,21	62,74	2,500	2,500
B4	CS4	1	Yes	No	1,200	1,200	1,00	1,00	1,200	1,200	18,29	30,12	1,200	1,200
B4	CS4	2	Yes	No	2,500	2,500	2,00	1,00	5,000	2,500	76,21	62,74	2,500	2,500
B5	CS3	1	Yes	No	1,000	1,000	1,00	1,00	1,000	1,000	14,40	49,56	1,000	1,000
B6	CS3	1	Yes	No	1,200	1,200	1,00	1,00	1,200	1,200	17,28	59,47	1,200	1,200
B7	CS3	1	Yes	No	1,200	1,200	1,00	1,00	1,200	1,200	17,28	59,47	1,200	1,200
B8	CS3	1	Yes	No	2,500	2,500	1,00	1,00	2,500	2,500	36,00	123,90	2,500	2,500
B9	CS3	1	Yes	No	2,500	2,500	1,00	1,00	2,500	2,500	36,00	123,90	2,500	2,500
B10	CS3	1	Yes	No	2,500	2,500	1,00	1,00	2,500	2,500	36,00	123,90	2,500	2,500
B11	CS3	1	Yes	No	2,500	2,500	1,00	1,00	2,500	2,500	36,00	123,90	2,500	2,500
B12	CS2	1	Yes	No	1,562	1,562	1,00	1,00	1,562	1,562	68,30	133,63	1,562	1,562
B13	Dummy	1	Yes	No	0,100	0,100	1,00	1,00	0,100	0,100	8,08	8,08	0,100	0,100
B14	Dummy	1	Yes	No	0,100	0,100	1,00	1,00	0,100	0,100	8,08	8,08	0,100	0,100
B15	Dummy	1	Yes	No	0,100	0,100	1,00	1,00	0,100	0,100	8,08	8,08	0,100	0,100
B16	Dummy	1	Yes	No	0,100	0,100	1,00	1,00	0,100	0,100	8,08	8,08	0,100	0,100
B17	Dummy	1	Yes	No	0,100	0,100	1,00	1,00	0,100	0,100	8,08	8,08	0,100	0,100
B18	Dummy	1	Yes	No	0,100	0,100	1,00	1,00	0,100	0,100	8,08	8,08	0,100	0,100
B19	Dummy	1	Yes	No	0,100	0,100	1,00	1,00	0,100	0,100	8,08	8,08	0,100	0,100
B20	Dummy	1	Yes	No	0,100	0,100	1,00	1,00	0,100	0,100	8,08	8,08	0,100	0,100
B21	Dummy	1	Yes	No	0,100	0,100	1,00	1,00	0,100	0,100	8,08	8,08	0,100	0,100
B22	Dummy	1	Yes	No	0,100	0,100	1,00	1,00	0,100	0,100	8,08	8,08	0,100	0,100
B23	Dummy	1	Yes	No	0,100	0,100	1,00	1,00	0,100	0,100	8,08	8,08	0,100	0,100
B24	Dummy	1	Yes	No	0,100	0,100	1,00	1,00	0,100	0,100	8,08	8,08	0,100	0,100
B25	CS5	1	Yes	No	1,167	1,400	1,00	1,00	1,167	1,400	20,37	39,78	1,400	1,400
B25	CS5	2	Yes	No	1,167	1,400	1,00	1,00	1,167	1,400	20,37	39,78	1,400	1,400
B25	CS5	3	Yes	No	0,233	1,400	1,00	1,00	0,233	1,400	4,07	39,78	1,400	1,400
B26	CS5	1	Yes	No	1,167	1,400	1,00	1,00	1,167	1,400	20,37	39,78	1,400	1,400
B26	CS5	2	Yes	No	1,167	1,400	1,00	1,00	1,167	1,400	20,37	39,78	1,400	1,400
B26	CS5	3	Yes	No	0,233	1,400	1,00	1,00	0,233	1,400	4,07	39,78	1,400	1,400
B27	CS5	1	Yes	No	1,537	1,537	1,00	1,00	1,537	1,537	26,83	43,66	1,537	1,537
B28	CS5	1	Yes	No	1,537	1,537	1,00	1,00	1,537	1,537	26,83	43,66	1,537	1,537
B29	CS3	1	Yes	No	2,500	2,700	1,00	1,00	2,500	2,700	36,00	133,81	2,700	2,700
B29	CS3	2	Yes	No	1,200	2,700	1,00	1,00	1,200	2,700	17,28	133,81	2,700	2,700
B29	CS3	3	Yes	No	1,200	1,000	1,00	1,00	1,200	1,000	17,28	49,56	1,000	1,000
B30	CS3	1	No	No	2,500	2,500	1,00	0,79	2,500	1,979	36,00	98,06	2,500	2,500
B30	CS3	2	No	No	2,500	2,500	1,00	0,79	2,500	1,979	36,00	98,06	2,500	2,500
B30	CS3	3	Yes	No	1,200	1,200	2,00	0,83	2,400	1,001	34,56	49,59	1,200	1,200
B30	CS3	4	Yes	No	1,200	1,200	2,00	0,83	2,400	1,001	34,56	49,59	1,200	1,200
B31	CS3	1	Yes	No	1,200	1,200	1,00	1,00	1,200	1,200	17,28	59,47	1,200	1,200
B33	Dummy	1	Yes	No	0,080	0,080	1,00	1,00	0,080	0,080	6,47	6,47	0,080	0,080
B34	Dummy	1	Yes	No	0,080	0,080	1,00	1,00	0,080	0,080	6,47	6,47	0,080	0,080
B35	Dummy	1	Yes	No	0,080	0,080	1,00	1,00	0,080	0,080	6,47	6,47	0,080	0,080
B36	Dummy	1	Yes	No	0,080	0,080	1,00	1,00	0,080	0,080	6,47	6,47	0,080	0,080
B37	Dummy	1	Yes	No	0,080	0,080	1,00	1,00	0,080	0,080	6,47	6,47	0,080	0,080
B38	Dummy	1	Yes	No	0,080	0,080	1,00	1,00	0,080	0,080	6,47	6,47	0,080	0,080
B39	Dummy	1	Yes	No	0,080	0,080	1,00	1,00	0,080	0,080	6,47	6,47	0,080	0,080
B40	Dummy	1	Yes	No	0,080	0,080	1,00	1,00	0,080	0,080	6,47	6,47	0,080	0,080
B41	CS3	1	Yes	No	1,200	1,200	1,00	1,00	1,200	1,200	17,28	59,47	1,200	1,200
B42	CS2	1	Yes	No	1,562	1,562	1,00	1,00	1,562	1,562	68,30	133,63	1,562	1,562
B43	CS2	1	Yes	No	1,882	1,882	1,00	1,00	1,882	1,882	82,29	161,02	1,882	1,882
B44	CS2	1	Yes	No	1,733	1,733	1,00	1,00	1,733	1,733	75,76	148,24	1,733	1,733

6.2. EC-EN 1993 Steel check ULS

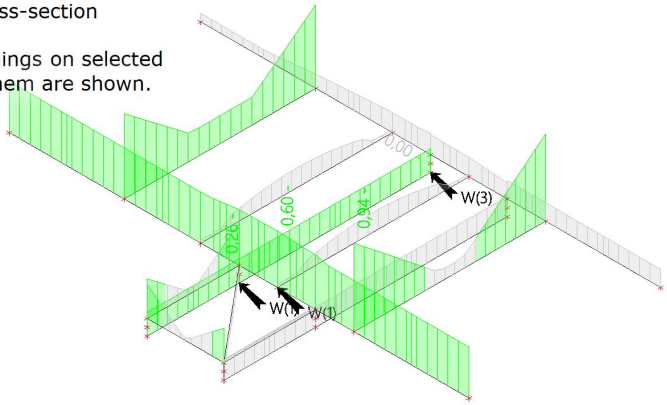
Linear calculation
Class: All ULS
Coordinate system: Principal
Extreme 1D: Cross-section
Selection: All
Filter: Layer = Layer1
There are 1 warnings on selected members. 1 of them are shown.
Overall Unity Check

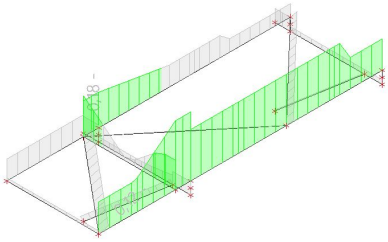
Name	dx [m]	Case	Cross-section	Material	$UC_{Overall}$ [-]	UC_{Sec} [-]	UC_{Stab} [-]	Errors, warnings, notes
B1	3,500+	ULS/1	CS1 - HEB180	S 355	**0,60**	0,60	0,55	W30
B3	1,200-	ULS/2	CS4 - HEA160	S 355	**0,26**	0,26	0,25	W30
B11	0,000	ULS_A1/3	CS3 - UNP180	S 355	**0,94**	0,94	0,00	
B42	0,000	ULS_A1/4	CS2 - HFLeq60x60x6	S 355	**0,12**	0,12	0,00	
B26	0,000	ULS/5	CS5 - HEA140	S 355	**0,18**	0,18	0,00	

Name	Combination key
ULS/1	1.20*DL + 1.20*DL1 + 1.20*DL2 + 1.50*LL
ULS/2	1.20*DL + 1.20*DL1 + 1.20*DL2 + 1.50*LL1
ULS_A1/3	DL + DL1 + DL2 + 0.30*LL + A + 0.20*Wx + 0.20*Wx1
ULS_A1/4	DL + DL1 + DL2 + A + 0.20*Wx + 0.20*Wx1
ULS/5	1.20*DL + 1.20*DL1 + 1.20*DL2 + 0.75*LL + 1.50*Wy + 1.50*Wy1

E/W/N	Description
W30	Not all conditions of the Dutch NEN-EN NA (Art. NB.NB.1) are fulfilled, therefore the standard EC-EN approach is used.

Values: **$UC_{Overall}$**
Linear calculation
Class: All ULS
Coordinate system: Principal
Extreme 1D: Cross-section
Selection: All
There are 3 warnings on selected members. 3 of them are shown.





6.3. EC-EN 1993 Steel Check SLS

Linear calculation
Class: Quasi
Coordinate system: Principal
Extreme 1D: Global
Selection: All
Filter: Layer = Layer1
Limit setting

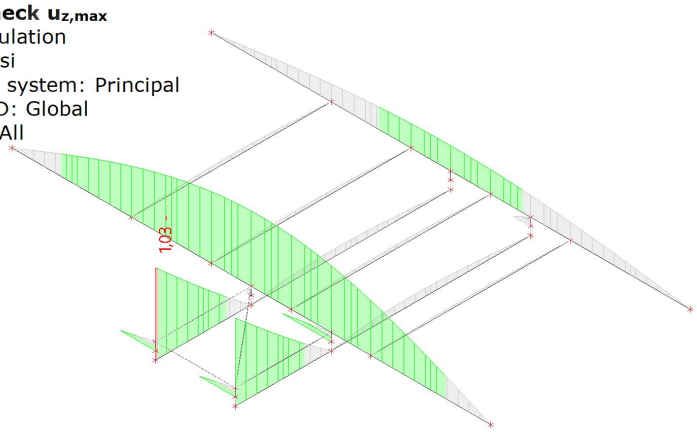
Name	dx [m]	$L_{def,y}$ [m] $L_{def,z}$ [m]	Total load y [1/xx] Total load z [1/xx]	Variable load y [1/xx] Variable load z [1/xx]	Lim. $u_{y,max}$ [mm] Lim. $u_{z,max}$ [mm]	Lim. $u_{y,var}$ [mm] Lim. $u_{z,var}$ [mm]
B1	0,000	**6,000**	1/250	1/333	24,0	18,0
		6,000	1/250	1/333	24,0	18,0

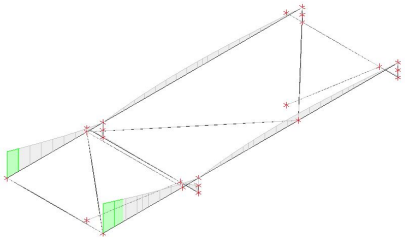
Linear calculation
Class: Quasi
Coordinate system: Principal
Extreme 1D: Global
Selection: All
Filter: Layer = Layer1
Deformation u_z

Name	dx [m]	Case	$u_{z,max}$ [mm]	$u_{z,var}$ [mm]	Lim. $u_{z,max}$ [mm]	Lim. $u_{z,var}$ [mm]	Check $u_{z,max}$ [-]	Check $u_{z,var}$ [-]	Camber dx u_z [mm]	Camber [mm]	Check u_z [-]
B3	0,000	Quasi/1	-9,9	-3,1	9,6	7,2	**1,03**	0,43	-	-	**1,03**

Name	Combination key
Quasi/1	DL + DL1 + DL2 + 0.30*LL1

Values: **Check $u_{z,max}$**
Linear calculation
Class: Quasi
Coordinate system: Principal
Extreme 1D: Global
Selection: All



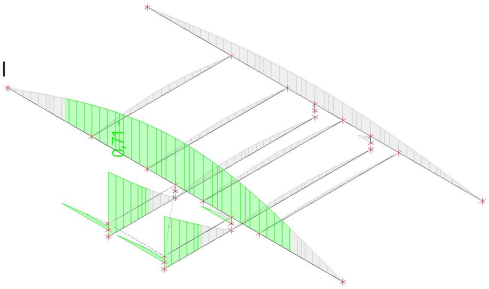


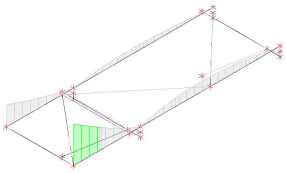
Linear calculation
Class: Frequent
Coordinate system: Principal
Extreme 1D: Global
Selection: All
Filter: Layer = Layer1
Deformation u_z

Name	dx [m]	Case	$u_{z,max}$ [mm]	$u_{z,var}$ [mm]	Lim. $u_{z,max}$ [mm]	Lim. $u_{z,var}$ [mm]	Check $u_{z,max}$ [-]	Check $u_{z,var}$ [-]	Camber dx u_z [mm]	Camber [mm]	Check u_z [-]
B3	0,000	Frequent/1	-11,9	-5,2	9,6	7,2	1,24	**0,71**	-	-	**1,24**

Name	Combination key
Frequent/1	DL + DL1 + DL2 + 0.50*LL1

Values: **Check $u_{z,var}$**
Linear calculation
Class: Frequent
Coordinate system: Principal
Extreme 1D: Global
Selection: All



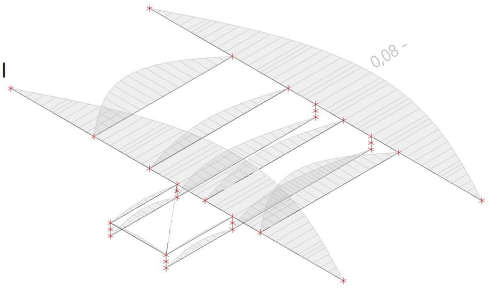


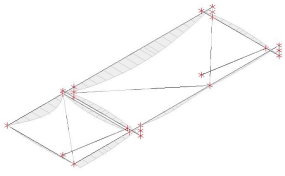
Linear calculation
Class: Frequent
Coordinate system: Principal
Extreme 1D: Global
Selection: All
Filter: Layer = Layer1
Deformation u_y

Name	dx [m]	Case	$u_{y,max}$ [mm]	$u_{y,var}$ [mm]	Lim. $u_{y,max}$ [mm]	Lim. $u_{y,var}$ [mm]	Check $u_{y,max}$ [-]	Check $u_{y,var}$ [-]	Check u_y [-]
B2	3,000-	Frequent/1	1,4	1,4	24,0	18,0	0,06	**0,08**	**0,08**

Name	Combination key
Frequent/1	DL + DL1 + DL2 + 0.20*Wy + 0.20*Wy1 + 0.30*LL1

Values: **Check $u_{y,var}$**
Linear calculation
Class: Frequent
Coordinate system: Principal
Extreme 1D: Global
Selection: All
Filter: Layer = Layer1





Appendix D

Scia report - pipe rack 3

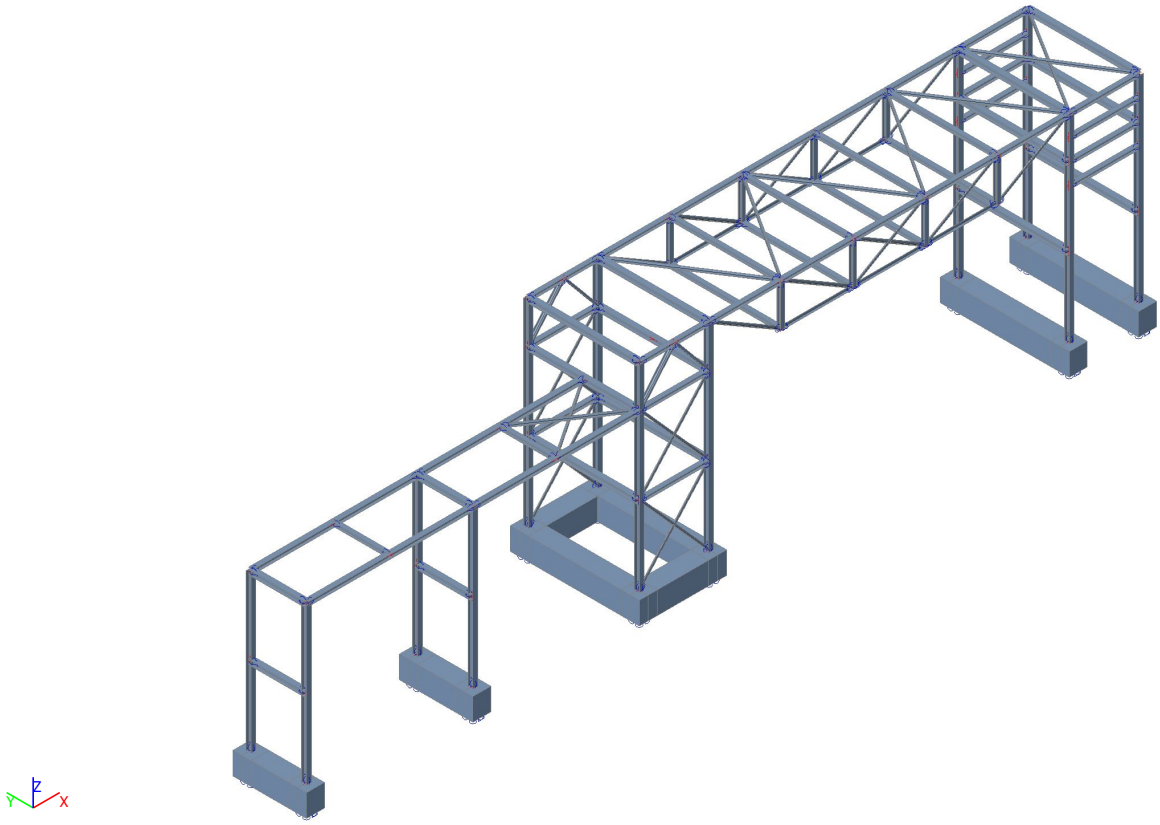
KH Engineering

1. Table of contents

2. General

2.1. Project

Licence name	KH Engineering
Project	Neste - Rotterdam terminal expansion
Part	Tank pit 3 - pipe rack 3 & 4
Description	Pipe rack 3
Author	LER
Date	08. 2021
Structure	General XYZ
No. of nodes :	122
No. of beams :	127
No. of slabs :	0
No. of solids :	0
No. of used profiles :	9
No. of load cases :	7
No. of used materials :	2
Acceleration of gravity [m/s^2]	9,810
National code	EC - EN



2.2. Setup manager

(STR/GEO) alternative

Combination	Eq.6.10a & Eq.6.10b

Psi factors

Load	Psi0	Psi1	Psi2
CategoryA	0.4	0.5	0.3
CategoryB	0.5	0.5	0.3
CategoryC	0.6	0.7	0.6
CategoryD	0.4	0.7	0.6
CategoryE	1	0.9	0.8
CategoryF	0.7	0.7	0.6
CategoryG	0.7	0.5	0.3
CategoryH	0	0	0
Snow	0	0.2	0

Load	Psi0	Psi1	Psi2
Wind	0.6	0.2	0
Temperature	0.6	0.5	0
Rain water	0	0	0
Construction loads	1	0	0.2

Load combination factors

Permanent action - unfavorable	1,35
Permanent action - favorable [-]	0,90
Leading variable action	1,50
Accompanying variable action	1,50
Reduction factor ksi [-]	0,89
Permanent action - unfavorable	1,00
Permanent action - favorable	1,00
Leading variable action	1,30
Accompanying variable action	1,30

2.3. Materials

Steel EC3

Name	ρ [kg/m³]	E_{mod} [MPa] G_{mod} [MPa]	μ α [m/mK]	Lower limit [mm]	Upper limit [mm]	F_y [MPa]	F_u [MPa]	Colour
S 355	7850,0	2,1000e+05 8,0769e+04	0.3 0,00	0 40	40 80	355,0 335,0	490,0 470,0	

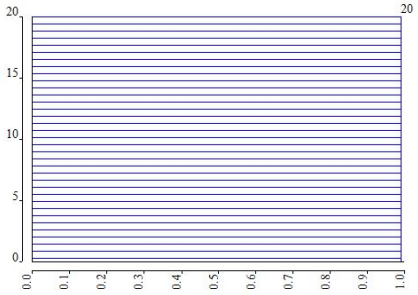
Name	Type	ρ [kg/m³]	Density in fresh state [kg/m³]	E_{mod} [MPa]	μ	α [m/mK]	$f_{c.k.28}$ [MPa]	Colour
C30/37	Concrete	2500,0	2600,0	3,2800e+04	0.2	0,00	30,00	

Explanations of symbols	
Density in fresh state	The value in the density in fresh state property is used only in case a composite deck is input and its self-weight load is taken into account.

2.4. Wind pressures

Name	WP1
Input	user
Height / Pressure	0,000[m] / 1,0[kN/m²] 20,000[m] / 1,0[kN/m²]

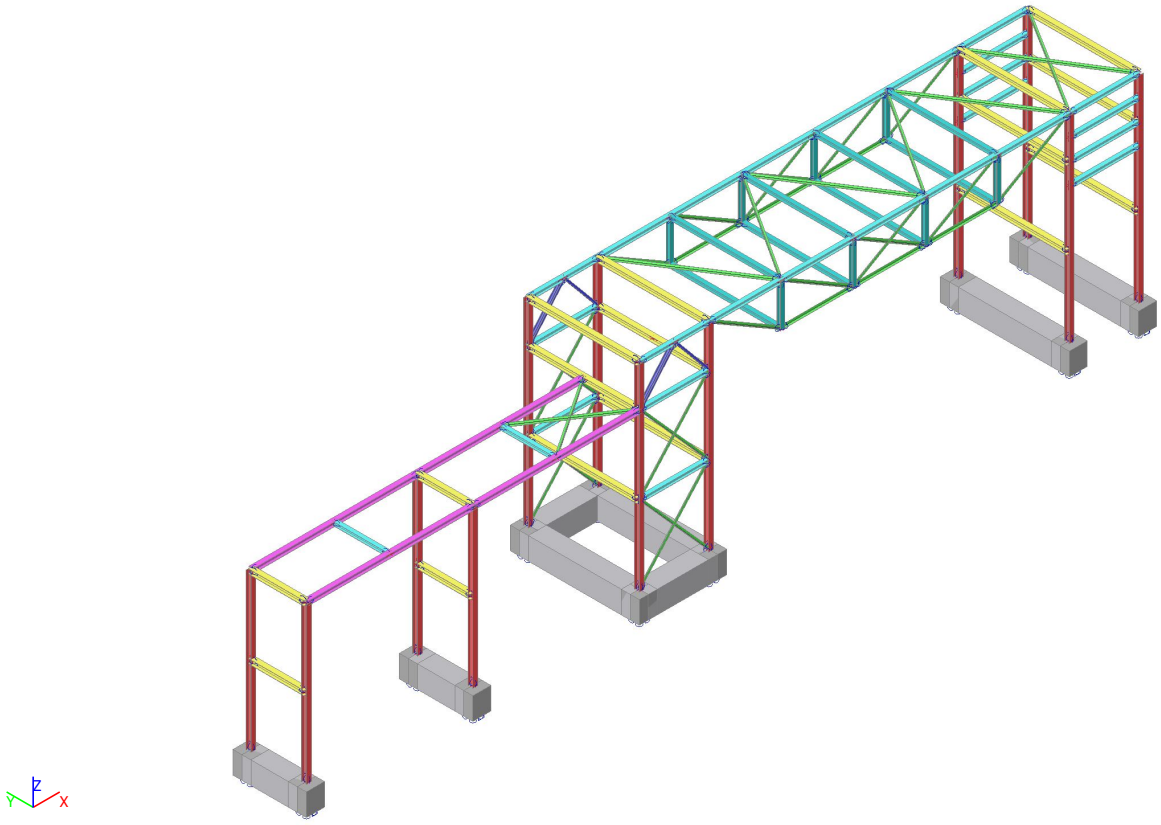
Drawing



3. Structure

3.1. Cross-sections

Name	Type Detailed	Item material	Fabrication	A [m²]	A_y [m²] A_z [m²]	I_y [m⁴] I_z [m⁴]	$W_{el.y}$ [m³] $W_{el.z}$ [m³]	$W_{pl.y}$ [m³] $W_{pl.z}$ [m³]	Colour
CS1	Rectangle 650; 650	C30/37	concrete	4,2250e-01	3,5245e-01 3,5245e-01	1,4876e-02 1,4876e-02	4,5771e-02 4,5771e-02	0,0000e+00 0,0000e+00	
CS2	Rectangle 800; 650	C30/37	concrete	5,2000e-01	4,3392e-01 4,3372e-01	2,7733e-02 1,8308e-02	6,9333e-02 5,6333e-02	0,0000e+00 0,0000e+00	
CS3	HEA140	S 355	rolled	3,1400e-03	2,2882e-03 7,8192e-04	1,0300e-05 3,8900e-06	1,5500e-04 5,5600e-05	1,7333e-04 8,5000e-05	
CS4	HEA140	S 355	rolled	3,1400e-03	2,2882e-03 7,8192e-04	1,0300e-05 3,8900e-06	1,5500e-04 5,5600e-05	1,7333e-04 8,5000e-05	
CS5	HEA160	S 355	rolled	3,8800e-03	2,8071e-03 9,8390e-04	1,6700e-05 6,1600e-06	2,2000e-04 7,7000e-05	2,4500e-04 1,1750e-04	
CS6	HEA180	S 355	rolled	4,5300e-03	3,2772e-03 1,0992e-03	2,5100e-05 9,2500e-06	2,9400e-04 1,0300e-04	3,2500e-04 1,5667e-04	
CS7	HEB180	S 355	rolled	6,5250e-03	4,8159e-03 1,6236e-03	3,8310e-05 1,3630e-05	4,2570e-04 1,5140e-04	4,8140e-04 2,3100e-04	
CS8	HFLeq80x80x8	S 355	rolled	1,2270e-03	1,0315e-03 1,0375e-03	1,1460e-06 2,9880e-07	2,0252e-05 9,3703e-06	3,2190e-05 1,6563e-05	
CS9	UNP140	S 355	rolled	2,0400e-03	1,1529e-03 9,8472e-04	6,0500e-06 6,2700e-07	8,6400e-05 1,4800e-05	1,0280e-04 2,8300e-05	



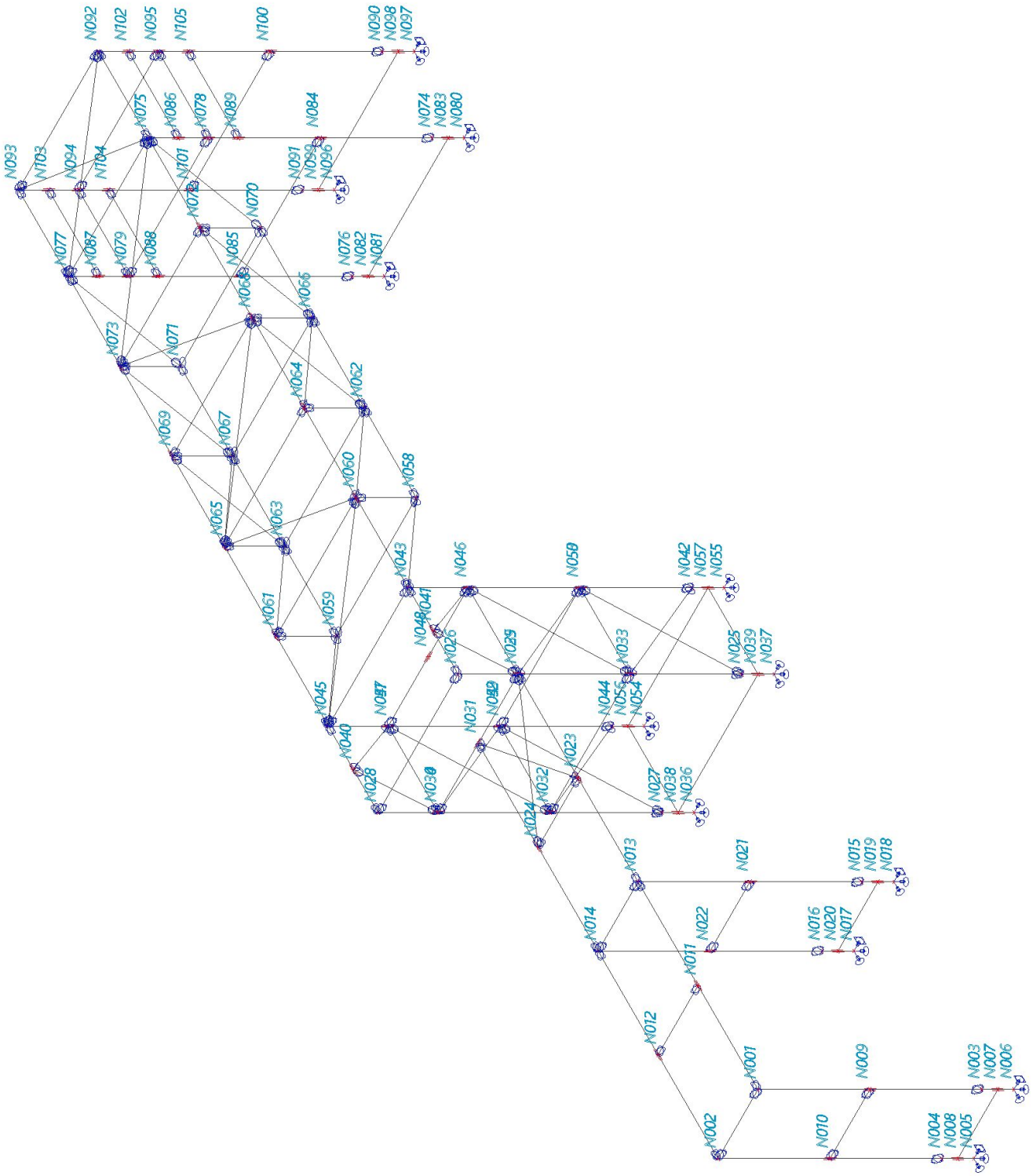
3.2. Nodes

Name	Coord X [m]	Coord Y [m]	Coord Z [m]
N001	0,000	0,000	5,600
N002	0,000	2,000	5,600
N003	0,000	0,000	0,000
N004	0,000	2,000	0,000
N005	0,000	2,000	-0,800
N006	0,000	0,000	-0,800
N007	0,000	0,000	-0,400

Name	Coord X [m]	Coord Y [m]	Coord Z [m]
N008	0,000	2,000	-0,400
N009	0,000	0,000	2,800
N010	0,000	2,000	2,800
N011	3,000	0,000	5,600
N012	3,000	2,000	5,600
N013	6,000	0,000	5,600
N014	6,000	2,000	5,600

Name	Coord X [m]	Coord Y [m]	Coord Z [m]
N015	6,000	0,000	0,000
N016	6,000	2,000	0,000
N017	6,000	2,000	-0,800
N018	6,000	0,000	-0,800
N019	6,000	0,000	-0,400
N020	6,000	2,000	-0,400
N021	6,000	0,000	2,800

Name	Coord X [m]	Coord Y [m]	Coord Z [m]
N022	6,000	2,000	2,800
N023	9,000	0,000	5,600
N024	9,000	2,000	5,600
N025	12,000	0,000	0,000
N026	12,000	0,000	7,100
N027	12,000	4,000	0,000
N028	12,000	4,000	7,100
N029	12,000	0,000	5,600
N030	12,000	4,000	5,600
N031	12,000	2,000	5,600
N032	12,000	4,000	2,800
N033	12,000	0,000	2,800
N034	12,000	4,000	5,600
N035	12,000	0,000	5,600
N036	12,000	4,000	-0,800
N037	12,000	0,000	-0,800
N038	12,000	4,000	-0,400
N039	12,000	0,000	-0,400
N040	13,250	4,000	7,100
N041	13,250	0,000	7,100
N042	14,500	0,000	0,000
N043	14,500	0,000	7,100
N044	14,500	4,000	0,000
N045	14,500	4,000	7,100
N046	14,500	0,000	5,600
N047	14,500	4,000	5,600
N048	14,500	2,000	5,600
N049	14,500	4,000	2,800
N050	14,500	0,000	2,800
N051	14,500	4,000	5,600
N052	14,500	4,000	2,800
N053	14,500	0,000	2,800
N054	14,500	4,000	-0,800
N055	14,500	0,000	-0,800
N056	14,500	4,000	-0,400
N057	14,500	0,000	-0,400
N058	17,100	0,000	5,600
N059	17,100	4,000	5,600
N060	17,100	0,000	7,100
N061	17,100	4,000	7,100
N062	19,700	0,000	5,600
N063	19,700	4,000	5,600
N064	19,700	0,000	7,100
N065	19,700	4,000	7,100
N066	22,300	0,000	5,600
N067	22,300	4,000	5,600
N068	22,300	0,000	7,100
N069	22,300	4,000	7,100
N070	24,900	0,000	5,600
N71	28,750	0,000	7,100
N071	24,900	4,000	5,600
N072	24,900	0,000	7,100
N073	24,900	4,000	7,100
N074	27,500	0,000	0,000
N74	28,750	4,000	7,100
N75	28,750	0,000	5,600
N075	27,500	0,000	7,100
N076	27,500	4,000	0,000
N76	13,500	0,000	5,600
N077	27,500	4,000	7,100
N77	13,500	4,000	5,600
N078	27,500	0,000	5,600
N78	28,750	4,000	5,600
N079	27,500	4,000	5,600
N79	13,500	2,000	5,600
N080	27,500	0,000	-0,800
N081	27,500	4,000	-0,800
N082	27,500	4,000	-0,400
N083	27,500	0,000	-0,400
N084	27,500	0,000	2,800
N085	27,500	4,000	2,800
N086	27,500	0,000	6,350
N087	27,500	4,000	6,350
N088	27,500	4,000	4,850
N089	27,500	0,000	4,850
N090	30,000	0,000	0,000
N091	30,000	4,000	0,000
N092	30,000	0,000	7,100
N093	30,000	4,000	7,100
N094	30,000	4,000	5,600
N095	30,000	0,000	5,600
N096	30,000	4,000	-0,800
N097	30,000	0,000	-0,800
N098	30,000	0,000	-0,400
N099	30,000	4,000	-0,400
N100	30,000	0,000	2,800
N101	30,000	4,000	2,800
N102	30,000	0,000	6,350
N103	30,000	4,000	6,350
N104	30,000	4,000	4,850
N105	30,000	0,000	4,850
N115	30,000	-2,000	4,850
N116	30,000	6,000	4,850
N117	27,500	6,000	4,850
N118	27,500	-2,000	4,850
N119	27,500	6,000	6,350
N120	30,000	-2,000	6,350
N121	30,000	6,000	6,350
N122	27,500	-2,000	6,350
N123	-1,500	0,000	5,600
N124	-1,500	2,000	5,600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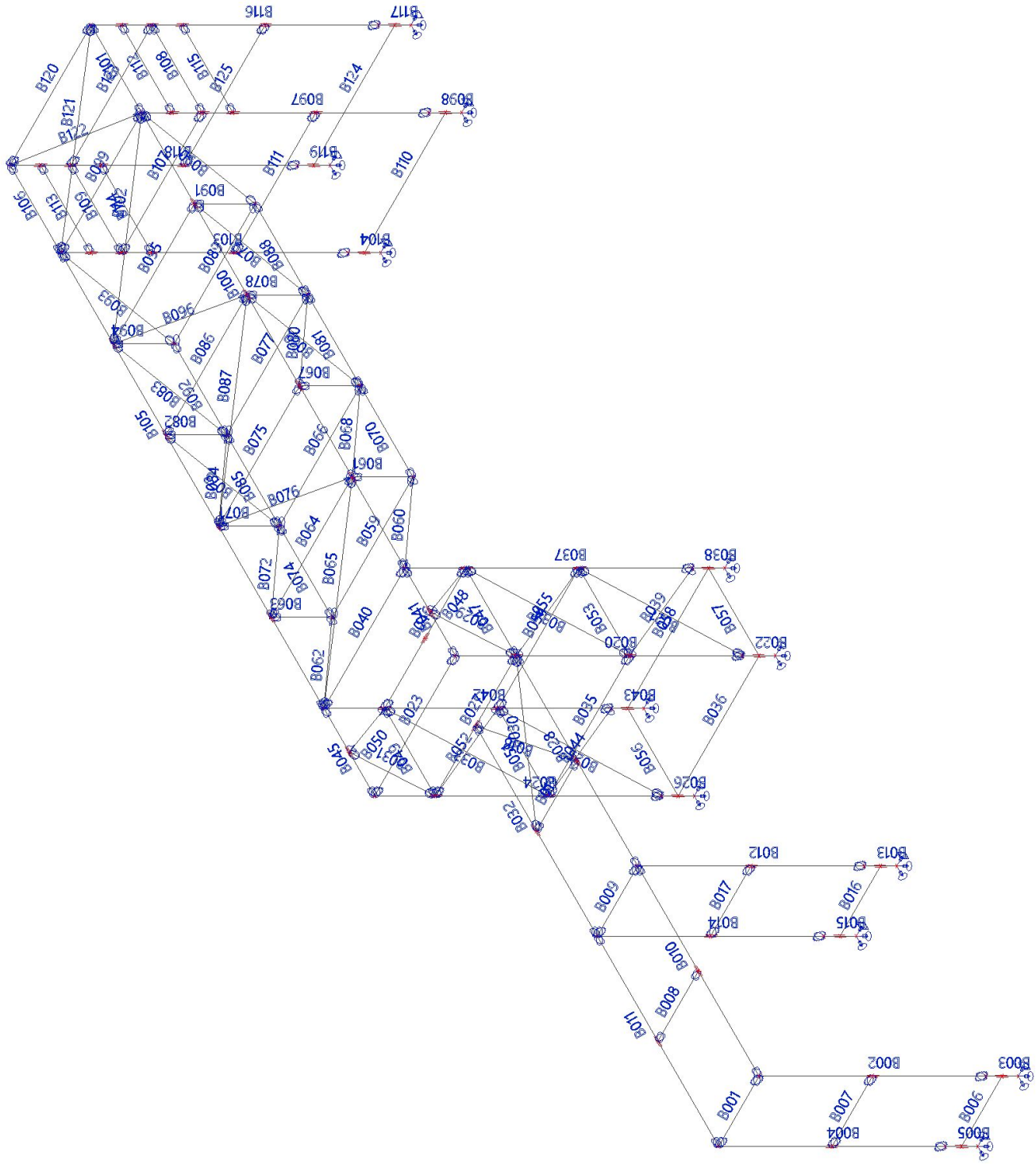
N008
N005

3.3. Members

Name	Cross-section	Material	Length [m]	Beg. node	End node	Type	system length
B001	CS6 - HEA180	S 355	2,000	N001	N002	beam (80)	BG1
B002	CS7 - HEB180	S 355	5,600	N003	N001	column (100)	BG6
B003	CS1 - Rectangle (650; 650)	C30/37	0,800	N003	N006	general (0)	Default
B004	CS7 - HEB180	S 355	5,600	N004	N002	column (100)	BG6
B005	CS1 - Rectangle (650; 650)	C30/37	0,800	N004	N005	general (0)	Default
B006	CS2 - Rectangle (800; 650)	C30/37	2,000	N007	N008	general (0)	Default
B007	CS6 - HEA180	S 355	2,000	N009	N010	beam (80)	BG1
B008	CS3 - HEA140	S 355	2,000	N011	N012	beam (80)	BG1
B009	CS6 - HEA180	S 355	2,000	N013	N014	beam (80)	BG1
B010	CS5 - HEA160	S 355	6,000	N013	N001	beam (80)	BG2
B011	CS5 - HEA160	S 355	6,000	N014	N002	beam (80)	BG2
B012	CS7 - HEB180	S 355	5,600	N015	N013	column (100)	BG6
B013	CS1 - Rectangle (650; 650)	C30/37	0,800	N015	N018	general (0)	Default
B014	CS7 - HEB180	S 355	5,600	N016	N014	column (100)	BG6
B015	CS1 - Rectangle (650; 650)	C30/37	0,800	N016	N017	general (0)	Default
B016	CS2 - Rectangle (800; 650)	C30/37	2,000	N019	N020	general (0)	Default
B017	CS6 - HEA180	S 355	2,000	N021	N022	beam (80)	BG1
B018	CS8 - HFLeq80x80x8	S 355	3,606	N023	N031	roof bracing (0)	BG1
B019	CS3 - HEA140	S 355	2,000	N023	N024	beam (80)	BG1
B020	CS7 - HEB180	S 355	7,100	N025	N026	column (100)	BG4
B021	CS8 - HFLeq80x80x8	S 355	3,754	N025	N053	wall bracing (0)	BG1
B022	CS1 - Rectangle (650; 650)	C30/37	0,800	N025	N037	general (0)	Default
B023	CS6 - HEA180	S 355	4,000	N026	N028	beam (80)	BG1
B024	CS7 - HEB180	S 355	7,100	N027	N028	column (100)	BG4
B025	CS8 - HFLeq80x80x8	S 355	3,754	N027	N052	wall bracing (0)	BG1
B026	CS1 - Rectangle (650; 650)	C30/37	0,800	N027	N036	general (0)	Default
B027	CS6 - HEA180	S 355	4,000	N029	N030	beam (80)	BG2
B028	CS5 - HEA160	S 355	6,000	N029	N013	beam (80)	BG2
B029	CS9 - UNP140	S 355	1,953	N029	N041	wall bracing (0)	BG1
B030	CS8 - HFLeq80x80x8	S 355	3,606	N029	N024	roof bracing (0)	BG1
B031	CS9 - UNP140	S 355	1,953	N030	N040	wall bracing (0)	BG1
B032	CS5 - HEA160	S 355	6,000	N031	N014	beam (80)	BG2
B033	CS8 - HFLeq80x80x8	S 355	3,754	N032	N051	wall bracing (0)	BG1
B034	CS8 - HFLeq80x80x8	S 355	3,754	N033	N046	wall bracing (0)	BG1
B035	CS6 - HEA180	S 355	4,000	N033	N032	beam (80)	BG1
B036	CS2 - Rectangle (800; 650)	C30/37	4,000	N039	N038	general (0)	Default
B037	CS7 - HEB180	S 355	7,100	N042	N043	column (100)	BG4
B038	CS1 - Rectangle (650; 650)	C30/37	0,800	N042	N055	general (0)	Default
B039	CS8 - HFLeq80x80x8	S 355	3,754	N042	N033	wall bracing (0)	BG1
B040	CS6 - HEA180	S 355	4,000	N043	N045	beam (80)	BG1
B041	CS3 - HEA140	S 355	2,500	N043	N026	beam (80)	BG2
B042	CS7 - HEB180	S 355	7,100	N044	N045	column (100)	BG4
B043	CS1 - Rectangle (650; 650)	C30/37	0,800	N044	N054	general (0)	Default
B044	CS8 - HFLeq80x80x8	S 355	3,754	N044	N032	wall bracing (0)	BG1
B045	CS3 - HEA140	S 355	2,500	N045	N028	beam (80)	BG2
B046	CS6 - HEA180	S 355	4,000	N046	N047	beam (80)	BG2
B047	CS3 - HEA140	S 355	2,500	N046	N029	beam (80)	BG1
B048	CS9 - UNP140	S 355	1,953	N046	N041	wall bracing (0)	BG1
B049	CS3 - HEA140	S 355	2,500	N047	N030	beam (80)	BG1
B050	CS9 - UNP140	S 355	1,953	N047	N040	wall bracing (0)	BG1
B051	CS3 - HEA140	S 355	2,500	N049	N032	beam (80)	BG1
B052	CS8 - HFLeq80x80x8	S 355	3,754	N049	N030	wall bracing (0)	BG1
B053	CS3 - HEA140	S 355	2,500	N050	N033	beam (80)	BG1
B054	CS6 - HEA180	S 355	4,000	N050	N049	beam (80)	BG1
B055	CS8 - HFLeq80x80x8	S 355	3,754	N050	N029	wall bracing (0)	BG1
B056	CS2 - Rectangle (800; 650)	C30/37	2,500	N056	N038	general (0)	Default
B057	CS2 - Rectangle (800; 650)	C30/37	2,500	N057	N039	general (0)	Default
B058	CS2 - Rectangle (800; 650)	C30/37	4,000	N057	N056	general (0)	Default
B059	CS4 - HEA140	S 355	4,000	N058	N059	beam (80)	BG1
B060	CS8 - HFLeq80x80x8	S 355	3,002	N058	N043	wall bracing (0)	BG1
B061	CS4 - HEA140	S 355	1,500	N058	N060	column (100)	BG1
B062	CS8 - HFLeq80x80x8	S 355	3,002	N059	N045	wall bracing (0)	BG1
B063	CS4 - HEA140	S 355	1,500	N059	N061	column (100)	BG1
B064	CS4 - HEA140	S 355	4,000	N060	N061	beam (80)	BG1
B065	CS8 - HFLeq80x80x8	S 355	4,771	N060	N045	general (0)	BG1
B066	CS4 - HEA140	S 355	4,000	N062	N063	beam (80)	BG1
B067	CS4 - HEA140	S 355	1,500	N062	N064	column (100)	BG1
B068	CS8 - HFLeq80x80x8	S 355	3,002	N062	N060	wall bracing (0)	BG1
B069	CS8 - HFLeq80x80x8	S 355	3,002	N062	N068	wall bracing (0)	BG1
B070	CS8 - HFLeq80x80x8	S 355	2,600	N062	N058	beam (80)	BG1
B071	CS4 - HEA140	S 355	1,500	N063	N065	column (100)	BG1
B072	CS8 - HFLeq80x80x8	S 355	3,002	N063	N061	wall bracing (0)	BG1
B073	CS8 - HFLeq80x80x8	S 355	3,002	N063	N069	wall bracing (0)	BG1

Name	Cross-section	Material	Length [m]	Beg. node	End node	Type	system length
B074	CS8 - HFLeq80x80x8	S 355	2,600	N063	N059	beam (80)	BG1
B075	CS4 - HEA140	S 355	4,000	N064	N065	beam (80)	BG1
B076	CS8 - HFLeq80x80x8	S 355	4,771	N065	N060	general (0)	BG1
B077	CS4 - HEA140	S 355	4,000	N066	N067	beam (80)	BG1
B078	CS4 - HEA140	S 355	1,500	N066	N068	column (100)	BG1
B079	CS8 - HFLeq80x80x8	S 355	3,002	N066	N072	wall bracing (0)	BG1
B080	CS8 - HFLeq80x80x8	S 355	3,002	N066	N064	wall bracing (0)	BG1
B081	CS8 - HFLeq80x80x8	S 355	2,600	N066	N062	beam (80)	BG1
B082	CS4 - HEA140	S 355	1,500	N067	N069	column (100)	BG1
B083	CS8 - HFLeq80x80x8	S 355	3,002	N067	N073	wall bracing (0)	BG1
B084	CS8 - HFLeq80x80x8	S 355	3,002	N067	N065	wall bracing (0)	BG1
B085	CS8 - HFLeq80x80x8	S 355	2,600	N067	N063	beam (80)	BG1
B086	CS4 - HEA140	S 355	4,000	N068	N069	beam (80)	BG1
B087	CS8 - HFLeq80x80x8	S 355	4,771	N068	N065	general (0)	BG1
B088	CS8 - HFLeq80x80x8	S 355	2,600	N070	N066	beam (80)	BG1
B089	CS4 - HEA140	S 355	4,000	N070	N071	beam (80)	BG1
B090	CS8 - HFLeq80x80x8	S 355	3,002	N070	N075	wall bracing (0)	BG1
B091	CS4 - HEA140	S 355	1,500	N070	N072	column (100)	BG1
B092	CS8 - HFLeq80x80x8	S 355	2,600	N071	N067	beam (80)	BG1
B093	CS8 - HFLeq80x80x8	S 355	3,002	N071	N077	wall bracing (0)	BG1
B094	CS4 - HEA140	S 355	1,500	N071	N073	column (100)	BG1
B095	CS4 - HEA140	S 355	4,000	N072	N073	beam (80)	BG1
B096	CS8 - HFLeq80x80x8	S 355	4,771	N073	N068	general (0)	BG1
B097	CS7 - HEB180	S 355	7,100	N074	N075	column (100)	BG5
B098	CS1 - Rectangle (650; 650)	C30/37	0,800	N074	N080	general (0)	Default
B099	CS6 - HEA180	S 355	4,000	N075	N077	beam (80)	BG1
B100	CS3 - HEA140	S 355	13,000	N075	N043	beam (80)	BG3
B101	CS3 - HEA140	S 355	2,500	N075	N092	beam (80)	BG1
B102	CS8 - HFLeq80x80x8	S 355	4,771	N075	N073	general (0)	BG1
B103	CS7 - HEB180	S 355	7,100	N076	N077	column (100)	BG5
B104	CS1 - Rectangle (650; 650)	C30/37	0,800	N076	N081	general (0)	Default
B105	CS3 - HEA140	S 355	13,000	N077	N045	beam (80)	BG3
B106	CS3 - HEA140	S 355	2,500	N077	N093	beam (80)	BG1
B107	CS6 - HEA180	S 355	4,000	N078	N079	beam (80)	BG1
B108	CS3 - HEA140	S 355	2,500	N078	N095	beam (80)	BG1
B109	CS3 - HEA140	S 355	2,500	N079	N094	beam (80)	BG1
B110	CS2 - Rectangle (800; 650)	C30/37	4,000	N083	N082	general (0)	Default
B111	CS6 - HEA180	S 355	4,000	N084	N085	beam (80)	BG1
B112	CS3 - HEA140	S 355	2,500	N086	N102	beam (80)	BG1
B113	CS3 - HEA140	S 355	2,500	N087	N103	beam (80)	BG1
B114	CS3 - HEA140	S 355	2,500	N088	N104	beam (80)	BG1
B115	CS3 - HEA140	S 355	2,500	N089	N105	beam (80)	BG1
B116	CS7 - HEB180	S 355	7,100	N090	N092	column (100)	BG5
B117	CS1 - Rectangle (650; 650)	C30/37	0,800	N090	N097	general (0)	Default
B118	CS7 - HEB180	S 355	7,100	N091	N093	column (100)	BG5
B119	CS1 - Rectangle (650; 650)	C30/37	0,800	N091	N096	general (0)	Default
B120	CS6 - HEA180	S 355	4,000	N092	N093	beam (80)	BG1
B121	CS8 - HFLeq80x80x8	S 355	4,717	N092	N077	general (0)	BG1
B122	CS8 - HFLeq80x80x8	S 355	4,717	N093	N075	general (0)	BG1
B123	CS6 - HEA180	S 355	4,000	N095	N094	beam (80)	BG1
B124	CS2 - Rectangle (800; 650)	C30/37	4,000	N098	N099	general (0)	Default
B125	CS6 - HEA180	S 355	4,000	N100	N101	beam (80)	BG1
B126	CS8 - HFLeq80x80x8	S 355	4,717	N043	N028	general (0)	BG1
B127	CS8 - HFLeq80x80x8	S 355	4,717	N045	N026	general (0)	BG1



3.4. System lengths and buckling groups

Name Description	Number of parts	Member(s) material	ky factor kz factor	Point of load application	Bow imperfection e0,y Bow imperfection e0,z
BG1	1	Steel, other	Factor Factor	In shear center	no bow imperfection no bow imperfection
BG2	2	Steel, other	Factor Factor	In shear center	no bow imperfection no bow imperfection
BG3	5	Steel, other	Factor Factor	In shear center	no bow imperfection no bow imperfection
BG4	3	Steel, other	Factor Factor	In shear center	no bow imperfection no bow imperfection
BG5	5	Steel, other	Factor Factor	In shear center	no bow imperfection no bow imperfection
BG6	2	Steel, other	Factor Factor	In shear center	no bow imperfection no bow imperfection

3.5. Load panels

Name	Panel type	Load transfer direction	Selection of entities
LP1	To panel edges and beams	X (LCS panel)	Auto selection
LP2	To panel edges and beams	X (LCS panel)	Auto selection
LP3	To panel edges and beams	X (LCS panel)	Auto selection
LP4	To panel edges and beams	Y (LCS panel)	Auto selection
LP5	To panel edges and beams	Y (LCS panel)	Auto selection

Explanations of symbols	
Selection of entities	All: selects all edges and beams that support the panel at the same place. Auto selection: in the cases where two or more supporting elements overlap, the selection omits edges that belong to 2D members that lie in the same plane as the panel. User selection: requires a manual selection of supporting edges and beams (by means of using an Action button). By type: only beam members of the types selected in the list are considered as supporting elements.

3.6. Hinges

Name	Member	Position	ux	uy	uz	fix	fiy	fiz	Stiff - fiy [MNm/rad]
H1	B070	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H2	B081	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H3	B088	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H4	B092	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H5	B085	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H6	B074	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H7	B062	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H8	B093	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H9	B060	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H10	B090	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H11	B094	End	Rigid	Rigid	Rigid	Rigid	Free	Free	
H12	B082	End	Rigid	Rigid	Rigid	Rigid	Free	Free	
H13	B071	End	Rigid	Rigid	Rigid	Rigid	Free	Free	
H14	B072	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H15	B083	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H16	B084	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H17	B073	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H18	B091	End	Rigid	Rigid	Rigid	Rigid	Free	Free	
H19	B078	End	Rigid	Rigid	Rigid	Rigid	Free	Free	
H20	B067	End	Rigid	Rigid	Rigid	Rigid	Free	Free	
H21	B068	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H22	B079	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H23	B080	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H24	B069	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H25	B063	End	Rigid	Rigid	Rigid	Rigid	Free	Free	
H26	B061	End	Rigid	Rigid	Rigid	Rigid	Free	Free	
H27	B095	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H28	B086	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H29	B064	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H30	B075	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H31	B089	Both	Rigid	Rigid	Rigid	Rigid	Rigid	Free	

Name	Member	Position	ux	uy	uz	fix	fiy	fiz	Stiff - fiy [MNm/rad]
H32	B077	Both	Rigid	Rigid	Rigid	Rigid	Rigid	Free	
H33	B066	Both	Rigid	Rigid	Rigid	Rigid	Rigid	Free	
H34	B059	Both	Rigid	Rigid	Rigid	Rigid	Rigid	Free	
H35	B123	Both	Rigid	Rigid	Rigid	Rigid	Flexible	Free	2,2500e+01
H36	B120	Both	Rigid	Rigid	Rigid	Rigid	Flexible	Free	1,2500e+01
H37	B027	Both	Rigid	Rigid	Rigid	Rigid	Flexible	Free	2,2500e+01
H38	B023	Both	Rigid	Rigid	Rigid	Rigid	Flexible	Free	1,2500e+01
H39	B024	Begin	Rigid	Rigid	Rigid	Rigid	Flexible	Free	1,5000e+01
H40	B020	Begin	Rigid	Rigid	Rigid	Rigid	Flexible	Free	1,5000e+01
H41	B042	Begin	Rigid	Rigid	Rigid	Rigid	Flexible	Free	1,5000e+01
H42	B037	Begin	Rigid	Rigid	Rigid	Rigid	Flexible	Free	1,5000e+01
H43	B097	Begin	Rigid	Rigid	Rigid	Rigid	Flexible	Free	1,5000e+01
H44	B103	Begin	Rigid	Rigid	Rigid	Rigid	Flexible	Free	1,5000e+01
H45	B116	Begin	Rigid	Rigid	Rigid	Rigid	Flexible	Free	1,5000e+01
H46	B118	Begin	Rigid	Rigid	Rigid	Rigid	Flexible	Free	1,5000e+01
H47	B035	Both	Rigid	Rigid	Rigid	Rigid	Flexible	Free	2,2500e+01
H48	B111	Both	Rigid	Rigid	Rigid	Rigid	Flexible	Free	2,2500e+01
H49	B125	Both	Rigid	Rigid	Rigid	Rigid	Flexible	Free	2,2500e+01
H50	B010	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H51	B011	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H52	B008	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H53	B028	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H54	B032	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H55	B019	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H56	B051	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H57	B053	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H58	B025	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H59	B033	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H60	B034	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H61	B021	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H62	B050	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H63	B031	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H64	B048	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H65	B029	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H66	B045	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H67	B041	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H68	B049	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H69	B047	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H71	B018	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H73	B100	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H74	B105	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H75	B101	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H76	B106	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H77	B109	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H78	B108	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H87	B107	Both	Rigid	Rigid	Rigid	Rigid	Flexible	Free	2,2500e+01
H88	B099	Both	Rigid	Rigid	Rigid	Rigid	Flexible	Free	1,2500e+01
H89	B112	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H90	B113	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H91	B114	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H92	B115	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H93	B012	Begin	Rigid	Rigid	Rigid	Rigid	Flexible	Free	1,5000e+01
H94	B014	Begin	Rigid	Rigid	Rigid	Rigid	Flexible	Free	1,5000e+01
H95	B002	Begin	Rigid	Rigid	Rigid	Rigid	Flexible	Free	1,5000e+01
H96	B004	Begin	Rigid	Rigid	Rigid	Rigid	Flexible	Free	1,5000e+01
H97	B052	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H98	B055	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H99	B044	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H100	B039	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H102	B030	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H103	B040	Both	Rigid	Rigid	Rigid	Rigid	Flexible	Free	1,2500e+01
H104	B046	Both	Rigid	Rigid	Rigid	Rigid	Flexible	Free	2,2500e+01
H105	B054	Both	Rigid	Rigid	Rigid	Rigid	Flexible	Free	2,2500e+01
H106	B009	Both	Rigid	Rigid	Rigid	Rigid	Flexible	Free	1,2500e+01
H107	B001	Both	Rigid	Rigid	Rigid	Rigid	Flexible	Free	1,2500e+01
H108	B121	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H109	B122	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H110	B017	Both	Rigid	Rigid	Rigid	Rigid	Flexible	Free	2,2500e+01
H111	B007	Both	Rigid	Rigid	Rigid	Rigid	Flexible	Free	2,2500e+01
H112	B102	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H113	B096	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H114	B087	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H115	B076	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H116	B065	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H117	B126	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	

Name	Member	Position	ux	uy	uz	fix	fiy	fiz	Stiff - fiy [MNm/rad]
H118	B127	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	

3.7. Nodal supports

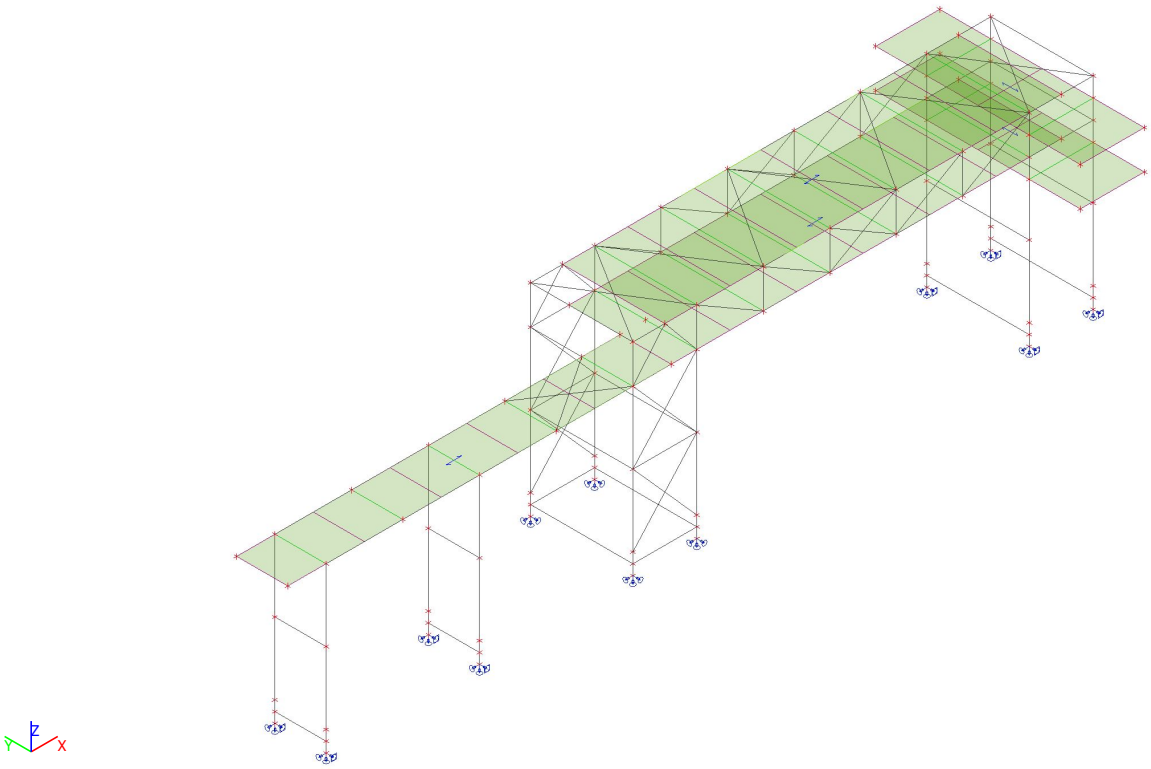
Name	Node	System	Type	X	Y	Z	Rx	Ry	Rz	Stiffness X [MN/m]	Stiffness Y [MN/m]	Stiffness Z [MN/m]
Sn5	N096	GCS	Standard	Flexible	Flexible	Flexible	Free	Rigid	Free	1,0000e+01	1,0000e+01	5,0000e+01
Sn6	N081	GCS	Standard	Flexible	Flexible	Flexible	Free	Rigid	Free	1,0000e+01	1,0000e+01	5,0000e+01
Sn7	N080	GCS	Standard	Flexible	Flexible	Flexible	Free	Rigid	Free	1,0000e+01	1,0000e+01	5,0000e+01
Sn8	N097	GCS	Standard	Flexible	Flexible	Flexible	Free	Rigid	Free	1,0000e+01	1,0000e+01	5,0000e+01
Sn9	N054	GCS	Standard	Flexible	Flexible	Flexible	Free	Free	Free	1,0000e+01	1,0000e+01	5,0000e+01
Sn10	N036	GCS	Standard	Flexible	Flexible	Flexible	Free	Free	Free	1,0000e+01	1,0000e+01	5,0000e+01
Sn11	N037	GCS	Standard	Flexible	Flexible	Flexible	Free	Free	Free	1,0000e+01	1,0000e+01	5,0000e+01
Sn12	N055	GCS	Standard	Flexible	Flexible	Flexible	Free	Free	Free	1,0000e+01	1,0000e+01	5,0000e+01
Sn13	N017	GCS	Standard	Flexible	Flexible	Flexible	Free	Rigid	Free	1,0000e+01	1,0000e+01	5,0000e+01
Sn14	N018	GCS	Standard	Flexible	Flexible	Flexible	Free	Rigid	Free	1,0000e+01	1,0000e+01	5,0000e+01
Sn15	N005	GCS	Standard	Flexible	Flexible	Flexible	Free	Rigid	Free	1,0000e+01	1,0000e+01	5,0000e+01
Sn16	N006	GCS	Standard	Flexible	Flexible	Flexible	Free	Rigid	Free	1,0000e+01	1,0000e+01	5,0000e+01

4. Loads

4.1. Load cases - surface load

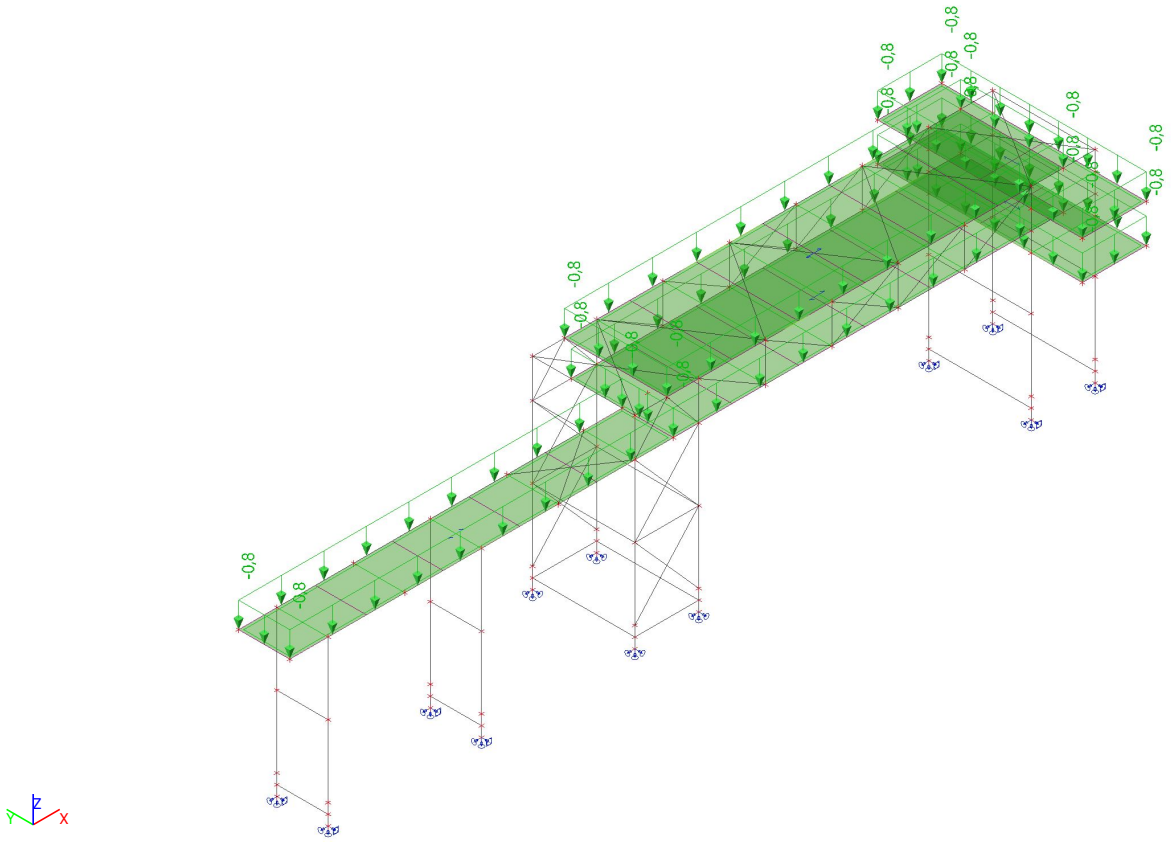
4.1.1. Load cases - surface load - DL

Name	Description	Action type	Load type	Load group	Direction
DL	Dead load - self-weight	Permanent	Self weight	LG1	-Z



4.1.2. Load cases - surface load - EE

Name	Description	Action type	Load type	Load group
EE	Equipment load - Empty	Permanent	Standard	LG1

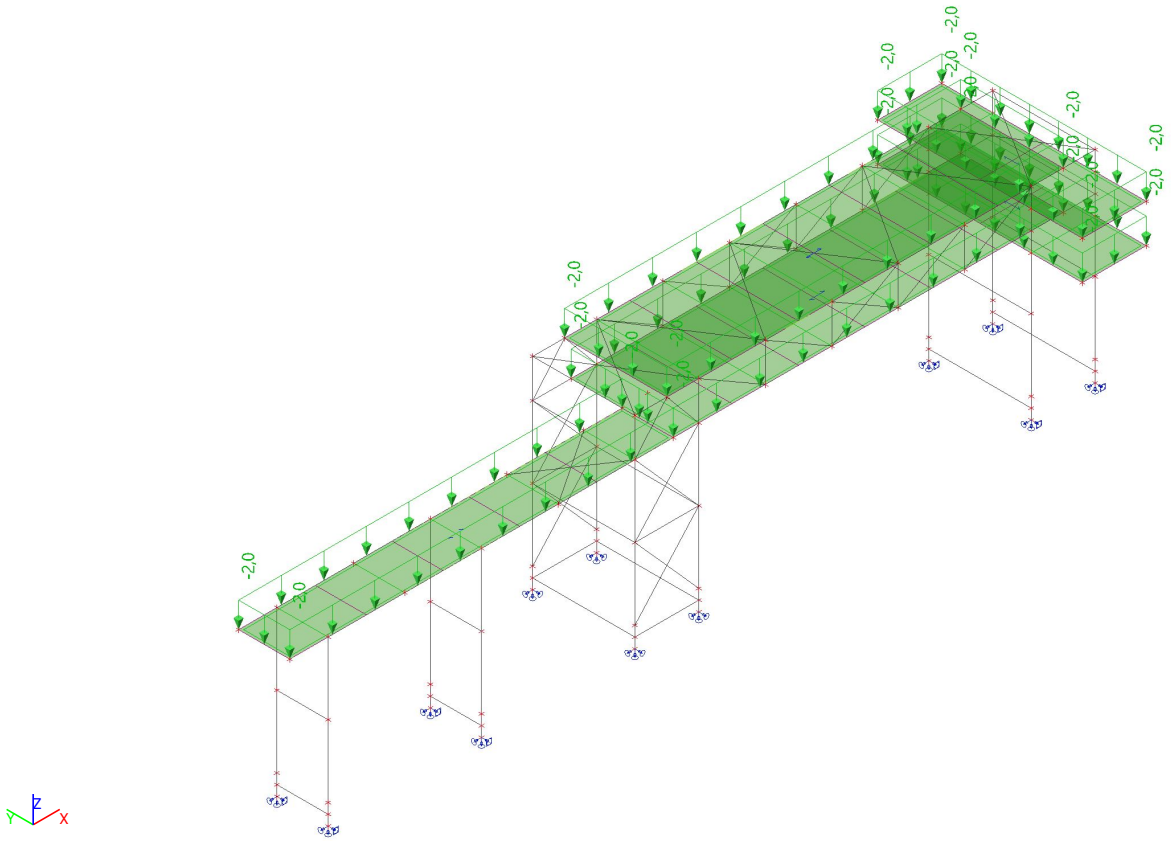


4.1.2.1. Surface load

Name	Dir	Type	Value [kN/m²]	Load case	System	Loc
SF7	Z	Force	-0,8	EE - Equipment load - Empty	LCS	Length
SF8	Z	Force	-0,8	EE - Equipment load - Empty	LCS	Length
SF9	Z	Force	-0,8	EE - Equipment load - Empty	LCS	Length
SF10	Z	Force	-0,8	EE - Equipment load - Empty	LCS	Length
SF11	Z	Force	-0,8	EE - Equipment load - Empty	LCS	Length

4.1.3. Load cases - surface load - EO

Name	Description	Action type	Load type	Load group
EO	Equipment load - Operating	Permanent	Standard	LG1

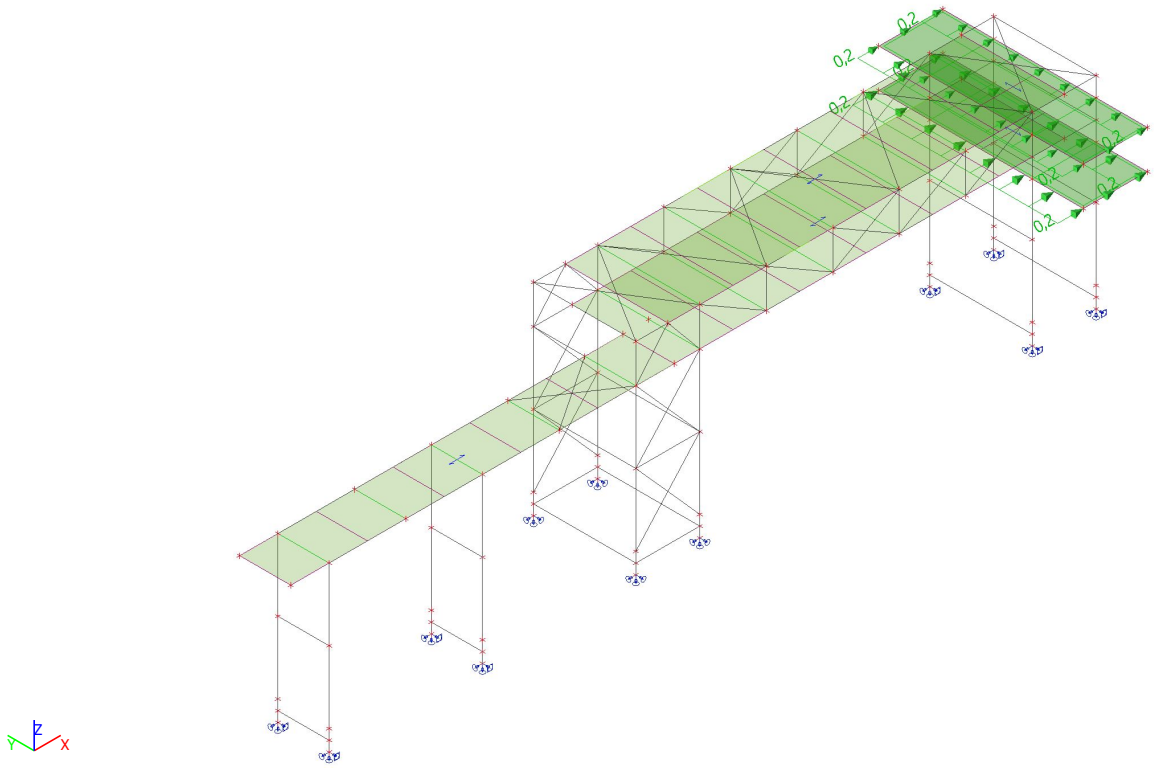


4.1.3.1. Surface load

Name	Dir	Type	Value [kN/m²]	Load case	System	Loc
SF1	Z	Force	-2,0	EO - Equipment load - Operating	LCS	Length
SF2	Z	Force	-2,0	EO - Equipment load - Operating	LCS	Length
SF3	Z	Force	-2,0	EO - Equipment load - Operating	LCS	Length
SF12	Z	Force	-2,0	EO - Equipment load - Operating	LCS	Length
SF13	Z	Force	-2,0	EO - Equipment load - Operating	LCS	Length

4.1.4. Load cases - surface load - Wx

Name	Description	Spec	Action type	Load type	Load group	Duration	Master load case
Wx	Wind load - longitudinal	Standard	Variable	Static	LG2	Short	None

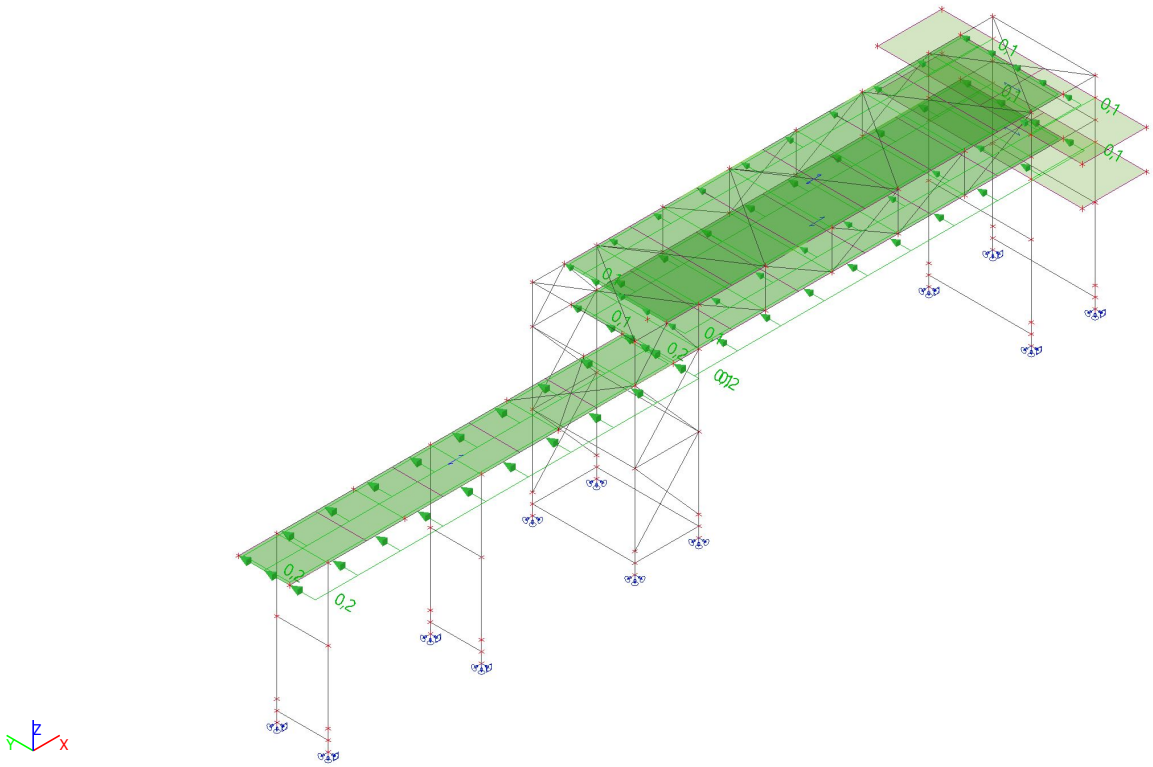


4.1.4.1. Surface load

Name	Dir	Type	Value [kN/m²]	Load case	System	Loc
SF16	X	Force	0,2	Wx - Wind load - longitudinal	LCS	Length
SF17	X	Force	0,2	Wx - Wind load - longitudinal	LCS	Length

4.1.5. Load cases - surface load - Wy

Name	Description	Spec	Action type	Load type	Load group	Duration	Master load case
Wy	Wind load - transverse	Standard	Variable	Static	LG2	Short	None

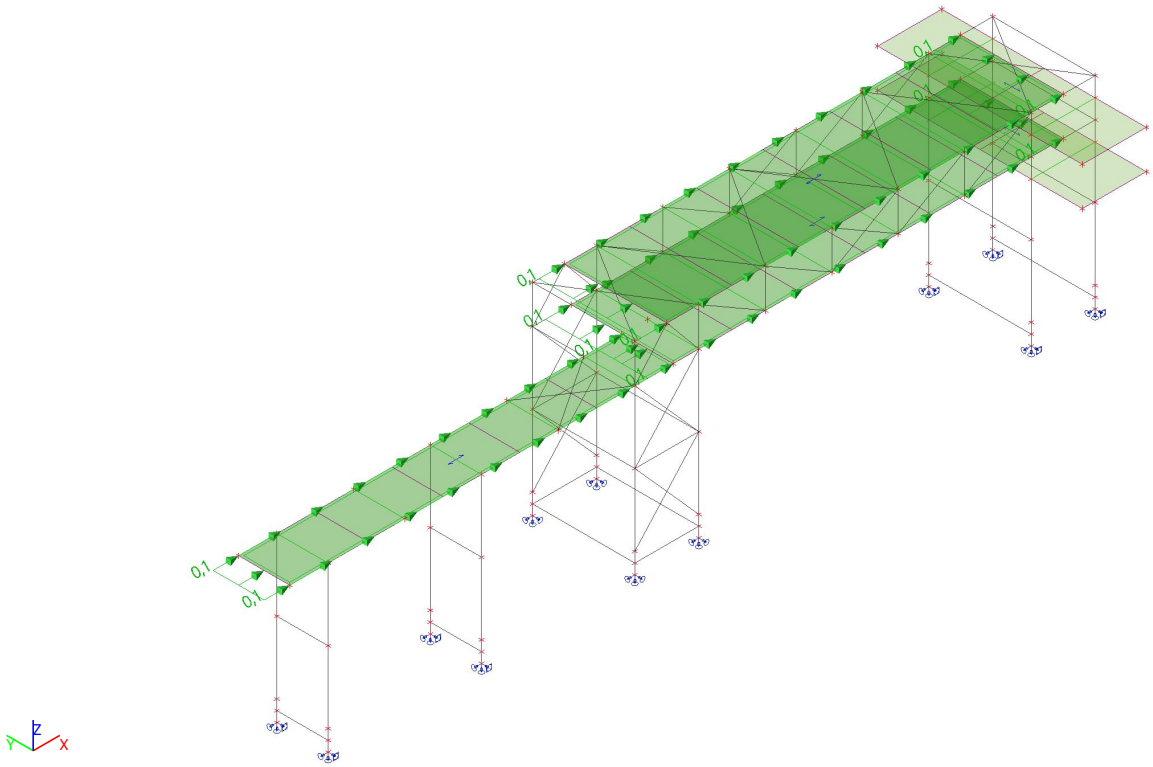


4.1.5.1. Surface load

Name	Dir	Type	Value [kN/m²]	Load case	System	Loc
SF18	Y	Force	0,1	Wy - Wind load - transverse	LCS	Length
SF19	Y	Force	0,1	Wy - Wind load - transverse	LCS	Length
SF20	Y	Force	0,2	Wy - Wind load - transverse	LCS	Length

4.1.6. Load cases - surface load - TLs

Name	Description	Spec	Action type	Load type	Load group	Duration	Master load case
TLs	Temperature load - pipe stress	Standard	Variable	Static	LG3	Short	None

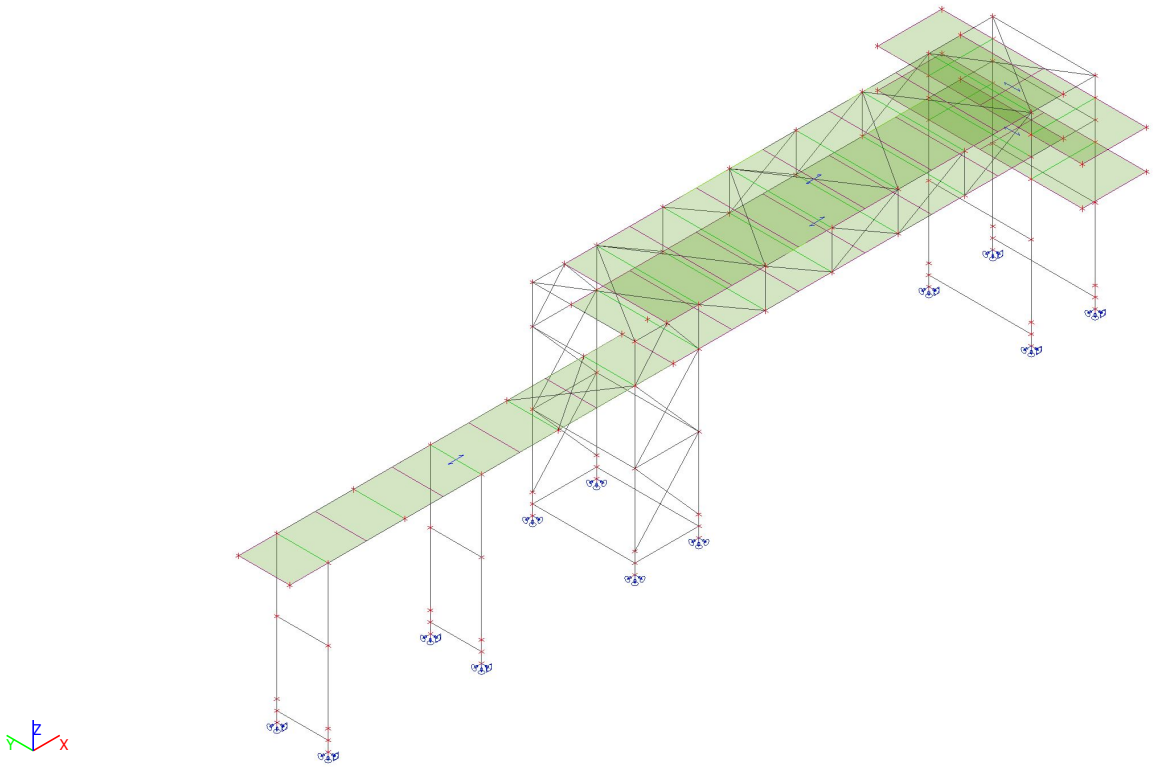


4.1.6.1. Surface load

Name	Dir	Type	Value [kN/m²]	Load case	System	Loc
SF4	X	Force	0,1	TLs - Temperature load - pipe stress	LCS	Length
SF5	X	Force	0,1	TLs - Temperature load - pipe stress	LCS	Length
SF6	X	Force	0,1	TLs - Temperature load - pipe stress	LCS	Length

4.1.7. Load cases - surface load - I

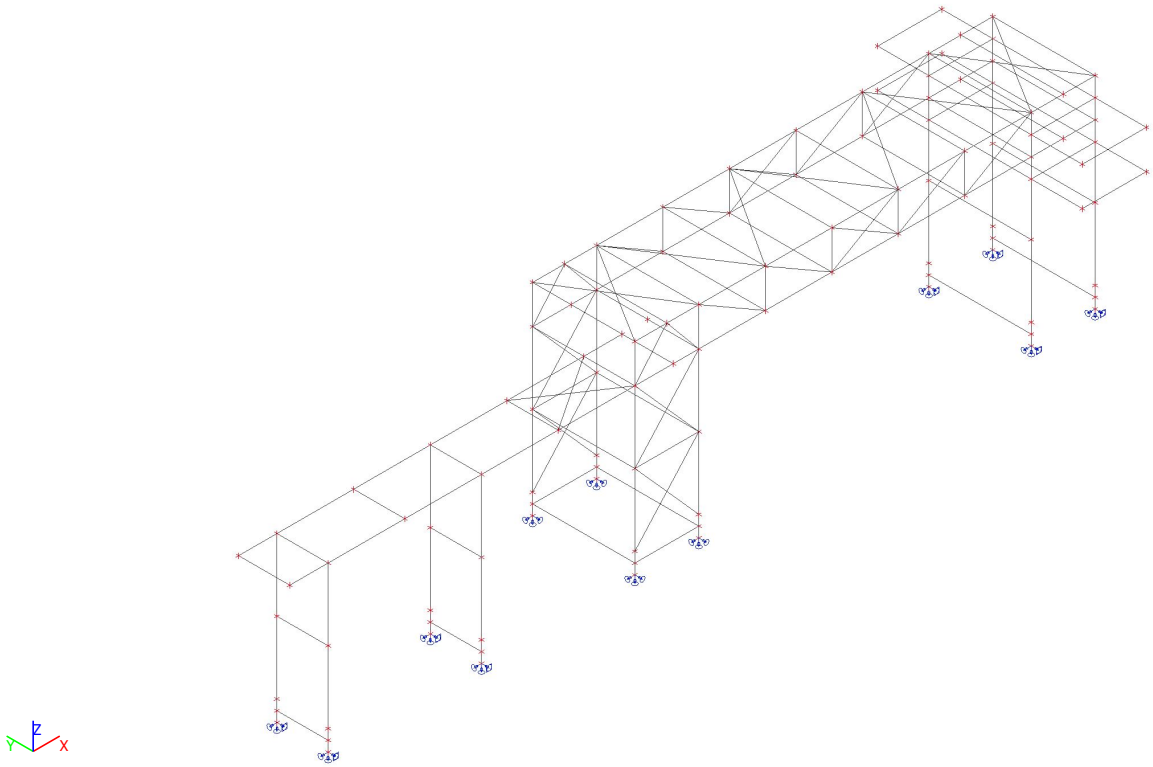
Name	Description	Action type	Load type	Load group
I	Imperfection	Permanent	Standard	LG1



4.2. Load cases

4.2.1. Load cases - DL

Name	Description	Action type	Load type	Load group	Direction
DL	Dead load - self-weight	Permanent	Self weight	LG1	-Z



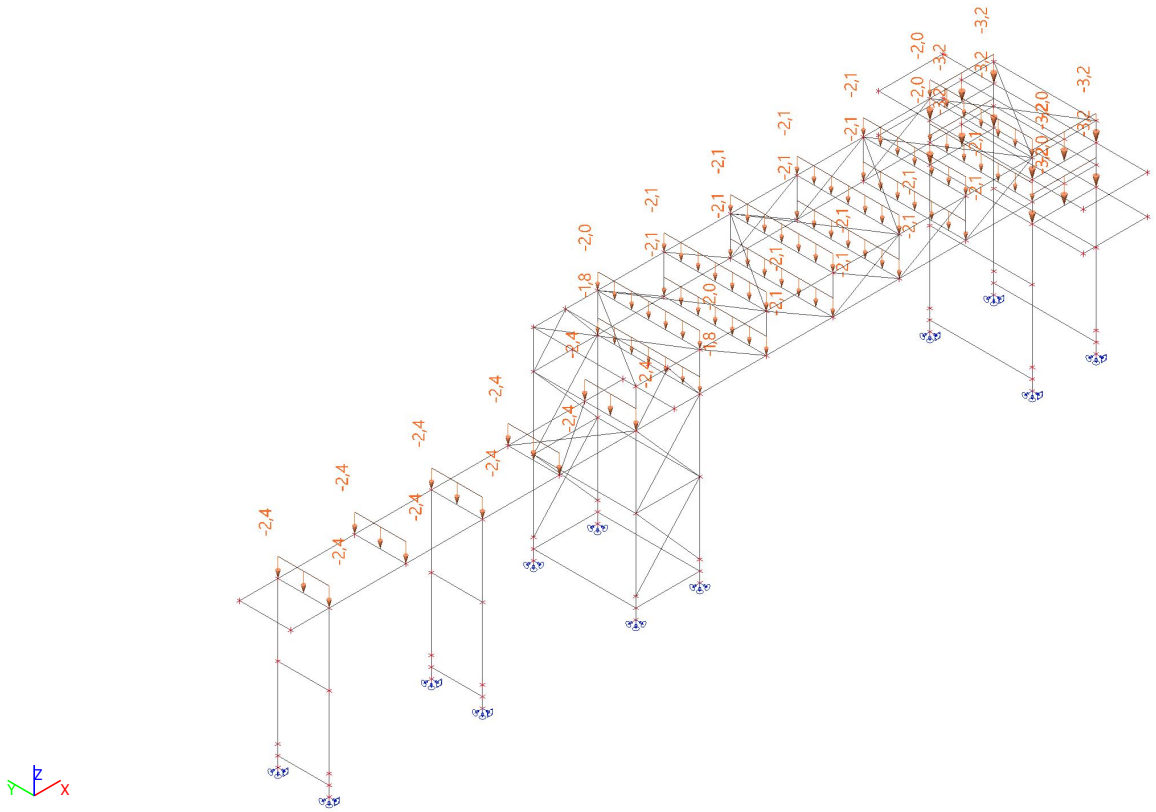
4.2.1.1. Resultant of reactions

Linear calculation
Load case: DL
Extreme: Global
Selection: All
System: Global

x [m]	y [m]	z [m]	Case	R_x [kN]	R_y [kN]	R_z [kN]	M_x [kNm]	M_y [kNm]	M_z [kNm]
15,000	1,667	-0,800	DL	**0,0**	**0,0**	**524,8**	**67,9**	**-735,5**	**0,0**

4.2.2. Load cases - EE

Name	Description	Action type	Load type	Load group
EE	Equipment load - Empty	Permanent	Standard	LG1



4.2.2.1. Line force

Name	Member	Type	Sys.	Dir	Distr.	P1 [kN/m] P2 [kN/m]	Pos x_1 Pos x_2	Coor	Loc	Orig	Ecc ey [m] Ecc ez [m]
LF259	B040	Force	GCS	Z	Trapez	-2,0 -2,0	0.000 1.000	Rela	Length	From start	0,000 0,000
LF260	B099	Force	GCS	Z	Trapez	-2,0 -2,0	0.000 1.000	Rela	Length	From start	0,000 0,000
LF261	B064	Force	GCS	Z	Trapez	-2,1 -2,1	0.000 1.000	Rela	Length	From start	0,000 0,000
LF262	B075	Force	GCS	Z	Trapez	-2,1 -2,1	0.000 1.000	Rela	Length	From start	0,000 0,000
LF263	B086	Force	GCS	Z	Trapez	-2,1 -2,1	0.000 1.000	Rela	Length	From start	0,000 0,000
LF264	B095	Force	GCS	Z	Trapez	-2,1 -2,1	0.000 1.000	Rela	Length	From start	0,000 0,000
LF283	B046	Force	GCS	Z	Trapez	-1,8 -1,8	0.000 1.000	Rela	Length	From start	0,000 0,000
LF284	B107	Force	GCS	Z	Trapez	-2,0 -2,0	0.000 1.000	Rela	Length	From start	0,000 0,000
LF285	B059	Force	GCS	Z	Trapez	-2,1 -2,1	0.000 1.000	Rela	Length	From start	0,000 0,000
LF286	B066	Force	GCS	Z	Trapez	-2,1 -2,1	0.000 1.000	Rela	Length	From start	0,000 0,000
LF287	B077	Force	GCS	Z	Trapez	-2,1 -2,1	0.000 1.000	Rela	Length	From start	0,000 0,000
LF288	B089	Force	GCS	Z	Trapez	-2,1 -2,1	0.000 1.000	Rela	Length	From start	0,000 0,000
LF306	B027	Force	GCS	Z	Trapez	-2,4 -2,4	0.000 0.500	Rela	Length	From start	0,000 0,000
LF307	B009	Force	GCS	Z	Trapez	-2,4	0.000	Rela	Length	From start	0,000

Name	Member	Type	Sys.	Dir	Distr.	P1 [kN/m] P2 [kN/m]	Pos x_1 Pos x_2	Coor	Loc	Orig	Ecc ey [m] Ecc ez [m]
						-2,4	1.000				0,000
LF308	B001	Force	GCS	Z	Trapez	-2,4 -2,4	0.000 1.000	Rela	Length	From start	0,000 0,000
LF309	B019	Force	GCS	Z	Trapez	-2,4 -2,4	0.000 1.000	Rela	Length	From start	0,000 0,000
LF310	B008	Force	GCS	Z	Trapez	-2,4 -2,4	0.000 1.000	Rela	Length	From start	0,000 0,000
LF321	B114	Force	GCS	Z	Trapez	-3,2 -3,2	0.000 1.000	Rela	Length	From start	0,000 0,000
LF322	B115	Force	GCS	Z	Trapez	-3,2 -3,2	0.000 1.000	Rela	Length	From start	0,000 0,000
LF327	B112	Force	GCS	Z	Trapez	-3,2 -3,2	0.000 1.000	Rela	Length	From start	0,000 0,000
LF328	B113	Force	GCS	Z	Trapez	-3,2 -3,2	0.000 1.000	Rela	Length	From start	0,000 0,000

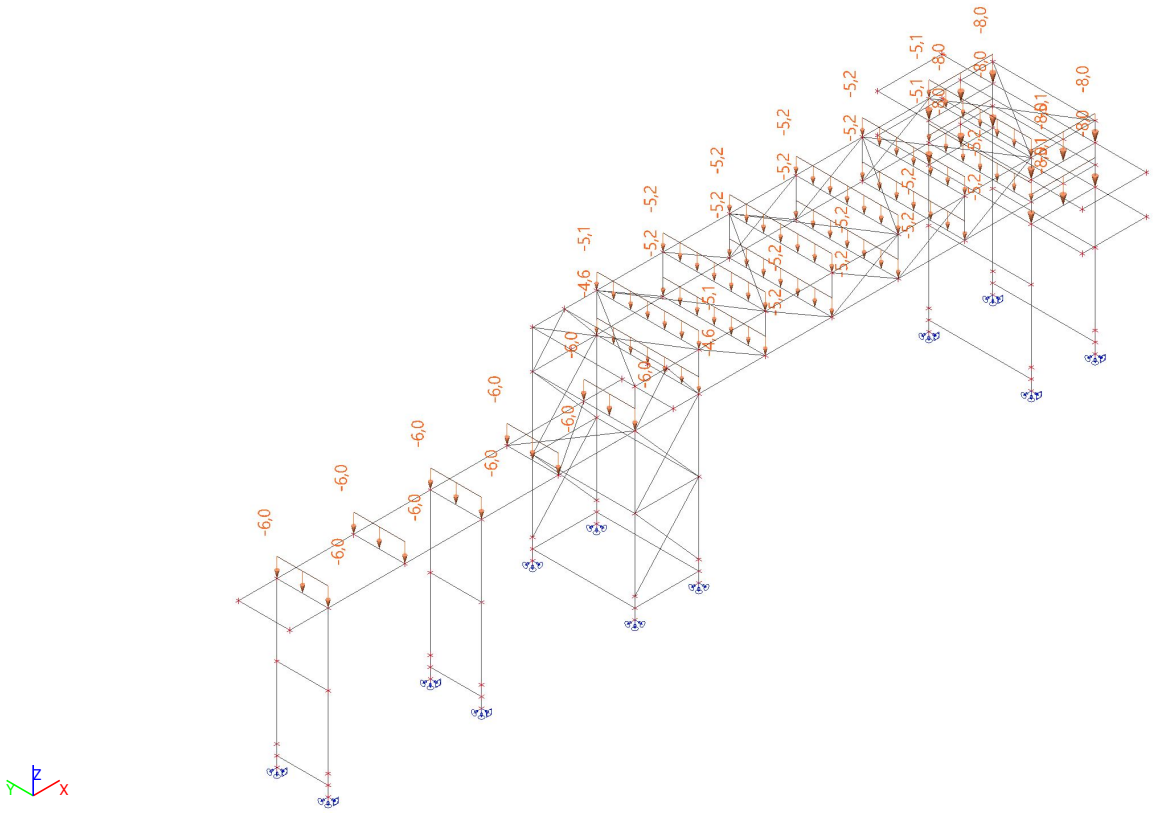
4.2.2.2. Resultant of reactions

Linear calculation
Load case: EE
Extreme: Global
Selection: All
System: Global

x [m]	y [m]	z [m]	Case	R_x [kN]	R_y [kN]	R_z [kN]	M_x [kNm]	M_y [kNm]	M_z [kNm]
15,000	1,667	-0,800	EE	**0,0**	**0,0**	**154,4**	**27,5**	**-819,6**	**0,0**

4.2.3. Load cases - EO

Name	Description	Action type	Load type	Load group
EO	Equipment load - Operating	Permanent	Standard	LG1



4.2.3.1. Line force

Name	Member	Type	Sys.	Dir	Distr.	P1 [kN/m] P2 [kN/m]	Pos x_1 Pos x_2	Coor	Loc	Orig	Ecc ey [m] Ecc ez [m]
LF253	B040	Force	GCS	Z	Trapez	-5,1 -5,1	0.000 1.000	Rela	Length	From start	0,000 0,000
LF254	B099	Force	GCS	Z	Trapez	-5,1 -5,1	0.000 1.000	Rela	Length	From start	0,000 0,000
LF255	B064	Force	GCS	Z	Trapez	-5,2 -5,2	0.000 1.000	Rela	Length	From start	0,000 0,000
LF256	B075	Force	GCS	Z	Trapez	-5,2 -5,2	0.000 1.000	Rela	Length	From start	0,000 0,000
LF257	B086	Force	GCS	Z	Trapez	-5,2 -5,2	0.000 1.000	Rela	Length	From start	0,000 0,000
LF258	B095	Force	GCS	Z	Trapez	-5,2 -5,2	0.000 1.000	Rela	Length	From start	0,000 0,000
LF277	B046	Force	GCS	Z	Trapez	-4,6 -4,6	0.000 1.000	Rela	Length	From start	0,000 0,000
LF278	B107	Force	GCS	Z	Trapez	-5,1 -5,1	0.000 1.000	Rela	Length	From start	0,000 0,000
LF279	B059	Force	GCS	Z	Trapez	-5,2 -5,2	0.000 1.000	Rela	Length	From start	0,000 0,000
LF280	B066	Force	GCS	Z	Trapez	-5,2 -5,2	0.000 1.000	Rela	Length	From start	0,000 0,000
LF281	B077	Force	GCS	Z	Trapez	-5,2 -5,2	0.000 1.000	Rela	Length	From start	0,000 0,000
LF282	B089	Force	GCS	Z	Trapez	-5,2 -5,2	0.000 1.000	Rela	Length	From start	0,000 0,000
LF301	B027	Force	GCS	Z	Trapez	-6,0 -6,0	0.000 0.500	Rela	Length	From start	0,000 0,000
LF302	B009	Force	GCS	Z	Trapez	-6,0	0.000	Rela	Length	From start	0,000

Name	Member	Type	Sys.	Dir	Distr.	P1 [kN/m] P2 [kN/m]	Pos x_1 Pos x_2	Coor	Loc	Orig	Ecc ey [m] Ecc ez [m]
						-6,0	1.000				0,000
LF303	B001	Force	GCS	Z	Trapez	-6,0 -6,0	0.000 1.000	Rela	Length	From start	0,000 0,000
LF304	B019	Force	GCS	Z	Trapez	-6,0 -6,0	0.000 1.000	Rela	Length	From start	0,000 0,000
LF305	B008	Force	GCS	Z	Trapez	-6,0 -6,0	0.000 1.000	Rela	Length	From start	0,000 0,000
LF323	B114	Force	GCS	Z	Trapez	-8,0 -8,0	0.000 1.000	Rela	Length	From start	0,000 0,000
LF324	B115	Force	GCS	Z	Trapez	-8,0 -8,0	0.000 1.000	Rela	Length	From start	0,000 0,000
LF329	B112	Force	GCS	Z	Trapez	-8,0 -8,0	0.000 1.000	Rela	Length	From start	0,000 0,000
LF330	B113	Force	GCS	Z	Trapez	-8,0 -8,0	0.000 1.000	Rela	Length	From start	0,000 0,000

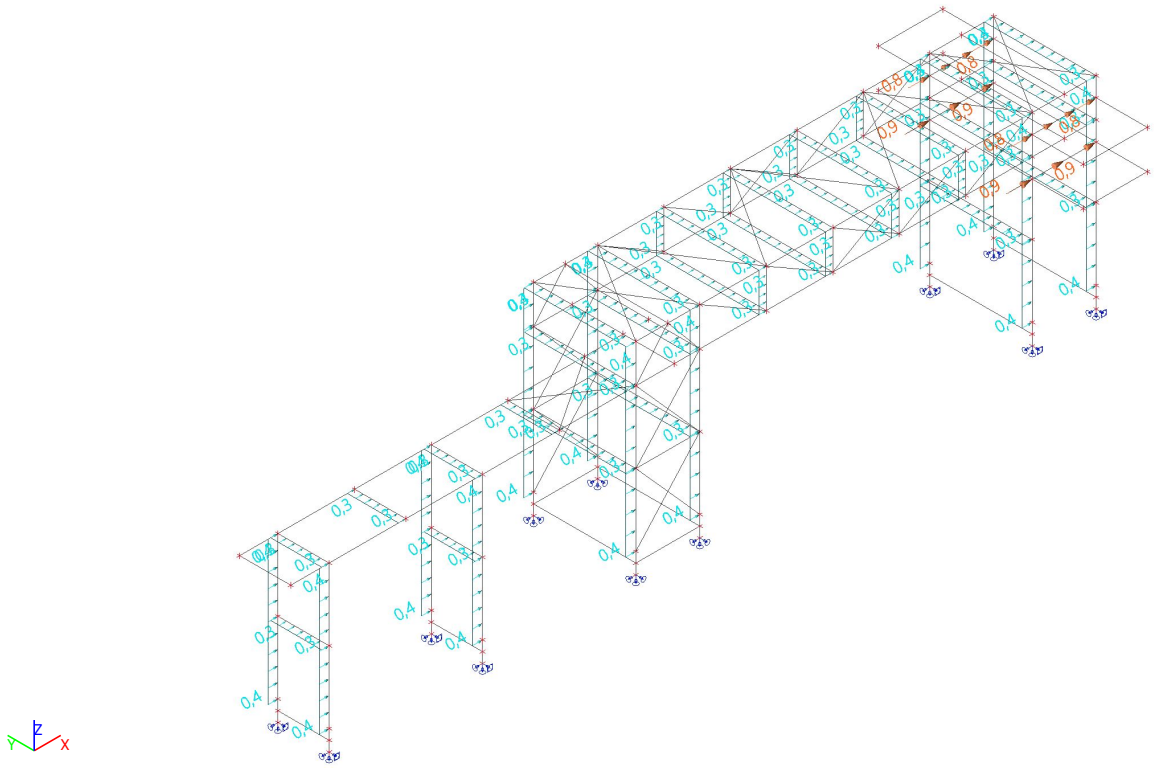
4.2.3.2. Resultant of reactions

Linear calculation
Load case: EO
Extreme: Global
Selection: All
System: Global

x [m]	y [m]	z [m]	Case	R_x [kN]	R_y [kN]	R_z [kN]	M_x [kNm]	M_y [kNm]	M_z [kNm]
15,000	1,667	-0,800	EO	**0,0**	**0,0**	**386,0**	**68,7**	**-2049,0**	**0,0**

4.2.4. Load cases - Wx

Name	Description	Spec	Action type	Load type	Load group	Duration	Master load case
Wx	Wind load - longitudinal	Standard	Variable	Static	LG2	Short	None



4.2.4.1. Line force

Name	Member	Type	Sys.	Dir	Distr.	P1 [kN/m] P2 [kN/m]	Pos x_1 Pos x_2	Coor	Loc	Orig	Ecc ey [m] Ecc ez [m]	W_1 [m] W_2 [m]	Coeff1 Coeff2
LF54	B097	Wind	GCS	X	Uniform	0,4 0,4	0.000 1.000	Rela	Length	From start	0,000 0,000	0,180	2.000 2.000
LF55	B103	Wind	GCS	X	Uniform	0,4 0,4	0.000 1.000	Rela	Length	From start	0,000 0,000	0,180	2.000 2.000
LF56	B116	Wind	GCS	X	Uniform	0,4 0,4	0.000 1.000	Rela	Length	From start	0,000 0,000	0,180	2.000 2.000
LF57	B118	Wind	GCS	X	Uniform	0,4 0,4	0.000 1.000	Rela	Length	From start	0,000 0,000	0,180	2.000 2.000
LF58	B020	Wind	GCS	X	Uniform	0,4 0,4	0.000 1.000	Rela	Length	From start	0,000 0,000	0,180	2.000 2.000
LF59	B024	Wind	GCS	X	Uniform	0,4 0,4	0.000 1.000	Rela	Length	From start	0,000 0,000	0,180	2.000 2.000
LF60	B037	Wind	GCS	X	Uniform	0,4 0,4	0.000 1.000	Rela	Length	From start	0,000 0,000	0,180	2.000 2.000
LF61	B042	Wind	GCS	X	Uniform	0,4 0,4	0.000 1.000	Rela	Length	From start	0,000 0,000	0,180	2.000 2.000
LF62	B012	Wind	GCS	X	Uniform	0,4 0,4	0.000 1.000	Rela	Length	From start	0,000 0,000	0,180	2.000 2.000
LF63	B014	Wind	GCS	X	Uniform	0,4 0,4	0.000 1.000	Rela	Length	From start	0,000 0,000	0,180	2.000 2.000
LF64	B002	Wind	GCS	X	Uniform	0,4 0,4	0.000 1.000	Rela	Length	From start	0,000 0,000	0,180	2.000 2.000
LF65	B004	Wind	GCS	X	Uniform	0,4 0,4	0.000 1.000	Rela	Length	From start	0,000 0,000	0,180	2.000 2.000
LF66	B040	Wind	GCS	X	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,171	2.000 2.000
LF67	B046	Wind	GCS	X	Uniform	0,3	0.000	Rela	Length	From start	0,000	0,171	2.000

Name	Member	Type	Sys.	Dir	Distr.	P1 [kN/m] P2 [kN/m]	Pos x_1 Pos x_2	Coor	Loc	Orig	Ecc ey [m] Ecc ez [m]	W_1 [m] W_2 [m]	Coeff1 Coeff2
						0,3	1.000				0,000		2.000
LF68	B099	Wind	GCS	X	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,171	2.000 2.000
LF69	B107	Wind	GCS	X	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,171	2.000 2.000
LF70	B023	Wind	GCS	X	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,171	2.000 2.000
LF71	B027	Wind	GCS	X	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,171	2.000 2.000
LF72	B120	Wind	GCS	X	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,171	2.000 2.000
LF73	B123	Wind	GCS	X	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,171	2.000 2.000
LF74	B009	Wind	GCS	X	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,133	2.000 2.000
LF75	B001	Wind	GCS	X	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,133	2.000 2.000
LF77	B059	Wind	GCS	X	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,133	2.000 2.000
LF78	B064	Wind	GCS	X	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,133	2.000 2.000
LF79	B066	Wind	GCS	X	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,133	2.000 2.000
LF80	B075	Wind	GCS	X	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,133	2.000 2.000
LF81	B077	Wind	GCS	X	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,133	2.000 2.000
LF82	B086	Wind	GCS	X	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,133	2.000 2.000
LF83	B089	Wind	GCS	X	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,133	2.000 2.000
LF84	B095	Wind	GCS	X	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,133	2.000 2.000
LF85	B019	Wind	GCS	X	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,133	2.000 2.000
LF86	B008	Wind	GCS	X	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,133	2.000 2.000
LF121	B035	Wind	GCS	X	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,171	2.000 2.000
LF122	B054	Wind	GCS	X	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,171	2.000 2.000
LF123	B111	Wind	GCS	X	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,171	2.000 2.000
LF124	B125	Wind	GCS	X	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,171	2.000 2.000
LF163	B063	Wind	GCS	X	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,133	2.000 2.000
LF164	B061	Wind	GCS	X	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,133	2.000 2.000
LF165	B071	Wind	GCS	X	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,133	2.000 2.000
LF166	B067	Wind	GCS	X	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,133	2.000 2.000
LF167	B082	Wind	GCS	X	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,133	2.000 2.000
LF168	B078	Wind	GCS	X	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,133	2.000 2.000
LF169	B094	Wind	GCS	X	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,133	2.000 2.000
LF170	B091	Wind	GCS	X	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,133	2.000 2.000
LF251	B017	Wind	GCS	X	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,133	2.000 2.000
LF252	B007	Wind	GCS	X	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,133	2.000 2.000
LF325	B114	Force	GCS	X	Trapez	0,9 0,9	0.000 1.000	Rela	Length	From start	0,000 0,000		
LF326	B115	Force	GCS	X	Trapez	0,9 0,9	0.000 1.000	Rela	Length	From start	0,000 0,000		
LF331	B112	Force	GCS	X	Trapez	0,8 0,8	0.000 1.000	Rela	Length	From start	0,000 0,000		
LF332	B113	Force	GCS	X	Trapez	0,8 0,8	0.000 1.000	Rela	Length	From start	0,000 0,000		

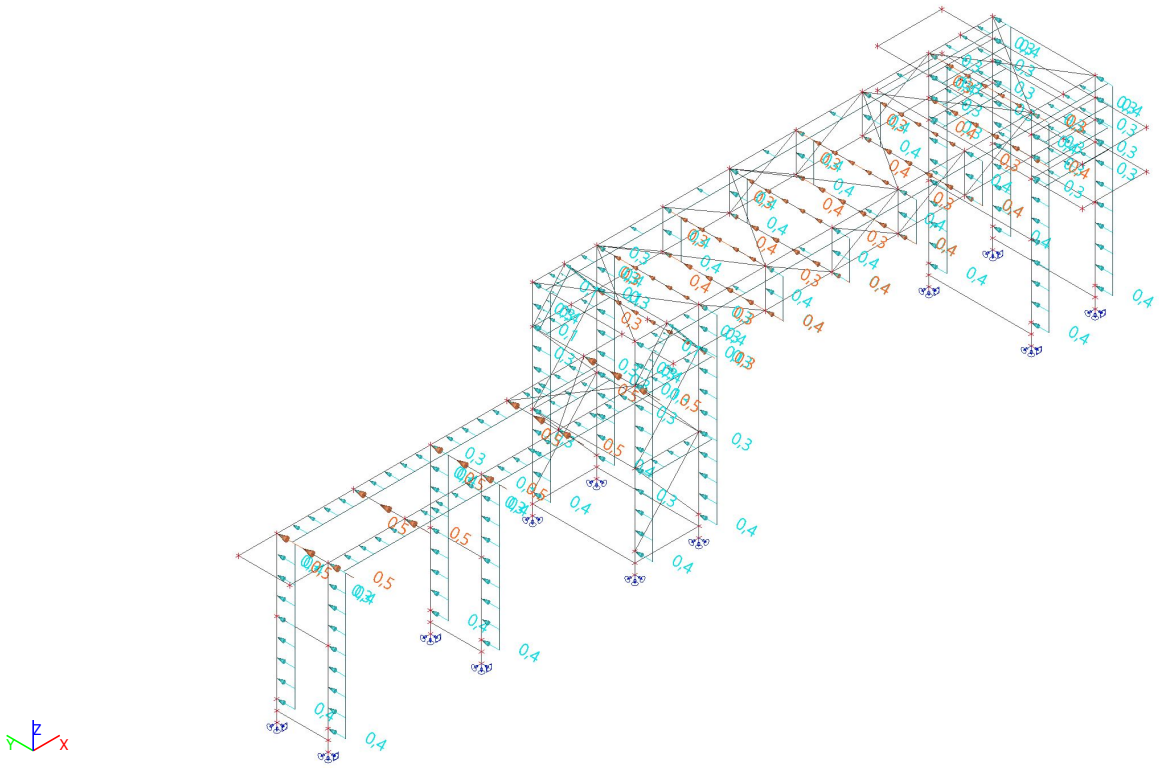
4.2.4.2. Resultant of reactions

Linear calculation
Load case: Wx
Extreme: Global
Selection: All
System: Global

x [m]	y [m]	z [m]	Case	R_x [kN]	R_y [kN]	R_z [kN]	M_x [kNm]	M_y [kNm]	M_z [kNm]
15,000	1,667	-0,800	Wx	**-67,6**	**0,0**	**0,0**	**0,0**	**-367,1**	**11,4**

4.2.5. Load cases - Wy

Name	Description	Spec	Action type	Load type	Load group	Duration	Master load case
Wy	Wind load - transverse	Standard	Variable	Static	LG2	Short	None



4.2.5.1. Line force

Name	Member	Type	Sys.	Dir	Distr.	P1 [kN/m] P2 [kN/m]	Pos x_1 Pos x_2	Coor	Loc	Orig	Ecc ey [m] Ecc ez [m]	W_1 [m] W_2 [m]	Coeff1 Coeff2
LF1	B002	Wind	GCS	Y	Uniform	0,4 0,4	0.000 1.000	Rela	Length	From start	0,000 0,000	0,180	2.000 2.000
LF2	B004	Wind	GCS	Y	Uniform	0,4 0,4	0.000 1.000	Rela	Length	From start	0,000 0,000	0,180	2.000 2.000
LF3	B012	Wind	GCS	Y	Uniform	0,4 0,4	0.000 1.000	Rela	Length	From start	0,000 0,000	0,180	2.000 2.000
LF4	B014	Wind	GCS	Y	Uniform	0,4 0,4	0.000 1.000	Rela	Length	From start	0,000 0,000	0,180	2.000 2.000
LF5	B020	Wind	GCS	Y	Uniform	0,4 0,4	0.000 1.000	Rela	Length	From start	0,000 0,000	0,180	2.000 2.000
LF6	B024	Wind	GCS	Y	Uniform	0,4 0,4	0.000 1.000	Rela	Length	From start	0,000 0,000	0,180	2.000 2.000
LF7	B037	Wind	GCS	Y	Uniform	0,4 0,4	0.000 1.000	Rela	Length	From start	0,000 0,000	0,180	2.000 2.000
LF8	B042	Wind	GCS	Y	Uniform	0,4 0,4	0.000 1.000	Rela	Length	From start	0,000 0,000	0,180	2.000 2.000
LF9	B097	Wind	GCS	Y	Uniform	0,4 0,4	0.000 1.000	Rela	Length	From start	0,000 0,000	0,180	2.000 2.000
LF10	B103	Wind	GCS	Y	Uniform	0,4 0,4	0.000 1.000	Rela	Length	From start	0,000 0,000	0,180	2.000 2.000
LF11	B116	Wind	GCS	Y	Uniform	0,4 0,4	0.000 1.000	Rela	Length	From start	0,000 0,000	0,180	2.000 2.000
LF12	B118	Wind	GCS	Y	Uniform	0,4 0,4	0.000 1.000	Rela	Length	From start	0,000 0,000	0,180	2.000 2.000
LF13	B101	Wind	GCS	Y	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,133	2.000 2.000
LF14	B108	Wind	GCS	Y	Uniform	0,3	0.000	Rela	Length	From start	0,000	0,133	2.000

Name	Member	Type	Sys.	Dir	Distr.	P1 [kN/m] P2 [kN/m]	Pos x_1 Pos x_2	Coor	Loc	Orig	Ecc ey [m] Ecc ez [m]	W_1 [m] W_2 [m]	Coeff1 Coeff2
						0,3	1.000				0,000		2.000
LF15	B106	Wind	GCS	Y	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,133	2.000 2.000
LF16	B109	Wind	GCS	Y	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,133	2.000 2.000
LF17	B105	Wind	GCS	Y	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,133	2.000 2.000
LF18	B100	Wind	GCS	Y	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,133	2.000 2.000
LF19	B094	Wind	GCS	Y	Uniform	0,4 0,4	0.000 1.000	Rela	Length	From start	0,000 0,000	0,180	2.000 2.000
LF20	B091	Wind	GCS	Y	Uniform	0,4 0,4	0.000 1.000	Rela	Length	From start	0,000 0,000	0,180	2.000 2.000
LF23	B082	Wind	GCS	Y	Uniform	0,4 0,4	0.000 1.000	Rela	Length	From start	0,000 0,000	0,180	2.000 2.000
LF24	B078	Wind	GCS	Y	Uniform	0,4 0,4	0.000 1.000	Rela	Length	From start	0,000 0,000	0,180	2.000 2.000
LF25	B071	Wind	GCS	Y	Uniform	0,4 0,4	0.000 1.000	Rela	Length	From start	0,000 0,000	0,180	2.000 2.000
LF26	B067	Wind	GCS	Y	Uniform	0,4 0,4	0.000 1.000	Rela	Length	From start	0,000 0,000	0,180	2.000 2.000
LF27	B063	Wind	GCS	Y	Uniform	0,4 0,4	0.000 1.000	Rela	Length	From start	0,000 0,000	0,180	2.000 2.000
LF28	B061	Wind	GCS	Y	Uniform	0,4 0,4	0.000 1.000	Rela	Length	From start	0,000 0,000	0,180	2.000 2.000
LF37	B050	Wind	GCS	Y	Uniform	0,1 0,1	0.000 1.000	Rela	Length	From start	0,000 0,000	0,065	2.000 2.000
LF38	B031	Wind	GCS	Y	Uniform	0,1 0,1	0.000 1.000	Rela	Length	From start	0,000 0,000	0,065	2.000 2.000
LF39	B048	Wind	GCS	Y	Uniform	0,1 0,1	0.000 1.000	Rela	Length	From start	0,000 0,000	0,065	2.000 2.000
LF40	B029	Wind	GCS	Y	Uniform	0,1 0,1	0.000 1.000	Rela	Length	From start	0,000 0,000	0,065	2.000 2.000
LF41	B045	Wind	GCS	Y	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,133	2.000 2.000
LF42	B041	Wind	GCS	Y	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,133	2.000 2.000
LF43	B049	Wind	GCS	Y	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,133	2.000 2.000
LF44	B047	Wind	GCS	Y	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,133	2.000 2.000
LF48	B051	Wind	GCS	Y	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,133	2.000 2.000
LF49	B053	Wind	GCS	Y	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,133	2.000 2.000
LF50	B028	Wind	GCS	Y	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,152	2.000 2.000
LF51	B032	Wind	GCS	Y	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,152	2.000 2.000
LF52	B010	Wind	GCS	Y	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,152	2.000 2.000
LF53	B011	Wind	GCS	Y	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,152	2.000 2.000
LF159	B112	Wind	GCS	Y	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,133	2.000 2.000
LF160	B113	Wind	GCS	Y	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,133	2.000 2.000
LF161	B114	Wind	GCS	Y	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,133	2.000 2.000
LF162	B115	Wind	GCS	Y	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,133	2.000 2.000
LF271	B040	Force	GCS	Y	Trapez	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000		
LF272	B099	Force	GCS	Y	Trapez	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000		
LF273	B064	Force	GCS	Y	Trapez	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000		
LF274	B075	Force	GCS	Y	Trapez	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000		
LF275	B086	Force	GCS	Y	Trapez	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000		
LF276	B095	Force	GCS	Y	Trapez	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000		

Name	Member	Type	Sys.	Dir	Distr.	P1 [kN/m] P2 [kN/m]	Pos x_1 Pos x_2	Coor	Loc	Orig	Ecc ey [m] Ecc ez [m]	W_1 [m] W_2 [m]	Coeff1 Coeff2
LF295	B046	Force	GCS	Y	Trapez	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000		
LF296	B107	Force	GCS	Y	Trapez	0,4 0,4	0.000 1.000	Rela	Length	From start	0,000 0,000		
LF297	B059	Force	GCS	Y	Trapez	0,4 0,4	0.000 1.000	Rela	Length	From start	0,000 0,000		
LF298	B066	Force	GCS	Y	Trapez	0,4 0,4	0.000 1.000	Rela	Length	From start	0,000 0,000		
LF299	B077	Force	GCS	Y	Trapez	0,4 0,4	0.000 1.000	Rela	Length	From start	0,000 0,000		
LF300	B089	Force	GCS	Y	Trapez	0,4 0,4	0.000 1.000	Rela	Length	From start	0,000 0,000		
LF316	B027	Force	GCS	Y	Trapez	0,5 0,5	0.000 0.500	Rela	Length	From start	0,000 0,000		
LF317	B009	Force	GCS	Y	Trapez	0,5 0,5	0.000 1.000	Rela	Length	From start	0,000 0,000		
LF318	B001	Force	GCS	Y	Trapez	0,5 0,5	0.000 1.000	Rela	Length	From start	0,000 0,000		
LF319	B019	Force	GCS	Y	Trapez	0,5 0,5	0.000 1.000	Rela	Length	From start	0,000 0,000		
LF320	B008	Force	GCS	Y	Trapez	0,5 0,5	0.000 1.000	Rela	Length	From start	0,000 0,000		

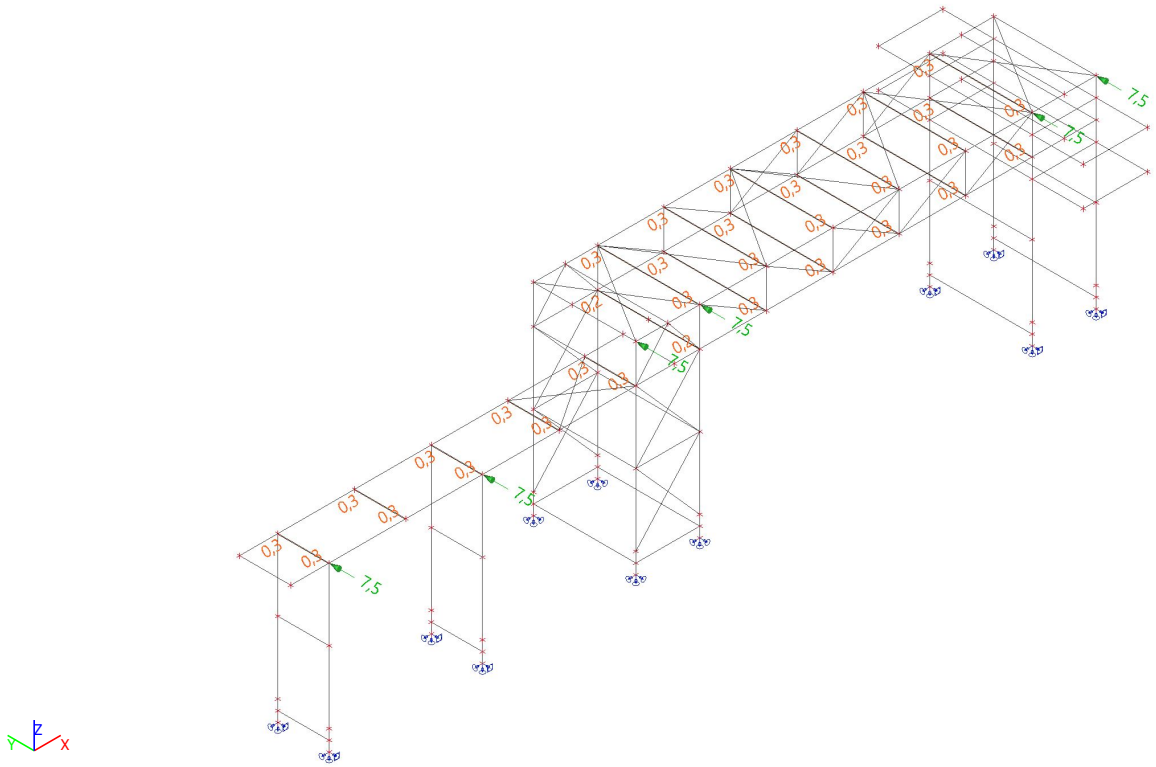
4.2.5.2. Resultant of reactions

Linear calculation
Load case: Wy
Extreme: Global
Selection: All
System: Global

x [m]	y [m]	z [m]	Case	R_x [kN]	R_y [kN]	R_z [kN]	M_x [kNm]	M_y [kNm]	M_z [kNm]
15,000	1,667	-0,800	Wy	**0,0**	**-77,9**	**0,0**	**460,2**	**0,0**	**-142,0**

4.2.6. Load cases - TLs

Name	Description	Spec	Action type	Load type	Load group	Duration	Master load case
TLs	Temperature load - pipe stress	Standard	Variable	Static	LG3	Short	None



4.2.6.1. Point force in node

Name	Node	System	Dir	Type	Value - F [kN]
F2	N013	GCS	Y	Force	7,5
F3	N075	GCS	Y	Force	7,5
F1	N026	GCS	Y	Force	7,5
F4	N043	GCS	Y	Force	7,5
F5	N001	GCS	Y	Force	7,5
F6	N092	GCS	Y	Force	7,5

4.2.6.2. Line force

Name	Member	Type	Sys.	Dir	Distr.	P1 [kN/m] P2 [kN/m]	Pos x_1 Pos x_2	Coor	Loc	Orig	Ecc ey [m] Ecc ez [m]
LF265	B040	Force	GCS	X	Trapez	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000
LF266	B099	Force	GCS	X	Trapez	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000
LF267	B064	Force	GCS	X	Trapez	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000
LF268	B075	Force	GCS	X	Trapez	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000
LF269	B086	Force	GCS	X	Trapez	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000
LF270	B095	Force	GCS	X	Trapez	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000
LF289	B046	Force	GCS	X	Trapez	0,2 0,2	0.000 1.000	Rela	Length	From start	0,000 0,000
LF290	B107	Force	GCS	X	Trapez	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000

Name	Member	Type	Sys.	Dir	Distr.	P1 [kN/m] P2 [kN/m]	Pos x_1 Pos x_2	Coor	Loc	Orig	Ecc ey [m] Ecc ez [m]
LF291	B059	Force	GCS	X	Trapez	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000
LF292	B066	Force	GCS	X	Trapez	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000
LF293	B077	Force	GCS	X	Trapez	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000
LF294	B089	Force	GCS	X	Trapez	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000
LF311	B027	Force	GCS	X	Trapez	0,3 0,3	0.000 0.500	Rela	Length	From start	0,000 0,000
LF312	B009	Force	GCS	X	Trapez	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000
LF313	B001	Force	GCS	X	Trapez	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000
LF314	B019	Force	GCS	X	Trapez	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000
LF315	B008	Force	GCS	X	Trapez	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000

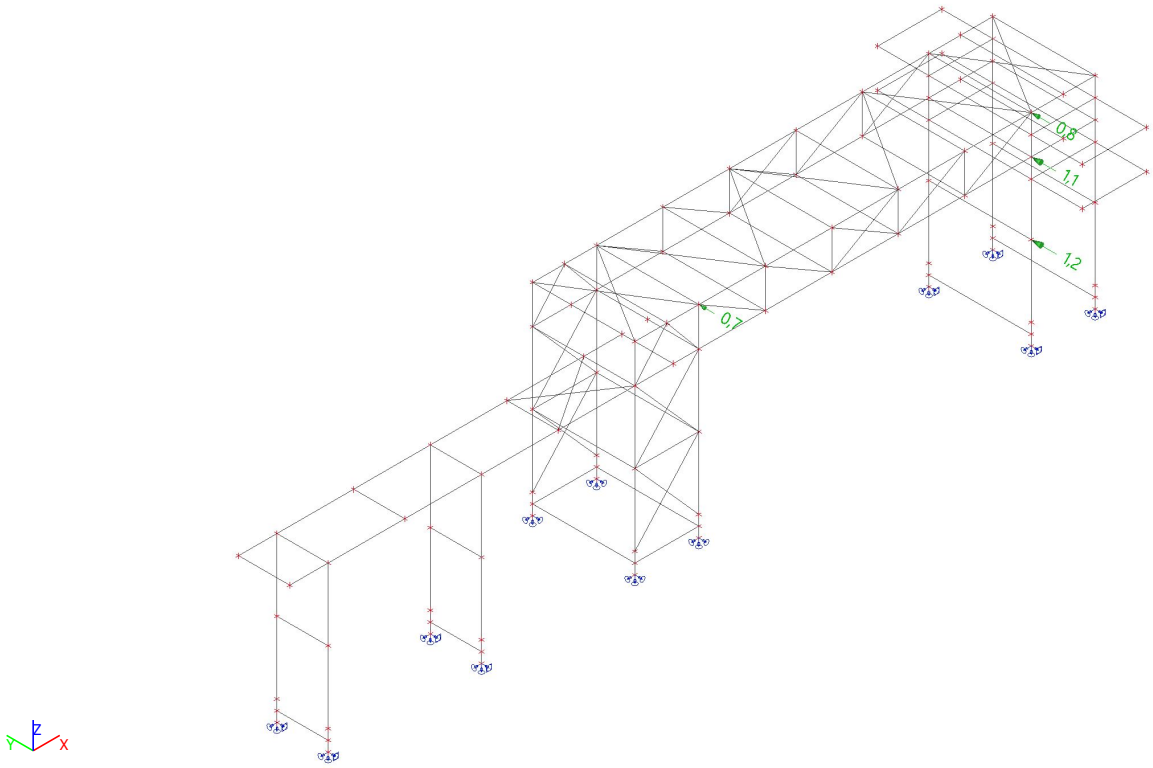
4.2.6.3. Resultant of reactions

Linear calculation
Load case: TLs
Extreme: Global
Selection: All
System: Global

x [m]	y [m]	z [m]	Case	R_x [kN]	R_y [kN]	R_z [kN]	M_x [kNm]	M_y [kNm]	M_z [kNm]
15,000	1,667	-0,800	TLs	**-15,3**	**-45,0**	**0,0**	**333,0**	**-107,2**	**2,1**

4.2.7. Load cases - I

Name	Description	Action type	Load type	Load group
I	Imperfection	Permanent	Standard	LG1



4.2.7.1. Point force in node

Name	Node	System	Dir	Type	Value - F [kN]
F7	N075	GCS	Y	Force	0,8
F8	N078	GCS	Y	Force	1,1
F9	N084	GCS	Y	Force	1,1
F10	N043	GCS	Y	Force	0,7

4.2.7.2. Resultant of reactions

Linear calculation
Load case: I
Extreme: Global
Selection: All
System: Global

x [m]	y [m]	z [m]	Case	R_x [kN]	R_y [kN]	R_z [kN]	M_x [kNm]	M_y [kNm]	M_z [kNm]
15,000	1,667	-0,800	I	**0,0**	**-3,8**	**0,0**	**23,7**	**0,0**	**-38,6**

4.3. Load groups

Name	Load	Relation	Type
LG1	Permanent		
LG2	Variable	Exclusive	Wind
LG3	Variable	Exclusive	Temperature

4.4. Combinations

Name	Description	Type	Load cases	Coeff. [-]
ULS_1		EN-ULS (STR/GEO) Set B	DL - Dead load - self-weight	1,00
			EE - Equipment load - Empty	1,00
			Wx - Wind load - longitudinal	1,00
			Wy - Wind load - transverse	1,00
ULS_2		EN-ULS (STR/GEO) Set B	DL - Dead load - self-weight	1,00
			EO - Equipment load - Operating	1,00
			Wx - Wind load - longitudinal	1,00
			Wy - Wind load - transverse	1,00
			TLs - Temperature load - pipe stress	1,00
ULS_3		EN-ULS (STR/GEO) Set B	DL - Dead load - self-weight	1,00
			EE - Equipment load - Empty	1,00
			Wx - Wind load - longitudinal	-1,00
			Wy - Wind load - transverse	-1,00
ULS_4		EN-ULS (STR/GEO) Set B	DL - Dead load - self-weight	1,00
			EO - Equipment load - Operating	1,00
			Wx - Wind load - longitudinal	-1,00
			Wy - Wind load - transverse	-1,00
			TLs - Temperature load - pipe stress	1,00
SLS-Char_1		EN-SLS Characteristic	DL - Dead load - self-weight	1,00
			EE - Equipment load - Empty	1,00
			Wx - Wind load - longitudinal	1,00
			Wy - Wind load - transverse	1,00
SLS-Char_2		EN-SLS Characteristic	DL - Dead load - self-weight	1,00
			EO - Equipment load - Operating	1,00
			Wx - Wind load - longitudinal	1,00
			Wy - Wind load - transverse	1,00
			TLs - Temperature load - pipe stress	1,00
SLS-Char_3		EN-SLS Characteristic	DL - Dead load - self-weight	1,00
			EE - Equipment load - Empty	1,00
			Wx - Wind load - longitudinal	-1,00
			Wy - Wind load - transverse	-1,00
SLS-Char_4		EN-SLS Characteristic	DL - Dead load - self-weight	1,00
			EO - Equipment load - Operating	1,00
			Wx - Wind load - longitudinal	1,00
			Wy - Wind load - transverse	-1,00
			TLs - Temperature load - pipe stress	-1,00
CO1		Linear - ultimate	DL - Dead load - self-weight	1,20
			EO - Equipment load - Operating	1,20
			Wy - Wind load - transverse	1,50
			TLs - Temperature load - pipe stress	0,90
			I - Imperfection	1,00
SLS-Freq_1		EN-SLS Frequent	DL - Dead load - self-weight	1,00
			EE - Equipment load - Empty	1,00
			Wx - Wind load - longitudinal	1,00
			Wy - Wind load - transverse	1,00
SLS-Freq_2		EN-SLS Frequent	DL - Dead load - self-weight	1,00
			EO - Equipment load - Operating	1,00
			Wx - Wind load - longitudinal	1,00
			Wy - Wind load - transverse	1,00
			TLs - Temperature load - pipe stress	1,00
SLS-Freq_3		EN-SLS Frequent	DL - Dead load - self-weight	1,00
			EE - Equipment load - Empty	1,00
			Wx - Wind load - longitudinal	-1,00
			Wy - Wind load - transverse	-1,00
SLS-Freq_4		EN-SLS Frequent	DL - Dead load - self-weight	1,00
			EO - Equipment load - Operating	1,00
			Wx - Wind load - longitudinal	1,00
			Wy - Wind load - transverse	-1,00
			TLs - Temperature load - pipe stress	-1,00
SLS-Quasi_1		EN-SLS Quasi-permanent	DL - Dead load - self-weight	1,00
			EE - Equipment load - Empty	1,00
			Wx - Wind load - longitudinal	1,00
			Wy - Wind load - transverse	1,00
SLS-Quasi_2		EN-SLS Quasi-permanent	DL - Dead load - self-weight	1,00
			EO - Equipment load - Operating	1,00
			Wx - Wind load - longitudinal	1,00
			Wy - Wind load - transverse	1,00

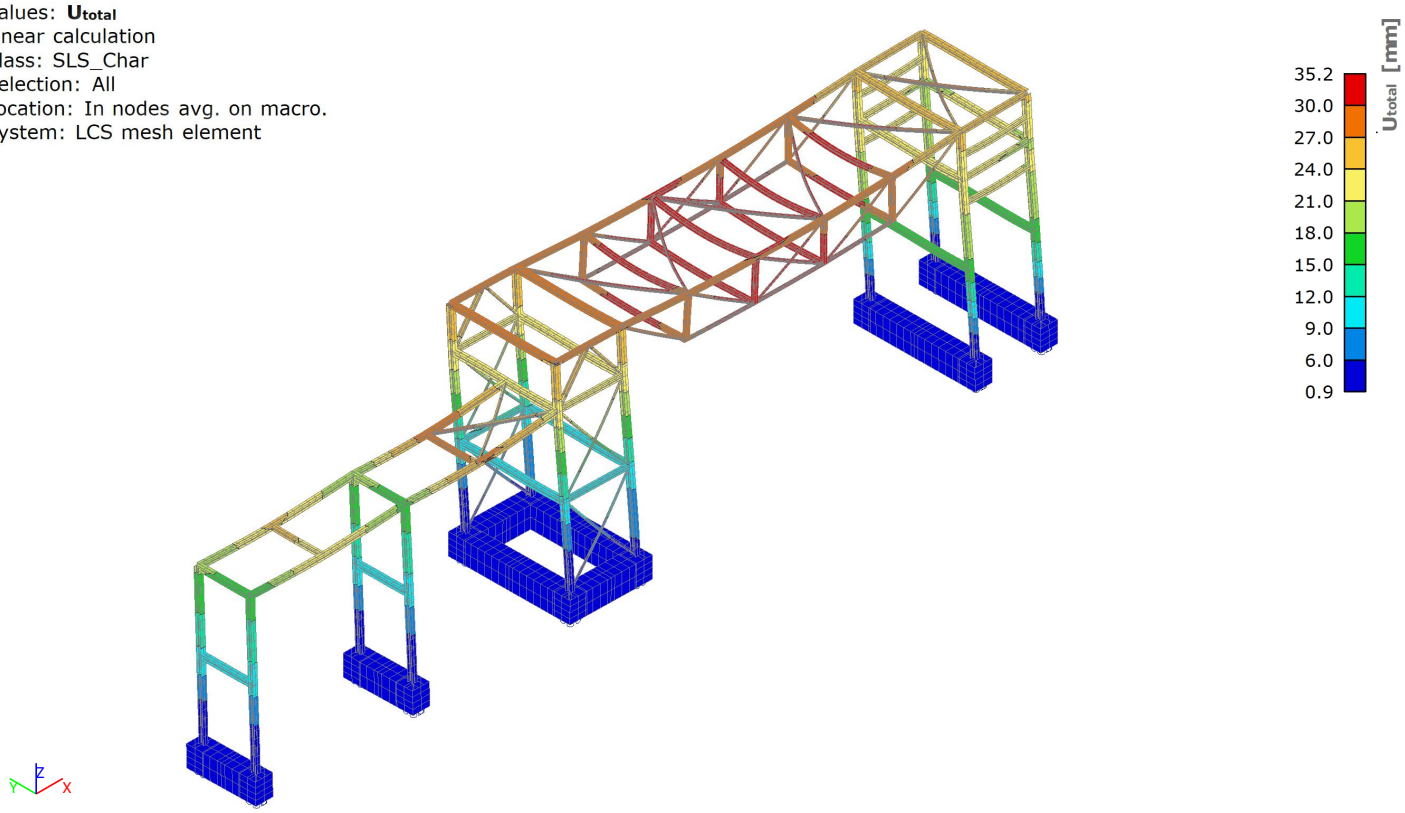
Name	Description	Type	Load cases	Coeff. [-]
			TLs - Temperature load - pipe stress	1,00
SLS-Quasi_3		EN-SLS Quasi-permanent	DL - Dead load - self-weight	1,00
			EE - Equipment load - Empty	1,00
			Wx - Wind load - longitudinal	-1,00
			Wy - Wind load - transverse	-1,00
SLS-Quasi_4		EN-SLS Quasi-permanent	DL - Dead load - self-weight	1,00
			EO - Equipment load - Operating	1,00
			Wx - Wind load - longitudinal	1,00
			Wy - Wind load - transverse	-1,00
			TLs - Temperature load - pipe stress	-1,00

4.5. Result classes

Name	List
All ULS	ULS_1 - EN-ULS (STR/GEO) Set B ULS_2 - EN-ULS (STR/GEO) Set B ULS_3 - EN-ULS (STR/GEO) Set B ULS_4 - EN-ULS (STR/GEO) Set B
SLS_Char	SLS-Char_1 - EN-SLS Characteristic SLS-Char_2 - EN-SLS Characteristic SLS-Char_3 - EN-SLS Characteristic SLS-Char_4 - EN-SLS Characteristic
SLS_Quasi	SLS-Quasi_1 - EN-SLS Quasi-permanent SLS-Quasi_2 - EN-SLS Quasi-permanent SLS-Quasi_3 - EN-SLS Quasi-permanent SLS-Quasi_4 - EN-SLS Quasi-permanent
SLS_Frequent	SLS-Freq_1 - EN-SLS Frequent SLS-Freq_2 - EN-SLS Frequent SLS-Freq_3 - EN-SLS Frequent SLS-Freq_4 - EN-SLS Frequent

5. Results

Values: U_{total}
Linear calculation
Class: SLS_Char
Selection: All
Location: In nodes avg. on macro.
System: LCS mesh element



5.1. Reactions

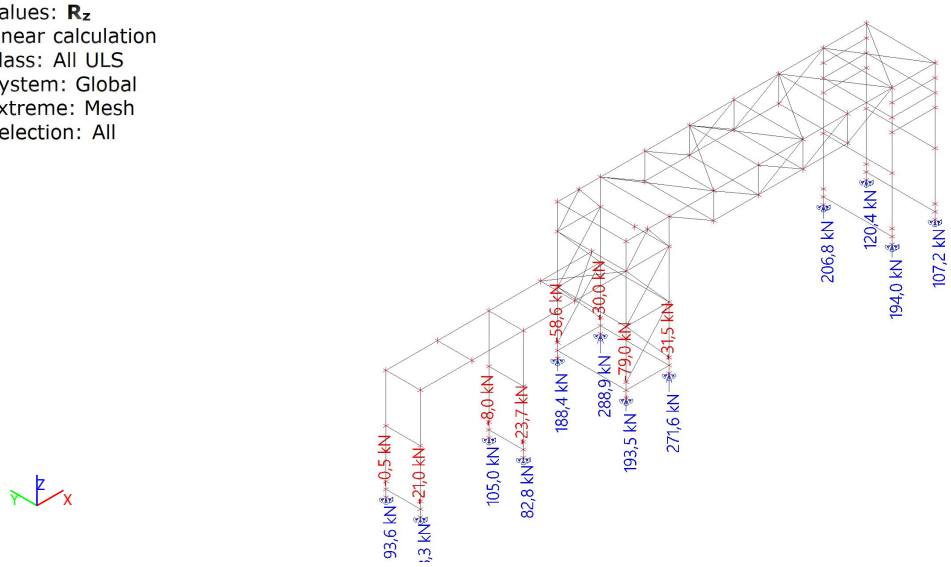
Linear calculation
Class: All ULS
System: Global
Extreme: Global
Selection: All

Nodal reactions

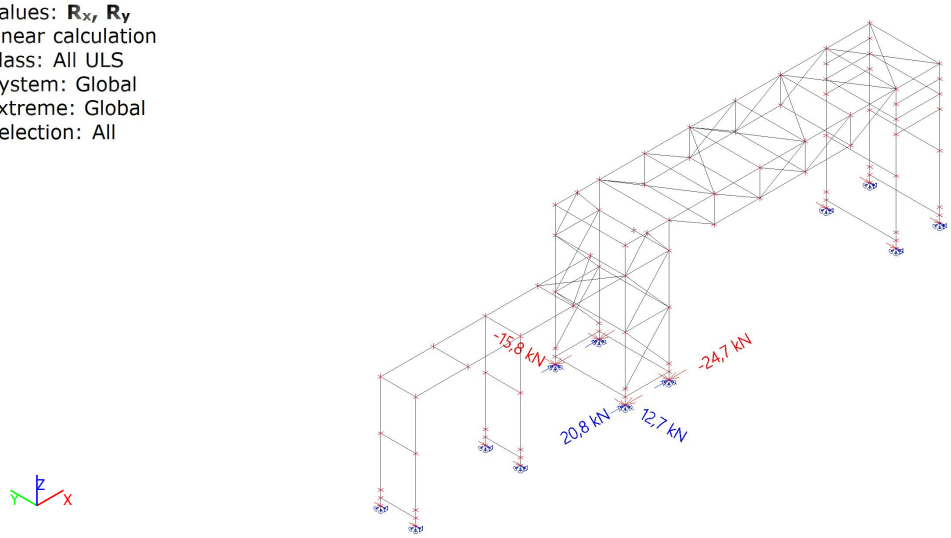
Name	Case	R_x [kN]	R_y [kN]	R_z [kN]	M_x [kNm]	M_y [kNm]	M_z [kNm]	e_x [mm]	e_y [mm]
Sn12/N055	ULS_2/1	**-24,7**	-3,5	271,6	0,0	0,0	0,0	0,0	0,0
Sn11/N037	ULS_3/2	**20,8**	-0,6	166,1	**0,0**	0,0	**0,0**	0,0	0,0
Sn10/N036	ULS_2/3	-3,5	**-15,8**	107,9	0,0	0,0	0,0	0,0	0,0
Sn11/N037	ULS_4/4	-0,7	**12,7**	121,3	0,0	0,0	0,0	0,0	0,0
Sn11/N037	ULS_2/5	-24,6	-2,3	**-79,0**	0,0	0,0	0,0	0,0	0,0
Sn9/N054	ULS_2/1	-22,6	-3,9	**288,9**	0,0	0,0	0,0	0,0	0,0
Sn8/N097	ULS_2/1	-3,5	-3,4	59,2	0,0	**-2,8**	0,0	0,0	-46,9
Sn7/N080	ULS_3/2	3,4	0,2	72,7	0,0	**2,7**	0,0	0,0	37,7

Name	Combination key
ULS_2/1	1.20*DL + 1.20*EO + 1.50*Wx + 0.90*TLs
ULS_3/2	0.90*DL + 0.90*EE - 1.50*Wx
ULS_2/3	1.20*DL + 1.20*EO + 0.90*TLs + 1.50*Wy
ULS_4/4	1.20*DL + 1.20*EO - 1.50*Wy
ULS_2/5	0.90*DL + 0.90*EO + 1.50*Wx + 0.90*TLs

Values: **R_z**
Linear calculation
Class: All ULS
System: Global
Extreme: Mesh
Selection: All



Values: **R_x, R_y**
Linear calculation
Class: All ULS
System: Global
Extreme: Global
Selection: All



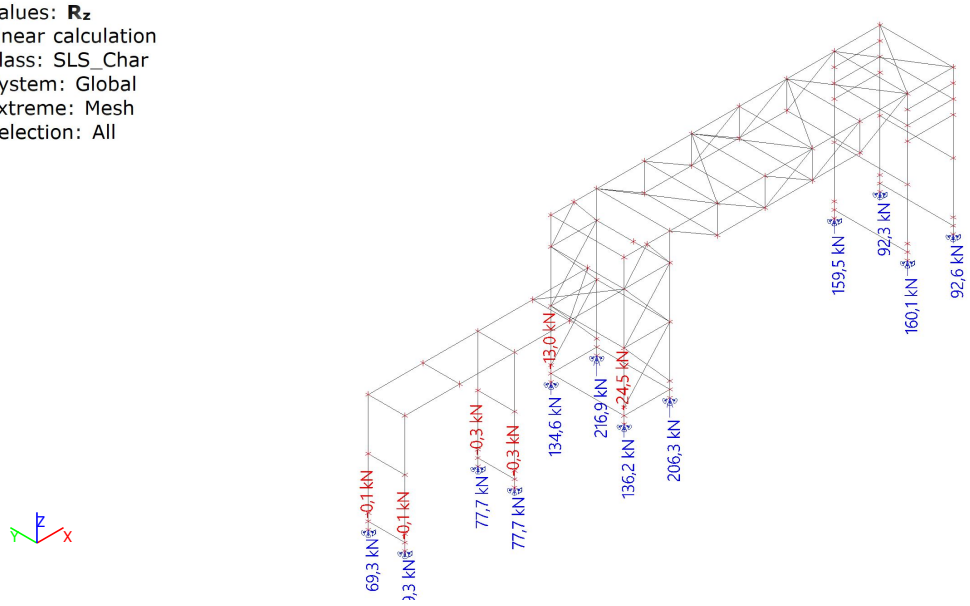
Linear calculation
Class: SLS_Char
System: Global
Extreme: Global
Selection: All

Nodal reactions

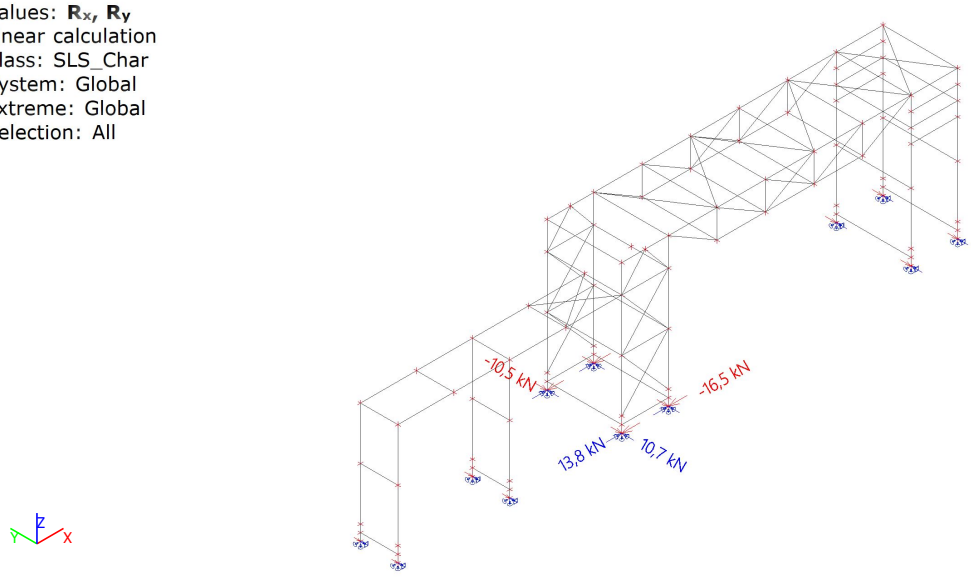
Name	Case	R_x [kN]	R_y [kN]	R_z [kN]	M_x [kNm]	M_y [kNm]	M_z [kNm]	e_x [mm]	e_y [mm]
Sn12/N055	SLS-Char_2/1	**-16,5**	-2,3	206,3	0,0	0,0	0,0	0,0	0,0
Sn11/N037	SLS-Char_3/2	**13,8**	-0,3	136,2	**0,0**	0,0	**0,0**	0,0	0,0
Sn10/N036	SLS-Char_2/3	-2,3	**-10,5**	84,9	0,0	0,0	0,0	0,0	0,0
Sn11/N037	SLS-Char_4/4	1,8	**10,7**	117,3	0,0	0,0	0,0	0,0	0,0
Sn11/N037	SLS-Char_2/1	-16,5	-1,4	**-24,5**	0,0	0,0	0,0	0,0	0,0
Sn9/N054	SLS-Char_2/1	-15,0	-2,6	**216,9**	0,0	0,0	0,0	0,0	0,0
Sn8/N097	SLS-Char_2/1	-2,3	-2,2	51,6	0,0	**-1,9**	0,0	0,0	-35,9
Sn6/N081	SLS-Char_3/2	2,3	-0,1	79,7	0,0	**1,8**	0,0	0,0	22,9

Name	Combination key
SLS-Char_2/1	DL + EO + Wx + 0.60*TLs
SLS-Char_3/2	DL + EE - Wx
SLS-Char_2/3	DL + EO + 0.60*TLs + Wy
SLS-Char_4/4	DL + EO - 0.60*TLs - Wy

Values: **R_z**
Linear calculation
Class: SLS_Char
System: Global
Extreme: Mesh
Selection: All



Values: **R_x, R_y**
Linear calculation
Class: SLS_Char
System: Global
Extreme: Global
Selection: All



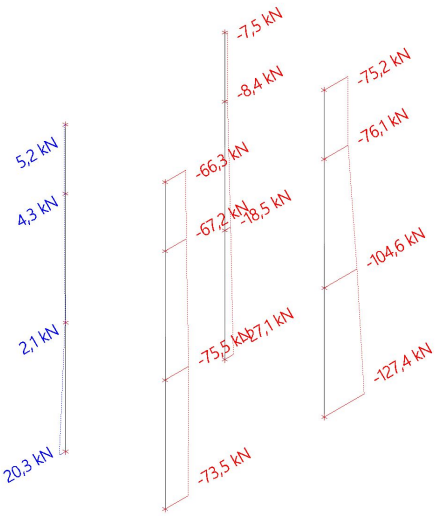
5.2. Middle columns

5.2.1. 1D internal forces

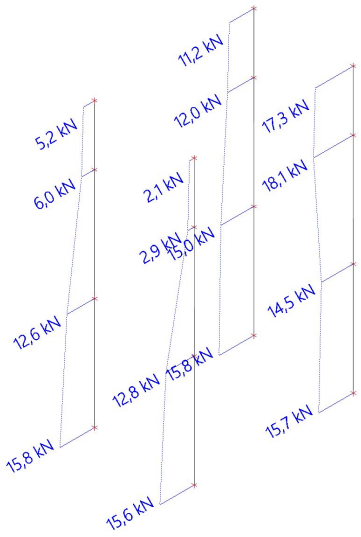
Linear calculation
Load case: DL
Coordinate system: Principal
Extreme 1D: Global
Selection: Named selection - Columns_Middle

Name	dx [m]	Case	N [kN]	V_y [kN]	V_z [kN]	M_x [kNm]	M_y [kNm]	M_z [kNm]
B037	0,000	DL	**-13,0**	0,0	-0,2	0,0	0,3	0,0
B020	7,100	DL	**-1,0**	0,0	-0,6	0,0	-0,4	0,0
B024	0,000	DL	-7,7	**0,0**	0,2	0,0	-0,3	0,0
B020	2,800+	DL	-6,2	**0,0**	-0,2	0,0	0,2	0,0
B020	5,600+	DL	-1,8	0,0	**-0,6**	0,0	**0,6**	0,0
B037	2,800+	DL	-10,5	0,0	-0,1	**0,0**	0,1	0,0
B042	2,800+	DL	-10,4	0,0	0,1	**0,0**	-0,1	0,0
B024	5,600+	DL	-1,8	0,0	**0,6**	0,0	**-0,6**	0,0
B024	2,800+	DL	-5,2	0,0	0,2	0,0	-0,2	**0,0**
B037	7,100	DL	-7,0	0,0	-0,4	0,0	-0,3	**0,0**

Values: **N**
Linear calculation
Combination: CO1
Coordinate system: Principal
Extreme 1D: Section
Selection: All
Selected sections: Ends, Inputted



Values: **V_z**
Linear calculation
Combination: CO1
Coordinate system: Principal
Extreme 1D: Section
Selection: All
Selected sections: Ends, Inputted



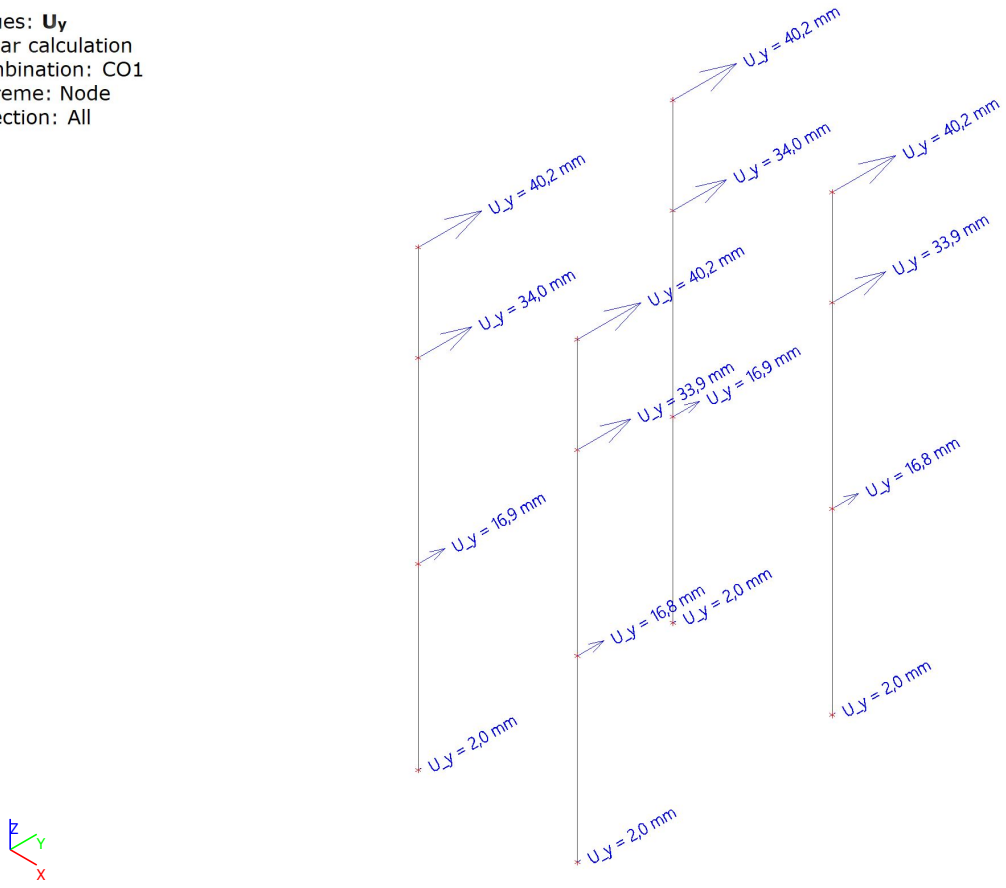
5.2.2. Displacement of nodes

Linear calculation
Combination: CO1
Extreme: Global
Selection: Named selection - Columns_Middle

Name	Case	U_x [mm]	U_y [mm]	U_z [mm]	Φ_x [mrad]	Φ_y [mrad]	Φ_z [mrad]	U_{total} [mm]
N044	CO1/1	**1,0**	2,0	-4,4	-0,5	0,9	0,0	4,9
N027	CO1/1	1,0	**2,0**	-2,2	**-0,5**	0,9	0,0	3,1
N043	CO1/1	8,1	**40,2**	-2,8	-3,7	1,0	-0,2	41,2
N032	CO1/1	3,7	16,9	-2,2	**-5,5**	1,0	0,0	17,5
N042	CO1/1	1,0	2,0	-2,4	-0,6	**0,9**	0,0	3,3
N045	CO1/1	**8,2**	40,2	**-4,9**	-3,0	**1,1**	**-0,4**	**41,4**
N026	CO1/1	8,1	40,2	**-0,2**	-3,2	1,0	**0,1**	41,0

Name	Combination key
CO1/1	1.20*DL + 1.20*EO + 0.90*TLs + 1.50*Wy + I

Values: U_y
Linear calculation
Combination: CO1
Extreme: Node
Selection: All



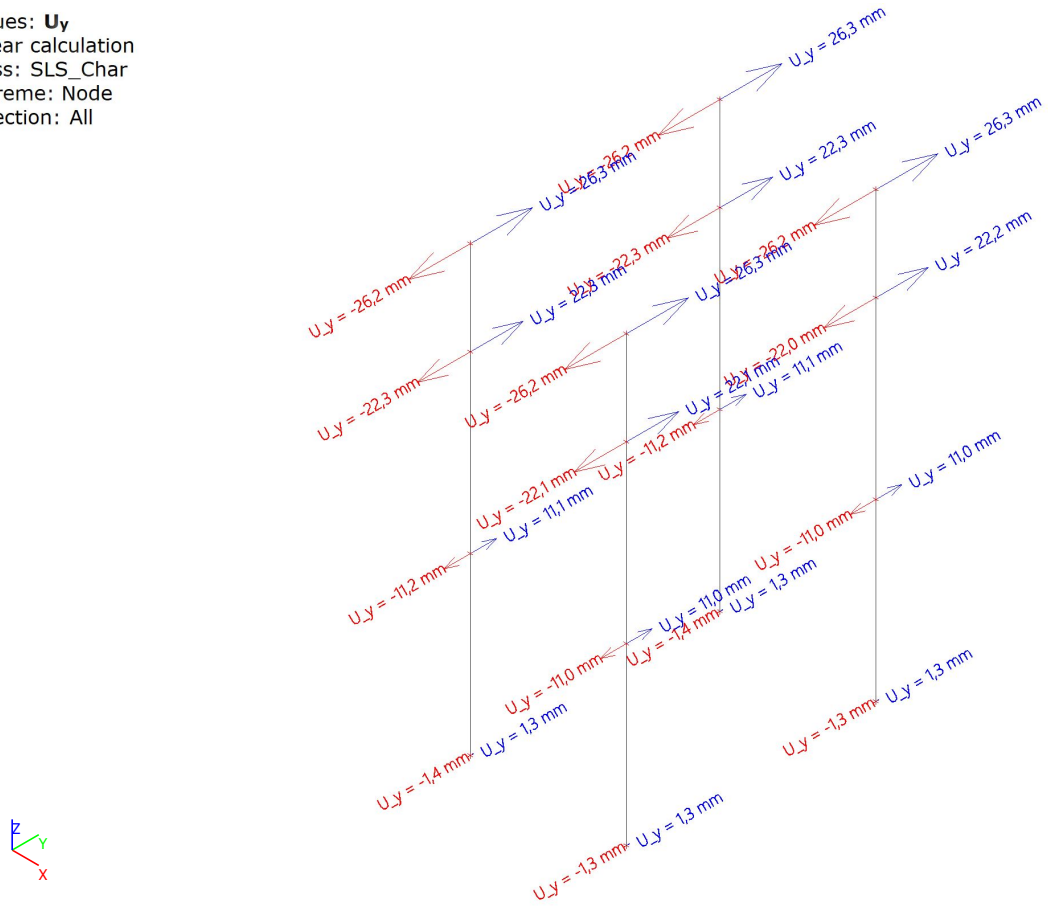
5.2.3. Displacement of nodes

Linear calculation
Class: SLS_Char
Extreme: Global
Selection: Named selection - Columns_Middle

Name	Case	U_x [mm]	U_y [mm]	U_z [mm]	Φ_x [mrad]	Φ_y [mrad]	Φ_z [mrad]	U_{total} [mm]
N043	SLS-Char_3/1	**-10,4**	0,5	-0,3	-0,2	-1,1	0,0	10,5
N043	SLS-Char_2/2	**18,5**	6,4	-4,7	-0,9	2,2	0,1	20,1
N026	SLS-Char_4/3	1,8	**-26,2**	-2,5	2,1	0,3	0,0	26,4
N026	SLS-Char_2/4	6,2	**26,3**	-0,5	-2,1	0,8	0,1	27,1
N045	SLS-Char_2/2	18,2	6,3	**-4,9**	-0,3	2,2	0,0	19,9
N026	SLS-Char_2/2	18,5	6,2	**0,6**	-0,6	2,1	0,1	19,5
N032	SLS-Char_2/4	2,8	11,1	-1,7	**-3,6**	0,8	0,0	11,6
N033	SLS-Char_4/3	0,6	-11,2	-2,4	**3,6**	0,2	0,0	11,5
N033	SLS-Char_3/1	-5,4	0,3	-2,9	-0,1	**-1,2**	0,0	6,2
N046	SLS-Char_2/2	15,2	5,2	-4,6	-0,9	**2,2**	0,1	16,8
N045	SLS-Char_2/4	6,3	26,3	-3,8	-1,9	0,8	**-0,3**	**27,3**
N043	SLS-Char_4/3	1,8	-26,2	-3,3	1,9	0,3	**0,3**	26,4

Name	Combination key
SLS-Char_3/1	DL + EE - Wx
SLS-Char_2/2	DL + EO + Wx + 0.60*TLs
SLS-Char_4/3	DL + EO - 0.60*TLs - Wy
SLS-Char_2/4	DL + EO + 0.60*TLs + Wy

Values: **U_y**
Linear calculation
Class: SLS_Char
Extreme: Node
Selection: All



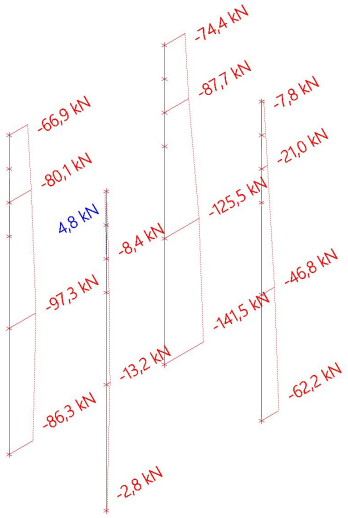
5.3. End columns

5.3.1. 1D internal forces

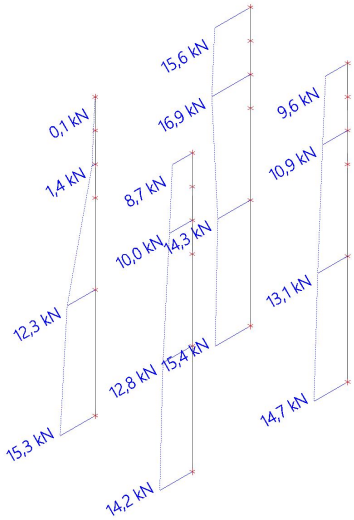
Linear calculation
Load case: DL
Coordinate system: Principal
Extreme 1D: Global
Selection: Named selection - Columns_End

Name	dx [m]	Case	N [kN]	V_y [kN]	V_z [kN]	M_x [kNm]	M_y [kNm]	M_z [kNm]
B097	0,000	DL	**-13,1**	0,0	-0,2	0,0	0,3	0,0
B103	5,600+	DL	-8,3	0,0	**0,4**	**0,0**	-0,3	0,0
B097	7,100	DL	-7,3	0,0	-0,4	0,0	**-0,4**	0,0
B118	7,100	DL	**-1,2**	0,0	0,4	0,0	**0,3**	0,0
B116	6,350-	DL	-1,9	**0,0**	-0,4	0,0	0,0	**0,0**
B097	6,350-	DL	-7,9	**0,0**	**-0,4**	**0,0**	0,0	**0,0**

Values: **N**
Linear calculation
Combination: CO1
Coordinate system: Principal
Extreme 1D: Section
Selection: All
Selected sections: Ends, Inputted



Values: **V_z**
Linear calculation
Combination: CO1
Coordinate system: Principal
Extreme 1D: Section
Selection: All
Selected sections: Ends, Inputted



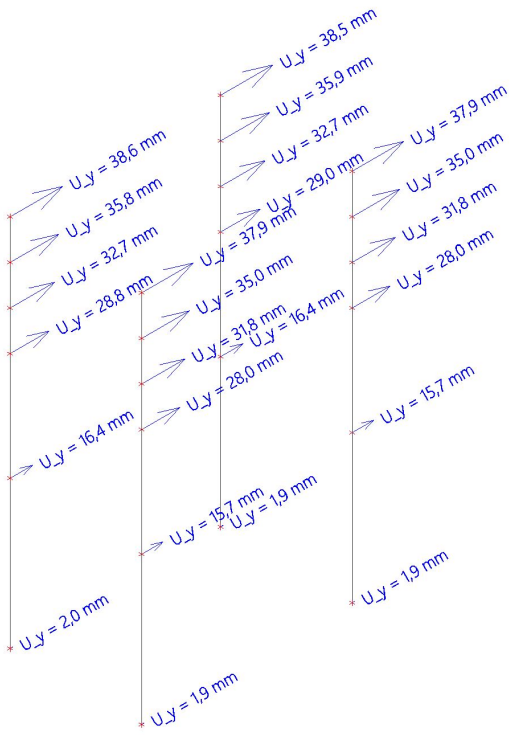
5.3.2. Displacement of nodes

Linear calculation
Combination: CO1
Extreme: Global
Selection: Named selection - Columns_End

Name	Case	U_x [mm]	U_y [mm]	U_z [mm]	Φ_x [mrad]	Φ_y [mrad]	Φ_z [mrad]	U_{total} [mm]
N076	CO1/1	**0,0**	1,9	-4,1	**-0,5**	**0,0**	0,0	4,5
N093	CO1/1	**6,1**	37,9	-2,7	-3,2	0,7	0,0	38,4
N091	CO1/1	0,0	**1,9**	-2,5	-0,5	0,0	0,0	3,1
N075	CO1/1	5,2	**38,6**	-2,6	-3,4	0,5	0,1	39,0
N077	CO1/1	6,1	38,5	**-4,7**	-2,8	0,6	**0,3**	**39,3**
N089	CO1/1	3,9	28,8	-2,5	**-5,7**	0,7	0,1	29,2
N085	CO1/1	2,7	16,4	-4,3	-5,3	**0,9**	0,1	17,2
N090	CO1/1	0,0	1,9	**-0,5**	-0,6	0,0	**0,0**	1,9

Name	Combination key
CO1/1	1.20*DL + 1.20*EO + 0.90*TLs + 1.50*Wy + I

Values: **U_y**
Linear calculation
Combination: CO1
Extreme: Node
Selection: All



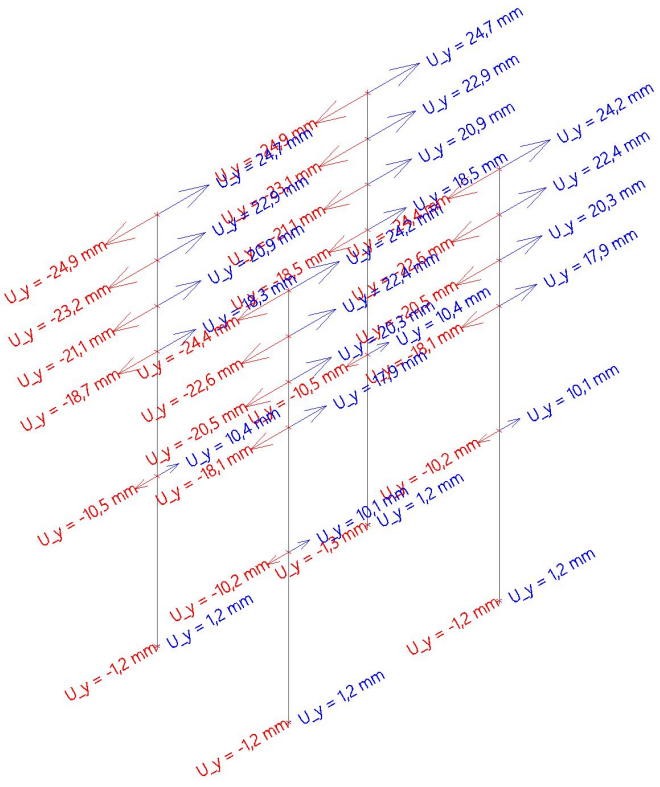
5.3.3. Displacement of nodes

Linear calculation
Class: SLS_Char
Extreme: Global
Selection: Named selection - Columns_End

Name	Case	U_x [mm]	U_y [mm]	U_z [mm]	Φ_x [mrad]	Φ_y [mrad]	Φ_z [mrad]	U_{total} [mm]
N105	SLS-Char_3/1	**-16,8**	-0,3	-1,0	0,1	0,6	0,0	16,9
N105	SLS-Char_2/2	**20,4**	5,2	-1,1	-1,1	0,0	0,0	21,1
N075	SLS-Char_2/3	3,8	**24,7**	-2,4	-2,3	0,4	0,1	25,1
N091	SLS-Char_3/4	0,0	-0,9	**-0,5**	0,3	0,0	0,0	1,1
N089	SLS-Char_2/3	2,8	18,3	-2,2	**-3,7**	0,5	0,0	18,7
N088	SLS-Char_4/5	-0,8	-18,5	-2,2	**3,7**	-0,1	0,0	18,7
N100	SLS-Char_3/1	-14,1	-0,2	-1,0	0,0	**-3,2**	0,0	14,2
N084	SLS-Char_2/2	16,3	2,8	-2,6	-0,9	**4,0**	0,0	16,7
N075	SLS-Char_4/5	-0,1	**-24,9**	**-3,7**	1,8	0,1	**-0,2**	25,2
N077	SLS-Char_2/3	4,5	24,7	-3,7	-1,7	0,5	**0,2**	**25,4**

Name	Combination key
SLS-Char_3/1	DL + EE - Wx
SLS-Char_2/2	DL + EO + Wx + 0.60*TLs
SLS-Char_2/3	DL + EO + 0.60*TLs + Wy
SLS-Char_3/4	DL + EE - Wy
SLS-Char_4/5	DL + EO - 0.60*TLs - Wy

Values: **U_y**
Linear calculation
Class: SLS_Char
Extreme: Node
Selection: All



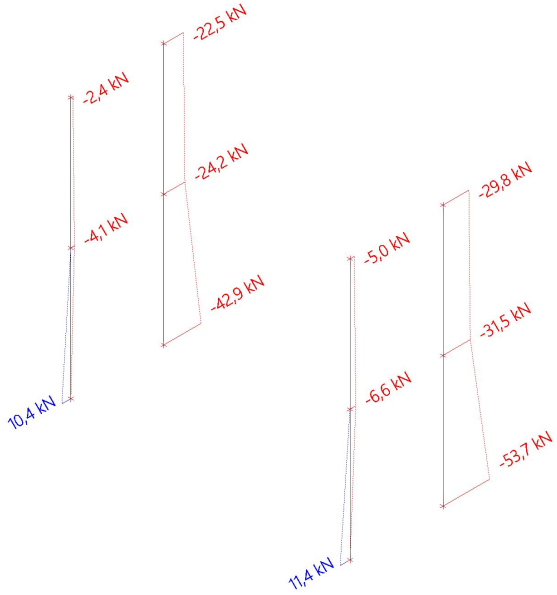
5.4. Lower part

5.4.1. 1D internal forces

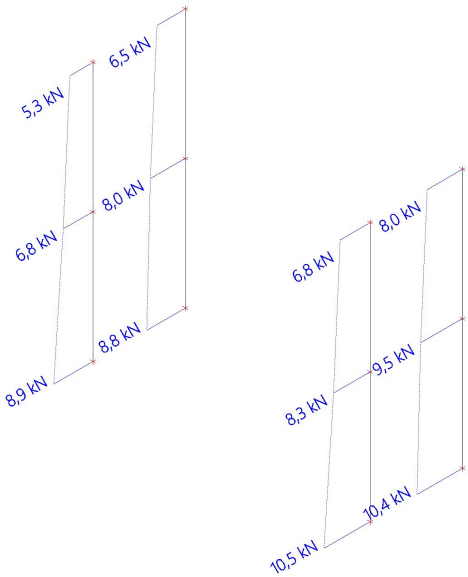
Linear calculation
Load case: DL
Coordinate system: Principal
Extreme 1D: Global
Selection: Named selection - Columns_Low

Name	dx [m]	Case	N [kN]	V_y [kN]	V_z [kN]	M_x [kNm]	M_y [kNm]	M_z [kNm]
B012	0,000	DL	**-5,6**	**0,0**	0,0	**0,0**	0,0	0,0
B012	5,600	DL	-2,5	0,0	**0,0**	0,0	**-0,1**	**0,0**
B004	5,600	DL	**-1,4**	**0,0**	**0,0**	**0,0**	**0,1**	**0,0**

Values: **N**
Linear calculation
Combination: CO1
Coordinate system: Principal
Extreme 1D: Section
Selection: All
Selected sections: Ends, Inputted



Values: **V_z**
Linear calculation
Combination: CO1
Coordinate system: Principal
Extreme 1D: Section
Selection: All
Selected sections: Ends, Inputted



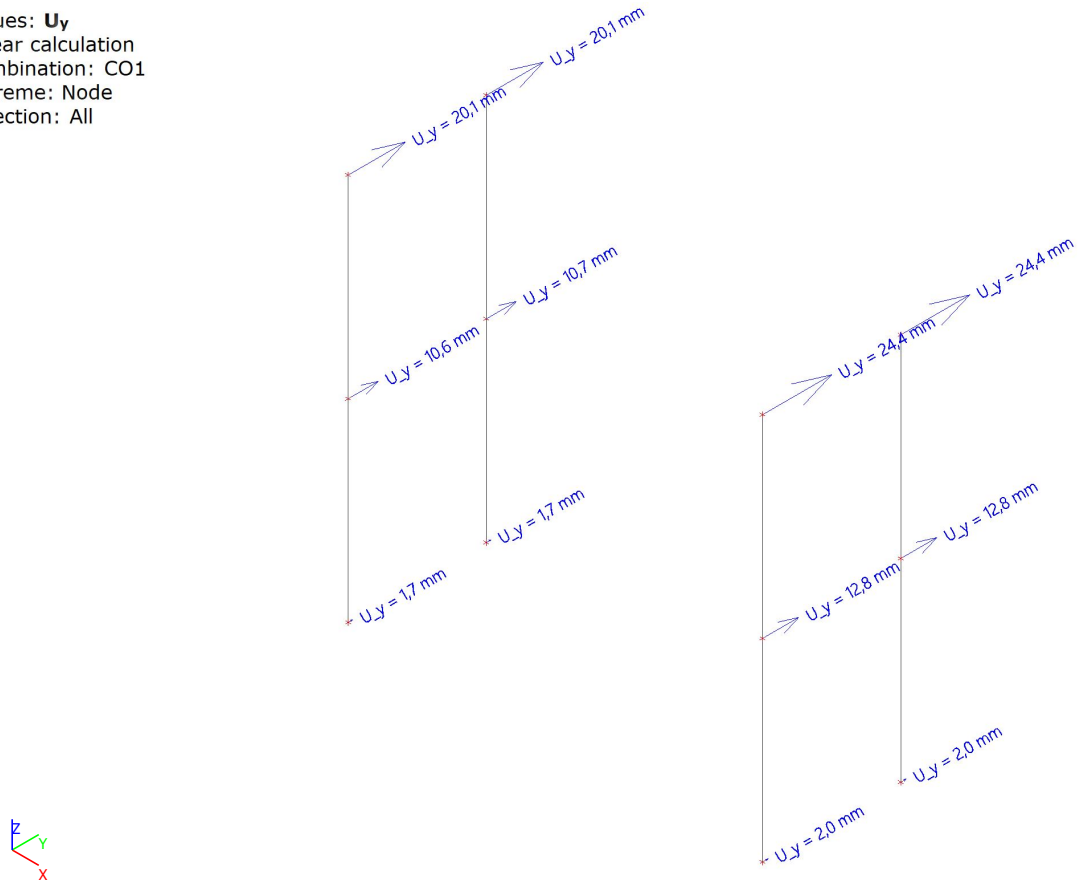
5.4.2. Displacement of nodes

Linear calculation
Combination: CO1
Extreme: Global
Selection: Named selection - Columns_Low

Name	Case	U_x [mm]	U_y [mm]	U_z [mm]	Φ_x [mrad]	Φ_y [mrad]	Φ_z [mrad]	U_{total} [mm]
N002	CO1/1	**8,3**	20,1	-1,9	-2,5	**1,5**	**0,0**	21,8
N004	CO1/1	**0,0**	**1,7**	-1,8	**-1,0**	**0,0**	0,0	2,5
N014	CO1/1	8,3	24,4	**-2,3**	-3,0	1,5	0,0	**25,8**
N021	CO1/1	3,3	12,8	**0,3**	-3,6	1,2	0,0	13,2
N022	CO1/1	4,1	12,8	-2,2	**-3,7**	1,5	0,0	13,6
N013	CO1/1	6,6	**24,4**	0,3	-3,3	1,2	**0,0**	25,3

Name	Combination key
CO1/1	1.20*DL + 1.20*EO + 0.90*TLs + 1.50*Wy + I

Values: **U_y**
Linear calculation
Combination: CO1
Extreme: Node
Selection: All



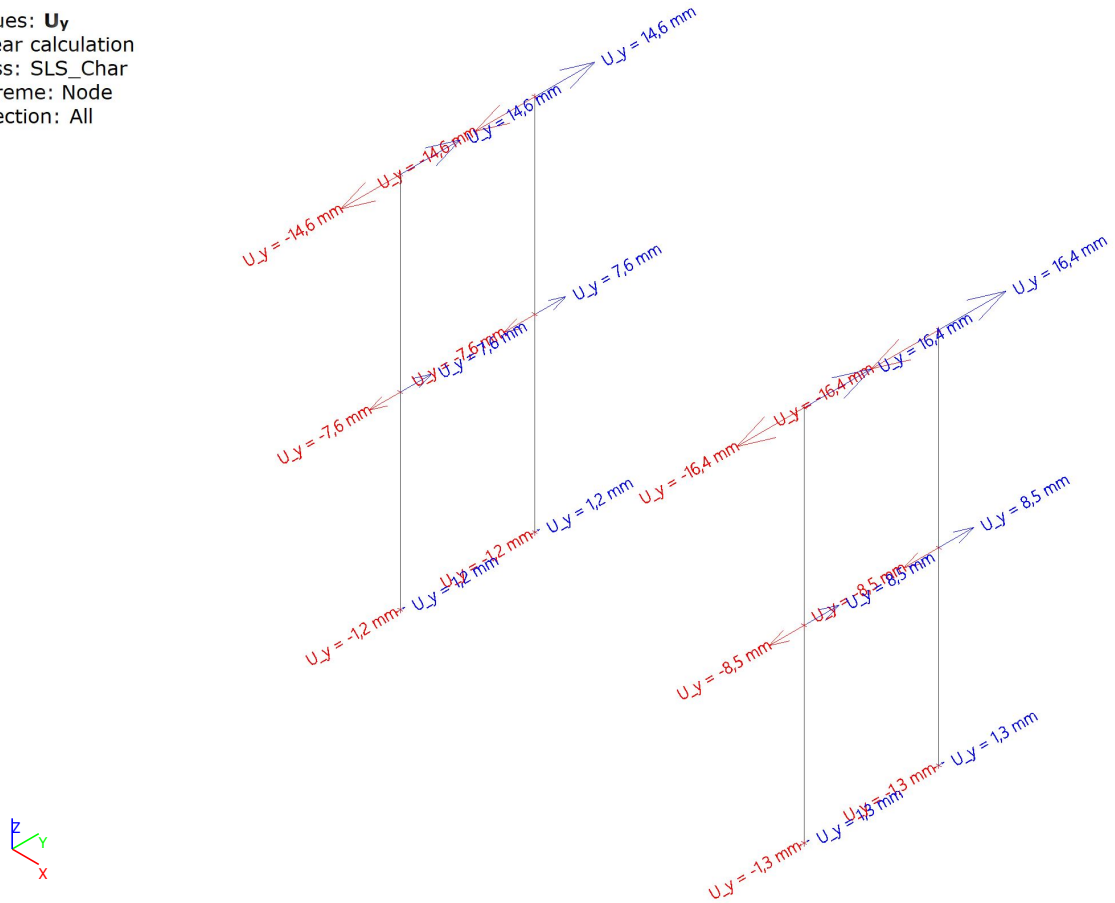
5.4.3. Displacement of nodes

Linear calculation
Class: SLS_Char
Extreme: Global
Selection: Named selection - Columns_Low

Name	Case	U_x [mm]	U_y [mm]	U_z [mm]	Φ_x [mrad]	Φ_y [mrad]	Φ_z [mrad]	U_{total} [mm]
N002	SLS-Char_3/1	**-10,5**	0,0	-0,6	0,0	-0,8	0,0	10,5
N002	SLS-Char_2/2	**17,4**	6,1	-1,1	-0,7	2,0	**0,0**	18,4
N013	SLS-Char_4/3	0,1	**-16,4**	**-1,7**	2,1	0,0	0,0	16,5
N013	SLS-Char_2/4	6,3	**16,4**	0,0	-2,3	1,1	0,0	17,5
N021	SLS-Char_2/4	3,1	8,5	**0,0**	-2,4	1,1	0,0	9,0
N022	SLS-Char_2/4	3,7	8,5	-1,6	**-2,5**	1,3	0,0	9,4
N021	SLS-Char_4/3	0,0	-8,5	-1,6	**2,5**	0,0	0,0	8,6
N010	SLS-Char_3/1	-7,2	0,0	-0,6	0,0	**-1,8**	0,0	7,2
N010	SLS-Char_2/2	10,7	3,1	-1,0	-0,9	**3,1**	0,0	11,2
N014	SLS-Char_2/2	17,4	6,9	-1,2	-0,8	2,0	0,0	**18,7**

Name	Combination key
SLS-Char_3/1	DL + EE - Wx
SLS-Char_2/2	DL + EO + Wx + 0.60*TLs
SLS-Char_4/3	DL + EO - TLs - 0.60*Wy
SLS-Char_2/4	DL + EO + TLs + 0.60*Wy

Values: **U_y**
Linear calculation
Class: SLS_Char
Extreme: Node
Selection: All



6. Steel check

6.1. Steel slenderness

Linear calculation

Member	CS Name	Part	Sway y	Sway z	Ly [m]	Lz [m]	ky [-]	kz [-]	Iy [m]	Iz [m]	Lam y [-]	Lam z [-]	Iyz [m]	I LTB [m]
B037	CS7	1	Yes	No	2,800	2,800	1,00	1,00	2,800	2,800	36,54	61,26	2,800	2,800
B037	CS7	2	Yes	No	2,800	2,800	1,00	1,00	2,800	2,800	36,54	61,26	2,800	2,800
B037	CS7	3	Yes	No	1,500	1,500	1,00	1,00	1,500	1,500	19,58	32,82	1,500	1,500
B042	CS7	1	Yes	No	2,800	2,800	1,00	1,00	2,800	2,800	36,54	61,26	2,800	2,800
B042	CS7	2	Yes	No	2,800	2,800	1,00	1,00	2,800	2,800	36,54	61,26	2,800	2,800
B042	CS7	3	Yes	No	1,500	1,500	1,00	1,00	1,500	1,500	19,58	32,82	1,500	1,500
B040	CS6	1	Yes	No	4,000	4,000	1,00	1,00	4,000	4,000	53,74	88,52	4,000	4,000
B046	CS6	1	Yes	No	4,000	4,000	1,00	1,00	4,000	4,000	53,74	88,52	4,000	2,000
B046	CS6	2	Yes	No	4,000	4,000	1,00	1,00	4,000	4,000	53,74	88,52	4,000	2,000
B097	CS7	1	Yes	No	2,800	7,100	1,00	1,00	2,800	7,100	36,54	155,35	7,100	7,100
B097	CS7	2	Yes	No	2,800	7,100	1,00	1,00	2,800	7,100	36,54	155,35	7,100	7,100
B097	CS7	3	Yes	No	2,800	7,100	1,00	1,00	2,800	7,100	36,54	155,35	7,100	7,100
B097	CS7	4	Yes	No	1,500	7,100	1,00	1,00	1,500	7,100	19,58	155,35	7,100	7,100
B097	CS7	5	Yes	No	1,500	7,100	1,00	1,00	1,500	7,100	19,58	155,35	7,100	7,100
B103	CS7	1	Yes	No	2,800	7,100	1,00	1,00	2,800	7,100	36,54	155,35	7,100	7,100
B103	CS7	2	Yes	No	2,800	7,100	1,00	1,00	2,800	7,100	36,54	155,35	7,100	7,100
B103	CS7	3	Yes	No	2,800	7,100	1,00	1,00	2,800	7,100	36,54	155,35	7,100	7,100
B103	CS7	4	Yes	No	1,500	7,100	1,00	1,00	1,500	7,100	19,58	155,35	7,100	7,100
B103	CS7	5	Yes	No	1,500	7,100	1,00	1,00	1,500	7,100	19,58	155,35	7,100	7,100
B099	CS6	1	Yes	No	4,000	4,000	1,00	1,00	4,000	4,000	53,74	88,52	4,000	4,000
B107	CS6	1	Yes	No	4,000	4,000	1,00	1,00	4,000	4,000	53,74	88,52	4,000	4,000
B020	CS7	1	Yes	No	2,800	2,800	1,00	1,00	2,800	2,800	36,54	61,26	2,800	2,800
B020	CS7	2	Yes	No	2,800	2,800	1,00	1,00	2,800	2,800	36,54	61,26	2,800	2,800
B020	CS7	3	Yes	No	1,500	1,500	1,00	1,00	1,500	1,500	19,58	32,82	1,500	1,500
B024	CS7	1	Yes	No	2,800	2,800	1,00	1,00	2,800	2,800	36,54	61,26	2,800	2,800
B024	CS7	2	Yes	No	2,800	2,800	1,00	1,00	2,800	2,800	36,54	61,26	2,800	2,800
B024	CS7	3	Yes	No	1,500	1,500	1,00	1,00	1,500	1,500	19,58	32,82	1,500	1,500
B023	CS6	1	Yes	No	4,000	4,000	1,00	1,00	4,000	4,000	53,74	88,52	4,000	4,000
B027	CS6	1	Yes	No	4,000	4,000	1,00	1,00	4,000	4,000	53,74	88,52	4,000	2,000
B027	CS6	2	Yes	No	4,000	4,000	1,00	1,00	4,000	4,000	53,74	88,52	4,000	2,000
B100	CS3	1	Yes	No	2,600	2,600	1,00	1,00	2,600	2,600	45,40	73,87	2,600	2,600
B100	CS3	2	Yes	No	2,600	2,600	1,00	1,00	2,600	2,600	45,40	73,87	2,600	2,600
B100	CS3	3	Yes	No	2,600	2,600	1,00	1,00	2,600	2,600	45,40	73,87	2,600	2,600
B100	CS3	4	Yes	No	2,600	2,600	1,00	1,00	2,600	2,600	45,40	73,87	2,600	2,600
B100	CS3	5	Yes	No	2,600	2,600	1,00	1,00	2,600	2,600	45,40	73,87	2,600	2,600
B105	CS3	1	Yes	No	2,600	2,600	1,00	1,00	2,600	2,600	45,40	73,87	2,600	2,600
B105	CS3	2	Yes	No	2,600	2,600	1,00	1,00	2,600	2,600	45,40	73,87	2,600	2,600
B105	CS3	3	Yes	No	2,600	2,600	1,00	1,00	2,600	2,600	45,40	73,87	2,600	2,600
B105	CS3	4	Yes	No	2,600	2,600	1,00	1,00	2,600	2,600	45,40	73,87	2,600	2,600
B105	CS3	5	Yes	No	2,600	2,600	1,00	1,00	2,600	2,600	45,40	73,87	2,600	2,600
B045	CS3	1	Yes	No	2,500	2,500	1,00	1,00	2,500	2,500	43,65	71,03	2,500	1,250
B045	CS3	2	Yes	No	2,500	2,500	1,00	1,00	2,500	2,500	43,65	71,03	2,500	1,250
B041	CS3	1	Yes	No	2,500	2,500	1,00	1,00	2,500	2,500	43,65	71,03	2,500	1,250
B041	CS3	2	Yes	No	2,500	2,500	1,00	1,00	2,500	2,500	43,65	71,03	2,500	1,250
B088	CS8	1	Yes	No	2,600	2,600	1,00	1,00	2,600	2,600	85,08	166,61	2,600	2,600
B092	CS8	1	Yes	No	2,600	2,600	1,00	1,00	2,600	2,600	85,08	166,61	2,600	2,600
B049	CS3	1	Yes	No	2,500	2,500	1,00	1,00	2,500	2,500	43,65	71,03	2,500	2,500
B047	CS3	1	Yes	No	2,500	2,500	1,00	1,00	2,500	2,500	43,65	71,03	2,500	2,500
B116	CS7	1	Yes	No	2,800	7,100	1,00	1,00	2,800	7,100	36,54	155,35	7,100	7,100
B116	CS7	2	Yes	No	2,800	7,100	1,00	1,00	2,800	7,100	36,54	155,35	7,100	7,100
B116	CS7	3	Yes	No	2,800	7,100	1,00	1,00	2,800	7,100	36,54	155,35	7,100	7,100
B116	CS7	4	Yes	No	1,500	7,100	1,00	1,00	1,500	7,100	19,58	155,35	7,100	7,100
B116	CS7	5	Yes	No	1,500	7,100	1,00	1,00	1,500	7,100	19,58	155,35	7,100	7,100
B118	CS7	1	Yes	No	2,800	7,100	1,00	1,00	2,800	7,100	36,54	155,35	7,100	7,100
B118	CS7	2	Yes	No	2,800	7,100	1,00	1,00	2,800	7,100	36,54	155,35	7,100	7,100
B118	CS7	3	Yes	No	2,800	7,100	1,00	1,00	2,800	7,100	36,54	155,35	7,100	7,100
B118	CS7	4	Yes	No	1,500	7,100	1,00	1,00	1,500	7,100	19,58	155,35	7,100	7,100
B118	CS7	5	Yes	No	1,500	7,100	1,00	1,00	1,500	7,100	19,58	155,35	7,100	7,100
B120	CS6	1	Yes	No	4,000	4,000	1,00	1,00	4,000	4,000	53,74	88,52	4,000	4,000
B101	CS3	1	Yes	No	2,500	2,500	1,00	1,00	2,500	2,500	43,65	71,03	2,500	2,500
B106	CS3	1	Yes	No	2,500	2,500	1,00	1,00	2,500	2,500	43,65	71,03	2,500	2,500
B109	CS3	1	Yes	No	2,500	2,500	1,00	1,00	2,500	2,500	43,65	71,03	2,500	2,500
B108	CS3	1	Yes	No	2,500	2,500	1,00	1,00	2,500	2,500	43,65	71,03	2,500	2,500
B123	CS6	1	Yes	No	4,000	4,000	1,00	1,00	4,000	4,000	53,74	88,52	4,000	4,000
B028	CS5	1	Yes	No	6,000	6,000	1,00	1,00	6,000	6,000	91,46	150,58	6,000	3,000
B028	CS5	2	Yes	No	6,000	6,000	1,00	1,00	6,000	6,000	91,46	150,58	6,000	3,000
B032	CS5	1	Yes	No	6,000	6,000	1,00	1,00	6,000	6,000	91,46	150,58	6,000	3,000
B032	CS5	2	Yes	No	6,000	6,000	1,00	1,00	6,000	6,000	91,46	150,58	6,000	3,000
B012	CS7	1	Yes	No	2,800	5,600	1,00	1,00	2,800	5,600	36,54	122,53	5,600	5,600
B012	CS7	2	Yes	No	2,800	5,600	1,00	1,00	2,800	5,600	36,54	122,53	5,600	5,600

Member	CS Name	Part	Sway y	Sway z	Ly [m]	Lz [m]	ky [-]	kz [-]	Iy [m]	Iz [m]	Lam y [-]	Lam z [-]	Iyz [m]	I LTB [m]
B014	CS7	1	Yes	No	2,800	5,600	1,00	1,00	2,800	5,600	36,54	122,53	5,600	5,600
B014	CS7	2	Yes	No	2,800	5,600	1,00	1,00	2,800	5,600	36,54	122,53	5,600	5,600
B009	CS6	1	Yes	No	2,000	2,000	1,00	1,00	2,000	2,000	26,87	44,26	2,000	2,000
B010	CS5	1	Yes	No	6,000	6,000	1,00	1,00	6,000	6,000	91,46	150,58	6,000	3,000
B010	CS5	2	Yes	No	6,000	6,000	1,00	1,00	6,000	6,000	91,46	150,58	6,000	3,000
B011	CS5	1	Yes	No	6,000	6,000	1,00	1,00	6,000	6,000	91,46	150,58	6,000	3,000
B011	CS5	2	Yes	No	6,000	6,000	1,00	1,00	6,000	6,000	91,46	150,58	6,000	3,000
B002	CS7	1	Yes	No	2,800	5,600	1,00	1,00	2,800	5,600	36,54	122,53	5,600	5,600
B002	CS7	2	Yes	No	2,800	5,600	1,00	1,00	2,800	5,600	36,54	122,53	5,600	5,600
B004	CS7	1	Yes	No	2,800	5,600	1,00	1,00	2,800	5,600	36,54	122,53	5,600	5,600
B004	CS7	2	Yes	No	2,800	5,600	1,00	1,00	2,800	5,600	36,54	122,53	5,600	5,600
B001	CS6	1	Yes	No	2,000	2,000	1,00	1,00	2,000	2,000	26,87	44,26	2,000	2,000
B051	CS3	1	Yes	No	2,500	2,500	1,00	1,00	2,500	2,500	43,65	71,03	2,500	2,500
B053	CS3	1	Yes	No	2,500	2,500	1,00	1,00	2,500	2,500	43,65	71,03	2,500	2,500
B025	CS8	1	Yes	No	3,754	3,754	1,00	1,00	3,754	3,754	122,82	240,54	3,754	3,754
B033	CS8	1	Yes	No	3,754	3,754	1,00	1,00	3,754	3,754	122,82	240,54	3,754	3,754
B018	CS8	1	Yes	No	3,606	3,606	1,00	1,00	3,606	3,606	117,98	231,05	3,606	3,606
B034	CS8	1	Yes	No	3,754	3,754	1,00	1,00	3,754	3,754	122,82	240,54	3,754	3,754
B021	CS8	1	Yes	No	3,754	3,754	1,00	1,00	3,754	3,754	122,82	240,54	3,754	3,754
B059	CS4	1	Yes	No	4,000	4,000	1,00	1,00	4,000	4,000	69,84	113,64	4,000	4,000
B064	CS4	1	Yes	No	4,000	4,000	1,00	1,00	4,000	4,000	69,84	113,64	4,000	4,000
B066	CS4	1	Yes	No	4,000	4,000	1,00	1,00	4,000	4,000	69,84	113,64	4,000	4,000
B075	CS4	1	Yes	No	4,000	4,000	1,00	1,00	4,000	4,000	69,84	113,64	4,000	4,000
B077	CS4	1	Yes	No	4,000	4,000	1,00	1,00	4,000	4,000	69,84	113,64	4,000	4,000
B086	CS4	1	Yes	No	4,000	4,000	1,00	1,00	4,000	4,000	69,84	113,64	4,000	4,000
B089	CS4	1	Yes	No	4,000	4,000	1,00	1,00	4,000	4,000	69,84	113,64	4,000	4,000
B095	CS4	1	Yes	No	4,000	4,000	1,00	1,00	4,000	4,000	69,84	113,64	4,000	4,000
B062	CS8	1	Yes	No	3,002	3,002	1,00	1,00	3,002	3,002	98,22	192,35	3,002	3,002
B093	CS8	1	Yes	No	3,002	3,002	1,00	1,00	3,002	3,002	98,22	192,35	3,002	3,002
B060	CS8	1	Yes	No	3,002	3,002	1,00	1,00	3,002	3,002	98,22	192,35	3,002	3,002
B090	CS8	1	Yes	No	3,002	3,002	1,00	1,00	3,002	3,002	98,22	192,35	3,002	3,002
B094	CS4	1	Yes	No	1,500	1,500	1,00	1,00	1,500	1,500	26,19	42,62	1,500	1,500
B082	CS4	1	Yes	No	1,500	1,500	1,00	1,00	1,500	1,500	26,19	42,62	1,500	1,500
B071	CS4	1	Yes	No	1,500	1,500	1,00	1,00	1,500	1,500	26,19	42,62	1,500	1,500
B072	CS8	1	Yes	No	3,002	3,002	1,00	1,00	3,002	3,002	98,22	192,35	3,002	3,002
B083	CS8	1	Yes	No	3,002	3,002	1,00	1,00	3,002	3,002	98,22	192,35	3,002	3,002
B084	CS8	1	Yes	No	3,002	3,002	1,00	1,00	3,002	3,002	98,22	192,35	3,002	3,002
B073	CS8	1	Yes	No	3,002	3,002	1,00	1,00	3,002	3,002	98,22	192,35	3,002	3,002
B091	CS4	1	Yes	No	1,500	1,500	1,00	1,00	1,500	1,500	26,19	42,62	1,500	1,500
B078	CS4	1	Yes	No	1,500	1,500	1,00	1,00	1,500	1,500	26,19	42,62	1,500	1,500
B067	CS4	1	Yes	No	1,500	1,500	1,00	1,00	1,500	1,500	26,19	42,62	1,500	1,500
B068	CS8	1	Yes	No	3,002	3,002	1,00	1,00	3,002	3,002	98,22	192,35	3,002	3,002
B079	CS8	1	Yes	No	3,002	3,002	1,00	1,00	3,002	3,002	98,22	192,35	3,002	3,002
B080	CS8	1	Yes	No	3,002	3,002	1,00	1,00	3,002	3,002	98,22	192,35	3,002	3,002
B069	CS8	1	Yes	No	3,002	3,002	1,00	1,00	3,002	3,002	98,22	192,35	3,002	3,002
B050	CS9	1	Yes	No	1,953	1,953	1,00	1,00	1,953	1,953	35,85	111,37	1,953	1,953
B031	CS9	1	Yes	No	1,953	1,953	1,00	1,00	1,953	1,953	35,85	111,37	1,953	1,953
B048	CS9	1	Yes	No	1,953	1,953	1,00	1,00	1,953	1,953	35,85	111,37	1,953	1,953
B029	CS9	1	Yes	No	1,953	1,953	1,00	1,00	1,953	1,953	35,85	111,37	1,953	1,953
B019	CS3	1	Yes	No	2,000	2,000	1,00	1,00	2,000	2,000	34,92	56,82	2,000	2,000
B008	CS3	1	Yes	No	2,000	2,000	1,00	1,00	2,000	2,000	34,92	56,82	2,000	2,000
B063	CS4	1	Yes	No	1,500	1,500	1,00	1,00	1,500	1,500	26,19	42,62	1,500	1,500
B061	CS4	1	Yes	No	1,500	1,500	1,00	1,00	1,500	1,500	26,19	42,62	1,500	1,500
B085	CS8	1	Yes	No	2,600	2,600	1,00	1,00	2,600	2,600	85,08	166,61	2,600	2,600
B074	CS8	1	Yes	No	2,600	2,600	1,00	1,00	2,600	2,600	85,08	166,61	2,600	2,600
B081	CS8	1	Yes	No	2,600	2,600	1,00	1,00	2,600	2,600	85,08	166,61	2,600	2,600
B070	CS8	1	Yes	No	2,600	2,600	1,00	1,00	2,600	2,600	85,08	166,61	2,600	2,600
B035	CS6	1	Yes	No	4,000	4,000	1,00	1,00	4,000	4,000	53,74	88,52	4,000	4,000
B054	CS6	1	Yes	No	4,000	4,000	1,00	1,00	4,000	4,000	53,74	88,52	4,000	4,000
B111	CS6	1	Yes	No	4,000	4,000	1,00	1,00	4,000	4,000	53,74	88,52	4,000	4,000
B125	CS6	1	Yes	No	4,000	4,000	1,00	1,00	4,000	4,000	53,74	88,52	4,000	4,000
B112	CS3	1	Yes	No	2,500	2,500	1,00	1,00	2,500	2,500	43,65	71,03	2,500	2,500
B113	CS3	1	Yes	No	2,500	2,500	1,00	1,00	2,500	2,500	43,65	71,03	2,500	2,500
B114	CS3	1	Yes	No	2,500	2,500	1,00	1,00	2,500	2,500	43,65	71,03	2,500	2,500
B115	CS3	1	Yes	No	2,500	2,500	1,00	1,00	2,500	2,500	43,65	71,03	2,500	2,500
B052	CS8	1	Yes	No	3,754	3,754	1,00	1,00	3,754	3,754	122,82	240,54	3,754	3,754
B055	CS8	1	Yes	No	3,754	3,754	1,00	1,00	3,754	3,754	122,82	240,54	3,754	3,754
B044	CS8	1	Yes	No	3,754	3,754	1,00	1,00	3,754	3,754	122,82	240,54	3,754	3,754
B039	CS8	1	Yes	No	3,754	3,754	1,00	1,00	3,754	3,754	122,82	240,54	3,754	3,754
B030	CS8	1	Yes	No	3,606	3,606	1,00	1,00	3,606	3,606	117,98	231,05	3,606	3,606
B121	CS8	1	Yes	No	4,717	4,717	1,00	1,00	4,717	4,717	154,35	302,27	4,717	4,717
B122	CS8	1	Yes	No	4,717	4,717	1,00	1,00	4,717	4,717	154,35	302,27	4,717	4,717
B017	CS6	1	Yes	No	2,000	2,000	1,00	1,00	2,000	2,000	26,87	44,26	2,000	2,000
B007	CS6	1	Yes	No	2,000	2,000	1,00	1,00	2,000	2,000	26,87	44,26	2,000	2,000
B102	CS8	1	Yes	No	4,771	4,771	1,00	1,00	4,771	4,771	156,10	305,72	4,771	4,771

Member	CS Name	Part	Sway y	Sway z	Ly [m]	Lz [m]	ky [-]	kz [-]	Iy [m]	Iz [m]	Lam y [-]	Lam z [-]	Iyz [m]	l LTB [m]
B096	CS8	1	Yes	No	4,771	4,771	1,00	1,00	4,771	4,771	156,10	305,72	4,771	4,771
B087	CS8	1	Yes	No	4,771	4,771	1,00	1,00	4,771	4,771	156,10	305,72	4,771	4,771
B076	CS8	1	Yes	No	4,771	4,771	1,00	1,00	4,771	4,771	156,10	305,72	4,771	4,771
B065	CS8	1	Yes	No	4,771	4,771	1,00	1,00	4,771	4,771	156,10	305,72	4,771	4,771
B126	CS8	1	Yes	No	4,717	4,717	1,00	1,00	4,717	4,717	154,35	302,27	4,717	4,717
B127	CS8	1	Yes	No	4,717	4,717	1,00	1,00	4,717	4,717	154,35	302,27	4,717	4,717

6.2. EC-EN 1993 Steel check ULS

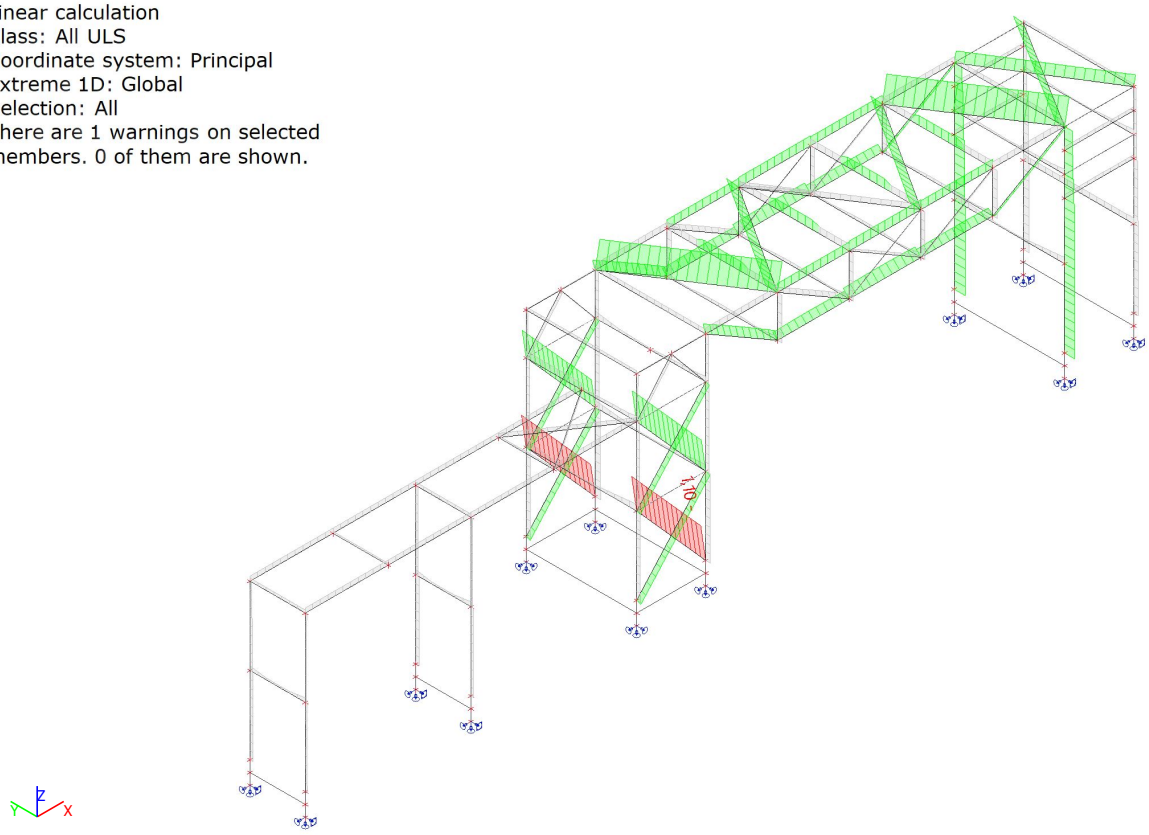
Linear calculation
Class: All ULS
Coordinate system: Principal
Extreme 1D: Cross-section
Selection: All
There are 1 warnings on selected members. 1 of them are shown.
Overall Unity Check

Name	dx [m]	Case	Cross-section	Material	$UC_{Overall}$ [-]	UC_{Sec} [-]	UC_{Stab} [-]	Errors, warnings, notes
B103	0,000	ULS_2/1	CS7 - HEB180	S 355	**0,44**	0,05	0,44	
B046	4,000	ULS_2/2	CS6 - HEA180	S 355	**0,25**	0,25	0,00	W30
B105	5,200+	ULS_4/3	CS3 - HEA140	S 355	**0,35**	0,18	0,35	W30
B039	0,000	ULS_2/1	CS8 - HFLeq80x80x8	S 355	**1,10**	0,09	1,10	
B010	3,000-	ULS_4/4	CS5 - HEA160	S 355	**0,18**	0,15	0,18	
B064	1,867	ULS_2/5	CS4 - HEA140	S 355	**0,34**	0,24	0,34	
B050	0,000	ULS_2/1	CS9 - UNP140	S 355	**0,11**	0,03	0,11	

Name	Combination key
ULS_2/1	1.20*DL + 1.20*EO + 1.50*Wx + 0.90*TLs
ULS_2/2	1.20*DL + 1.20*EO + 0.90*TLs + 1.50*Wy
ULS_4/3	1.35*DL + 1.35*EO - 0.90*Wy
ULS_4/4	1.20*DL + 1.20*EO + 0.90*TLs - 1.50*Wy
ULS_2/5	1.35*DL + 1.35*EO + 0.90*Wx + 0.90*TLs

E/W/N	Description
W30	Not all conditions of the Dutch NEN-EN NA (Art. NB.NB.1) are fulfilled, therefore the standard EC-EN approach is used.

Values: **$UC_{Overall}$**
Linear calculation
Class: All ULS
Coordinate system: Principal
Extreme 1D: Global
Selection: All
There are 1 warnings on selected members. 0 of them are shown.



6.3. EC-EN 1993 Steel Check SLS - uz,max

Linear calculation
Combination: SLS-Char_1
Coordinate system: Principal
Extreme 1D: Global
Selection: All
Filter: Type of beam = Beam
Limit setting

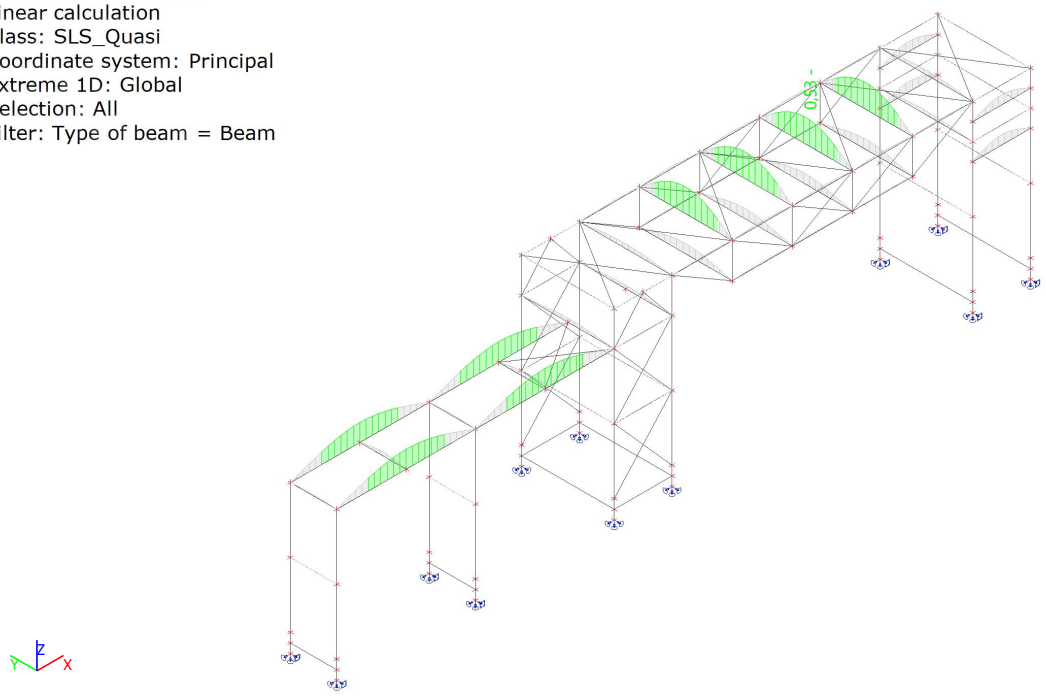
Name	dx [m]	$L_{def,y}$ [m] $L_{def,z}$ [m]	Total load y [1/xx] Total load z [1/xx]	Variable load y [1/xx] Variable load z [1/xx]	Lim. $u_{y,max}$ [mm] Lim. $u_{z,max}$ [mm]	Lim. $u_{y,var}$ [mm] Lim. $u_{z,var}$ [mm]
B028	0,000	**6,000**	1/250	1/333	24,0	18,0
		6,000	1/250	1/333	24,0	18,0

Linear calculation
Class: SLS_Quasi
Coordinate system: Principal
Extreme 1D: Cross-section
Selection: All
Filter: Type of beam = Beam
Deformation u_z

Name	dx [m]	Case	Cross-section	$u_{z,max}$ [mm]	$u_{z,var}$ [mm]	Lim. $u_{z,max}$ [mm]	Lim. $u_{z,var}$ [mm]	Check $u_{z,max}$ [-]	Check $u_{z,var}$ [-]	Camber dx u_z [mm]	Camber [mm]	Check u_z [-]
B040	1,867	SLS-Quasi_2/1	CS6 - HEA180	**-1,5**	-	16,0	12,0	0,09	-	-	-	**0,09**
B023	3,733	SLS-Quasi_2/1	CS6 - HEA180	**0,0**	-	16,0	12,0	0,00	-	-	-	0,00
B112	1,111	SLS-Quasi_2/1	CS3 - HEA140	**-2,0**	-	10,0	7,5	0,20	-	-	-	**0,20**
B045	1,250-	SLS-Quasi_2/1	CS3 - HEA140	**0,0**	-	10,0	7,5	0,00	-	-	-	0,00
B085	1,300	SLS-Quasi_1/2	CS8 - HFLeq80x80x8	**-0,2**	-	10,4	7,8	0,02	-	-	-	**0,02**
B088	0,000	SLS-Quasi_1/2	CS8 - HFLeq80x80x8	**0,0**	-	10,4	7,8	0,00	-	-	-	0,00
B032	3,000-	SLS-Quasi_2/1	CS5 - HEA160	**-9,8**	-	24,0	18,0	0,41	-	-	-	**0,41**
B028	0,000	SLS-Quasi_1/2	CS5 - HEA160	**0,0**	-	24,0	18,0	0,00	-	-	-	0,00
B086	1,867	SLS-Quasi_2/1	CS4 - HEA140	**-8,5**	-	16,0	12,0	0,53	-	-	-	**0,53**
B059	0,000	SLS-Quasi_1/2	CS4 - HEA140	**0,0**	-	16,0	12,0	0,00	-	-	-	0,00

Name	Combination key
SLS-Quasi_2/1	DL + EO
SLS-Quasi_1/2	DL + EE

Values: **Check $u_{z,max}$**
Linear calculation
Class: SLS_Quasi
Coordinate system: Principal
Extreme 1D: Global
Selection: All
Filter: Type of beam = Beam



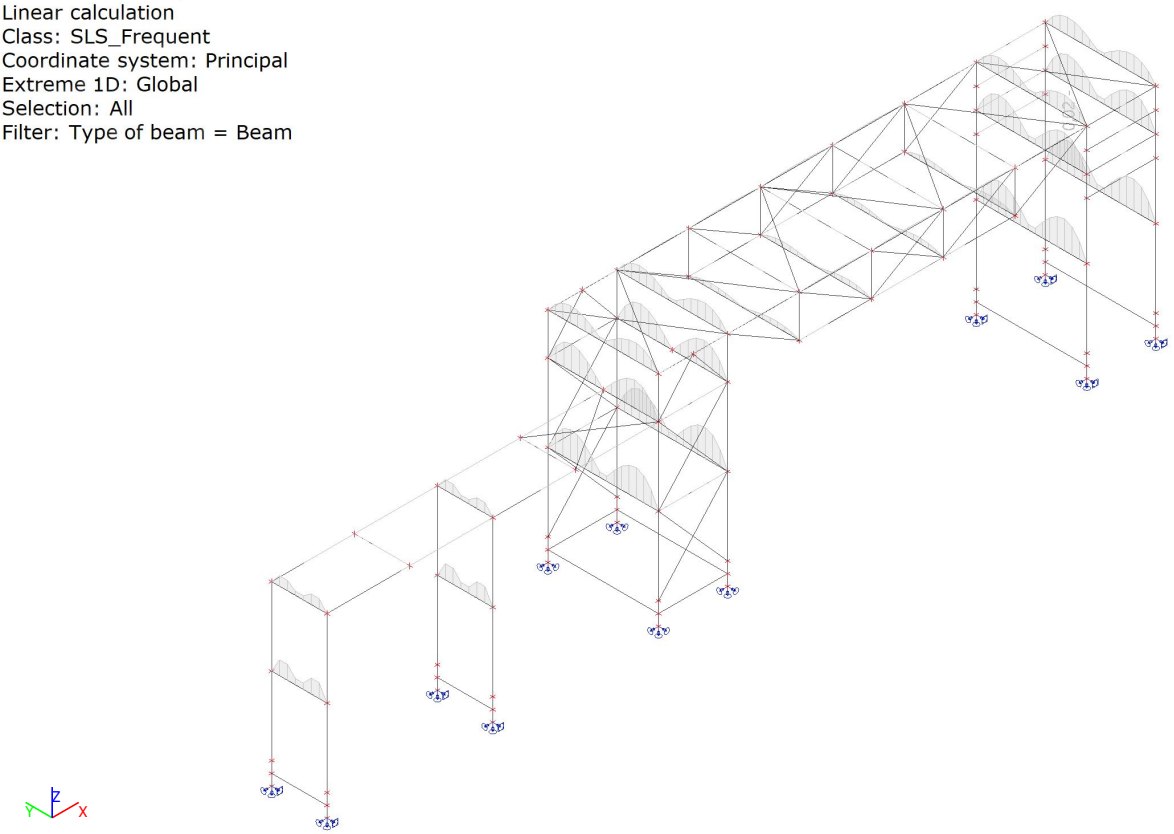
6.4. EC-EN 1993 Steel Check SLS - uz,var

Linear calculation
Class: SLS_Frequent
Coordinate system: Principal
Extreme 1D: Cross-section
Selection: All
Filter: Type of beam = Beam
Deformation u_z

Name	dx [m]	Case	Cross-section	$u_{z,max}$ [mm]	$u_{z,var}$ [mm]	Lim. $u_{z,max}$ [mm]	Lim. $u_{z,var}$ [mm]	Check $u_{z,max}$ [-]	Check $u_{z,var}$ [-]	Camber dx u_z [mm]	Camber [mm]	Check u_z [-]
B125	3,200	SLS-Freq_2/1	CS6 - HEA180	0,1	0,2	16,0	12,0	0,01	**0,02**	-	-	0,02
B040	1,867	SLS-Freq_2/1	CS6 - HEA180	-1,5	0,0	16,0	12,0	0,10	0,00	-	-	**0,10**
B100	6,500-	SLS-Freq_4/2	CS3 - HEA140	-0,4	0,0	10,4	7,8	0,04	**0,00**	-	-	0,04
B112	1,111	SLS-Freq_2/1	CS3 - HEA140	-2,0	0,0	10,0	7,5	0,20	0,00	-	-	**0,20**
B070	1,300	SLS-Freq_2/3	CS8 - HFLeq80x80x8	-0,2	0,0	10,4	7,8	0,02	**0,00**	-	-	**0,02**
B032	4,364	SLS-Freq_2/1	CS5 - HEA160	-7,2	0,0	24,0	18,0	0,30	**0,00**	-	-	0,30
B032	3,000-	SLS-Freq_2/4	CS5 - HEA160	-9,8	0,0	24,0	18,0	0,41	0,00	-	-	**0,41**
B089	3,200	SLS-Freq_3/5	CS4 - HEA140	-0,7	0,0	16,0	12,0	0,04	**0,00**	-	-	0,04
B086	1,867	SLS-Freq_2/4	CS4 - HEA140	-8,5	0,0	16,0	12,0	0,53	0,00	-	-	**0,53**

Name	Combination key
SLS-Freq_2/1	DL + EO + 0.50*TLs
SLS-Freq_4/2	DL + EO - 0.20*Wy
SLS-Freq_2/3	DL + EO + 0.20*Wy
SLS-Freq_2/4	DL + EO + 0.20*Wx
SLS-Freq_3/5	DL + EE - 0.20*Wy

Values: **Check $u_{z,var}$**
Linear calculation
Class: SLS_Frequent
Coordinate system: Principal
Extreme 1D: Global
Selection: All
Filter: Type of beam = Beam



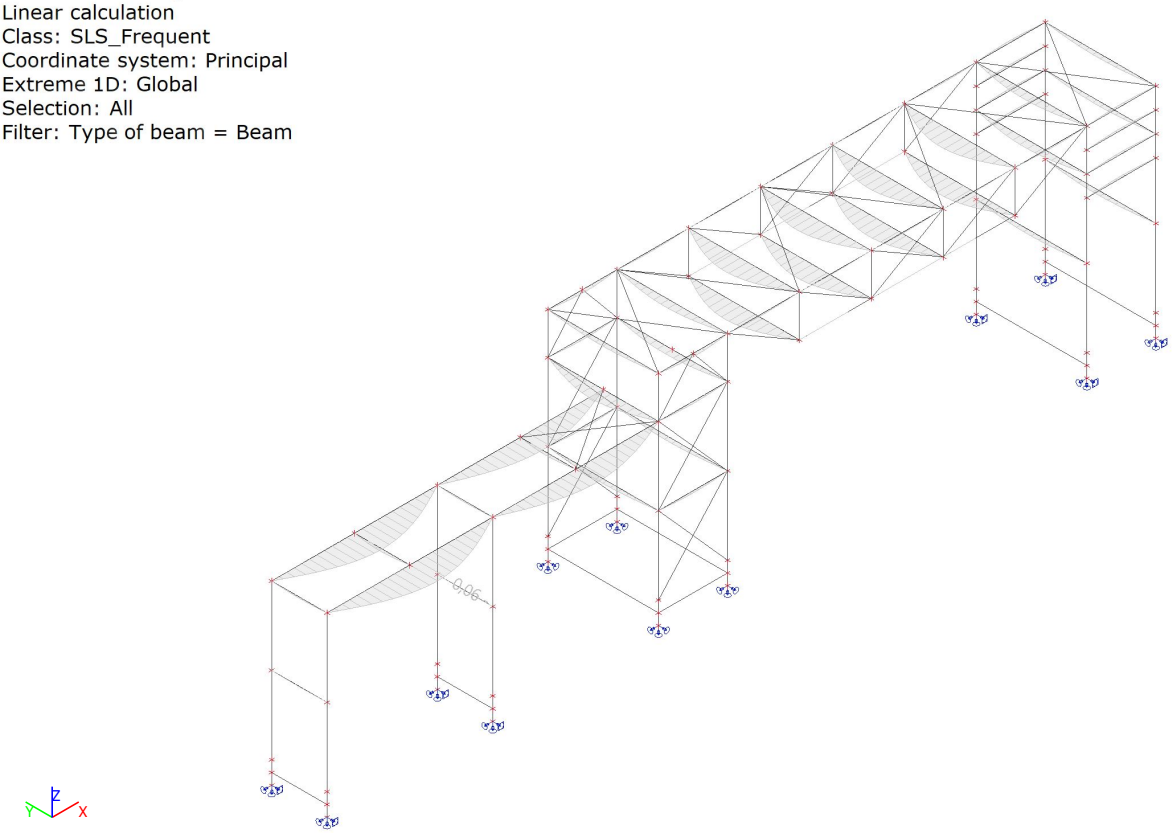
6.5. EC-EN 1993 Steel Check SLS - uy,var

Linear calculation
Class: SLS_Frequent
Coordinate system: Principal
Extreme 1D: Cross-section
Selection: All
Filter: Type of beam = Beam
Deformation u_y

Name	dx [m]	Case	Cross-section	$u_{y,max}$ [mm]	$u_{y,var}$ [mm]	Lim. $u_{y,max}$ [mm]	Lim. $u_{y,var}$ [mm]	Check $u_{y,max}$ [-]	Check $u_{y,var}$ [-]	Check u_y [-]
B027	2,000-	SLS-Freq_4/1	CS6 - HEA180	0,4	0,4	16,0	12,0	0,02	**0,03**	**0,03**
B041	1,250-	SLS-Freq_4/2	CS3 - HEA140	0,1	0,1	10,0	7,5	0,01	**0,01**	0,01
B105	11,700	SLS-Freq_4/2	CS3 - HEA140	0,1	0,0	10,4	7,8	0,01	0,00	**0,01**
B074	1,300	SLS-Freq_4/2	CS8 - HFLeq80x80x8	-0,6	0,0	10,4	7,8	0,06	**0,00**	**0,06**
B010	3,000-	SLS-Freq_4/2	CS5 - HEA160	1,1	1,1	24,0	18,0	0,05	**0,06**	**0,06**
B089	2,133	SLS-Freq_4/1	CS4 - HEA140	0,5	0,5	16,0	12,0	0,03	**0,04**	**0,04**

Name	Combination key
SLS-Freq_4/1	DL + EO - 0.50*TLs
SLS-Freq_4/2	DL + EO - 0.20*Wy

Values: **Check $u_{y,var}$**
Linear calculation
Class: SLS_Frequent
Coordinate system: Principal
Extreme 1D: Global
Selection: All
Filter: Type of beam = Beam



Appendix E

Scia report - pipe rack 4

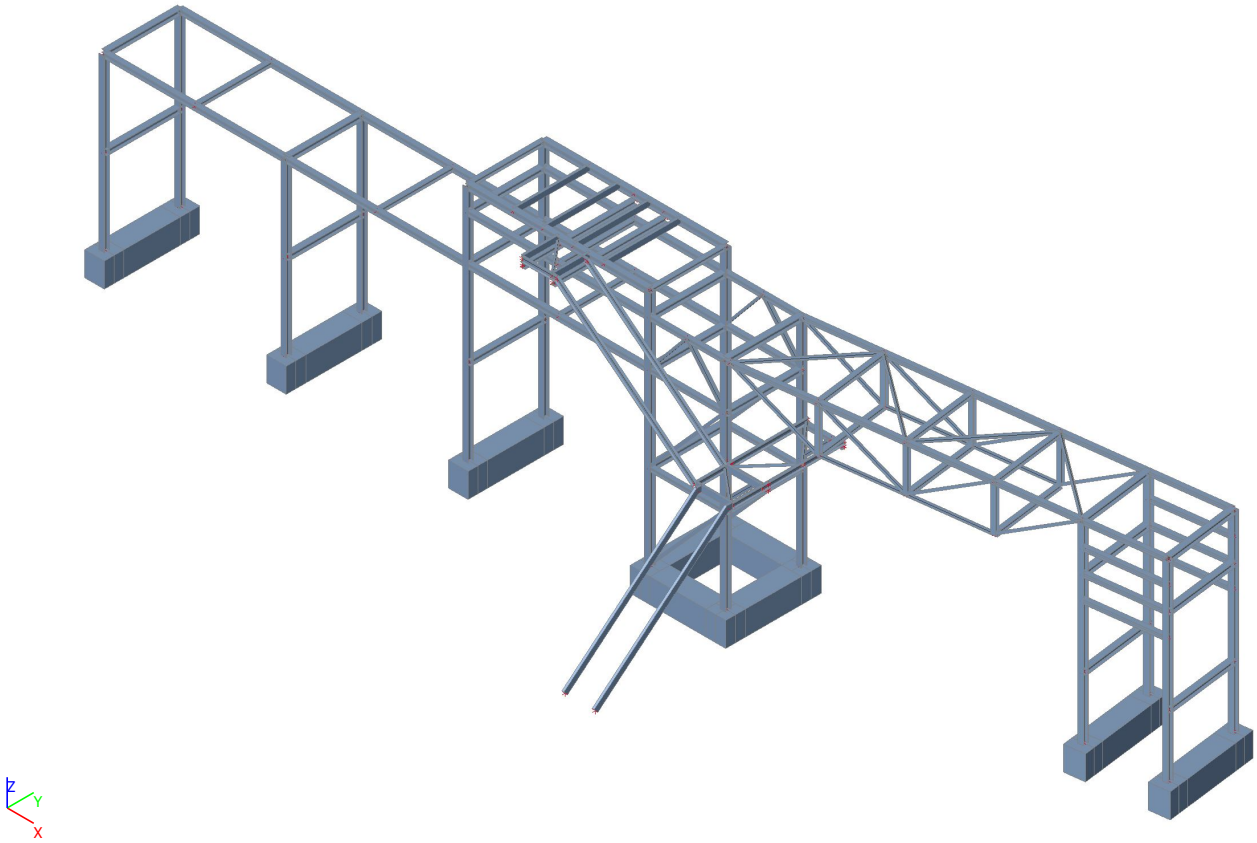
KH Engineering

1. Table of contents

2. General

2.1. Project

Licence name	KH Engineering
Project	Neste - Rotterdam terminal expansion
Part	Tank pit 3 - Pipe rack 3 & 4
Description	Pipe rack 4
Author	LER
Date	08. 2021
Structure	General XYZ
No. of nodes :	183
No. of beams :	152
No. of slabs :	0
No. of solids :	0
No. of used profiles :	9
No. of load cases :	9
No. of used materials :	2
Acceleration of gravity [m/s^2]	9,810
National code	EC - EN



2.2. Setup manager

(STR/GEO) alternative

Combination	Eq.6.10a & Eq.6.10b

Psi factors

Load	Psi0	Psi1	Psi2
CategoryA	0.4	0.5	0.3
CategoryB	0.5	0.5	0.3
CategoryC	0.6	0.7	0.6
CategoryD	0.4	0.7	0.6
CategoryE	1	0.9	0.8
CategoryF	0.7	0.7	0.6
CategoryG	0.7	0.5	0.3
CategoryH	0	0	0
Snow	0	0.2	0

Load	Psi0	Psi1	Psi2
Wind	0.6	0.2	0
Temperature	0.6	0.5	0
Rain water	0	0	0
Construction loads	1	0	0.2

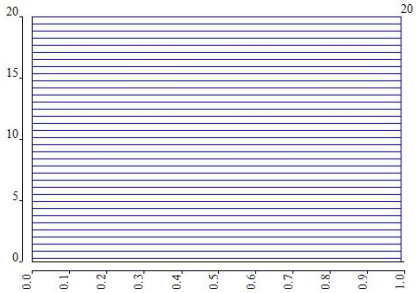
Load combination factors

Permanent action - unfavorable	1,35
Permanent action - favorable [-]	0,90
Leading variable action	1,50
Accompanying variable action	1,50
Reduction factor ksi [-]	0,89
Permanent action - unfavorable	1,00
Permanent action - favorable	1,00
Leading variable action	1,30
Accompanying variable action	1,30

2.3. Wind pressures

Name	WP1
Input	user
Height / Pressure	0,000[m] / 1,0[kN/m ^{2}]
	20,000[m] / 1,0[kN/m ^{2}]

Drawing



2.4. Materials

Steel EC3

Name	ρ [kg/m^3]	E_{mod} [MPa] G_{mod} [MPa]	μ α [m/mK]	Lower limit [mm]	Upper limit [mm]	F_y [MPa]	F_u [MPa]	Colour
S 355	7850,0	2,1000e+05 8,0769e+04	0.3 0,00	0 40	40 80	355,0 335,0	490,0 470,0	

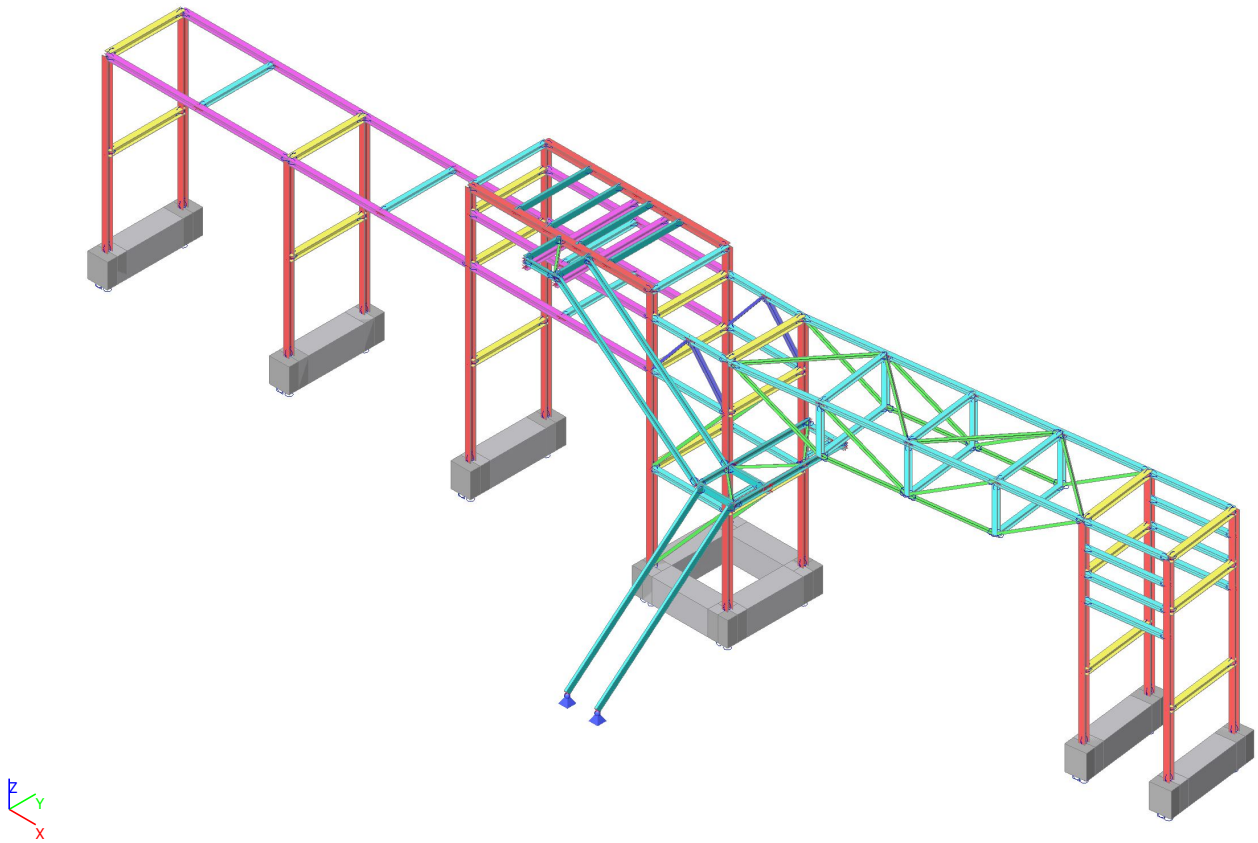
Name	Type	ρ [kg/m^3]	Density in fresh state [kg/m^3]	E_{mod} [MPa]	μ	α [m/mK]	$f_{c.k.28}$ [MPa]	Colour
C30/37	Concrete	2500,0	2600,0	3,2800e+04	0.2	0,00	30,00	

Explanations of symbols	
Density in fresh state	The value in the density in fresh state property is used only in case a composite deck is input and its self-weight load is taken into account.

3. Structure

3.1. Cross-sections

Name	Type Detailed	Item material	Fabrication	A [m²]	A_y [m²] A_z [m²]	I_y [m⁴] I_z [m⁴]	$W_{el.y}$ [m³] $W_{el.z}$ [m³]	$W_{pl.y}$ [m³] $W_{pl.z}$ [m³]	Colour
CS01	Rectangle 650; 650	C30/37	concrete	4,2250e-01	3,5245e-01 3,5245e-01	1,4876e-02 1,4876e-02	4,5771e-02 4,5771e-02	0,0000e+00 0,0000e+00	
CS02	Rectangle 800; 650	C30/37	concrete	5,2000e-01	4,3392e-01 4,3372e-01	2,7733e-02 1,8308e-02	6,9333e-02 5,6333e-02	0,0000e+00 0,0000e+00	
CS03	HEA140	S 355	rolled	3,1400e-03	2,2882e-03 7,8192e-04	1,0300e-05 3,8900e-06	1,5500e-04 5,5600e-05	1,7333e-04 8,5000e-05	
CS04	HEA160	S 355	rolled	3,8800e-03	2,8071e-03 9,8390e-04	1,6700e-05 6,1600e-06	2,2000e-04 7,7000e-05	2,4500e-04 1,1750e-04	
CS05	HEA180	S 355	rolled	4,5300e-03	3,2772e-03 1,0992e-03	2,5100e-05 9,2500e-06	2,9400e-04 1,0300e-04	3,2500e-04 1,5667e-04	
CS07	HEB180	S 355	rolled	6,5250e-03	4,8159e-03 1,6236e-03	3,8310e-05 1,3630e-05	4,2570e-04 1,5140e-04	4,8140e-04 2,3100e-04	
CS08	HFLeq80x80x8	S 355	rolled	1,2270e-03	1,0315e-03 1,0375e-03	1,1460e-06 2,9880e-07	2,0252e-05 9,3703e-06	3,2190e-05 1,6563e-05	
CS10	UNP140	S 355	rolled	2,0400e-03	1,1529e-03 9,8472e-04	6,0500e-06 6,2700e-07	8,6400e-05 1,4800e-05	1,0280e-04 2,8300e-05	
CS11	UNP180	S 355	rolled	2,8000e-03	1,4920e-03 1,4353e-03	1,3500e-05 1,1400e-06	1,5000e-04 2,2400e-05	1,7920e-04 4,2900e-05	



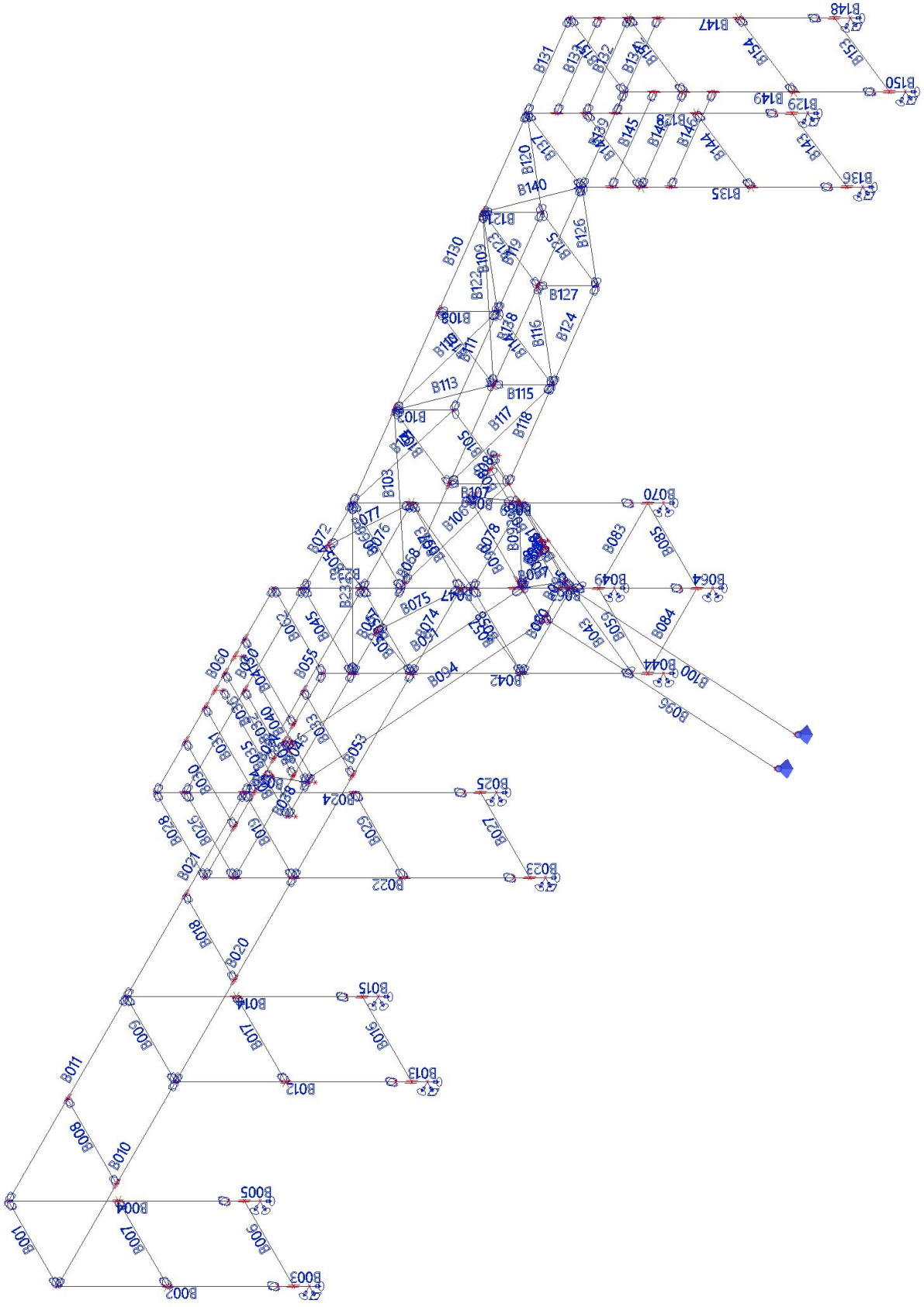
3.2. Nodes

Name	Coord X [m]	Coord Y [m]	Coord Z [m]
N001	0,000	0,000	5,600
N002	0,000	2,500	5,600
N003	0,000	0,000	0,000
N004	0,000	2,500	0,000
N005	0,000	0,000	-0,800
N006	0,000	2,500	-0,800
N007	0,000	0,000	-0,400

Name	Coord X [m]	Coord Y [m]	Coord Z [m]
N008	0,000	2,500	-0,400
N009	0,000	0,000	2,800
N010	0,000	2,500	2,800
N011	3,000	0,000	5,600
N012	3,000	2,500	5,600
N013	6,000	0,000	5,600
N014	6,000	2,500	5,600

Name	Coord X [m]	Coord Y [m]	Coord Z [m]
N015	6,000	0,000	0,000
N016	6,000	2,500	0,000
N017	6,000	0,000	-0,800
N018	6,000	2,500	-0,800
N019	6,000	0,000	-0,400
N020	6,000	2,500	-0,400
N021	6,000	0,000	2,800

Name	Coord X [m]	Coord Y [m]	Coord Z [m]
N022	6,000	2,500	2,800
N023	9,000	0,000	5,600
N024	9,000	2,500	5,600
N025	12,000	0,000	5,600
N026	12,000	2,500	5,600
N027	12,000	0,000	0,000
N028	12,000	2,500	0,000
N029	12,000	0,000	7,100
N030	12,000	2,500	7,100
N031	12,000	0,000	-0,800
N032	12,000	2,500	-0,800
N033	12,000	0,000	-0,400
N034	12,000	2,500	-0,400
N035	12,000	2,500	7,850
N036	12,000	0,000	7,850
N037	12,000	0,000	2,800
N038	12,000	2,500	2,800
N039	13,500	0,000	7,850
N040	13,500	2,500	7,850
N041	14,500	0,000	7,850
N042	14,500	2,500	7,850
N043	15,000	0,000	7,100
N044	15,000	2,500	7,100
N045	15,000	0,000	5,600
N046	15,000	2,500	5,600
N047	15,000	-1,200	7,850
N048	15,000	0,000	7,850
N049	15,000	-1,200	7,650
N050	15,000	2,500	7,650
N051	15,000	2,500	7,850
N052	15,000	0,000	7,650
N053	15,500	2,500	7,850
N054	15,500	0,000	7,850
N055	16,000	-1,200	7,850
N056	16,000	-0,200	7,850
N057	16,000	0,000	7,850
N058	16,000	-1,200	7,650
N059	16,000	2,500	7,650
N060	16,000	2,500	7,850
N061	16,000	0,000	7,650
N062	16,150	-0,200	7,850
N063	16,150	-1,200	7,850
N064	16,500	2,500	7,850
N065	16,500	0,000	7,850
N066	18,000	0,000	0,000
N067	18,000	0,000	7,100
N068	18,000	2,500	0,000
N069	18,000	2,500	7,100
N070	18,000	0,000	5,600
N071	18,000	2,500	5,600
N072	18,000	2,500	2,800
N073	18,000	0,000	2,800
N074	18,000	2,500	-0,800
N075	18,000	0,000	-0,800
N076	18,000	2,500	-0,400
N077	18,000	0,000	-0,400
N078	18,000	2,500	7,850
N079	18,000	0,000	7,850
N080	19,250	2,500	7,100
N081	19,250	0,000	7,100
N082	20,500	0,000	0,000
N083	20,500	0,000	7,100
N084	20,500	2,500	0,000
N085	20,500	2,500	7,100
N086	20,500	0,000	5,600
N087	20,500	2,500	5,600
N088	20,500	2,500	2,800
N089	20,500	0,000	2,800
N090	20,500	2,500	-0,800
N091	20,500	0,000	-0,800
N092	20,500	2,500	-0,400
N093	20,500	0,000	-0,400
N094	20,500	0,000	4,250
N095	20,500	2,500	4,090
N096	20,500	0,000	4,090
N097	20,500	0,000	3,090
N098	20,500	2,500	3,090
N099	20,658	0,000	7,100
N100	20,700	2,500	4,250
N101	20,700	2,500	4,090
N102	20,700	0,000	4,250
N103	20,700	0,000	4,090
N104	20,700	-1,200	4,250
N105	20,700	-0,200	4,250
N106	20,700	-1,200	4,250
N107	20,900	-5,700	0,650
N108	20,900	-1,350	4,250
N109	20,900	-1,200	4,250
N110	21,500	0,000	4,090
N111	21,500	2,500	4,090
N112	21,900	0,000	4,090
N113	21,900	2,500	4,090
N114	21,900	-1,200	4,250
N115	21,900	2,500	4,250
N116	21,900	1,150	4,250
N117	21,900	-0,200	4,250
N118	21,900	0,000	4,250
N119	21,900	-5,700	0,650
N120	21,900	-1,350	4,250
N121	21,900	-1,200	4,250
N122	22,921	2,808	5,600
N123	22,921	2,808	7,100
N124	23,236	0,328	7,100
N125	23,237	0,328	5,600
N126	25,501	3,136	5,600
N127	25,501	3,136	7,100
N128	25,816	0,656	7,100
N129	25,816	0,656	5,600
N130	28,080	3,464	5,600
N131	28,080	3,464	7,100
N132	28,395	0,984	7,100
N133	28,395	0,984	5,600
N134	30,659	3,792	0,770
N135	30,659	3,792	7,100
N136	30,659	3,792	5,600
N137	30,659	3,792	-0,030
N138	30,659	3,792	0,370
N139	30,659	3,792	2,800
N140	30,659	3,792	6,350
N141	30,659	3,792	4,850
N142	30,975	1,312	0,770
N143	30,975	1,312	7,100
N144	30,975	1,312	5,600
N145	30,975	1,312	-0,030
N146	30,975	1,312	0,370
N147	30,975	1,312	2,800
N148	30,975	1,312	6,350
N149	30,975	1,312	4,850
N150	33,139	4,108	0,770
N151	33,139	4,108	7,100
N152	33,139	4,108	5,600
N153	33,139	4,108	-0,030
N154	33,139	4,108	0,370
N155	33,139	4,108	2,800
N156	33,139	4,108	6,350
N157	33,139	4,108	4,850
N158	33,455	1,628	0,770
N159	33,455	1,628	7,100
N160	33,455	1,628	5,600
N161	33,455	1,628	-0,030
N162	33,455	1,628	0,370
N163	33,455	1,628	2,800
N164	33,455	1,628	6,350
N165	33,455	1,628	4,850
N277	19,250	0,000	5,600
N278	19,250	2,500	5,600
N279	32,215	1,470	7,100
N280	31,899	3,950	7,100
N281	32,215	1,470	5,600
N282	31,899	3,950	5,600
N283	19,102	2,322	7,100
N284	19,418	-0,158	7,100
N285	19,102	2,322	5,600
N286	19,418	-0,158	5,600
N310	32,950	5,596	4,850
N311	30,470	5,280	4,850
N312	33,644	0,140	4,850
N313	31,164	-0,176	4,850
N314	33,644	0,140	6,350
N315	32,950	5,596	6,350
N316	30,470	5,280	6,350
N317	31,164	-0,176	6,350

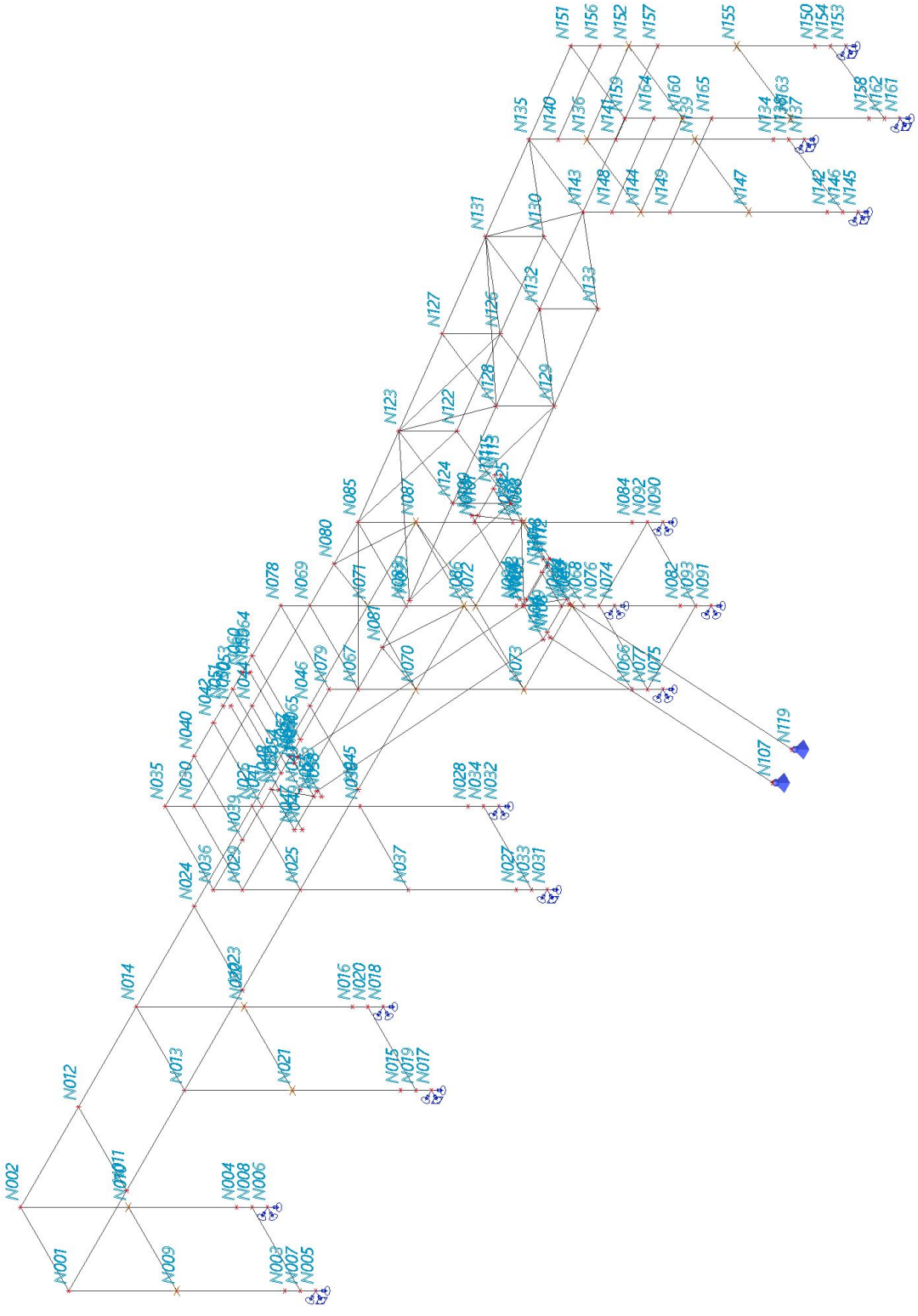


3.3. Members

Name	Cross-section	Material	Length [m]	Beg. node	End node	Type	System length
B001	CS05 - HEA180	S 355	2,500	N001	N002	beam (80)	BG1
B002	CS07 - HEB180	S 355	5,600	N003	N001	column (100)	BG9
B003	CS01 - Rectangle (650; 650)	C30/37	0,800	N003	N005	general (0)	Default
B004	CS07 - HEB180	S 355	5,600	N004	N002	column (100)	BG9
B005	CS01 - Rectangle (650; 650)	C30/37	0,800	N004	N006	general (0)	Default
B006	CS02 - Rectangle (800; 650)	C30/37	2,500	N007	N008	general (0)	Default
B007	CS05 - HEA180	S 355	2,500	N009	N010	beam (80)	BG1
B008	CS03 - HEA140	S 355	2,500	N011	N012	beam (80)	BG1
B009	CS05 - HEA180	S 355	2,500	N013	N014	beam (80)	BG1
B010	CS04 - HEA160	S 355	6,000	N013	N001	beam (80)	BG2
B011	CS04 - HEA160	S 355	6,000	N014	N002	beam (80)	BG2
B012	CS07 - HEB180	S 355	5,600	N015	N013	column (100)	BG9
B013	CS01 - Rectangle (650; 650)	C30/37	0,800	N015	N017	general (0)	Default
B014	CS07 - HEB180	S 355	5,600	N016	N014	column (100)	BG9
B015	CS01 - Rectangle (650; 650)	C30/37	0,800	N016	N018	general (0)	Default
B016	CS02 - Rectangle (800; 650)	C30/37	2,500	N019	N020	general (0)	Default
B017	CS05 - HEA180	S 355	2,500	N021	N022	beam (80)	BG1
B018	CS03 - HEA140	S 355	2,500	N023	N024	beam (80)	BG1
B019	CS05 - HEA180	S 355	2,500	N025	N026	beam (80)	BG1
B020	CS04 - HEA160	S 355	6,000	N025	N013	beam (80)	BG2
B021	CS04 - HEA160	S 355	6,000	N026	N014	beam (80)	BG2
B022	CS07 - HEB180	S 355	7,850	N027	N036	column (100)	BG11
B023	CS01 - Rectangle (650; 650)	C30/37	0,800	N027	N031	general (0)	Default
B024	CS07 - HEB180	S 355	7,850	N028	N035	column (100)	BG11
B025	CS01 - Rectangle (650; 650)	C30/37	0,800	N028	N032	general (0)	Default
B026	CS05 - HEA180	S 355	2,500	N029	N030	beam (80)	BG1
B027	CS02 - Rectangle (800; 650)	C30/37	2,500	N033	N034	general (0)	Default
B028	CS03 - HEA140	S 355	2,500	N036	N035	beam (80)	BG1
B029	CS05 - HEA180	S 355	2,500	N037	N038	beam (80)	BG1
B030	CS11 - UNP180	S 355	2,500	N039	N040	beam (80)	BG1
B031	CS11 - UNP180	S 355	2,500	N041	N042	beam (80)	BG1
B032	CS03 - HEA140	S 355	2,500	N043	N044	beam (80)	BG1
B033	CS03 - HEA140	S 355	2,500	N045	N046	beam (80)	BG1
B034	CS11 - UNP180	S 355	1,200	N047	N048	beam (80)	BG1
B035	CS04 - HEA160	S 355	3,700	N049	N050	beam (80)	BG6
B036	CS11 - UNP180	S 355	2,500	N054	N053	beam (80)	BG1
B037	CS11 - UNP180	S 355	1,200	N055	N057	beam (80)	BG2
B038	CS11 - UNP180	S 355	1,000	N055	N047	beam (80)	BG1
B039	CS08 - HFLeq80x80x8	S 355	1,562	N055	N048	wall bracing (0)	BG1
B040	CS04 - HEA160	S 355	3,700	N058	N059	beam (80)	BG6
B041	CS11 - UNP180	S 355	2,500	N065	N064	beam (80)	BG1
B042	CS07 - HEB180	S 355	7,850	N066	N079	column (100)	BG12
B043	CS08 - HFLeq80x80x8	S 355	3,754	N066	N089	wall bracing (0)	BG1
B044	CS01 - Rectangle (650; 650)	C30/37	0,800	N066	N075	general (0)	Default
B045	CS05 - HEA180	S 355	2,500	N067	N069	beam (80)	BG1
B046	CS04 - HEA160	S 355	6,000	N067	N029	beam (80)	BG2
B047	CS07 - HEB180	S 355	7,850	N068	N078	column (100)	BG12
B048	CS08 - HFLeq80x80x8	S 355	3,754	N068	N088	wall bracing (0)	BG1
B049	CS01 - Rectangle (650; 650)	C30/37	0,800	N068	N074	general (0)	Default
B050	CS04 - HEA160	S 355	6,000	N069	N030	beam (80)	BG2
B051	CS05 - HEA180	S 355	2,500	N070	N071	beam (80)	BG1
B052	CS10 - UNP140	S 355	1,953	N070	N081	wall bracing (0)	BG1
B053	CS04 - HEA160	S 355	6,000	N070	N025	beam (80)	BG2
B054	CS10 - UNP140	S 355	1,953	N071	N080	wall bracing (0)	BG1
B055	CS04 - HEA160	S 355	6,000	N071	N026	beam (80)	BG2
B056	CS08 - HFLeq80x80x8	S 355	3,754	N072	N087	wall bracing (0)	BG1
B057	CS08 - HFLeq80x80x8	S 355	3,754	N073	N086	wall bracing (0)	BG1
B058	CS05 - HEA180	S 355	2,500	N073	N072	beam (80)	BG1
B059	CS02 - Rectangle (800; 650)	C30/37	2,500	N077	N076	general (0)	Default
B060	CS07 - HEB180	S 355	6,000	N078	N035	beam (80)	BG4
B061	CS07 - HEB180	S 355	6,000	N079	N036	beam (80)	BG4
B062	CS03 - HEA140	S 355	2,500	N079	N078	beam (80)	BG1
B063	CS07 - HEB180	S 355	7,100	N082	N083	column (100)	BG14
B064	CS01 - Rectangle (650; 650)	C30/37	0,800	N082	N091	general (0)	Default
B066	CS05 - HEA180	S 355	2,500	N083	N085	beam (80)	BG1
B067	CS03 - HEA140	S 355	2,500	N083	N067	beam (80)	BG2
B068	CS03 - HEA140	S 355	0,158	N083	N099	beam (80)	BG1
B069	CS07 - HEB180	S 355	7,100	N084	N085	column (100)	BG13
B070	CS01 - Rectangle (650; 650)	C30/37	0,800	N084	N090	general (0)	Default
B072	CS03 - HEA140	S 355	2,500	N085	N069	beam (80)	BG2
B073	CS05 - HEA180	S 355	2,500	N086	N087	beam (80)	BG1
B074	CS03 - HEA140	S 355	2,500	N086	N070	beam (80)	BG1
B075	CS10 - UNP140	S 355	1,953	N086	N081	wall bracing (0)	BG1

Name	Cross-section	Material	Length [m]	Beg. node	End node	Type	System length
B076	CS03 - HEA140	S 355	2,500	N087	N071	beam (80)	BG1
B077	CS10 - UNP140	S 355	1,953	N087	N080	wall bracing (0)	BG1
B078	CS03 - HEA140	S 355	2,500	N088	N072	beam (80)	BG1
B080	CS03 - HEA140	S 355	2,500	N089	N073	beam (80)	BG1
B081	CS05 - HEA180	S 355	2,500	N089	N088	beam (80)	BG1
B083	CS02 - Rectangle (800; 650)	C30/37	2,500	N092	N076	general (0)	Default
B084	CS02 - Rectangle (800; 650)	C30/37	2,500	N093	N077	general (0)	Default
B085	CS02 - Rectangle (800; 650)	C30/37	2,500	N093	N092	general (0)	Default
B086	CS03 - HEA140	S 355	1,400	N095	N113	beam (80)	BG5
B087	CS03 - HEA140	S 355	1,400	N096	N112	beam (80)	BG5
B088	CS03 - HEA140	S 355	1,414	N097	N110	wall bracing (0)	BG1
B089	CS03 - HEA140	S 355	1,414	N098	N111	wall bracing (0)	BG1
B090	CS11 - UNP180	S 355	3,700	N100	N104	beam (80)	BG7
B091	CS11 - UNP180	S 355	5,952	N105	N056	general (0)	Default
B092	CS08 - HFLeq80x80x8	S 355	1,806	N105	N116	wall bracing (0)	BG1
B093	CS11 - UNP180	S 355	1,200	N105	N117	beam (80)	BG1
B094	CS11 - UNP180	S 355	5,952	N106	N055	general (0)	Default
B095	CS11 - UNP180	S 355	1,200	N106	N114	beam (80)	BG2
B096	CS11 - UNP180	S 355	5,796	N107	N109	general (0)	Default
B097	CS08 - HFLeq80x80x8	S 355	1,562	N114	N105	wall bracing (0)	BG1
B098	CS11 - UNP180	S 355	3,700	N115	N114	beam (80)	BG8
B099	CS08 - HFLeq80x80x8	S 355	1,806	N116	N100	wall bracing (0)	BG1
B100	CS11 - UNP180	S 355	5,796	N119	N121	general (0)	Default
B101	CS08 - HFLeq80x80x8	S 355	2,865	N122	N085	wall bracing (0)	BG1
B102	CS03 - HEA140	S 355	1,500	N122	N123	column (100)	BG1
B103	CS08 - HFLeq80x80x8	S 355	3,607	N123	N099	wall bracing (0)	BG1
B104	CS03 - HEA140	S 355	2,500	N124	N123	beam (80)	BG1
B105	CS03 - HEA140	S 355	2,500	N125	N122	beam (80)	BG1
B106	CS08 - HFLeq80x80x8	S 355	3,002	N125	N099	wall bracing (0)	BG1
B107	CS03 - HEA140	S 355	1,500	N125	N124	column (100)	BG1
B108	CS03 - HEA140	S 355	1,500	N126	N127	column (100)	BG1
B109	CS08 - HFLeq80x80x8	S 355	3,002	N126	N131	wall bracing (0)	BG1
B110	CS08 - HFLeq80x80x8	S 355	3,002	N126	N123	wall bracing (0)	BG1
B111	CS08 - HFLeq80x80x8	S 355	2,600	N126	N122	wall bracing (0)	BG1
B112	CS03 - HEA140	S 355	2,500	N128	N127	beam (80)	BG1
B113	CS08 - HFLeq80x80x8	S 355	3,607	N128	N123	wall bracing (0)	BG1
B114	CS03 - HEA140	S 355	2,500	N129	N126	beam (80)	BG1
B115	CS03 - HEA140	S 355	1,500	N129	N128	column (100)	BG1
B116	CS08 - HFLeq80x80x8	S 355	3,002	N129	N132	wall bracing (0)	BG1
B117	CS08 - HFLeq80x80x8	S 355	3,002	N129	N124	wall bracing (0)	BG1
B118	CS08 - HFLeq80x80x8	S 355	2,600	N129	N125	wall bracing (0)	BG1
B119	CS08 - HFLeq80x80x8	S 355	2,600	N130	N126	wall bracing (0)	BG1
B120	CS08 - HFLeq80x80x8	S 355	3,002	N130	N135	wall bracing (0)	BG1
B121	CS03 - HEA140	S 355	1,500	N130	N131	column (100)	BG1
B122	CS08 - HFLeq80x80x8	S 355	3,607	N131	N128	wall bracing (0)	BG1
B123	CS03 - HEA140	S 355	2,500	N132	N131	beam (80)	BG1
B124	CS08 - HFLeq80x80x8	S 355	2,600	N133	N129	wall bracing (0)	BG1
B125	CS03 - HEA140	S 355	2,500	N133	N130	beam (80)	BG1
B126	CS08 - HFLeq80x80x8	S 355	3,002	N133	N143	wall bracing (0)	BG1
B127	CS03 - HEA140	S 355	1,500	N133	N132	column (100)	BG1
B128	CS07 - HEB180	S 355	6,330	N134	N135	column (100)	BG10
B129	CS01 - Rectangle (650; 650)	C30/37	0,800	N134	N137	general (0)	Default
B130	CS03 - HEA140	S 355	10,241	N135	N085	beam (80)	BG3
B131	CS03 - HEA140	S 355	2,500	N135	N151	beam (80)	BG1
B132	CS03 - HEA140	S 355	2,500	N136	N152	beam (80)	BG1
B133	CS03 - HEA140	S 355	2,500	N140	N156	beam (80)	BG1
B134	CS03 - HEA140	S 355	2,500	N141	N157	beam (80)	BG1
B135	CS07 - HEB180	S 355	6,330	N142	N143	column (100)	BG10
B136	CS01 - Rectangle (650; 650)	C30/37	0,800	N142	N145	general (0)	Default
B137	CS05 - HEA180	S 355	2,500	N143	N135	beam (80)	BG1
B138	CS03 - HEA140	S 355	10,400	N143	N099	beam (80)	BG3
B139	CS03 - HEA140	S 355	2,500	N143	N159	beam (80)	BG1
B140	CS08 - HFLeq80x80x8	S 355	3,607	N143	N131	wall bracing (0)	BG1
B141	CS05 - HEA180	S 355	2,500	N144	N136	beam (80)	BG1
B142	CS03 - HEA140	S 355	2,500	N144	N160	beam (80)	BG1
B143	CS02 - Rectangle (800; 650)	C30/37	2,500	N146	N138	general (0)	Default
B144	CS05 - HEA180	S 355	2,500	N147	N139	beam (80)	BG1
B145	CS03 - HEA140	S 355	2,500	N148	N164	beam (80)	BG1
B146	CS03 - HEA140	S 355	2,500	N149	N165	beam (80)	BG1
B147	CS07 - HEB180	S 355	6,330	N150	N151	column (100)	BG10
B148	CS01 - Rectangle (650; 650)	C30/37	0,800	N150	N153	general (0)	Default
B149	CS07 - HEB180	S 355	6,330	N158	N159	column (100)	BG10
B150	CS01 - Rectangle (650; 650)	C30/37	0,800	N158	N161	general (0)	Default
B151	CS05 - HEA180	S 355	2,500	N159	N151	beam (80)	BG1
B152	CS05 - HEA180	S 355	2,500	N160	N152	beam (80)	BG1

Name	Cross-section	Material	Length [m]	Beg. node	End node	Type	System length
B153	CS02 - Rectangle (800; 650)	C30/37	2,500	N162	N154	general (0)	Default
B154	CS05 - HEA180	S 355	2,500	N163	N155	beam (80)	BG1
B232	CS08 - HFLeq80x80x8	S 355	3,536	N067	N085	general (0)	Default
B233	CS08 - HFLeq80x80x8	S 355	3,536	N083	N069	general (0)	Default



3.4. Load panels

Name	Panel type	Load transfer direction	Selection of entities
LP1	To panel edges and beams	X (LCS panel)	Auto selection
LP2	To panel edges and beams	X (LCS panel)	Auto selection
LP3	To panel edges and beams	X (LCS panel)	Auto selection
LP4	To panel edges and beams	X (LCS panel)	Auto selection
LP5	To panel edges and beams	X (LCS panel)	Auto selection
LP6	To panel edges and beams	X (LCS panel)	Auto selection
LP7	To panel edges and beams	Y (LCS panel)	Auto selection
LP8	To panel edges and beams	Y (LCS panel)	Auto selection

Explanations of symbols	
Selection of entities	All: selects all edges and beams that support the panel at the same place. Auto selection: in the cases where two or more supporting elements overlap, the selection omits edges that belong to 2D members that lie in the same plane as the panel. User selection: requires a manual selection of supporting edges and beams (by means of using an Action button). By type: only beam members of the types selected in the list are considered as supporting elements.

3.5. Hinges

Name	Member	Position	ux	uy	uz	fix	fiy	fiz	Stiff - fiy [MNm/rad]
H2	B118	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H3	B124	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H4	B119	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H5	B111	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H8	B120	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H10	B126	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H11	B121	End	Rigid	Rigid	Rigid	Rigid	Free	Free	
H12	B108	End	Rigid	Rigid	Rigid	Rigid	Free	Free	
H13	B102	End	Rigid	Rigid	Rigid	Rigid	Free	Free	
H15	B109	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H16	B110	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H18	B127	End	Rigid	Rigid	Rigid	Rigid	Free	Free	
H19	B115	End	Rigid	Rigid	Rigid	Rigid	Free	Free	
H20	B107	End	Rigid	Rigid	Rigid	Rigid	Free	Free	
H22	B116	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H23	B117	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H27	B123	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H28	B112	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H30	B104	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H31	B125	Both	Rigid	Rigid	Rigid	Rigid	Rigid	Free	
H32	B114	Both	Rigid	Rigid	Rigid	Rigid	Rigid	Free	
H33	B105	Both	Rigid	Rigid	Rigid	Rigid	Rigid	Free	
H35	B152	Both	Rigid	Rigid	Rigid	Rigid	Flexible	Free	2,2500e+01
H36	B151	Both	Rigid	Rigid	Rigid	Rigid	Flexible	Free	1,2500e+01
H37	B051	Both	Rigid	Rigid	Rigid	Rigid	Flexible	Free	4,0000e+01
H38	B045	Both	Rigid	Rigid	Rigid	Rigid	Flexible	Free	4,0000e+01
H39	B047	Begin	Rigid	Rigid	Rigid	Rigid	Flexible	Free	2,5000e+01
H40	B042	Begin	Rigid	Rigid	Rigid	Rigid	Flexible	Free	2,5000e+01
H41	B069	Begin	Rigid	Rigid	Rigid	Rigid	Flexible	Free	2,5000e+01
H42	B063	Begin	Rigid	Rigid	Rigid	Rigid	Flexible	Free	2,5000e+01
H43	B135	Begin	Rigid	Rigid	Rigid	Rigid	Flexible	Free	1,5000e+01
H44	B128	Begin	Rigid	Rigid	Rigid	Rigid	Flexible	Free	1,5000e+01
H45	B149	Begin	Rigid	Rigid	Rigid	Rigid	Flexible	Free	1,5000e+01
H46	B147	Begin	Rigid	Rigid	Rigid	Rigid	Flexible	Free	1,5000e+01
H47	B058	Both	Rigid	Rigid	Rigid	Rigid	Flexible	Free	4,0000e+01
H48	B144	Both	Rigid	Rigid	Rigid	Rigid	Flexible	Free	2,2500e+01
H49	B154	Both	Rigid	Rigid	Rigid	Rigid	Flexible	Free	2,2500e+01
H50	B020	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H51	B021	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H52	B018	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H53	B046	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H54	B050	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H55	B032	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H56	B078	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H57	B080	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	

Name	Member	Position	ux	uy	uz	fix	fiy	fiz	Stiff - fiy [MNm/rad]
H58	B048	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H59	B056	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H60	B057	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H61	B043	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H62	B077	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H63	B054	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H64	B075	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H65	B052	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H66	B072	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H67	B067	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H68	B076	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H69	B074	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H73	B138	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H74	B130	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H75	B139	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H76	B131	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H77	B132	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H78	B142	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H79	B140	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H81	B113	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H84	B122	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H87	B026	Both	Rigid	Rigid	Rigid	Rigid	Flexible	Free	2,2500e+01
H88	B053	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H89	B055	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H90	B033	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H94	B145	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H95	B133	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H96	B134	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H97	B146	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H83	B022	Begin	Rigid	Rigid	Rigid	Rigid	Flexible	Free	1,5000e+01
H98	B024	Begin	Rigid	Rigid	Rigid	Rigid	Flexible	Free	1,5000e+01
H99	B012	Begin	Rigid	Rigid	Rigid	Rigid	Flexible	Free	1,5000e+01
H100	B014	Begin	Rigid	Rigid	Rigid	Rigid	Flexible	Free	1,5000e+01
H101	B019	Both	Rigid	Rigid	Rigid	Rigid	Flexible	Free	2,2500e+01
H102	B009	Both	Rigid	Rigid	Rigid	Rigid	Flexible	Free	1,2500e+01
H105	B141	Both	Rigid	Rigid	Rigid	Rigid	Flexible	Free	2,2500e+01
H106	B137	Both	Rigid	Rigid	Rigid	Rigid	Flexible	Free	1,2500e+01
H107	B081	Both	Rigid	Rigid	Rigid	Rigid	Flexible	Free	4,0000e+01
H108	B073	Both	Rigid	Rigid	Rigid	Rigid	Flexible	Free	4,0000e+01
H109	B066	Both	Rigid	Rigid	Rigid	Rigid	Flexible	Free	2,2500e+01
H110	B061	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H113	B060	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H127	B039	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H128	B002	Begin	Rigid	Rigid	Rigid	Rigid	Flexible	Free	1,5000e+01
H129	B004	Begin	Rigid	Rigid	Rigid	Rigid	Flexible	Free	1,5000e+01
H130	B001	Both	Rigid	Rigid	Rigid	Rigid	Flexible	Free	1,2500e+01
H131	B010	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H132	B011	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H133	B008	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H134	B029	Both	Rigid	Rigid	Rigid	Rigid	Flexible	Free	2,2500e+01
H135	B096	End	Free	Rigid	Rigid	Rigid	Free	Free	
H136	B100	End	Free	Rigid	Rigid	Rigid	Free	Free	
H137	B094	End	Free	Rigid	Rigid	Rigid	Free	Free	
H138	B091	End	Free	Rigid	Rigid	Rigid	Free	Free	
H139	B094	Begin	Rigid	Rigid	Rigid	Rigid	Free	Free	
H140	B091	Begin	Rigid	Rigid	Rigid	Rigid	Free	Free	
H141	B090	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H142	B098	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H143	B097	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H144	B092	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H145	B099	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H148	B093	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H147	B088	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H149	B089	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H150	B087	Begin	Rigid	Rigid	Rigid	Rigid	Free	Free	
H151	B086	Begin	Rigid	Rigid	Rigid	Rigid	Free	Free	
H152	B035	End	Rigid	Rigid	Rigid	Rigid	Free	Free	
H153	B040	End	Rigid	Rigid	Rigid	Rigid	Free	Free	
H154	B038	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H155	B034	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H156	B037	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H157	B041	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H158	B036	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H159	B031	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H160	B030	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	

Name	Member	Position	ux	uy	uz	fix	fiy	fiz	Stiff - fiy [MNm/rad]
H161	B062	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H162	B028	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H163	B017	Both	Rigid	Rigid	Rigid	Rigid	Flexible	Free	2,2500e+01
H164	B007	Both	Rigid	Rigid	Rigid	Rigid	Flexible	Free	2,2500e+01
H165	B232	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	
H166	B233	Both	Rigid	Rigid	Rigid	Rigid	Free	Free	

3.6. Rigid arms

Name	Master	Slave	Hinge on master	Hinge on slave
RA1	N118	N112	✓	×
RA2	N101	N100	×	×
RA3	N113	N115	×	×
RA4	N103	N102	×	✓
RA5	N049	N047	×	×
RA6	N058	N055	×	×
RA7	N059	N060	×	×
RA8	N050	N051	×	×
RA9	N061	N057	✓	×
RA10	N052	N048	✓	×

3.7. Nodal supports

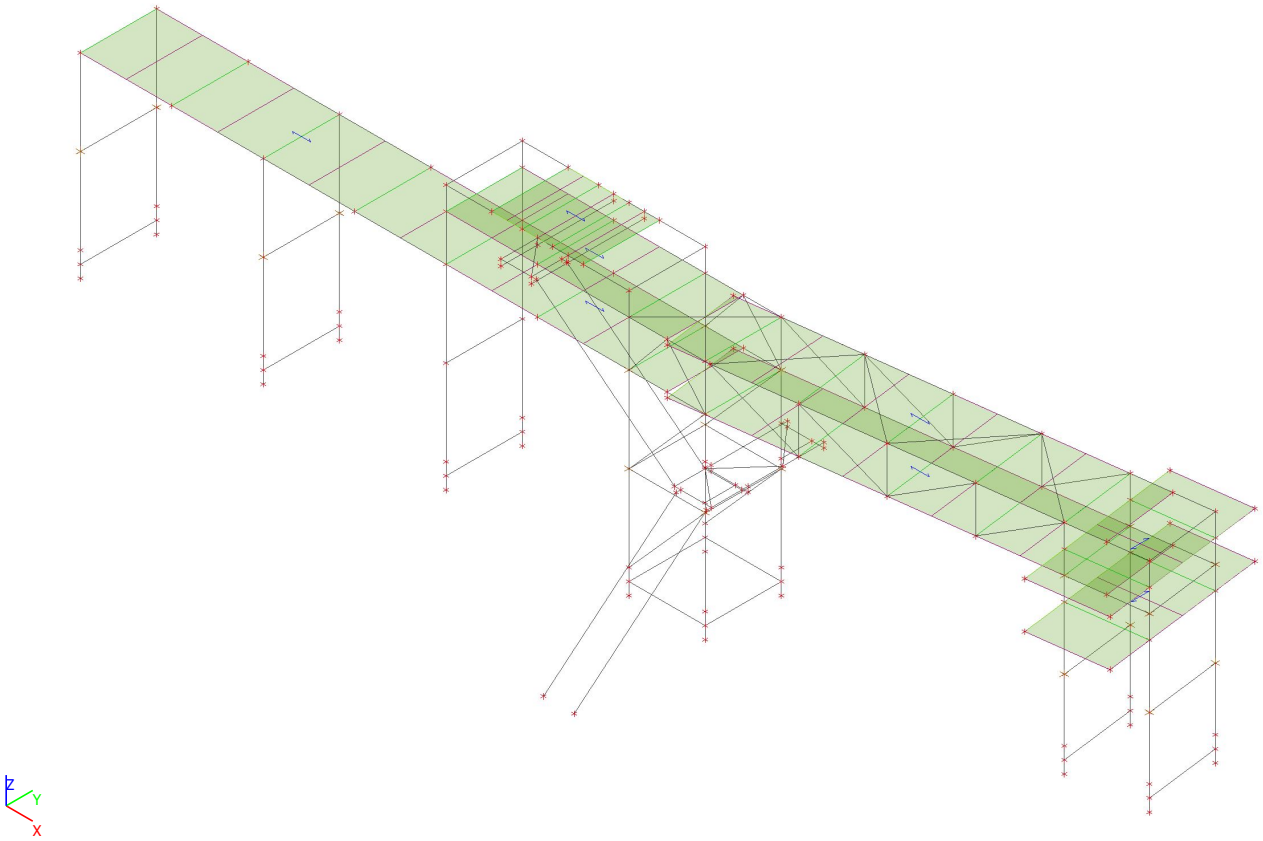
Name	Node	System	Type	X	Y	Z	Rx	Ry	Rz	Stiffness X [MN/m]	Stiffness Y [MN/m]	Stiffness Z [MN/m]
Sn15	N153	GCS	Standard	Flexible	Flexible	Flexible	Free	Rigid	Free	1,0000e+01	1,0000e+01	5,0000e+01
Sn13	N137	GCS	Standard	Flexible	Flexible	Flexible	Free	Rigid	Free	1,0000e+01	1,0000e+01	5,0000e+01
Sn14	N145	GCS	Standard	Flexible	Flexible	Flexible	Free	Rigid	Free	1,0000e+01	1,0000e+01	5,0000e+01
Sn16	N161	GCS	Standard	Flexible	Flexible	Flexible	Free	Rigid	Free	1,0000e+01	1,0000e+01	5,0000e+01
Sn09	N090	GCS	Standard	Flexible	Flexible	Flexible	Free	Free	Free	1,0000e+01	1,0000e+01	5,0000e+01
Sn07	N074	GCS	Standard	Flexible	Flexible	Flexible	Free	Free	Free	1,0000e+01	1,0000e+01	5,0000e+01
Sn08	N075	GCS	Standard	Flexible	Flexible	Flexible	Free	Free	Free	1,0000e+01	1,0000e+01	5,0000e+01
Sn10	N091	GCS	Standard	Flexible	Flexible	Flexible	Free	Free	Free	1,0000e+01	1,0000e+01	5,0000e+01
Sn05	N031	GCS	Standard	Flexible	Flexible	Flexible	Free	Rigid	Free	1,0000e+01	1,0000e+01	5,0000e+01
Sn06	N032	GCS	Standard	Flexible	Flexible	Flexible	Free	Free	Free	1,0000e+01	1,0000e+01	5,0000e+01
Sn03	N017	GCS	Standard	Flexible	Flexible	Flexible	Free	Rigid	Free	1,0000e+01	1,0000e+01	5,0000e+01
Sn04	N018	GCS	Standard	Flexible	Flexible	Flexible	Free	Free	Free	1,0000e+01	1,0000e+01	5,0000e+01
Sn01	N005	GCS	Standard	Flexible	Flexible	Flexible	Free	Rigid	Free	1,0000e+01	1,0000e+01	5,0000e+01
Sn02	N006	GCS	Standard	Flexible	Flexible	Flexible	Free	Free	Free	1,0000e+01	1,0000e+01	5,0000e+01
Sn12	N119	GCS	Standard	Rigid	Rigid	Rigid	Free	Free	Free			
Sn11	N107	GCS	Standard	Rigid	Rigid	Rigid	Free	Free	Free			

4. Loads

4.1. Load cases - surface load

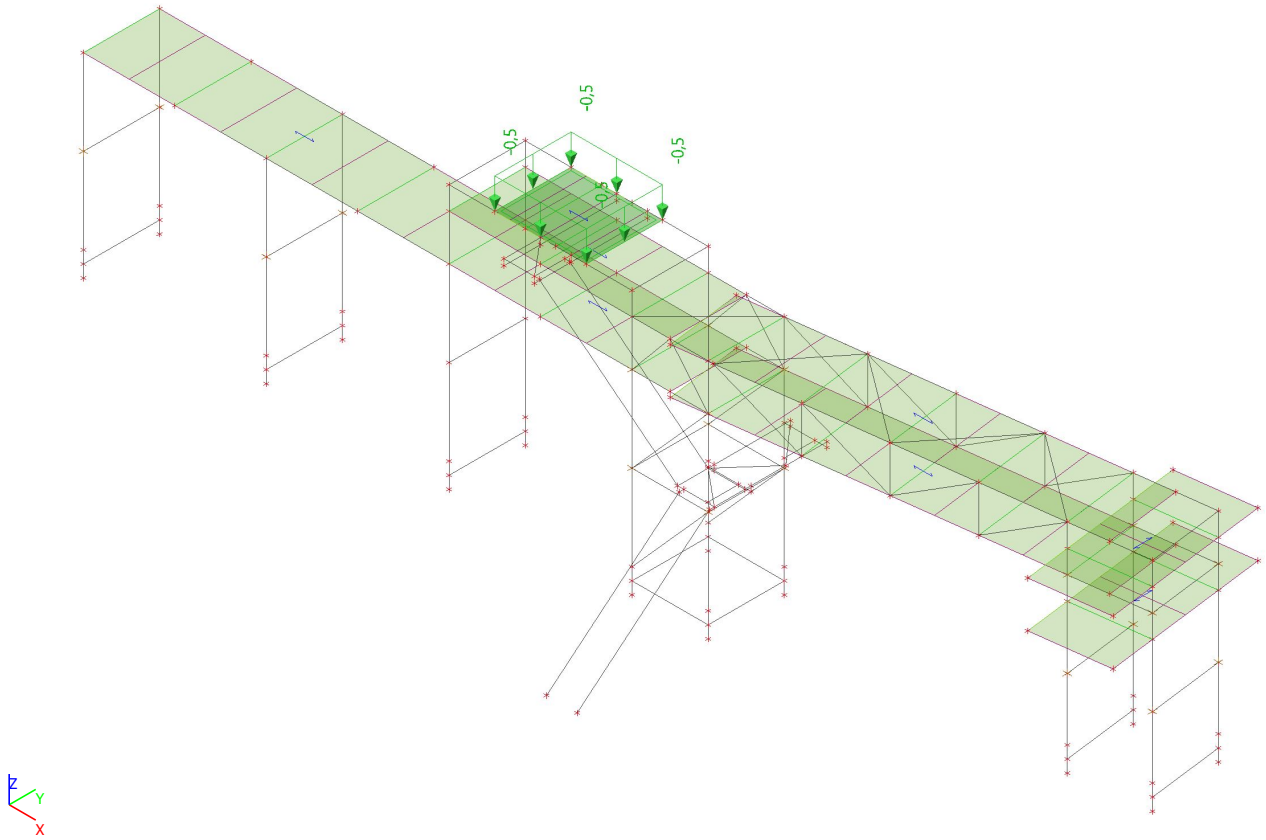
4.1.1. Load cases - surface load - DL

Name	Description	Action type	Load type	Load group	Direction
DL	Dead load - self-weight	Permanent	Self weight	LG1	-Z



4.1.2. Load cases - surface load - DL1

Name	Description	Action type	Load type	Load group
DL1	Dead load - grating	Permanent	Standard	LG1

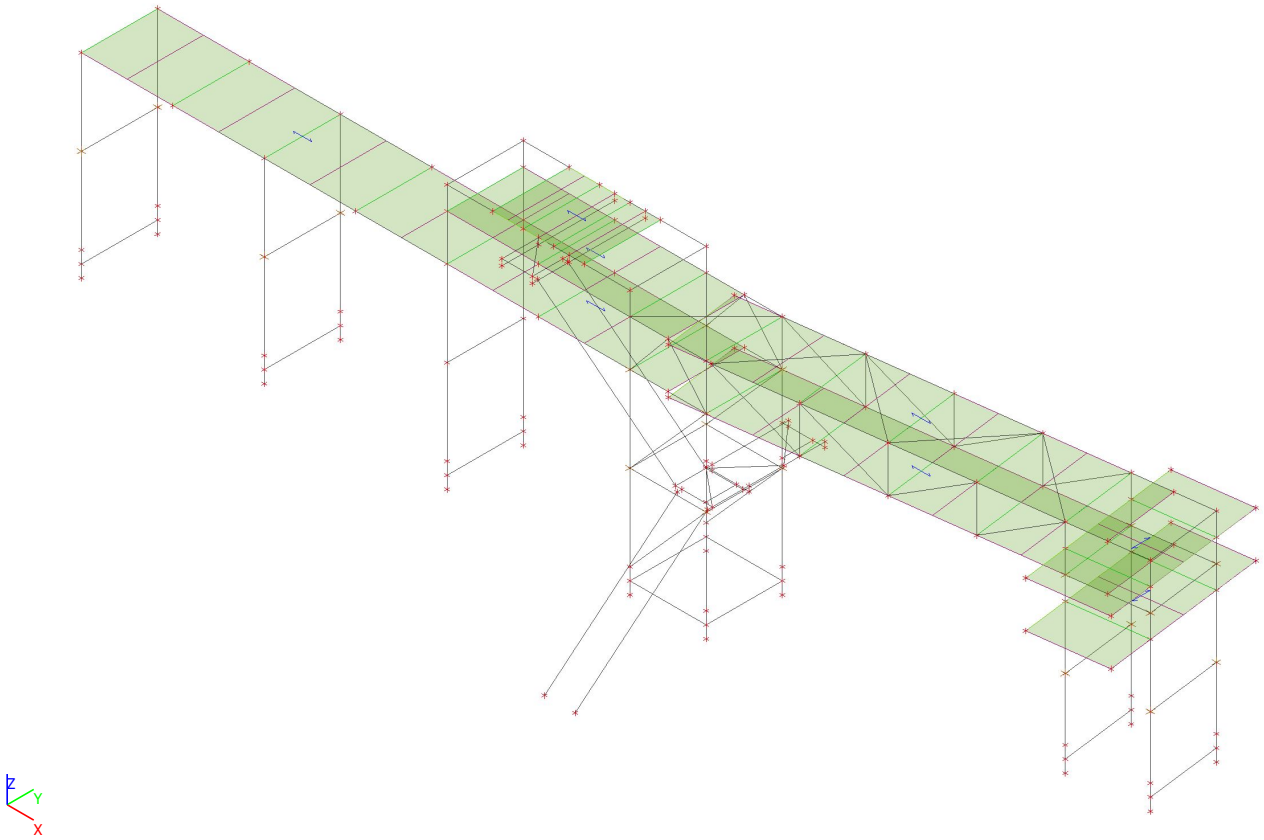


4.1.2.1. Surface load

Name	Dir	Type	Value [kN/m²]	System	Loc
SF1	Z	Force	-0,5	LCS	Length

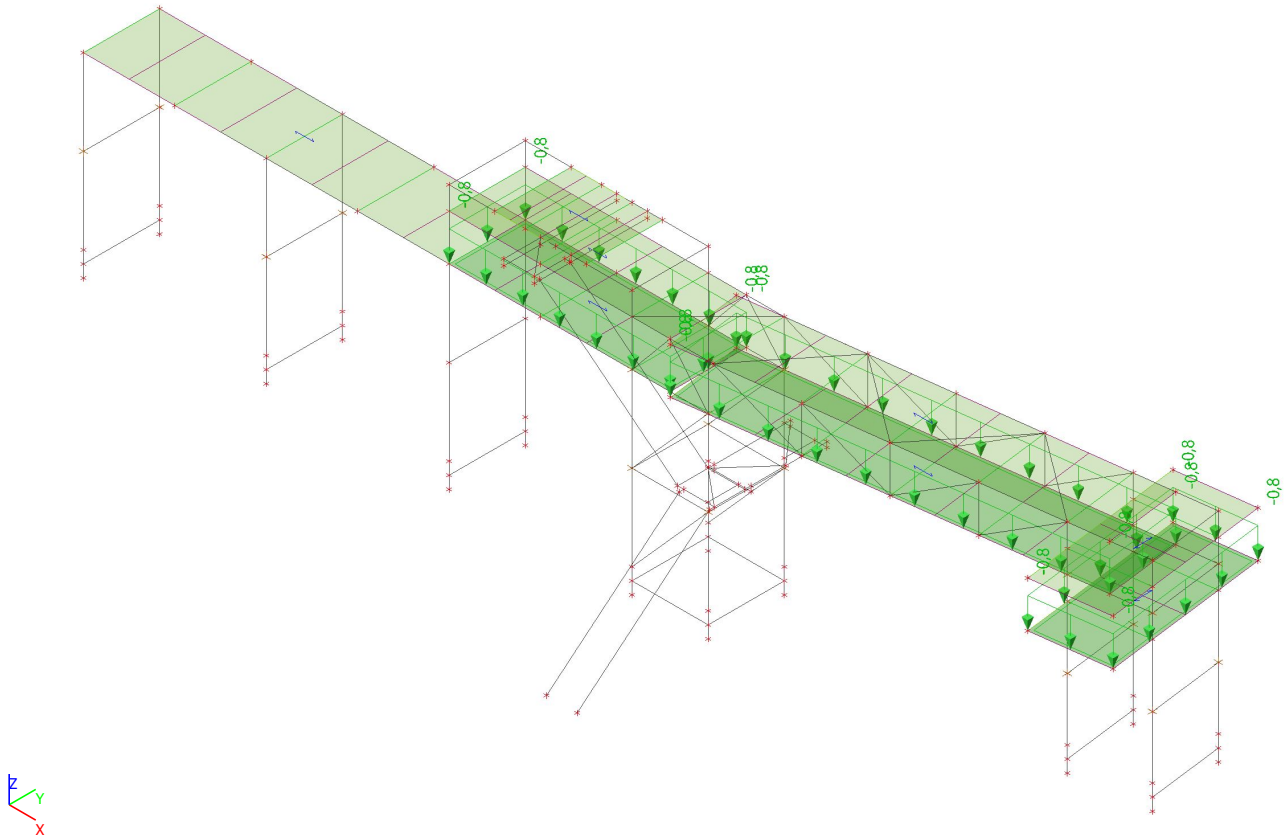
4.1.3. Load cases - surface load - DL2

Name	Description	Action type	Load type	Load group
DL2	Dead load - railing	Permanent	Standard	LG1



4.1.4. Load cases - surface load - EE

Name	Description	Action type	Load type	Load group
EE	Equipment load - Empty	Permanent	Standard	LG1

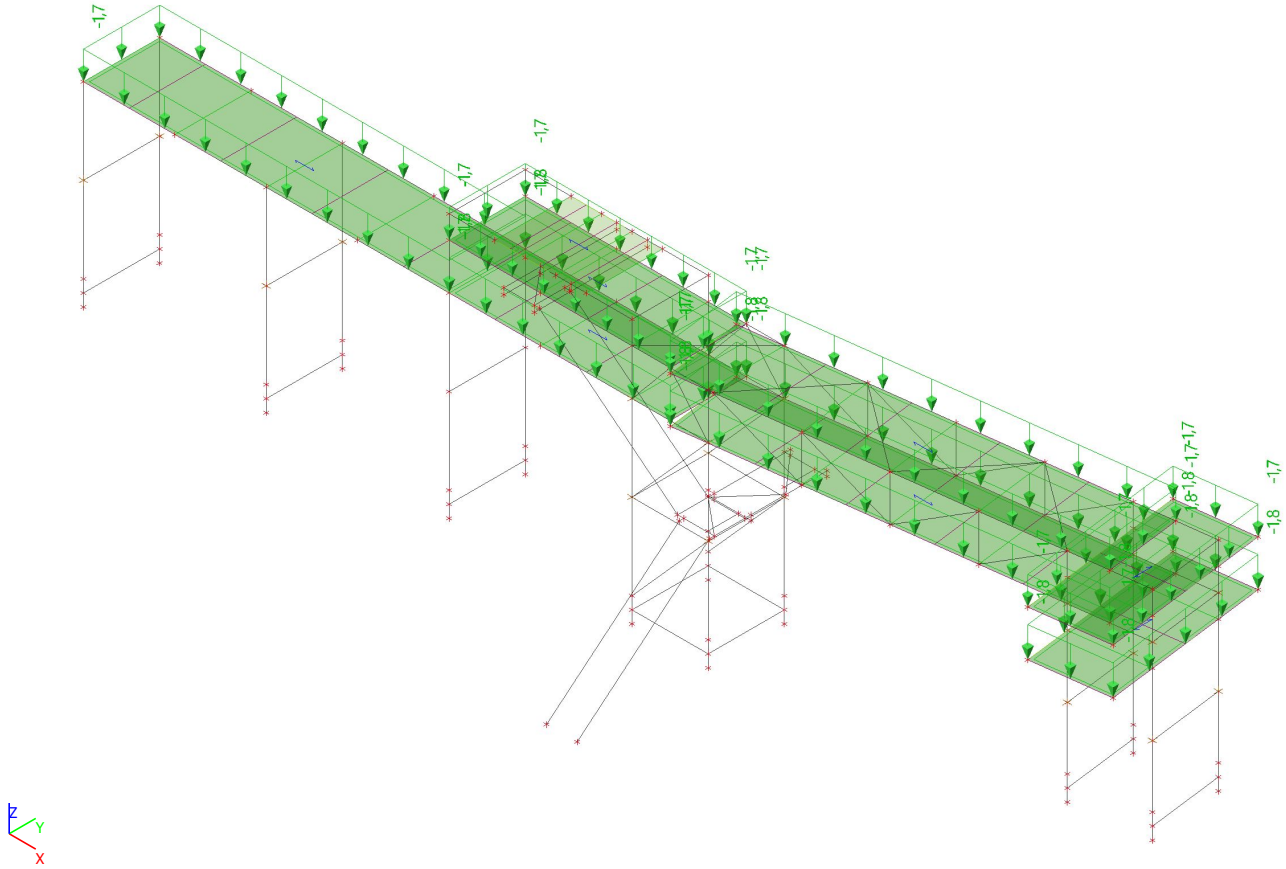


4.1.4.1. Surface load

Name	Dir	Type	Value [kN/m²]	System	Loc
SF2	Z	Force	-0,8	LCS	Length
SF3	Z	Force	-0,8	LCS	Length
SF12	Z	Force	-0,8	LCS	Length

4.1.5. Load cases - surface load - EO

Name	Description	Action type	Load type	Load group
EO	Equipment load - operating	Permanent	Standard	LG1

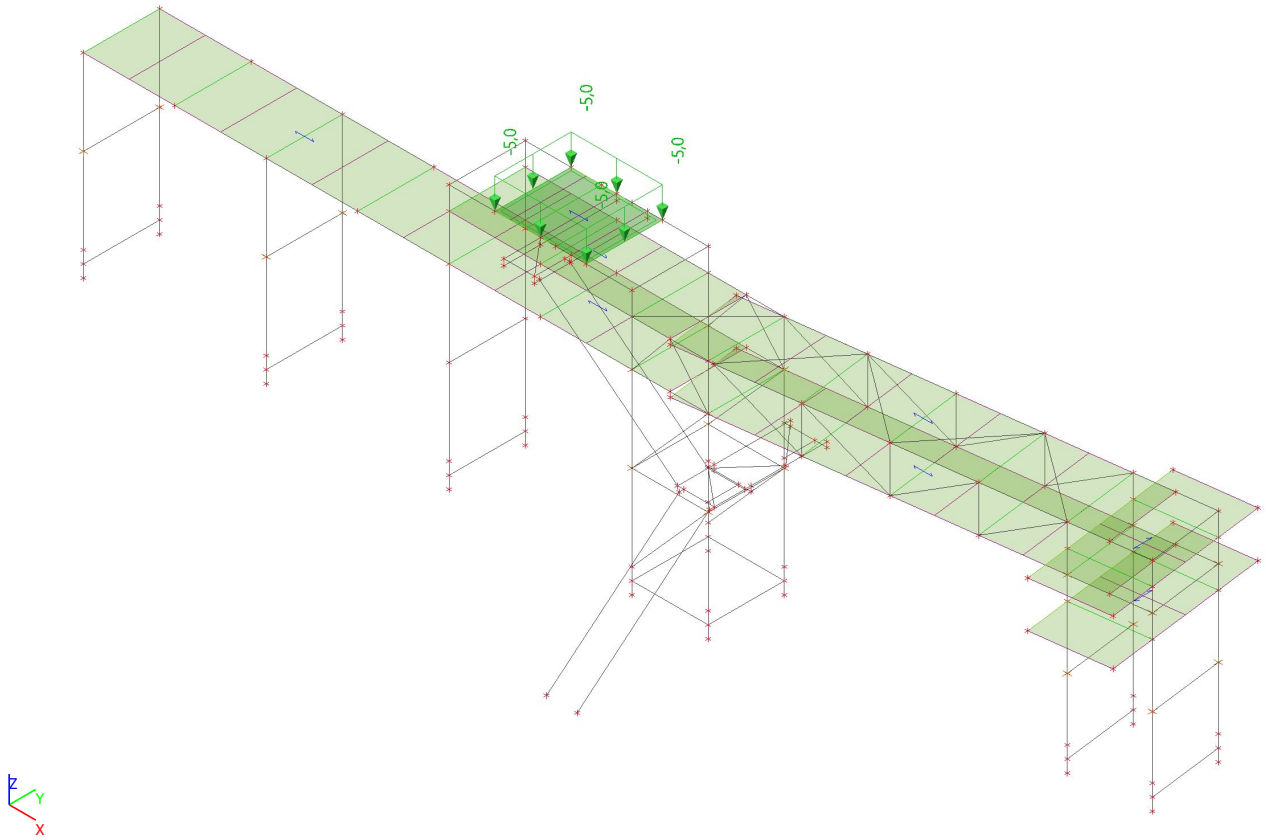


4.1.5.1. Surface load

Name	Dir	Type	Value [kN/m²]	System	Loc
SF4	Z	Force	-1,8	LCS	Length
SF5	Z	Force	-1,8	LCS	Length
SF6	Z	Force	-1,7	LCS	Length
SF7	Z	Force	-1,7	LCS	Length
SF8	Z	Force	-1,7	LCS	Length
SF13	Z	Force	-1,8	LCS	Length
SF14	Z	Force	-1,7	LCS	Length

4.1.6. Load cases - surface load - LL

Name	Description	Spec	Action type	Load type	Load group	Duration	Master load case
LL	Imposed load	Standard	Variable	Static	LG4	Short	None

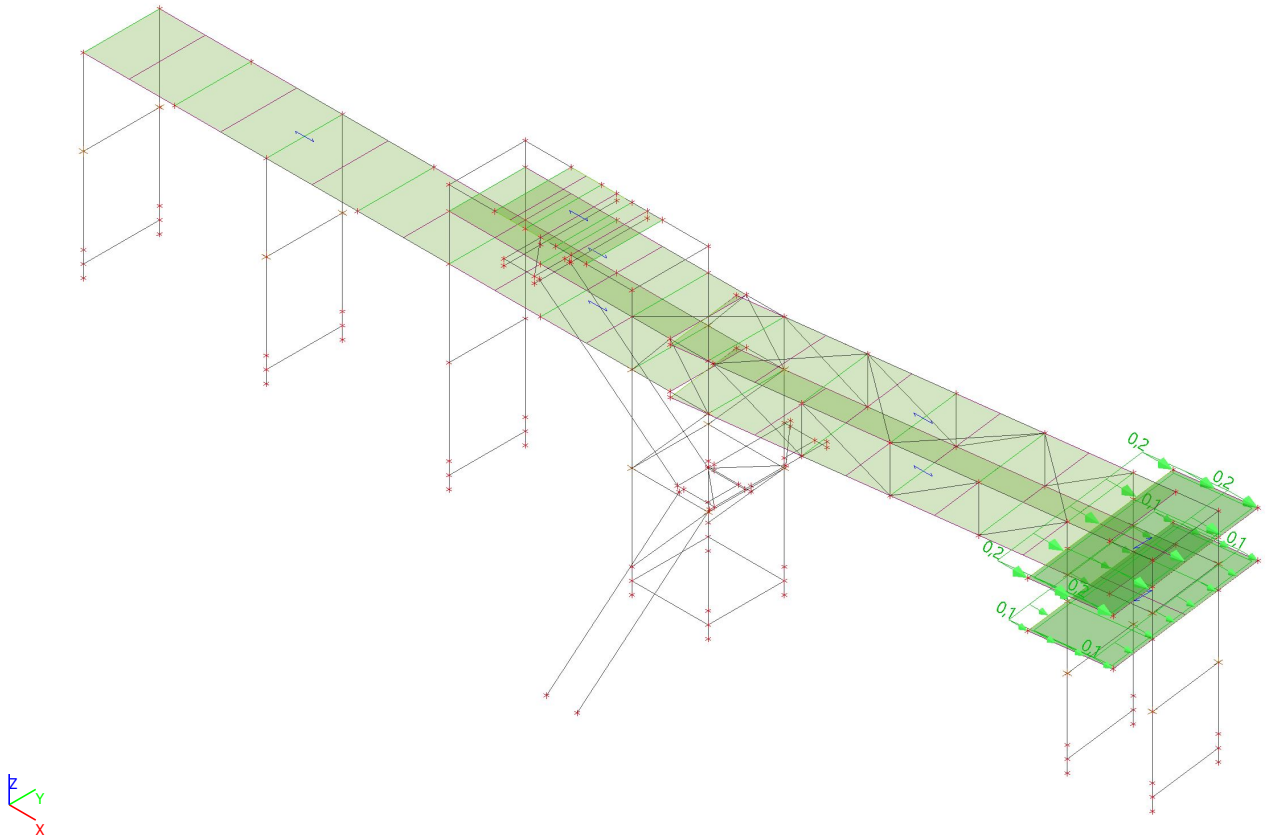


4.1.6.1. Surface load

Name	Dir	Type	Value [kN/m²]	System	Loc
SF11	Z	Force	-5,0	LCS	Length

4.1.7. Load cases - surface load - Wx

Name	Description	Spec	Action type	Load type	Load group	Duration	Master load case
Wx	Wind load	Standard	Variable	Static	LG2	Short	None

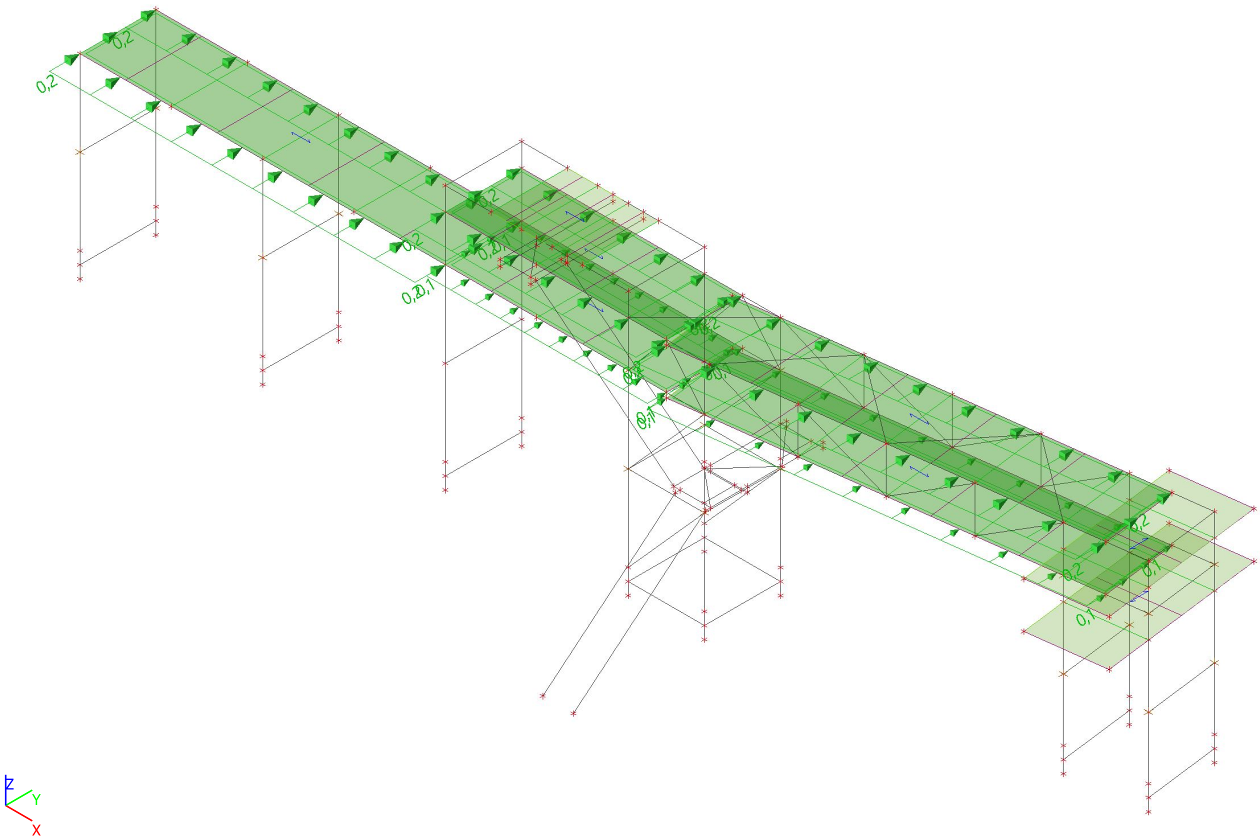


4.1.7.1. Surface load

Name	Dir	Type	Value [kN/m²]	System	Loc
SF18	X	Force	0,1	LCS	Length
SF19	X	Force	0,2	LCS	Length

4.1.8. Load cases - surface load - Wy

Name	Description	Spec	Action type	Load type	Load group	Duration	Master load case
Wy	Wind load	Standard	Variable	Static	LG2	Short	None

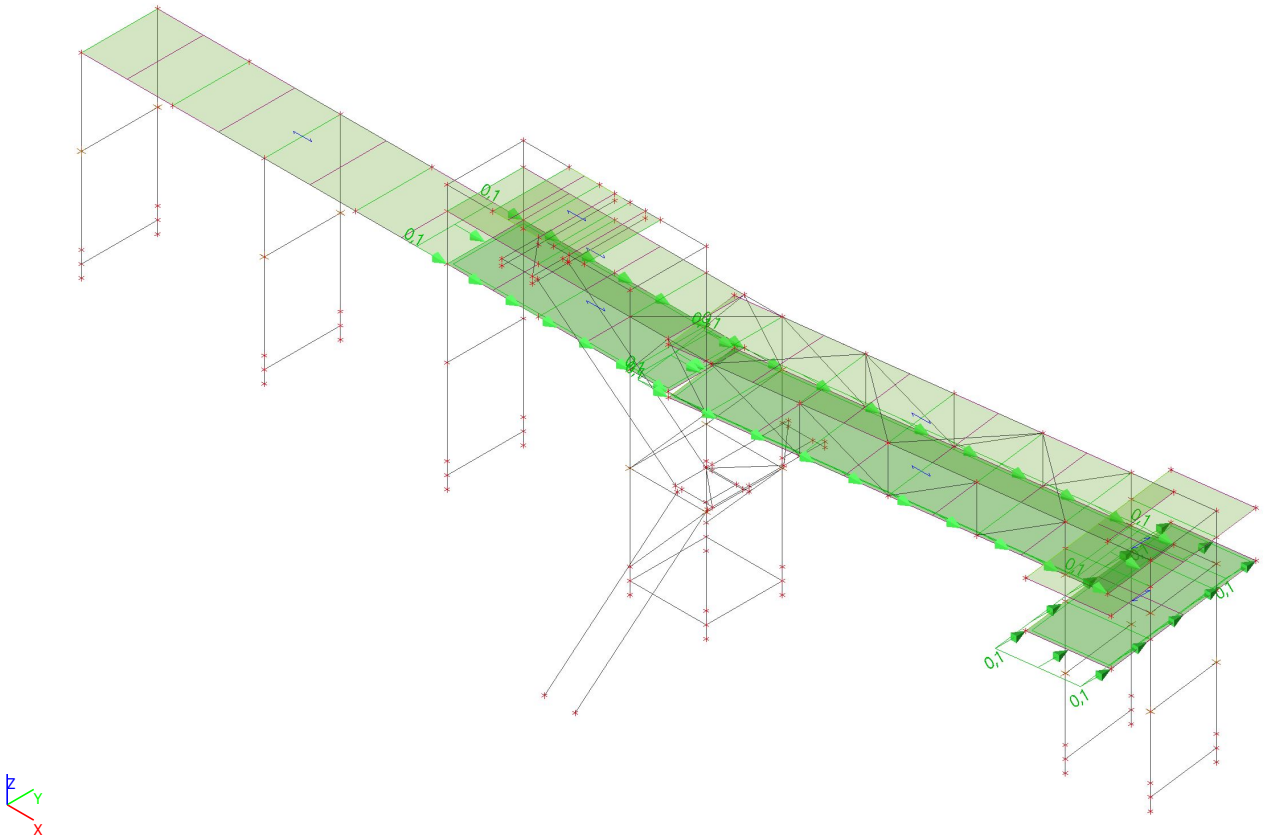


4.1.8.1. Surface load

Name	Dir	Type	Value [kN/m²]	System	Loc
SF16	Y	Force	0,1	LCS	Length
SF17	Y	Force	0,1	LCS	Length
SF20	Y	Force	0,2	LCS	Length
SF21	Y	Force	0,2	LCS	Length
SF22	Y	Force	0,2	LCS	Length

4.1.9. Load cases - surface load - TLs

Name	Description	Spec	Action type	Load type	Load group	Duration	Master load case
TLs	Temperature load	Standard	Variable	Static	LG3	Short	None



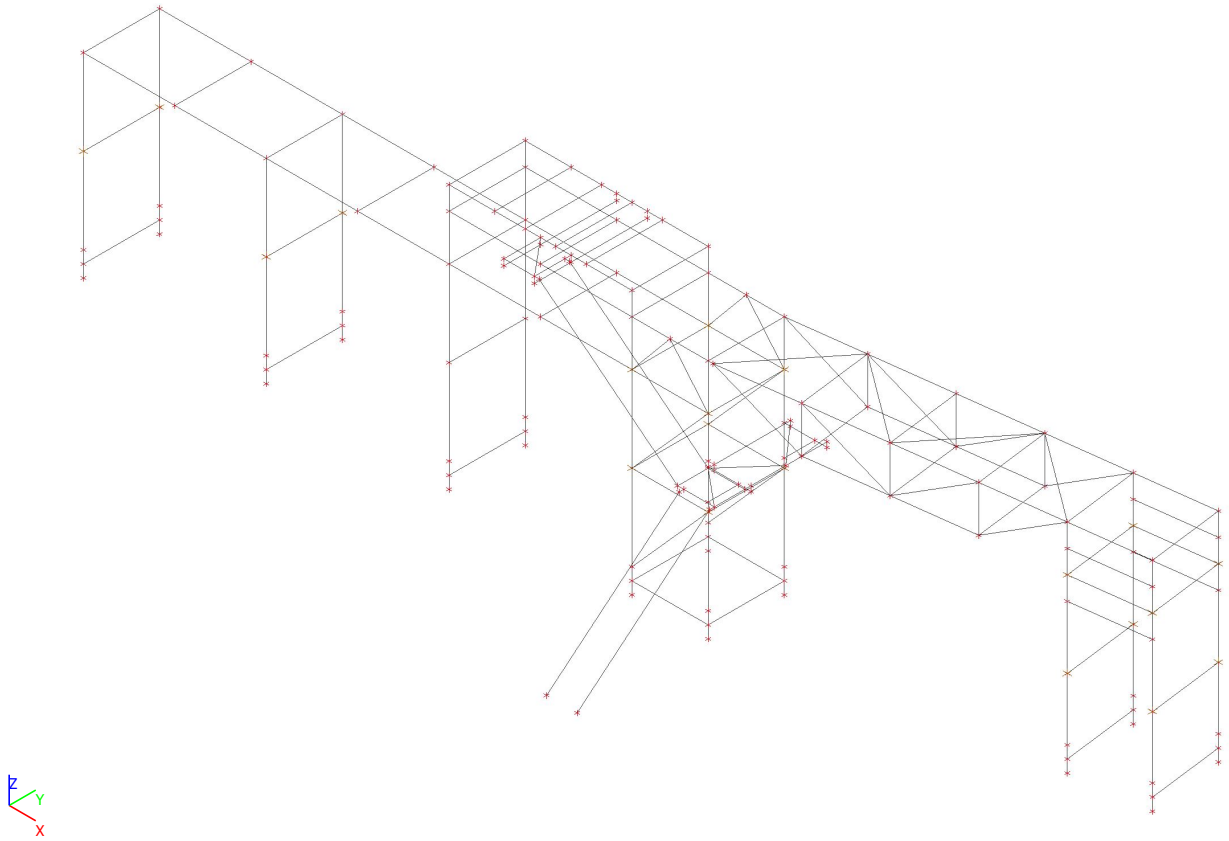
4.1.9.1. Surface load

Name	Dir	Type	Value [kN/m²]	System	Loc
SF9	X	Force	0,1	LCS	Length
SF10	X	Force	0,1	LCS	Length
SF15	Y	Force	0,1	LCS	Length

4.2. Load cases

4.2.1. Load cases - DL

Name	Description	Action type	Load type	Load group	Direction
DL	Dead load - self-weight	Permanent	Self weight	LG1	-Z



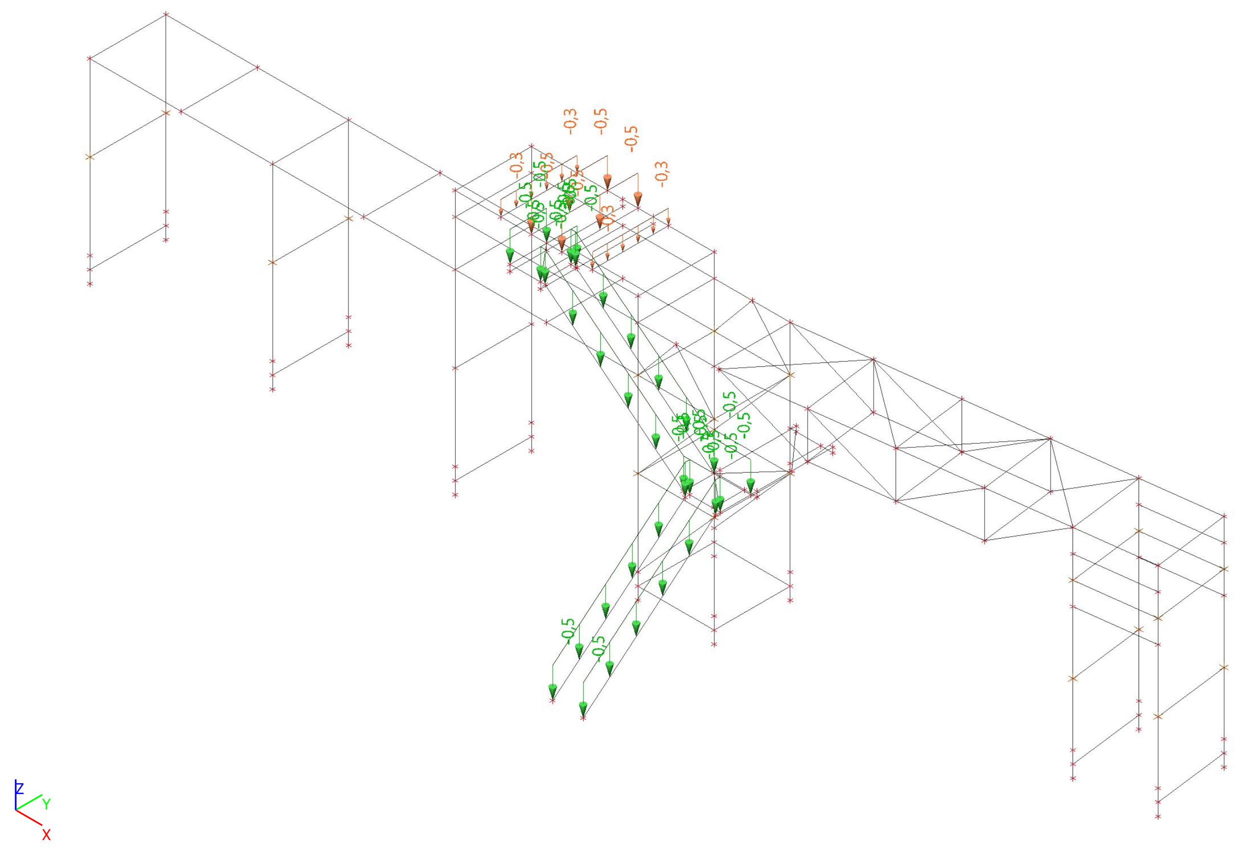
4.2.1.1. Resultant of reactions

Linear calculation
Load case: DL
Extreme: Global
Selection: All
System: Global

x [m]	y [m]	z [m]	Case	R_x [kN]	R_y [kN]	R_z [kN]	M_x [kNm]	M_y [kNm]	M_z [kNm]
17,752	0,746	-0,426	DL	**0,0**	**0,0**	**531,9**	**430,4**	**1,1**	**0,0**

4.2.2. Load cases - DL1

Name	Description	Action type	Load type	Load group
DL1	Dead load - grating	Permanent	Standard	LG1



4.2.2.1. Line force

Name	Member	Type	System	Dir	Distribution	Value - P_1 [kN/m] Value - P_2 [kN/m]	Pos x_1 Pos x_2	Coor	Loc	Orig	Ecc ey [m] Ecc ez [m]
LF185	B034	Force	GCS	Z	Uniform	-0,5	0.000 1.000	Rela	Length	From start	0,000 0,000
LF197	B037	Force	GCS	Z	Uniform	-0,5	0.000 1.000	Rela	Length	From start	0,000 0,000
LF198	B094	Force	GCS	Z	Uniform	-0,5	0.000 1.000	Rela	Length	From start	0,000 0,000
LF199	B091	Force	GCS	Z	Uniform	-0,5	0.000 1.000	Rela	Length	From start	0,000 0,000
LF363	B100	Force	GCS	Z	Uniform	-0,5	0.000 1.000	Rela	Length	From start	0,000 0,000
LF366	B096	Force	GCS	Z	Uniform	-0,5	0.000 1.000	Rela	Length	From start	0,000 0,000
LF470	B095	Force	GCS	Z	Uniform	-0,5	0.000 1.000	Rela	Length	From start	0,000 0,000
LF471	B093	Force	GCS	Z	Uniform	-0,5	0.000 1.000	Rela	Length	From start	0,000 0,000
LF632	B031	Force	GCS	Z	Trapez	-0,5 -0,5	0.000 1.000	Rela	Length	From start	0,000 0,000
LF633	B030	Force	GCS	Z	Trapez	-0,3 -0,3	0.000 1.000	Rela	Length	From start	0,000 0,000
LF634	B036	Force	GCS	Z	Trapez	-0,5 -0,5	0.000 1.000	Rela	Length	From start	0,000 0,000
LF635	B041	Force	GCS	Z	Trapez	-0,3 -0,3	0.000 1.000	Rela	Length	From start	0,000 0,000

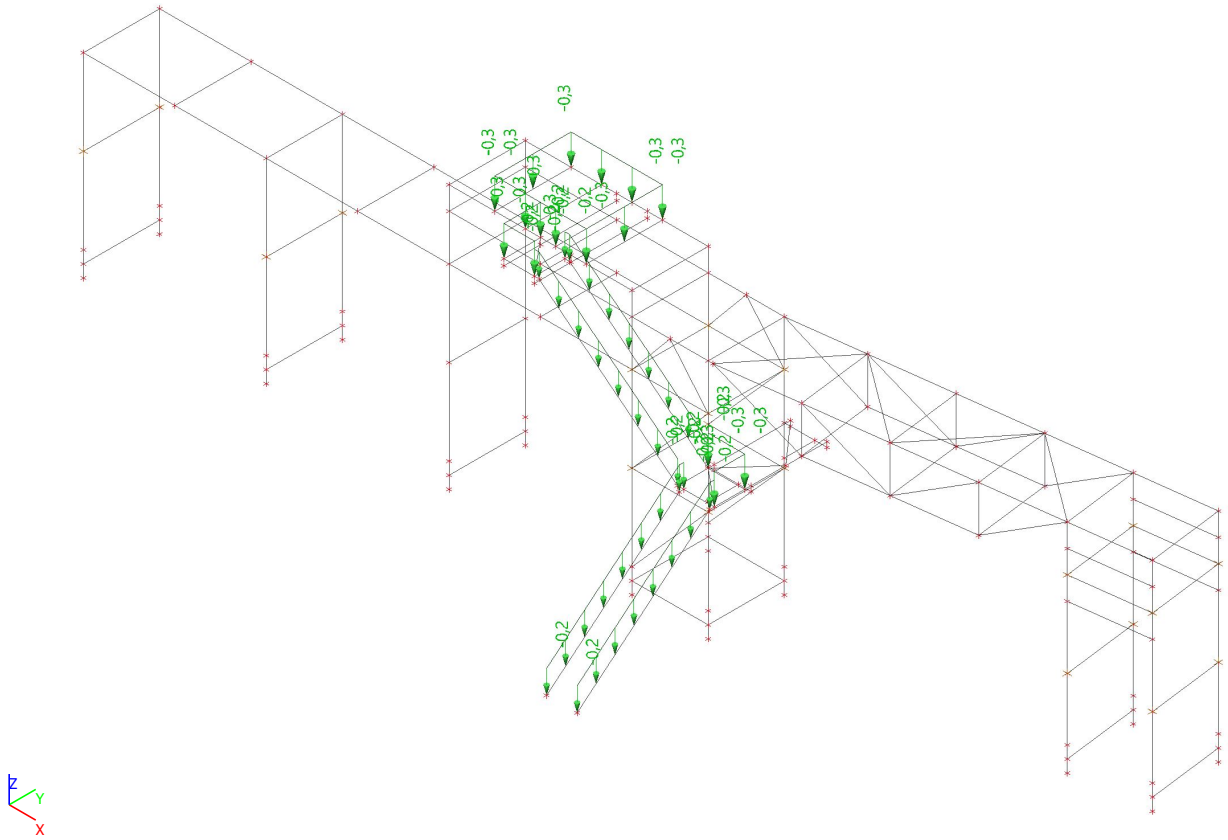
4.2.2.2. Resultant of reactions

Linear calculation
Load case: DL1
Extreme: Global
Selection: All
System: Global

x [m]	y [m]	z [m]	Case	R_x [kN]	R_y [kN]	R_z [kN]	M_x [kNm]	M_y [kNm]	M_z [kNm]
17,752	0,746	-0,426	DL1	**0,0**	**0,0**	**17,9**	**-34,5**	**-16,0**	**0,0**

4.2.3. Load cases - DL2

Name	Description	Action type	Load type	Load group
DL2	Dead load - railing	Permanent	Standard	LG1



4.2.3.1. Line force

Name	Member	Type	System	Dir	Distribution	Value - P_1 [kN/m] Value - P_2 [kN/m]	Pos x_1 Pos x_2	Coor	Loc	Orig	Ecc ey [m] Ecc ez [m]
LF187	B041	Force	GCS	Z	Uniform	-0,3	0.000 1.000	Rela	Length	From start	0,000 0,000
LF188	B030	Force	GCS	Z	Uniform	-0,3	0.000 1.000	Rela	Length	From start	0,000 0,000
LF189	B060	Force	GCS	Z	Uniform	-0,3	1.500 4.500	Abso	Length	From start	0,000 0,000
LF190	B061	Force	GCS	Z	Uniform	-0,3	1.500 4.500	Abso	Length	From start	0,000 0,000
LF191	B034	Force	GCS	Z	Uniform	-0,3	0.000 1.000	Rela	Length	From start	0,000 0,000
LF192	B038	Force	GCS	Z	Uniform	-0,3	0.000 1.000	Rela	Length	From start	0,000 0,000
LF193	B091	Force	GCS	Z	Uniform	-0,2	0.000 1.000	Rela	Length	From start	0,000 0,000
LF194	B094	Force	GCS	Z	Uniform	-0,2	0.000 1.000	Rela	Length	From start	0,000 0,000
LF195	B098	Force	GCS	Z	Uniform	-0,3	0.000 1.000	Abso	Length	From end	0,000 0,000
LF196	B093	Force	GCS	Z	Uniform	-0,3	0.000 1.000	Rela	Length	From start	0,000 0,000
LF362	B100	Force	GCS	Z	Uniform	-0,2	0.000 1.000	Rela	Length	From start	0,000 0,000
LF365	B096	Force	GCS	Z	Uniform	-0,2	0.000 1.000	Rela	Length	From start	0,000 0,000

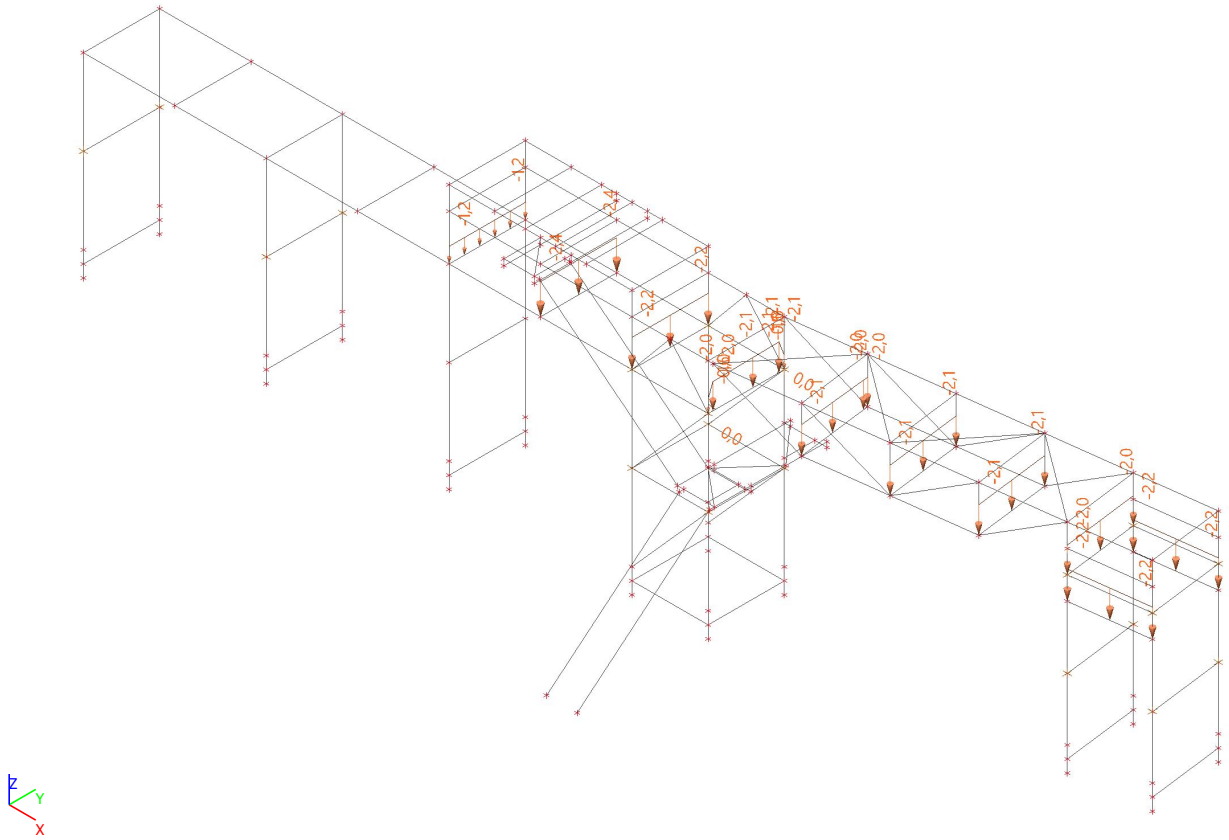
4.2.3.2. Resultant of reactions

Linear calculation
Load case: DL2
Extreme: Global
Selection: All
System: Global

x [m]	y [m]	z [m]	Case	R_x [kN]	R_y [kN]	R_z [kN]	M_x [kNm]	M_y [kNm]	M_z [kNm]
17,752	0,746	-0,426	DL2	**0,0**	**0,0**	**10,0**	**-15,4**	**-3,2**	**0,0**

4.2.4. Load cases - EE

Name	Description	Action type	Load type	Load group
EE	Equipment load - Empty	Permanent	Standard	LG1



4.2.4.1. Line force

Name	Member	Type	System	Dir	Distribution	Value - P_1 [kN/m] Value - P_2 [kN/m]	Pos x_1 Pos x_2	Coor	Loc	Orig	Ecc ey [m] Ecc ez [m]
LF656	B051	Force	GCS	Z	Trapez	-2,2 -2,2	0.000 1.000	Rela	Length	From start	0,000 0,000
LF657	B019	Force	GCS	Z	Trapez	-1,2 -1,2	0.000 1.000	Rela	Length	From start	0,000 0,000
LF658	B033	Force	GCS	Z	Trapez	-2,4 -2,4	0.000 1.000	Rela	Length	From start	0,000 0,000
LF730	B073	Force	GCS	Z	Trapez	-1,0 -2,0	0.000 0.062	Rela	Length	From start	0,000 0,000
LF731	B073	Force	GCS	Z	Trapez	-2,0 -2,1	0.062 0.588	Rela	Length	From start	0,000 0,000
LF732	B073	Force	GCS	Z	Trapez	-2,1 -2,1	0.588 0.929	Rela	Length	From start	0,000 0,000
LF733	B073	Force	GCS	Z	Trapez	-2,1 -1,0	0.929 1.000	Rela	Length	From start	0,000 0,000
LF734	B073	Force	GCS	Z	Trapez	-0,6 0,0	0.000 0.100	Rela	Length	From start	0,000 0,000
LF735	B073	Force	GCS	Z	Trapez	0,0 -0,6	0.900 1.000	Rela	Length	From start	0,000 0,000
LF736	B141	Force	GCS	Z	Trapez	-2,0 -2,0	0.000 1.000	Rela	Length	From start	0,000 0,000
LF737	B105	Force	GCS	Z	Trapez	-2,1 -2,0	0.000 0.938	Rela	Length	From start	0,000 0,000
LF738	B105	Force	GCS	Z	Trapez	-2,0 -2,0	0.938 1.000	Rela	Length	From start	0,000 0,000
LF739	B114	Force	GCS	Z	Trapez	-2,1 -2,1	0.000 1.000	Rela	Length	From start	0,000 0,000
LF740	B125	Force	GCS	Z	Trapez	-2,1	0.000	Rela	Length	From start	0,000

Name	Member	Type	System	Dir	Distribution	Value - P_1 [kN/m] Value - P_2 [kN/m]	Pos x_1 Pos x_2	Coor	Loc	Orig	Ecc ey [m] Ecc ez [m]
						-2,1	1.000				0,000
LF774	B134	Force	GCS	Z	Trapez	-2,2 -2,2	0.000 1.000	Rela	Length	From start	0,000 0,000
LF775	B146	Force	GCS	Z	Trapez	-2,2 -2,2	0.000 1.000	Rela	Length	From start	0,000 0,000

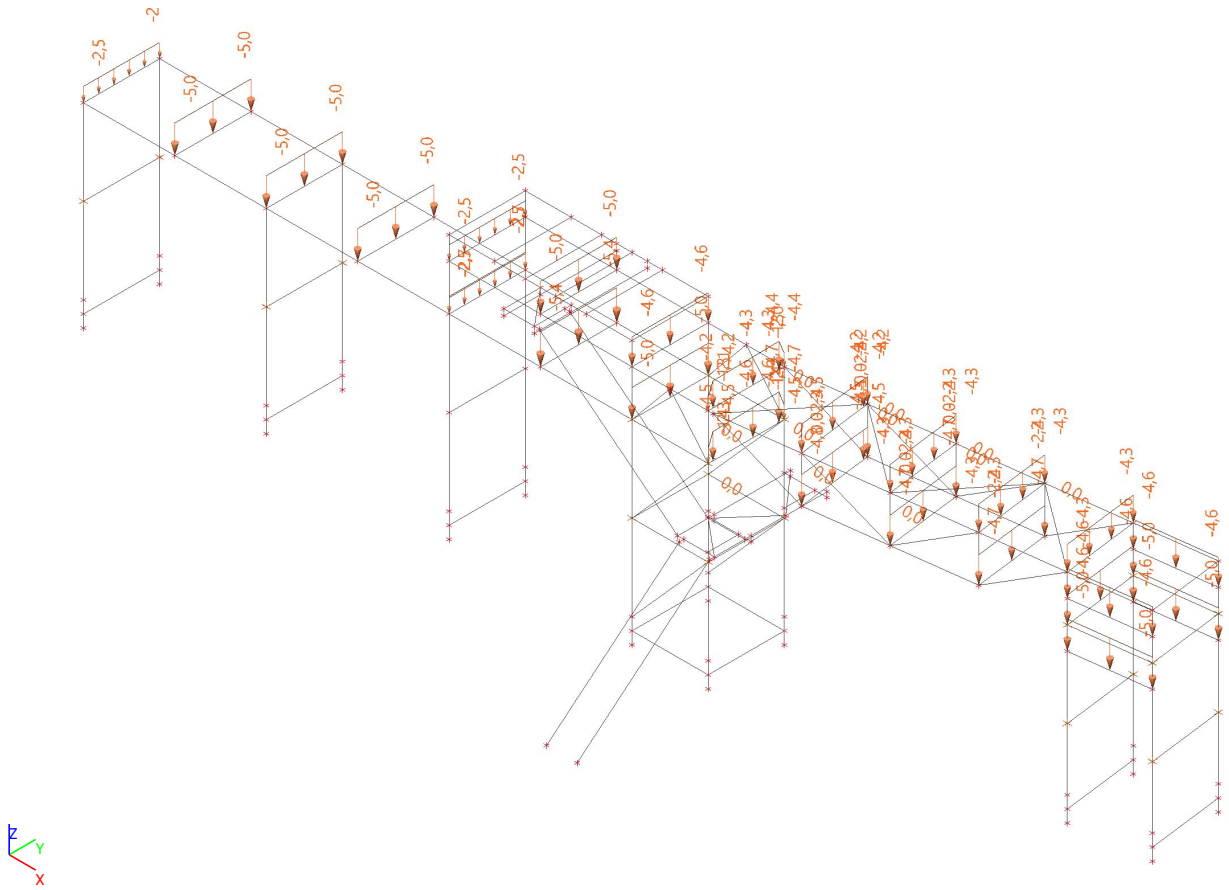
4.2.4.2. Resultant of reactions

Linear calculation
Load case: EE
Extreme: Global
Selection: All
System: Global

x [m]	y [m]	z [m]	Case	R_x [kN]	R_y [kN]	R_z [kN]	M_x [kNm]	M_y [kNm]	M_z [kNm]
17,752	0,746	-0,426	EE	**0,0**	**0,0**	**51,3**	**58,6**	**-328,9**	**0,0**

4.2.5. Load cases - EO

Name	Description	Action type	Load type	Load group
EO	Equipment load - operating	Permanent	Standard	LG1



4.2.5.1. Line force

Name	Member	Type	System	Dir	Distribution	Value - P_1 [kN/m] Value - P_2 [kN/m]	Pos x_1 Pos x_2	Coor	Loc	Orig	Ecc ey [m] Ecc ez [m]
LF640	B019	Force	GCS	Z	Trapez	-2,5 -2,5	0.000 1.000	Rela	Length	From start	0,000 0,000
LF641	B009	Force	GCS	Z	Trapez	-5,0 -5,0	0.000 1.000	Rela	Length	From start	0,000 0,000
LF642	B018	Force	GCS	Z	Trapez	-5,0 -5,0	0.000 1.000	Rela	Length	From start	0,000 0,000
LF643	B001	Force	GCS	Z	Trapez	-2,5 -2,5	0.000 1.000	Rela	Length	From start	0,000 0,000
LF644	B008	Force	GCS	Z	Trapez	-5,0 -5,0	0.000 1.000	Rela	Length	From start	0,000 0,000
LF650	B045	Force	GCS	Z	Trapez	-4,6 -4,6	0.000 1.000	Rela	Length	From start	0,000 0,000
LF651	B032	Force	GCS	Z	Trapez	-5,0 -5,0	0.000 1.000	Rela	Length	From start	0,000 0,000
LF652	B026	Force	GCS	Z	Trapez	-2,5 -2,5	0.000 1.000	Rela	Length	From start	0,000 0,000
LF659	B051	Force	GCS	Z	Trapez	-5,0 -5,0	0.000 1.000	Rela	Length	From start	0,000 0,000
LF660	B019	Force	GCS	Z	Trapez	-2,7 -2,7	0.000 1.000	Rela	Length	From start	0,000 0,000
LF661	B033	Force	GCS	Z	Trapez	-5,4 -5,4	0.000 1.000	Rela	Length	From start	0,000 0,000
LF668	B066	Force	GCS	Z	Trapez	-2,1 -4,2	0.000 0.062	Rela	Length	From start	0,000 0,000
LF669	B066	Force	GCS	Z	Trapez	-4,2 -4,2	0.062 0.062	Rela	Length	From start	0,000 0,000
LF670	B066	Force	GCS	Z	Trapez	-4,2	0.062	Rela	Length	From start	0,000

Name	Member	Type	System	Dir	Distribution	Value - P_1 [kN/m] Value - P_2 [kN/m]	Pos x_1 Pos x_2	Coor	Loc	Orig	Ecc ey [m] Ecc ez [m]
						-4,3	0.588				0,000
LF671	B066	Force	GCS	Z	Trapez	-4,3 -4,4	0.588 0.929	Rela	Length	From start	0,000 0,000
LF672	B066	Force	GCS	Z	Trapez	-4,4 -2,0	0.929 1.000	Rela	Length	From start	0,000 0,000
LF673	B066	Force	GCS	Z	Trapez	-1,3 0,0	0.000 0.100	Rela	Length	From start	0,000 0,000
LF674	B066	Force	GCS	Z	Trapez	0,0 -1,3	0.900 1.000	Rela	Length	From start	0,000 0,000
LF675	B137	Force	GCS	Z	Trapez	-4,3 -4,3	0.000 1.000	Rela	Length	From start	0,000 0,000
LF676	B104	Force	GCS	Z	Trapez	-2,3 -4,5	0.000 0.000	Rela	Length	From start	0,000 0,000
LF677	B104	Force	GCS	Z	Trapez	-4,5 -4,5	0.000 0.000	Rela	Length	From start	0,000 0,000
LF678	B104	Force	GCS	Z	Trapez	-4,5 -4,5	0.000 0.001	Rela	Length	From start	0,000 0,000
LF679	B104	Force	GCS	Z	Trapez	-4,5 -4,2	0.001 0.938	Rela	Length	From start	0,000 0,000
LF680	B104	Force	GCS	Z	Trapez	-4,2 -4,2	0.938 1.000	Rela	Length	From start	0,000 0,000
LF681	B104	Force	GCS	Z	Trapez	-4,2 -4,2	1.000 1.000	Rela	Length	From start	0,000 0,000
LF682	B104	Force	GCS	Z	Trapez	0,0 -2,2	1.000 1.000	Rela	Length	From start	0,000 0,000
LF683	B104	Force	GCS	Z	Trapez	0,0 0,0	0.000 0.100	Rela	Length	From start	0,000 0,000
LF684	B104	Force	GCS	Z	Trapez	0,0 0,0	0.900 1.000	Rela	Length	From start	0,000 0,000
LF685	B112	Force	GCS	Z	Trapez	-2,2 -4,3	0.000 0.000	Rela	Length	From start	0,000 0,000
LF686	B112	Force	GCS	Z	Trapez	-4,3 -4,3	0.000 0.000	Rela	Length	From start	0,000 0,000
LF687	B112	Force	GCS	Z	Trapez	-4,3 -4,3	0.000 1.000	Rela	Length	From start	0,000 0,000
LF688	B112	Force	GCS	Z	Trapez	-4,3 -4,3	1.000 1.000	Rela	Length	From start	0,000 0,000
LF689	B112	Force	GCS	Z	Trapez	-4,3 -4,3	1.000 1.000	Rela	Length	From start	0,000 0,000
LF690	B112	Force	GCS	Z	Trapez	0,0 -2,2	1.000 1.000	Rela	Length	From start	0,000 0,000
LF691	B112	Force	GCS	Z	Trapez	0,0 0,0	0.000 0.100	Rela	Length	From start	0,000 0,000
LF692	B112	Force	GCS	Z	Trapez	0,0 0,0	0.900 1.000	Rela	Length	From start	0,000 0,000
LF693	B123	Force	GCS	Z	Trapez	-2,2 -4,3	0.000 0.000	Rela	Length	From start	0,000 0,000
LF694	B123	Force	GCS	Z	Trapez	-4,3 -4,3	0.000 0.000	Rela	Length	From start	0,000 0,000
LF695	B123	Force	GCS	Z	Trapez	-4,3 -4,3	0.000 1.000	Rela	Length	From start	0,000 0,000
LF696	B123	Force	GCS	Z	Trapez	-4,3 -4,3	1.000 1.000	Rela	Length	From start	0,000 0,000
LF697	B123	Force	GCS	Z	Trapez	-4,3 -4,3	1.000 1.000	Rela	Length	From start	0,000 0,000
LF698	B123	Force	GCS	Z	Trapez	0,0 -2,2	1.000 1.000	Rela	Length	From start	0,000 0,000
LF741	B073	Force	GCS	Z	Trapez	-2,3 -4,5	0.000 0.062	Rela	Length	From start	0,000 0,000
LF742	B073	Force	GCS	Z	Trapez	-4,5 -4,6	0.062 0.588	Rela	Length	From start	0,000 0,000
LF743	B073	Force	GCS	Z	Trapez	-4,6 -4,7	0.588 0.929	Rela	Length	From start	0,000 0,000
LF744	B073	Force	GCS	Z	Trapez	-4,7 -2,2	0.929 1.000	Rela	Length	From start	0,000 0,000
LF745	B073	Force	GCS	Z	Trapez	-1,4 0,0	0.000 0.100	Rela	Length	From start	0,000 0,000
LF746	B073	Force	GCS	Z	Trapez	0,0 -1,4	0.900 1.000	Rela	Length	From start	0,000 0,000
LF747	B141	Force	GCS	Z	Trapez	-4,6 -4,6	0.000 1.000	Rela	Length	From start	0,000 0,000
LF748	B105	Force	GCS	Z	Trapez	-4,8 -4,5	0.000 0.938	Rela	Length	From start	0,000 0,000

Name	Member	Type	System	Dir	Distribution	Value - P_1 [kN/m] Value - P_2 [kN/m]	Pos x_1 Pos x_2	Coor	Loc	Orig	Ecc ey [m] Ecc ez [m]
LF749	B105	Force	GCS	Z	Trapez	-4,5 -4,5	0.938 1.000	Rela	Length	From start	0,000 0,000
LF750	B114	Force	GCS	Z	Trapez	-4,7 -4,7	0.000 1.000	Rela	Length	From start	0,000 0,000
LF751	B125	Force	GCS	Z	Trapez	-4,7 -4,7	0.000 1.000	Rela	Length	From start	0,000 0,000
LF776	B134	Force	GCS	Z	Trapez	-5,0 -5,0	0.000 1.000	Rela	Length	From start	0,000 0,000
LF777	B146	Force	GCS	Z	Trapez	-5,0 -5,0	0.000 1.000	Rela	Length	From start	0,000 0,000
LF782	B145	Force	GCS	Z	Trapez	-4,6 -4,6	0.000 1.000	Rela	Length	From start	0,000 0,000
LF783	B133	Force	GCS	Z	Trapez	-4,6 -4,6	0.000 1.000	Rela	Length	From start	0,000 0,000

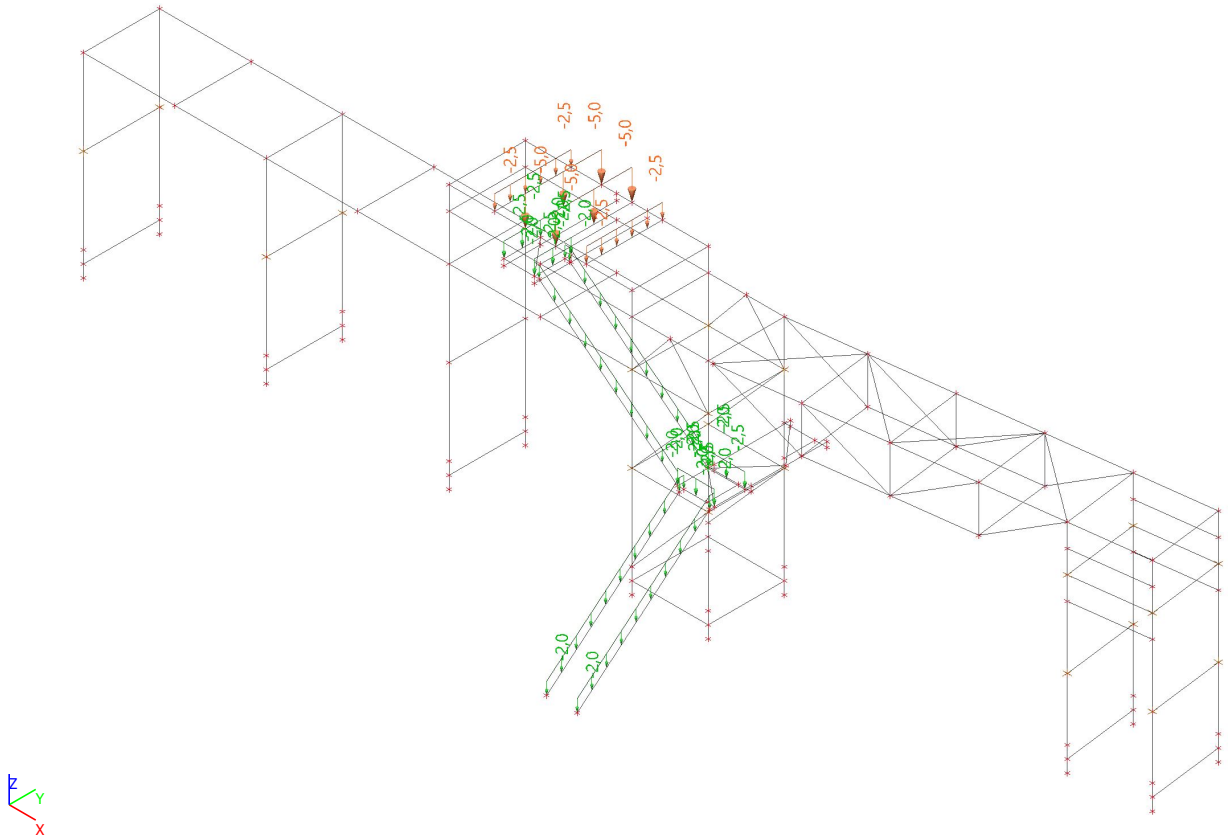
4.2.5.2. Resultant of reactions

Linear calculation
Load case: EO
Extreme: Global
Selection: All
System: Global

x [m]	y [m]	z [m]	Case	R_x [kN]	R_y [kN]	R_z [kN]	M_x [kNm]	M_y [kNm]	M_z [kNm]
17,752	0,746	-0,426	EO	**0,0**	**0,0**	**272,6**	**279,4**	**-838,0**	**0,0**

4.2.6. Load cases - LL

Name	Description	Spec	Action type	Load type	Load group	Duration	Master load case
LL	Imposed load	Standard	Variable	Static	LG4	Short	None



4.2.6.1. Line force

Name	Member	Type	System	Dir	Distribution	Value - P_1 [kN/m] Value - P_2 [kN/m]	Pos x_1 Pos x_2	Coor	Loc	Orig	Ecc ey [m] Ecc ez [m]
LF462	B100	Force	GCS	Z	Uniform	-2,0	0.000 1.000	Rela	Length	From start	0,000 0,000
LF463	B096	Force	GCS	Z	Uniform	-2,0	0.000 1.000	Rela	Length	From start	0,000 0,000
LF464	B091	Force	GCS	Z	Uniform	-2,0	0.000 1.000	Rela	Length	From start	0,000 0,000
LF465	B094	Force	GCS	Z	Uniform	-2,0	0.000 1.000	Rela	Length	From start	0,000 0,000
LF466	B095	Force	GCS	Z	Uniform	-2,5	0.000 1.000	Rela	Length	From start	0,000 0,000
LF467	B093	Force	GCS	Z	Uniform	-2,5	0.000 1.000	Rela	Length	From start	0,000 0,000
LF468	B037	Force	GCS	Z	Uniform	-2,5	0.000 1.000	Rela	Length	From start	0,000 0,000
LF469	B034	Force	GCS	Z	Uniform	-2,5	0.000 1.000	Rela	Length	From start	0,000 0,000
LF636	B031	Force	GCS	Z	Trapez	-5,0 -5,0	0.000 1.000	Rela	Length	From start	0,000 0,000
LF637	B030	Force	GCS	Z	Trapez	-2,5 -2,5	0.000 1.000	Rela	Length	From start	0,000 0,000
LF638	B036	Force	GCS	Z	Trapez	-5,0 -5,0	0.000 1.000	Rela	Length	From start	0,000 0,000
LF639	B041	Force	GCS	Z	Trapez	-2,5 -2,5	0.000 1.000	Rela	Length	From start	0,000 0,000

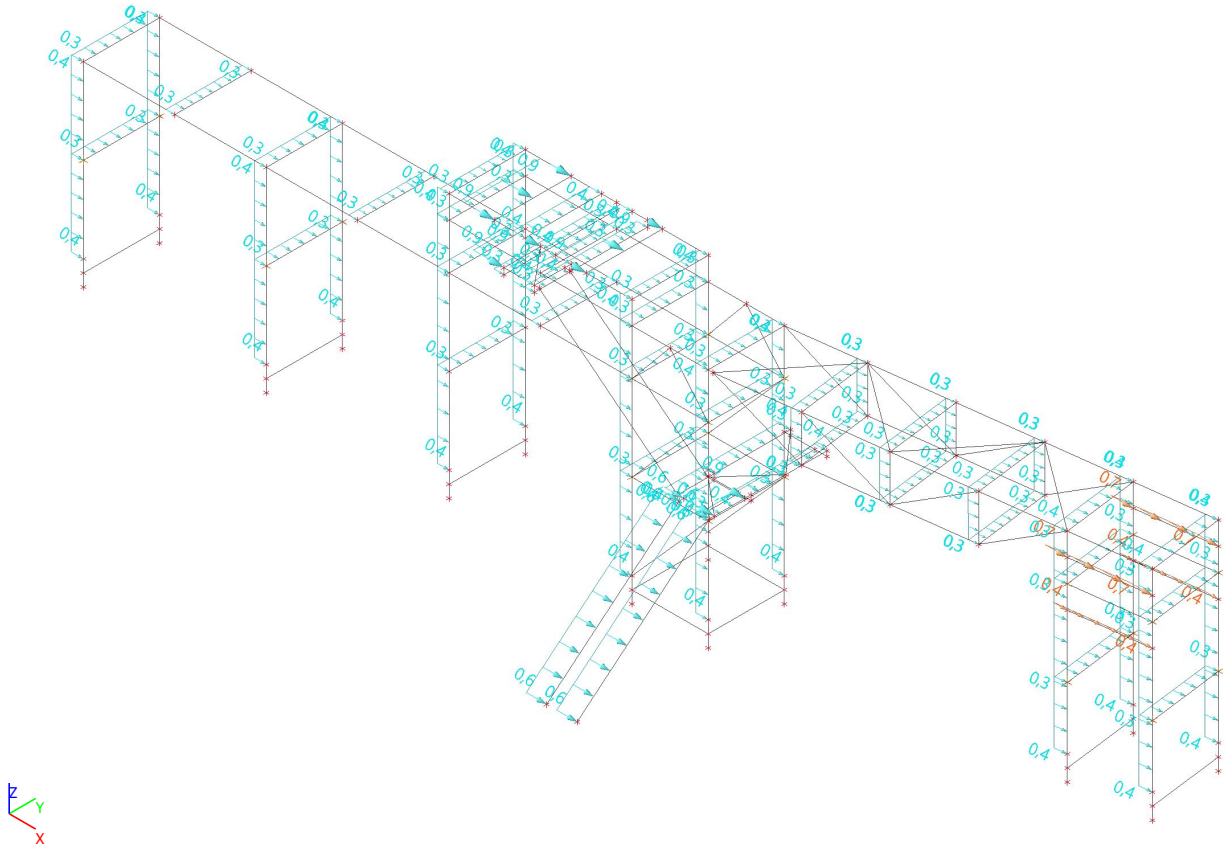
4.2.6.2. Resultant of reactions

Linear calculation
Load case: LL
Extreme: Global
Selection: All
System: Global

x [m]	y [m]	z [m]	Case	R_x [kN]	R_y [kN]	R_z [kN]	M_x [kNm]	M_y [kNm]	M_z [kNm]
17,752	0,746	-0,426	LL	**0,0**	**0,0**	**96,5**	**-130,0**	**-3,8**	**0,0**

4.2.7. Load cases - Wx

Name	Description	Spec	Action type	Load type	Load group	Duration	Master load case
Wx	Wind load	Standard	Variable	Static	LG2	Short	None



4.2.7.1. Line force

Name	Member	Type	System	Dir	Distribution	Value - P_1 [kN/m] Value - P_2 [kN/m]	Pos x_1 Pos x_2	Coor	Loc	Orig	Ecc ey [m] Ecc ez [m]	W_1 [m] W_2 [m]	Coeff1 Coeff2
LF54	B135	Wind	GCS	X	Uniform	0,4 0,4	0.000 1.000	Rela	Length	From start	0,000 0,000	0,180	2.000 2.000
LF55	B128	Wind	GCS	X	Uniform	0,4 0,4	0.000 1.000	Rela	Length	From start	0,000 0,000	0,180	2.000 2.000
LF56	B149	Wind	GCS	X	Uniform	0,4 0,4	0.000 1.000	Rela	Length	From start	0,000 0,000	0,180	2.000 2.000
LF57	B147	Wind	GCS	X	Uniform	0,4 0,4	0.000 1.000	Rela	Length	From start	0,000 0,000	0,180	2.000 2.000
LF58	B042	Wind	GCS	X	Uniform	0,4 0,4	0.000 1.000	Rela	Length	From start	0,000 0,000	0,180	2.000 2.000
LF59	B047	Wind	GCS	X	Uniform	0,4 0,4	0.000 1.000	Rela	Length	From start	0,000 0,000	0,180	2.000 2.000
LF60	B063	Wind	GCS	X	Uniform	0,4 0,4	0.000 1.000	Rela	Length	From start	0,000 0,000	0,180	2.000 2.000
LF61	B069	Wind	GCS	X	Uniform	0,4 0,4	0.000 1.000	Rela	Length	From start	0,000 0,000	0,180	2.000 2.000
LF62	B022	Wind	GCS	X	Uniform	0,4 0,4	0.000 1.000	Rela	Length	From start	0,000 0,000	0,180	2.000 2.000
LF63	B024	Wind	GCS	X	Uniform	0,4 0,4	0.000 1.000	Rela	Length	From start	0,000 0,000	0,180	2.000 2.000
LF64	B012	Wind	GCS	X	Uniform	0,4 0,4	0.000 1.000	Rela	Length	From start	0,000 0,000	0,180	2.000 2.000
LF65	B014	Wind	GCS	X	Uniform	0,4 0,4	0.000 1.000	Rela	Length	From start	0,000 0,000	0,180	2.000 2.000
LF66	B066	Wind	GCS	X	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,171	2.000 2.000
LF67	B073	Wind	GCS	X	Uniform	0,3	0.000	Rela	Length	From start	0,000	0,171	2.000

Name	Member	Type	System	Dir	Distribution	Value - P_1 [kN/m] Value - P_2 [kN/m]	Pos x_1 Pos x_2	Coor	Loc	Orig	Ecc ey [m] Ecc ez [m]	W_1 [m] W_2 [m]	Coeff1 Coeff2
						0,3	1.000				0,000		2.000
LF68	B137	Wind	GCS	X	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,171	2.000 2.000
LF69	B141	Wind	GCS	X	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,171	2.000 2.000
LF70	B045	Wind	GCS	X	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,171	2.000 2.000
LF71	B051	Wind	GCS	X	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,171	2.000 2.000
LF72	B151	Wind	GCS	X	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,171	2.000 2.000
LF73	B152	Wind	GCS	X	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,171	2.000 2.000
LF74	B019	Wind	GCS	X	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,171	2.000 2.000
LF75	B009	Wind	GCS	X	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,171	2.000 2.000
LF79	B105	Wind	GCS	X	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,133	2.000 2.000
LF80	B104	Wind	GCS	X	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,133	2.000 2.000
LF81	B114	Wind	GCS	X	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,133	2.000 2.000
LF82	B112	Wind	GCS	X	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,133	2.000 2.000
LF83	B125	Wind	GCS	X	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,133	2.000 2.000
LF84	B123	Wind	GCS	X	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,133	2.000 2.000
LF85	B032	Wind	GCS	X	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,133	2.000 2.000
LF86	B018	Wind	GCS	X	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,133	2.000 2.000
LF121	B058	Wind	GCS	X	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,171	2.000 2.000
LF122	B081	Wind	GCS	X	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,171	2.000 2.000
LF123	B144	Wind	GCS	X	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,171	2.000 2.000
LF124	B154	Wind	GCS	X	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,171	2.000 2.000
LF149	B026	Wind	GCS	X	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,171	2.000 2.000
LF152	B033	Wind	GCS	X	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,133	2.000 2.000
LF169	B002	Wind	GCS	X	Uniform	0,4 0,4	0.000 1.000	Rela	Length	From start	0,000 0,000	0,180	2.000 2.000
LF171	B004	Wind	GCS	X	Uniform	0,4 0,4	0.000 1.000	Rela	Length	From start	0,000 0,000	0,180	2.000 2.000
LF172	B001	Wind	GCS	X	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,171	2.000 2.000
LF175	B008	Wind	GCS	X	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,133	2.000 2.000
LF186	B029	Wind	GCS	X	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,171	2.000 2.000
LF243	B121	Wind	GCS	X	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,140	2.000 2.000
LF244	B108	Wind	GCS	X	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,140	2.000 2.000
LF245	B102	Wind	GCS	X	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,140	2.000 2.000
LF246	B127	Wind	GCS	X	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,140	2.000 2.000
LF247	B115	Wind	GCS	X	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,140	2.000 2.000
LF248	B107	Wind	GCS	X	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,140	2.000 2.000
LF263	B028	Wind	GCS	X	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,133	2.000 2.000
LF264	B062	Wind	GCS	X	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,133	2.000 2.000
LF265	B031	Wind	GCS	X	Uniform	0,4 0,4	0.000 1.000	Rela	Length	From start	0,000 0,000	0,180	2.000 2.000

Name	Member	Type	System	Dir	Distribution	Value - P_1 [kN/m] Value - P_2 [kN/m]	Pos x_1 Pos x_2	Coor	Loc	Orig	Ecc ey [m] Ecc ez [m]	W_1 [m] W_2 [m]	Coeff1 Coeff2
LF266	B030	Wind	GCS	X	Uniform	0,9 0,9	0.000 1.000	Rela	Length	From start	0,000 0,000	0,455	2.000 2.000
LF267	B036	Wind	GCS	X	Uniform	0,4 0,4	0.000 1.000	Rela	Length	From start	0,000 0,000	0,180	2.000 2.000
LF268	B041	Wind	GCS	X	Uniform	0,9 0,9	0.000 1.000	Rela	Length	From start	0,000 0,000	0,455	2.000 2.000
LF269	B098	Wind	GCS	X	Uniform	0,4 0,4	0.000 2.700	Abso	Length	From start	0,000 0,000	0,180	2.000 2.000
LF270	B090	Wind	GCS	X	Uniform	0,4 0,4	0.000 1.000	Rela	Length	From start	0,000 0,000	0,180	2.000 2.000
LF271	B037	Wind	GCS	X	Uniform	0,4 0,4	0.000 1.000	Rela	Length	From start	0,000 0,000	0,180	2.000 2.000
LF272	B034	Wind	GCS	X	Uniform	0,9 0,9	0.000 1.000	Rela	Length	From start	0,000 0,000	0,455	2.000 2.000
LF316	B035	Wind	GCS	X	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,152	2.000 2.000
LF318	B040	Wind	GCS	X	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,152	2.000 2.000
LF459	B098	Wind	GCS	X	Uniform	0,9 0,9	2.700 3.700	Abso	Length	From start	0,000 0,000	0,455	2.000 2.000
LF460	B100	Wind	GCS	X	Uniform	0,6 0,6	0.000 1.000	Rela	Length	From start	0,000 0,000	0,305	2.000 2.000
LF461	B096	Wind	GCS	X	Uniform	0,6 0,6	0.000 1.000	Rela	Length	From start	0,000 0,000	0,305	2.000 2.000
LF630	B017	Wind	GCS	X	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,171	2.000 2.000
LF631	B007	Wind	GCS	X	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,171	2.000 2.000
LF780	B134	Force	GCS	X	Trapez	0,4 0,4	0.000 1.000	Rela	Length	From start	0,000 0,000		
LF781	B146	Force	GCS	X	Trapez	0,4 0,4	0.000 1.000	Rela	Length	From start	0,000 0,000		
LF784	B145	Force	GCS	X	Trapez	0,7 0,7	0.000 1.000	Rela	Length	From start	0,000 0,000		
LF785	B133	Force	GCS	X	Trapez	0,7 0,7	0.000 1.000	Rela	Length	From start	0,000 0,000		

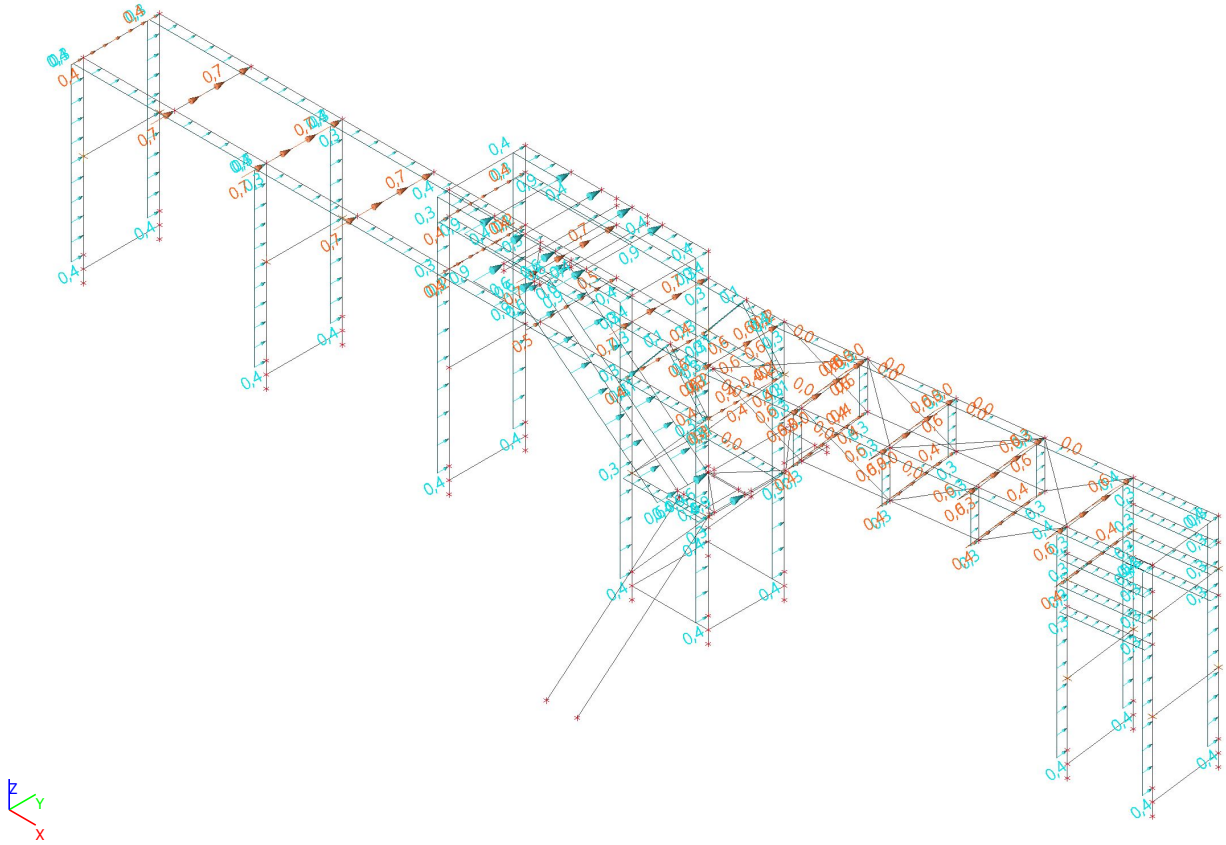
4.2.7.2. Resultant of reactions

Linear calculation
Load case: Wx
Extreme: Global
Selection: All
System: Global

x [m]	y [m]	z [m]	Case	R_x [kN]	R_y [kN]	R_z [kN]	M_x [kNm]	M_y [kNm]	M_z [kNm]
17,752	0,746	-0,426	Wx	**-85,2**	**-2,5**	**0,0**	**13,6**	**-442,3**	**4,7**

4.2.8. Load cases - Wy

Name	Description	Spec	Action type	Load type	Load group	Duration	Master load case
Wy	Wind load	Standard	Variable	Static	LG2	Short	None



4.2.8.1. Line force

Name	Member	Type	System	Dir	Distribution	Value - P_1 [kN/m] Value - P_2 [kN/m]	Pos x_1 Pos x_2	Coor	Loc	Orig	Ecc ey [m] Ecc ez [m]	W_1 [m] W_2 [m]	Coeff1 Coeff2
LF1	B012	Wind	GCS	Y	Uniform	0,4 0,4	0.000 1.000	Rela	Length	From start	0,000 0,000	0,180	2.000 2.000
LF2	B014	Wind	GCS	Y	Uniform	0,4 0,4	0.000 1.000	Rela	Length	From start	0,000 0,000	0,180	2.000 2.000
LF3	B022	Wind	GCS	Y	Uniform	0,4 0,4	0.000 1.000	Rela	Length	From start	0,000 0,000	0,180	2.000 2.000
LF4	B024	Wind	GCS	Y	Uniform	0,4 0,4	0.000 1.000	Rela	Length	From start	0,000 0,000	0,180	2.000 2.000
LF5	B042	Wind	GCS	Y	Uniform	0,4 0,4	0.000 1.000	Rela	Length	From start	0,000 0,000	0,180	2.000 2.000
LF6	B047	Wind	GCS	Y	Uniform	0,4 0,4	0.000 1.000	Rela	Length	From start	0,000 0,000	0,180	2.000 2.000
LF7	B063	Wind	GCS	Y	Uniform	0,4 0,4	0.000 1.000	Rela	Length	From start	0,000 0,000	0,180	2.000 2.000
LF8	B069	Wind	GCS	Y	Uniform	0,4 0,4	0.000 1.000	Rela	Length	From start	0,000 0,000	0,180	2.000 2.000
LF9	B135	Wind	GCS	Y	Uniform	0,4 0,4	0.000 1.000	Rela	Length	From start	0,000 0,000	0,180	2.000 2.000
LF10	B128	Wind	GCS	Y	Uniform	0,4 0,4	0.000 1.000	Rela	Length	From start	0,000 0,000	0,180	2.000 2.000
LF11	B149	Wind	GCS	Y	Uniform	0,4 0,4	0.000 1.000	Rela	Length	From start	0,000 0,000	0,180	2.000 2.000
LF12	B147	Wind	GCS	Y	Uniform	0,4 0,4	0.000 1.000	Rela	Length	From start	0,000 0,000	0,180	2.000 2.000
LF13	B139	Wind	GCS	Y	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,133	2.000 2.000
LF14	B142	Wind	GCS	Y	Uniform	0,3	0.000	Rela	Length	From start	0,000	0,133	2.000

Name	Member	Type	System	Dir	Distribution	Value - P_1 [kN/m] Value - P_2 [kN/m]	Pos x_1 Pos x_2	Coor	Loc	Orig	Ecc ey [m] Ecc ez [m]	W_1 [m] W_2 [m]	Coeff1 Coeff2
						0,3	1.000				0,000		2.000
LF15	B131	Wind	GCS	Y	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,133	2.000 2.000
LF16	B132	Wind	GCS	Y	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,133	2.000 2.000
LF19	B121	Wind	GCS	Y	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,140	2.000 2.000
LF23	B108	Wind	GCS	Y	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,140	2.000 2.000
LF25	B102	Wind	GCS	Y	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,140	2.000 2.000
LF37	B077	Wind	GCS	Y	Uniform	0,1 0,1	0.000 1.000	Rela	Length	From start	0,000 0,000	0,065	2.000 2.000
LF38	B054	Wind	GCS	Y	Uniform	0,1 0,1	0.000 1.000	Rela	Length	From start	0,000 0,000	0,065	2.000 2.000
LF39	B075	Wind	GCS	Y	Uniform	0,1 0,1	0.000 1.000	Rela	Length	From start	0,000 0,000	0,065	2.000 2.000
LF40	B052	Wind	GCS	Y	Uniform	0,1 0,1	0.000 1.000	Rela	Length	From start	0,000 0,000	0,065	2.000 2.000
LF41	B072	Wind	GCS	Y	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,133	2.000 2.000
LF42	B067	Wind	GCS	Y	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,133	2.000 2.000
LF43	B076	Wind	GCS	Y	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,133	2.000 2.000
LF44	B074	Wind	GCS	Y	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,133	2.000 2.000
LF48	B078	Wind	GCS	Y	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,133	2.000 2.000
LF49	B080	Wind	GCS	Y	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,133	2.000 2.000
LF50	B046	Wind	GCS	Y	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,152	2.000 2.000
LF51	B050	Wind	GCS	Y	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,152	2.000 2.000
LF52	B020	Wind	GCS	Y	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,152	2.000 2.000
LF53	B021	Wind	GCS	Y	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,152	2.000 2.000
LF150	B053	Wind	GCS	Y	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,152	2.000 2.000
LF151	B055	Wind	GCS	Y	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,152	2.000 2.000
LF156	B145	Wind	GCS	Y	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,133	2.000 2.000
LF157	B133	Wind	GCS	Y	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,133	2.000 2.000
LF158	B134	Wind	GCS	Y	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,133	2.000 2.000
LF159	B146	Wind	GCS	Y	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,133	2.000 2.000
LF160	B061	Wind	GCS	Y	Uniform	0,4 0,4	0.000 0.250	Rela	Length	From start	0,000 0,000	0,180	2.000 2.000
LF162	B060	Wind	GCS	Y	Uniform	0,4 0,4	0.000 0.250	Rela	Length	From start	0,000 0,000	0,180	2.000 2.000
LF168	B002	Wind	GCS	Y	Uniform	0,4 0,4	0.000 1.000	Rela	Length	From start	0,000 0,000	0,180	2.000 2.000
LF170	B004	Wind	GCS	Y	Uniform	0,4 0,4	0.000 1.000	Rela	Length	From start	0,000 0,000	0,180	2.000 2.000
LF173	B010	Wind	GCS	Y	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,152	2.000 2.000
LF174	B011	Wind	GCS	Y	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,152	2.000 2.000
LF253	B127	Wind	GCS	Y	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,140	2.000 2.000
LF254	B115	Wind	GCS	Y	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,140	2.000 2.000
LF255	B107	Wind	GCS	Y	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,140	2.000 2.000
LF256	B138	Wind	GCS	Y	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,133	2.000 2.000
LF257	B130	Wind	GCS	Y	Uniform	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000	0,133	2.000 2.000

Name	Member	Type	System	Dir	Distribution	Value - P_1 [kN/m] Value - P_2 [kN/m]	Pos x_1 Pos x_2	Coor	Loc	Orig	Ecc ey [m] Ecc ez [m]	W_1 [m] W_2 [m]	Coeff1 Coeff2
LF258	B094	Wind	GCS	Y	Uniform	0,6 0,6	0.000 1.000	Rela	Length	From start	0,000 0,000	0,305	2.000 2.000
LF259	B091	Wind	GCS	Y	Uniform	0,6 0,6	0.000 1.000	Rela	Length	From start	0,000 0,000	0,305	2.000 2.000
LF260	B038	Wind	GCS	Y	Uniform	0,9 0,9	0.000 1.000	Rela	Length	From start	0,000 0,000	0,455	2.000 2.000
LF262	B093	Wind	GCS	Y	Uniform	0,9 0,9	0.000 1.000	Rela	Length	From start	0,000 0,000	0,455	2.000 2.000
LF411	B095	Wind	GCS	Y	Uniform	0,4 0,4	0.000 1.000	Rela	Length	From start	0,000 0,000	0,180	2.000 2.000
LF455	B061	Wind	GCS	Y	Uniform	0,4 0,4	0.750 1.000	Rela	Length	From start	0,000 0,000	0,180	2.000 2.000
LF456	B060	Wind	GCS	Y	Uniform	0,4 0,4	0.750 1.000	Rela	Length	From start	0,000 0,000	0,180	2.000 2.000
LF457	B061	Wind	GCS	Y	Uniform	0,9 0,9	0.250 0.750	Rela	Length	From start	0,000 0,000	0,455	2.000 2.000
LF458	B060	Wind	GCS	Y	Uniform	0,9 0,9	0.250 0.750	Rela	Length	From start	0,000 0,000	0,455	2.000 2.000
LF645	B019	Force	GCS	Y	Trapez	0,4 0,4	0.000 1.000	Rela	Length	From start	0,000 0,000		
LF646	B009	Force	GCS	Y	Trapez	0,7 0,7	0.000 1.000	Rela	Length	From start	0,000 0,000		
LF647	B018	Force	GCS	Y	Trapez	0,7 0,7	0.000 1.000	Rela	Length	From start	0,000 0,000		
LF648	B001	Force	GCS	Y	Trapez	0,4 0,4	0.000 1.000	Rela	Length	From start	0,000 0,000		
LF649	B008	Force	GCS	Y	Trapez	0,7 0,7	0.000 1.000	Rela	Length	From start	0,000 0,000		
LF653	B045	Force	GCS	Y	Trapez	0,7 0,7	0.000 1.000	Rela	Length	From start	0,000 0,000		
LF654	B032	Force	GCS	Y	Trapez	0,7 0,7	0.000 1.000	Rela	Length	From start	0,000 0,000		
LF655	B026	Force	GCS	Y	Trapez	0,4 0,4	0.000 1.000	Rela	Length	From start	0,000 0,000		
LF665	B051	Force	GCS	Y	Trapez	0,4 0,4	0.000 1.000	Rela	Length	From start	0,000 0,000		
LF666	B019	Force	GCS	Y	Trapez	0,2 0,2	0.000 1.000	Rela	Length	From start	0,000 0,000		
LF667	B033	Force	GCS	Y	Trapez	0,5 0,5	0.000 1.000	Rela	Length	From start	0,000 0,000		
LF699	B066	Force	GCS	Y	Trapez	0,3 0,6	0.000 0.062	Rela	Length	From start	0,000 0,000		
LF700	B066	Force	GCS	Y	Trapez	0,6 0,6	0.062 0.062	Rela	Length	From start	0,000 0,000		
LF701	B066	Force	GCS	Y	Trapez	0,6 0,6	0.062 0.588	Rela	Length	From start	0,000 0,000		
LF702	B066	Force	GCS	Y	Trapez	0,6 0,6	0.588 0.929	Rela	Length	From start	0,000 0,000		
LF703	B066	Force	GCS	Y	Trapez	0,6 0,3	0.929 1.000	Rela	Length	From start	0,000 0,000		
LF704	B066	Force	GCS	Y	Trapez	0,2 0,0	0.000 0.100	Rela	Length	From start	0,000 0,000		
LF705	B066	Force	GCS	Y	Trapez	0,0 0,2	0.900 1.000	Rela	Length	From start	0,000 0,000		
LF706	B137	Force	GCS	Y	Trapez	0,6 0,6	0.000 1.000	Rela	Length	From start	0,000 0,000		
LF707	B104	Force	GCS	Y	Trapez	0,3 0,6	0.000 0.000	Rela	Length	From start	0,000 0,000		
LF708	B104	Force	GCS	Y	Trapez	0,6 0,6	0.000 0.000	Rela	Length	From start	0,000 0,000		
LF709	B104	Force	GCS	Y	Trapez	0,6 0,6	0.000 0.001	Rela	Length	From start	0,000 0,000		
LF710	B104	Force	GCS	Y	Trapez	0,6 0,6	0.001 0.938	Rela	Length	From start	0,000 0,000		
LF711	B104	Force	GCS	Y	Trapez	0,6 0,6	0.938 1.000	Rela	Length	From start	0,000 0,000		
LF712	B104	Force	GCS	Y	Trapez	0,6 0,6	1.000 1.000	Rela	Length	From start	0,000 0,000		
LF713	B104	Force	GCS	Y	Trapez	0,0 0,3	1.000 1.000	Rela	Length	From start	0,000 0,000		
LF714	B104	Force	GCS	Y	Trapez	0,0 0,0	0.000 0.100	Rela	Length	From start	0,000 0,000		
LF715	B104	Force	GCS	Y	Trapez	0,0	0.900	Rela	Length	From start	0,000		

Name	Member	Type	System	Dir	Distribution	Value - P_1 [kN/m] Value - P_2 [kN/m]	Pos x_1 Pos x_2	Coor	Loc	Orig	Ecc ey [m] Ecc ez [m]	W_1 [m] W_2 [m]	Coeff1 Coeff2
						0,0	1.000				0,000		
LF716	B112	Force	GCS	Y	Trapez	0,3 0,6	0.000 0.000	Rela	Length	From start	0,000 0,000		
LF717	B112	Force	GCS	Y	Trapez	0,6 0,6	0.000 0.000	Rela	Length	From start	0,000 0,000		
LF718	B112	Force	GCS	Y	Trapez	0,6 0,6	0.000 1.000	Rela	Length	From start	0,000 0,000		
LF719	B112	Force	GCS	Y	Trapez	0,6 0,6	1.000 1.000	Rela	Length	From start	0,000 0,000		
LF720	B112	Force	GCS	Y	Trapez	0,6 0,6	1.000 1.000	Rela	Length	From start	0,000 0,000		
LF721	B112	Force	GCS	Y	Trapez	0,0 0,3	1.000 1.000	Rela	Length	From start	0,000 0,000		
LF722	B112	Force	GCS	Y	Trapez	0,0 0,0	0.000 0.100	Rela	Length	From start	0,000 0,000		
LF723	B112	Force	GCS	Y	Trapez	0,0 0,0	0.900 1.000	Rela	Length	From start	0,000 0,000		
LF724	B123	Force	GCS	Y	Trapez	0,3 0,6	0.000 0.000	Rela	Length	From start	0,000 0,000		
LF725	B123	Force	GCS	Y	Trapez	0,6 0,6	0.000 0.000	Rela	Length	From start	0,000 0,000		
LF726	B123	Force	GCS	Y	Trapez	0,6 0,6	0.000 1.000	Rela	Length	From start	0,000 0,000		
LF727	B123	Force	GCS	Y	Trapez	0,6 0,6	1.000 1.000	Rela	Length	From start	0,000 0,000		
LF728	B123	Force	GCS	Y	Trapez	0,6 0,6	1.000 1.000	Rela	Length	From start	0,000 0,000		
LF729	B123	Force	GCS	Y	Trapez	0,0 0,3	1.000 1.000	Rela	Length	From start	0,000 0,000		
LF763	B073	Force	GCS	Y	Trapez	0,2 0,4	0.000 0.062	Rela	Length	From start	0,000 0,000		
LF764	B073	Force	GCS	Y	Trapez	0,4 0,4	0.062 0.588	Rela	Length	From start	0,000 0,000		
LF765	B073	Force	GCS	Y	Trapez	0,4 0,4	0.588 0.929	Rela	Length	From start	0,000 0,000		
LF766	B073	Force	GCS	Y	Trapez	0,4 0,2	0.929 1.000	Rela	Length	From start	0,000 0,000		
LF767	B073	Force	GCS	Y	Trapez	0,1 0,0	0.000 0.100	Rela	Length	From start	0,000 0,000		
LF768	B073	Force	GCS	Y	Trapez	0,0 0,1	0.900 1.000	Rela	Length	From start	0,000 0,000		
LF769	B141	Force	GCS	Y	Trapez	0,4 0,4	0.000 1.000	Rela	Length	From start	0,000 0,000		
LF770	B105	Force	GCS	Y	Trapez	0,4 0,4	0.000 0.938	Rela	Length	From start	0,000 0,000		
LF771	B105	Force	GCS	Y	Trapez	0,4 0,4	0.938 1.000	Rela	Length	From start	0,000 0,000		
LF772	B114	Force	GCS	Y	Trapez	0,4 0,4	0.000 1.000	Rela	Length	From start	0,000 0,000		
LF773	B125	Force	GCS	Y	Trapez	0,4 0,4	0.000 1.000	Rela	Length	From start	0,000 0,000		

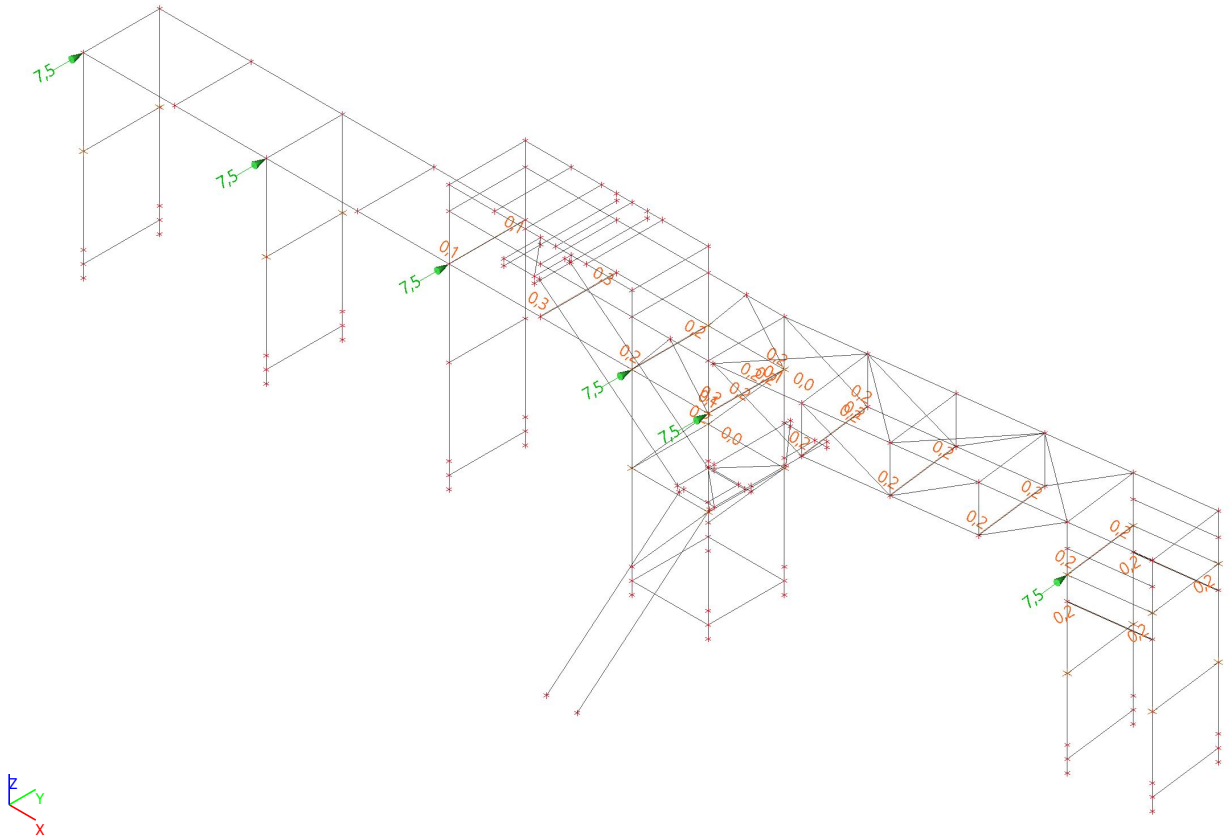
4.2.8.2. Resultant of reactions

Linear calculation
Load case: Wy
Extreme: Global
Selection: All
System: Global

x [m]	y [m]	z [m]	Case	R_x [kN]	R_y [kN]	R_z [kN]	M_x [kNm]	M_y [kNm]	M_z [kNm]
17,752	0,746	-0,426	Wy	**2,7**	**-109,7**	**0,0**	**649,6**	**16,0**	**-23,9**

4.2.9. Load cases - TLs

Name	Description	Spec	Action type	Load type	Load group	Duration	Master load case
TLs	Temperature load	Standard	Variable	Static	LG3	Short	None



4.2.9.1. Point force in node

Name	Node	System	Dir	Type	Angle [deg]	Value - F [kN]
F1	N070	GCS	Y	Force		7,5
F2	N086	GCS	Y	Force		7,5
F3	N144	GCS	Y	Force	Rz7,00	7,5
F4	N025	GCS	Y	Force		7,5
F5	N013	GCS	Y	Force		7,5
F6	N001	GCS	Y	Force		7,5

4.2.9.2. Line force

Name	Member	Type	System	Dir	Distribution	Value - P_1 [kN/m] Value - P_2 [kN/m]	Pos x_1 Pos x_2	Coor	Loc	Orig	Ecc ey [m] Ecc ez [m]
LF662	B051	Force	GCS	X	Trapez	0,2 0,2	0.000 1.000	Rela	Length	From start	0,000 0,000
LF663	B019	Force	GCS	X	Trapez	0,1 0,1	0.000 1.000	Rela	Length	From start	0,000 0,000
LF664	B033	Force	GCS	X	Trapez	0,3 0,3	0.000 1.000	Rela	Length	From start	0,000 0,000
LF752	B073	Force	GCS	X	Trapez	0,1 0,2	0.000 0.062	Rela	Length	From start	0,000 0,000
LF753	B073	Force	GCS	X	Trapez	0,2 0,2	0.062 0.588	Rela	Length	From start	0,000 0,000
LF754	B073	Force	GCS	X	Trapez	0,2 0,2	0.588 0.929	Rela	Length	From start	0,000 0,000
LF755	B073	Force	GCS	X	Trapez	0,2 0,1	0.929 1.000	Rela	Length	From start	0,000 0,000
LF756	B073	Force	GCS	X	Trapez	0,1 0,0	0.000 0.100	Rela	Length	From start	0,000 0,000

Name	Member	Type	System	Dir	Distribution	Value - P_1 [kN/m] Value - P_2 [kN/m]	Pos x_1 Pos x_2	Coor	Loc	Orig	Ecc ey [m] Ecc ez [m]
LF757	B073	Force	GCS	X	Trapez	0,0 0,1	0.900 1.000	Rela	Length	From start	0,000 0,000
LF758	B141	Force	GCS	X	Trapez	0,2 0,2	0.000 1.000	Rela	Length	From start	0,000 0,000
LF759	B105	Force	GCS	X	Trapez	0,2 0,2	0.000 0.938	Rela	Length	From start	0,000 0,000
LF760	B105	Force	GCS	X	Trapez	0,2 0,2	0.938 1.000	Rela	Length	From start	0,000 0,000
LF761	B114	Force	GCS	X	Trapez	0,2 0,2	0.000 1.000	Rela	Length	From start	0,000 0,000
LF762	B125	Force	GCS	X	Trapez	0,2 0,2	0.000 1.000	Rela	Length	From start	0,000 0,000
LF778	B134	Force	GCS	Y	Trapez	0,2 0,2	0.000 1.000	Rela	Length	From start	0,000 0,000
LF779	B146	Force	GCS	Y	Trapez	0,2 0,2	0.000 1.000	Rela	Length	From start	0,000 0,000

4.2.9.3. Resultant of reactions

Linear calculation
Load case: TLs
Extreme: Global
Selection: All
System: Global

x [m]	y [m]	z [m]	Case	R_x [kN]	R_y [kN]	R_z [kN]	M_x [kNm]	M_y [kNm]	M_z [kNm]
17,752	0,746	-0,426	TLs	**-3,6**	**-46,2**	**0,0**	**277,4**	**-21,8**	**129,4**

4.3. Load groups

Name	Load	Relation	Type
LG1	Permanent		
LG2	Variable	Exclusive	Wind
LG3	Variable	Exclusive	Temperature
LG4	Variable	Standard	Cat B : Offices

4.4. Combinations

Name	Description	Type	Load cases	Coeff. [-]
ULS_1		EN-ULS (STR/GEO) Set B	DL - Dead load - self-weight	1,00
			DL1 - Dead load - grating	1,00
			DL2 - Dead load - railing	1,00
			EE - Equipment load - Empty	1,00
			Wx - Wind load	1,00
			Wy - Wind load	1,00
ULS_2		EN-ULS (STR/GEO) Set B	DL - Dead load - self-weight	1,00
			DL1 - Dead load - grating	1,00
			DL2 - Dead load - railing	1,00
			EO - Equipment load - operating	1,00
			LL - Imposed load	1,00
			Wx - Wind load	1,00
			Wy - Wind load	1,00
			TLs - Temperature load	1,00
SLS-Char_1		EN-SLS Characteristic	DL - Dead load - self-weight	1,00
			DL1 - Dead load - grating	1,00
			DL2 - Dead load - railing	1,00
			EE - Equipment load - Empty	1,00
			Wx - Wind load	1,00
			Wy - Wind load	1,00
SLS-Char_2		EN-SLS Characteristic	DL - Dead load - self-weight	1,00
			DL1 - Dead load - grating	1,00
			DL2 - Dead load - railing	1,00
			EO - Equipment load - operating	1,00
			LL - Imposed load	1,00
			Wx - Wind load	1,00
			Wy - Wind load	1,00
			TLs - Temperature load	1,00
SLS-Quasi_1		EN-SLS Quasi-permanent	DL - Dead load - self-weight	1,00
			DL1 - Dead load - grating	1,00
			DL2 - Dead load - railing	1,00
			EE - Equipment load - Empty	1,00
			Wx - Wind load	1,00
			Wy - Wind load	1,00
SLS-Quasi_2		EN-SLS Quasi-permanent	DL - Dead load - self-weight	1,00
			DL1 - Dead load - grating	1,00
			DL2 - Dead load - railing	1,00
			EO - Equipment load - operating	1,00
			LL - Imposed load	1,00
			Wx - Wind load	1,00
			Wy - Wind load	1,00
			TLs - Temperature load	1,00
SLS-Freq_1		EN-SLS Frequent	DL - Dead load - self-weight	1,00
			DL1 - Dead load - grating	1,00
			DL2 - Dead load - railing	1,00
			EE - Equipment load - Empty	1,00
			Wx - Wind load	1,00
			Wy - Wind load	1,00
SLS-Freq_2		EN-SLS Frequent	DL - Dead load - self-weight	1,00
			DL1 - Dead load - grating	1,00
			DL2 - Dead load - railing	1,00
			EO - Equipment load - operating	1,00
			LL - Imposed load	1,00
			Wx - Wind load	1,00
			Wy - Wind load	1,00
			TLs - Temperature load	1,00
CO1		Linear - ultimate	DL - Dead load - self-weight	1,20
			DL1 - Dead load - grating	1,20
			DL2 - Dead load - railing	1,20
			EO - Equipment load - operating	1,20
			LL - Imposed load	0,75
			Wy - Wind load	1,50
			TLs - Temperature load	0,90

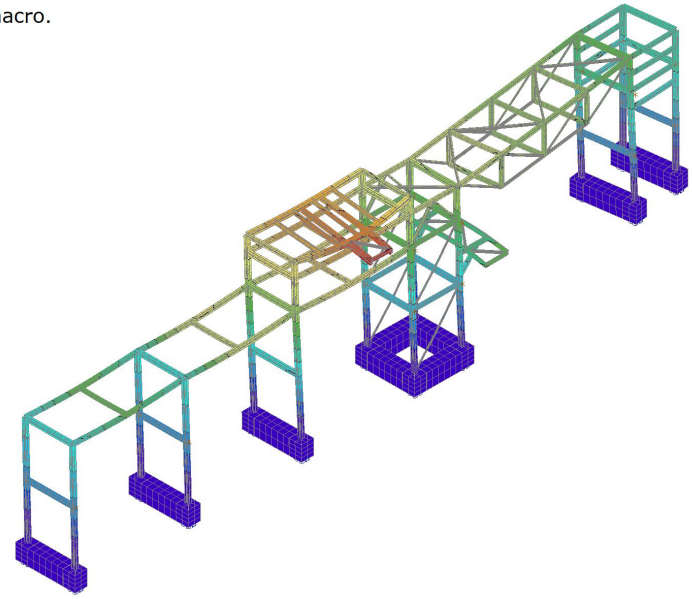
4.5. Result classes

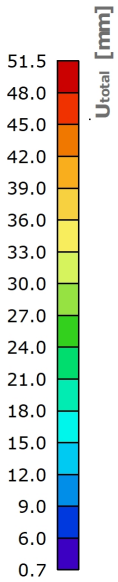
Name	List
All ULS	ULS_1 - EN-ULS (STR/GEO) Set B ULS_2 - EN-ULS (STR/GEO) Set B CO1 - Linear - ultimate
SLS_Characteristic	SLS-Char_1 - EN-SLS Characteristic SLS-Char_2 - EN-SLS Characteristic
SLS_Quasi	SLS-Quasi_1 - EN-SLS Quasi-permanent SLS-Quasi_2 - EN-SLS Quasi-permanent
SLS_Frequent	SLS-Freq_1 - EN-SLS Frequent SLS-Freq_2 - EN-SLS Frequent

5. Result

5.1. 3D displacement; U_total

Values: **U_{total}**
Linear calculation
Class: SLS_Characteristic
Selection: All
Location: In nodes avg. on macro.
System: LCS mesh element





5.2. Reactions

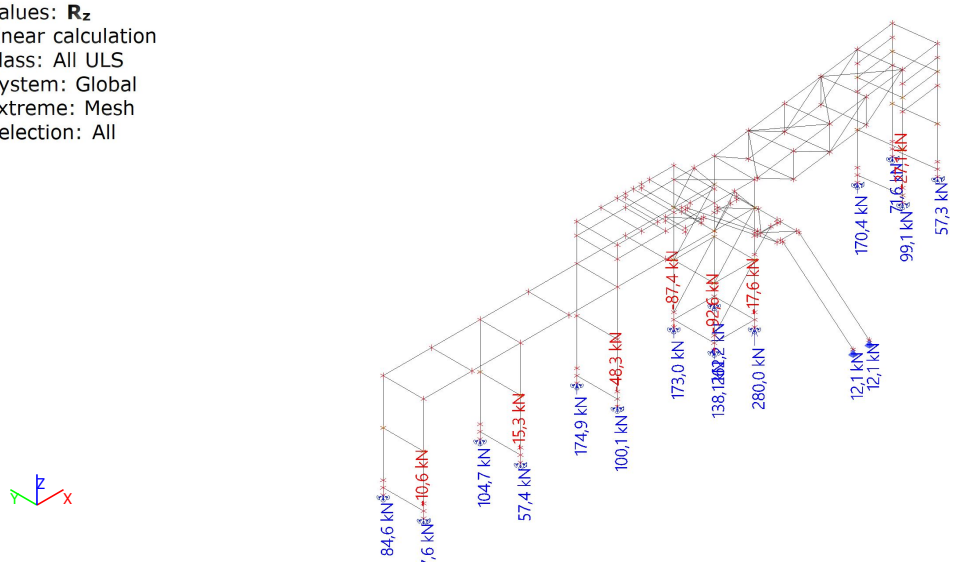
Linear calculation
Class: All ULS
System: Global
Extreme: Global
Selection: All

Nodal reactions

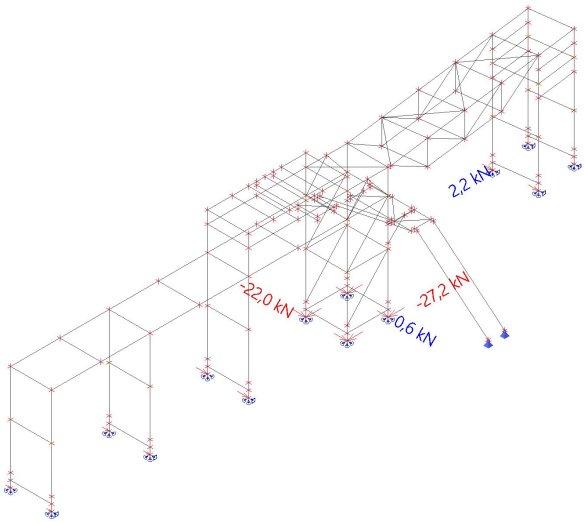
Name	Case	R_x [kN]	R_y [kN]	R_z [kN]	M_x [kNm]	M_y [kNm]	M_z [kNm]	e_x [mm]	e_y [mm]
Sn10/N091	ULS_2/1	**-27,2**	-4,8	211,4	0,0	0,0	0,0	0,0	0,0
Sn13/N137	ULS_2/2	**2,2**	-17,4	170,4	0,0	-0,1	**0,0**	0,0	-0,4
Sn07/N074	ULS_2/2	-3,0	**-22,0**	169,4	0,0	0,0	0,0	0,0	0,0
Sn10/N091	ULS_2/3	0,7	**0,6**	173,3	0,0	0,0	0,0	0,0	0,0
Sn08/N075	ULS_2/1	-27,0	-3,1	**-92,6**	0,0	0,0	0,0	0,0	0,0
Sn10/N091	ULS_2/4	-25,9	-1,2	**280,0**	0,0	0,0	0,0	0,0	0,0
Sn14/N145	ULS_2/5	0,0	0,0	99,1	**0,0**	**0,0**	0,0	0,0	0,2
Sn15/N153	ULS_2/6	-2,7	-0,4	50,1	**0,3**	-2,2	0,0	5,4	-43,6
Sn03/N017	ULS_2/4	-1,8	0,0	51,1	0,0	**-2,9**	0,0	0,0	-56,8

Name	Combination key
ULS_2/1	0.90*DL + 0.90*EO + 1.50*Wx + 0.90*TLs + 0.90*DL1 + 0.90*DL2
ULS_2/2	1.20*DL + 1.20*EO + 0.90*TLs + 1.50*Wy + 1.20*DL1 + 1.20*DL2 + 0.75*LL
ULS_2/3	1.20*DL + 1.20*EO + 1.20*DL1 + 1.20*DL2 + 1.50*LL
ULS_2/4	1.20*DL + 1.20*EO + 1.50*Wx + 1.20*DL1 + 1.20*DL2 + 0.75*LL
ULS_2/5	1.35*DL + 1.35*EO + 1.35*DL1 + 1.35*DL2
ULS_2/6	1.20*DL + 1.20*EO + 1.50*Wx + 0.90*TLs + 1.20*DL1 + 1.20*DL2

Values: **R_z**
Linear calculation
Class: All ULS
System: Global
Extreme: Mesh
Selection: All



Values: R_x, R_y
Linear calculation
Class: All ULS
System: Global
Extreme: Global
Selection: All



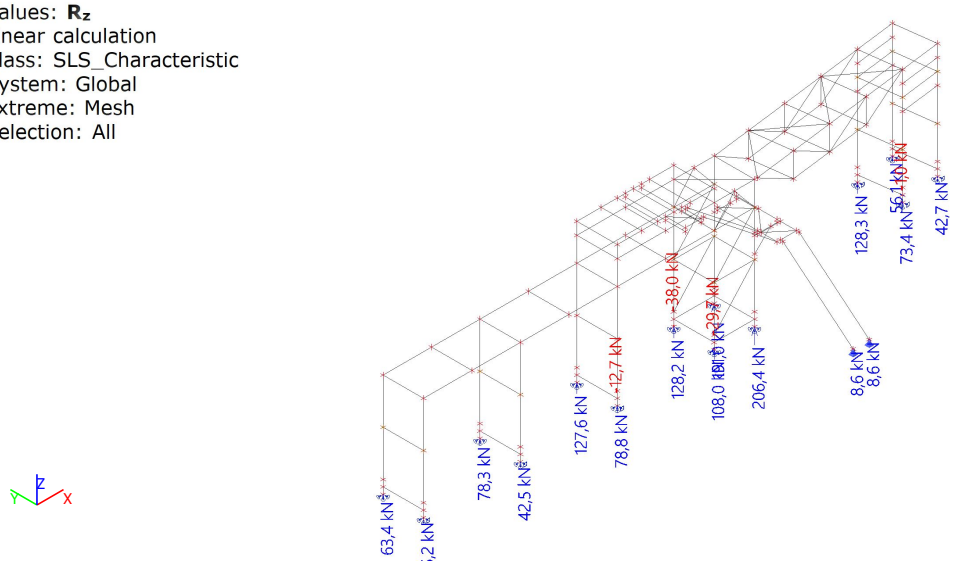
Linear calculation
Class: SLS_Characteristic
System: Global
Extreme: Global
Selection: All

Nodal reactions

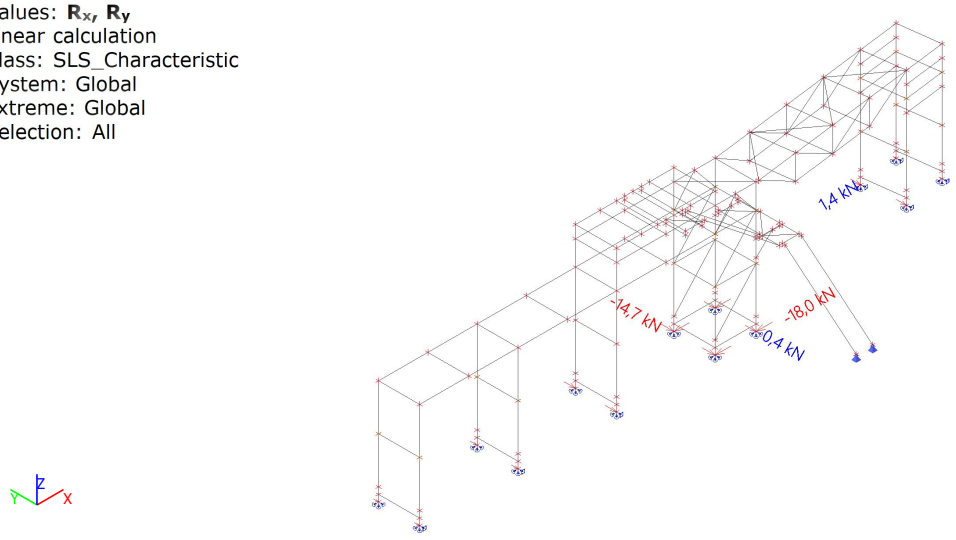
Name	Case	R_x [kN]	R_y [kN]	R_z [kN]	M_x [kNm]	M_y [kNm]	M_z [kNm]	e_x [mm]	e_y [mm]
Sn10/N091	SLS-Char_2/1	**-18,0**	-3,1	180,5	0,0	0,0	0,0	0,0	0,0
Sn13/N137	SLS-Char_2/2	**1,4**	-11,6	128,3	0,0	0,0	**0,0**	0,0	-0,4
Sn07/N074	SLS-Char_2/2	-2,0	**-14,7**	125,7	0,0	0,0	0,0	0,0	0,0
Sn10/N091	SLS-Char_2/3	0,5	**0,4**	135,2	0,0	0,0	0,0	0,0	0,0
Sn07/N074	SLS-Char_1/4	-16,3	0,2	**-38,0**	0,0	0,0	0,0	0,0	0,0
Sn10/N091	SLS-Char_2/5	-17,3	-0,8	**206,4**	0,0	0,0	0,0	0,0	0,0
Sn14/N145	SLS-Char_2/6	0,0	0,0	73,4	**0,0**	**0,0**	0,0	0,0	0,2
Sn03/N017	SLS-Char_2/5	-1,2	0,0	42,5	0,0	**-1,9**	0,0	0,0	-45,5
Sn15/N153	SLS-Char_2/1	-1,8	-0,3	41,7	**0,2**	-1,5	**0,0**	4,3	-35,0

Name	Combination key
SLS-Char_2/1	DL + EO + Wx + 0.60*TLs + DL1 + DL2
SLS-Char_2/2	DL + EO + 0.60*TLs + Wy + DL1 + DL2 + 0.50*LL
SLS-Char_2/3	DL + EO + DL1 + DL2 + LL
SLS-Char_1/4	DL + EE + Wx + DL1 + DL2
SLS-Char_2/5	DL + EO + Wx + DL1 + DL2 + 0.50*LL
SLS-Char_2/6	DL + EO + DL1 + DL2

Values: **R_z**
Linear calculation
Class: SLS_Characteristic
System: Global
Extreme: Mesh
Selection: All



Values: **R_x, R_y**
Linear calculation
Class: SLS_Characteristic
System: Global
Extreme: Global
Selection: All



5.3. Middle columns

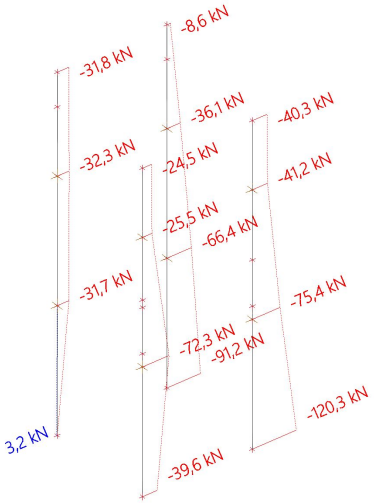
5.3.1. 1D internal forces

Linear calculation
Combination: CO1
Coordinate system: Principal
Extreme 1D: Global
Selection: Named selection - Columns_Middle
Selected sections: Ends, Inputted

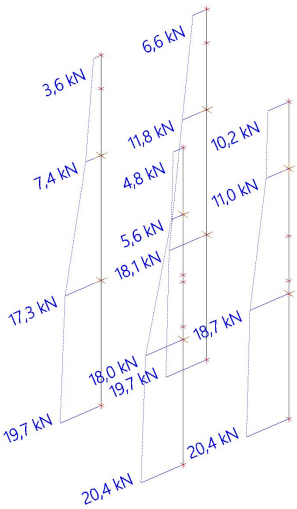
Name	dx [m]	Case	N [kN]	V_y [kN]	V_z [kN]	M_x [kNm]	M_y [kNm]	M_z [kNm]
B042	0,000	CO1/1	**3,2**	-0,1	19,7	0,0	-35,3	0,0
B063	2,805-	CO1/1	-72,3	**-12,3**	18,0	0,0	-19,1	-4,0
B069	2,805-	CO1/1	-75,4	**2,7**	18,7	0,0	-19,6	1,0
B042	7,850	CO1/1	-31,8	-0,1	**3,6**	0,0	0,2	0,0
B042	2,805-	CO1/1	-31,7	0,2	17,3	**0,0**	-20,3	-0,3
B069	0,000	CO1/1	**-120,3**	0,4	**20,4**	0,0	**-36,2**	0,0
B069	7,100	CO1/1	-40,3	-1,5	10,2	0,0	**14,2**	-0,1
B063	5,605-	CO1/1	-25,5	1,2	5,6	**-0,1**	2,1	**-6,1**
B069	5,605-	CO1/1	-41,2	-1,5	11,0	0,0	-1,6	**2,2**

Name	Combination key
CO1/1	1.20*DL + 1.20*EO + 0.90*TLs + 1.50*Wy + 1.20*DL1 + 1.20*DL2 + 0.75*LL

Values: **N**
Linear calculation
Combination: CO1
Coordinate system: Principal
Extreme 1D: Section
Selection: All
Filter: Type of beam = Column
Selected sections: Ends, Inputted



Values: **V_z**
Linear calculation
Combination: CO1
Coordinate system: Principal
Extreme 1D: Section
Selection: All
Filter: Type of beam = Column
Selected sections: Ends, Inputted



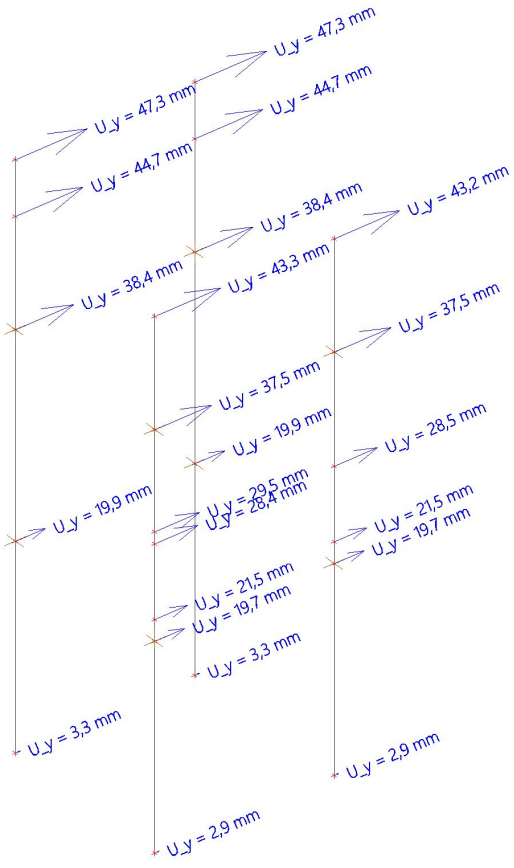
5.3.2. Displacement of nodes

Linear calculation
Combination: CO1
Extreme: Global
Selection: Named selection - Columns_Middle

Name	Case	U_x [mm]	U_y [mm]	U_z [mm]	Φ_x [mrad]	Φ_y [mrad]	Φ_z [mrad]	U_{total} [mm]
N082	CO1/1	**0,2**	2,9	-1,0	-1,4	0,3	-0,2	3,1
N084	CO1/1	0,6	**2,9**	-4,2	-1,4	0,3	-0,2	5,1
N079	CO1/1	3,0	**47,3**	-0,3	-3,5	0,3	0,0	47,4
N085	CO1/1	4,2	43,2	**-4,7**	-2,9	0,3	1,8	43,7
N073	CO1/1	1,1	19,9	**-0,1**	-5,7	0,4	0,0	19,9
N095	CO1/1	2,2	28,5	-4,5	**-7,0**	0,4	0,7	28,9
N068	CO1/1	0,6	3,3	-3,4	**-1,3**	0,3	**-0,2**	4,7
N086	CO1/1	2,3	37,5	-1,1	-4,3	**-1,1**	6,0	37,6
N097	CO1/1	1,6	21,5	-1,0	-6,3	**2,2**	2,8	21,6
N083	CO1/1	2,8	43,3	-1,1	-3,1	1,6	**8,4**	43,4
N078	CO1/1	**4,5**	47,3	-3,8	-3,5	0,4	0,0	**47,7**

Name	Combination key
CO1/1	1.20*DL + 1.20*EO + 0.90*TLs + 1.50*Wy + 1.20*DL1 + 1.20*DL2 + 0.75*LL

Values: **U_y**
Linear calculation
Combination: CO1
Extreme: Node
Selection: All
Filter: Type of beam = Column



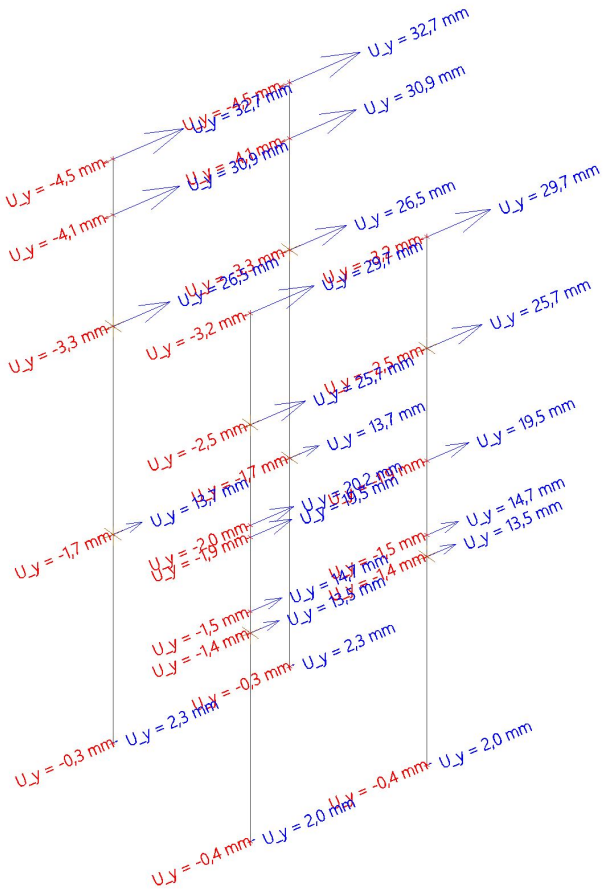
5.3.3. Displacement of nodes

Linear calculation
Class: SLS_Characteristic
Extreme: Global
Selection: Named selection - Columns_Middle

Name	Case	U_x [mm]	U_y [mm]	U_z [mm]	Φ_x [mrad]	Φ_y [mrad]	Φ_z [mrad]	U_{total} [mm]
N082	SLS-Char_1/1	**0,0**	1,7	-0,4	-0,8	0,1	-0,1	1,7
N079	SLS-Char_2/2	**21,3**	3,7	0,2	-0,1	2,8	0,1	21,7
N078	SLS-Char_2/3	1,8	**-4,5**	-1,4	0,5	0,2	0,0	5,0
N079	SLS-Char_2/4	1,9	**32,7**	-0,2	-2,5	0,2	0,0	32,8
N083	SLS-Char_2/5	18,7	-0,7	**-4,7**	0,1	3,0	0,7	19,3
N071	SLS-Char_1/6	14,2	-0,3	**0,8**	0,1	1,7	0,1	14,2
N095	SLS-Char_2/4	1,7	19,5	-3,4	**-4,7**	0,3	0,4	19,9
N071	SLS-Char_2/3	1,4	-3,3	-1,3	**0,6**	0,2	0,0	3,8
N086	SLS-Char_2/7	1,9	10,5	-2,3	-1,1	**-1,3**	2,7	11,0
N097	SLS-Char_2/2	10,8	2,3	-4,3	-0,7	**4,4**	0,4	11,8
N085	SLS-Char_2/8	1,3	-1,0	-1,8	0,2	0,1	**-0,2**	2,5
N083	SLS-Char_2/9	1,5	23,3	-1,4	-1,7	1,2	**5,8**	23,4
N078	SLS-Char_2/4	3,1	32,7	-2,8	-2,5	0,3	0,0	**33,0**

Name	Combination key
SLS-Char_1/1	DL + EE + Wy + DL1 + DL2
SLS-Char_2/2	DL + EO + Wx + 0.60*TLs + DL1 + DL2 + 0.50*LL
SLS-Char_2/3	DL + EO + DL1 + DL2 + LL
SLS-Char_2/4	DL + EO + 0.60*TLs + Wy + DL1 + DL2
SLS-Char_2/5	DL + EO + Wx + DL1 + DL2 + 0.50*LL
SLS-Char_1/6	DL + EE + Wx + DL1 + DL2
SLS-Char_2/7	DL + EO + 0.60*Wy + DL1 + DL2 + LL
SLS-Char_2/8	DL + EO + DL1 + DL2
SLS-Char_2/9	DL + EO + Wy + DL1 + DL2 + 0.50*LL

Values: **U_y**
Linear calculation
Class: SLS_Characteristic
Extreme: Node
Selection: All
Filter: Type of beam = Column



5.4. End columns

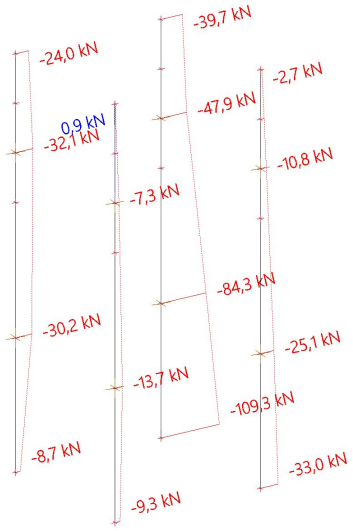
5.4.1. 1D internal forces

Linear calculation
Combination: CO1
Coordinate system: Principal
Extreme 1D: Global
Selection: Named selection - Columns_End
Selected sections: Ends, Inputted

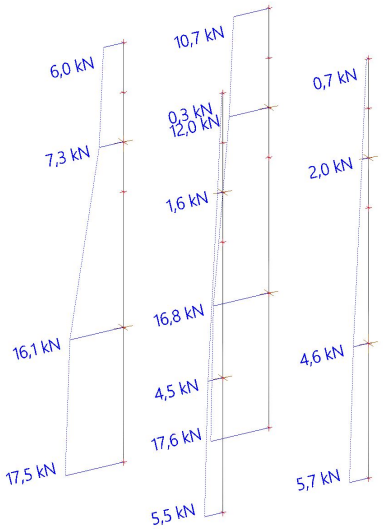
Name	dx [m]	Case	N [kN]	V_y [kN]	V_z [kN]	M_x [kNm]	M_y [kNm]	M_z [kNm]
B135	4,835-	CO1/1	-32,1	**-0,2**	7,3	0,0	0,6	**0,3**
B149	0,000	CO1/1	-9,3	**0,1**	5,5	**0,0**	-7,3	0,0
B128	0,000	CO1/1	**-109,3**	0,1	**17,6**	0,0	**-26,0**	0,0
B128	6,330	CO1/1	-39,7	-0,2	10,7	**0,0**	**14,3**	0,0
B149	6,330	CO1/1	**0,9**	-0,2	**0,3**	0,0	2,1	**0,0**

Name	Combination key
CO1/1	1.20*DL + 1.20*EO + 0.90*TLs + 1.50*Wy + 1.20*DL1 + 1.20*DL2 + 0.75*LL

Values: **N**
Linear calculation
Combination: CO1
Coordinate system: Principal
Extreme 1D: Section
Selection: All
Filter: Type of beam = Column
Selected sections: Ends, Inputted



Values: V_z
Linear calculation
Combination: CO1
Coordinate system: Principal
Extreme 1D: Section
Selection: All
Filter: Type of beam = Column
Selected sections: Ends, Inputted



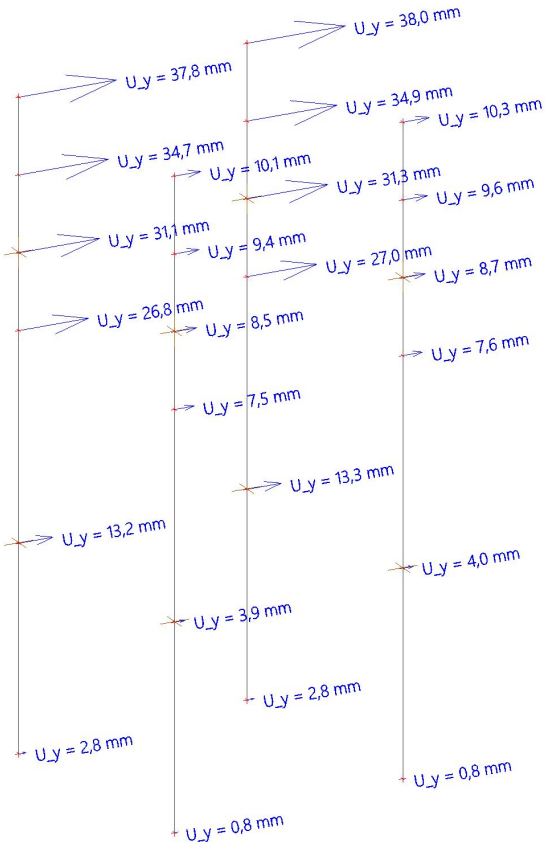
5.4.2. Displacement of nodes

Linear calculation
Combination: CO1
Extreme: Global
Selection: Named selection - Columns_End

Name	Case	U_x [mm]	U_y [mm]	U_z [mm]	Φ_x [mrad]	Φ_y [mrad]	Φ_z [mrad]	U_{total} [mm]
N151	CO1/1	**7,9**	10,3	-1,5	-0,9	1,2	**0,0**	13,1
N150	CO1/1	-0,1	**0,8**	-1,4	**-0,3**	0,0	0,0	1,7
N135	CO1/1	4,4	**38,0**	**-3,8**	-3,6	0,8	**0,2**	**38,4**
N141	CO1/1	2,8	27,0	-3,7	**-6,3**	0,6	0,1	27,4
N142	CO1/1	**-0,3**	2,8	**-0,1**	-1,4	**-0,2**	0,0	2,8
N155	CO1/1	2,7	4,0	-1,5	-1,5	**1,3**	0,0	5,0

Name	Combination key
CO1/1	1.20*DL + 1.20*EO + 0.90*TLs + 1.50*Wy + 1.20*DL1 + 1.20*DL2 + 0.75*LL

Values: **U_y**
Linear calculation
Combination: CO1
Extreme: Node
Selection: All
Filter: Type of beam = Column



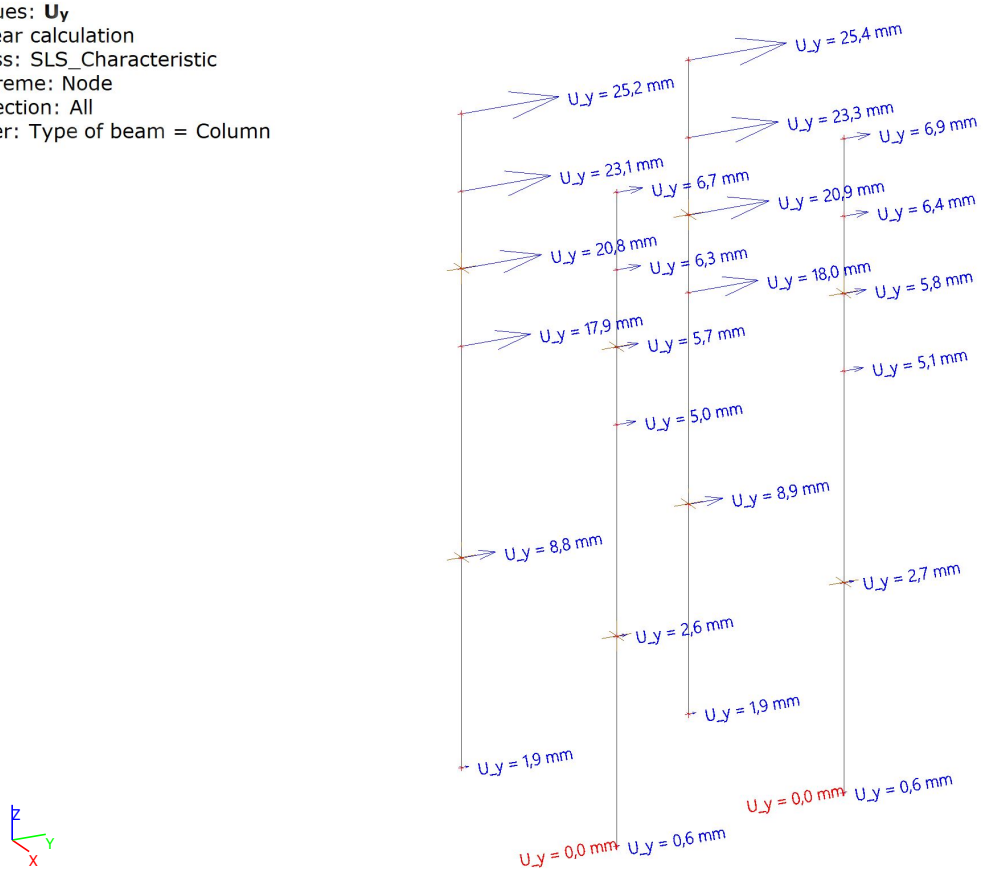
5.4.3. Displacement of nodes

Linear calculation
Class: SLS_Characteristic
Extreme: Global
Selection: Named selection - Columns_End

Name	Case	U_x [mm]	U_y [mm]	U_z [mm]	Φ_x [mrad]	Φ_y [mrad]	Φ_z [mrad]	U_{total} [mm]
N142	SLS-Char_2/1	**-0,2**	1,9	-0,4	-0,9	-0,1	0,0	1,9
N159	SLS-Char_2/2	**19,1**	2,4	-0,9	0,0	0,2	0,0	19,3
N150	SLS-Char_1/3	0,2	**0,0**	-0,6	0,0	0,0	0,0	0,7
N135	SLS-Char_2/1	3,0	**25,4**	**-2,9**	-2,4	0,6	**0,1**	**25,7**
N147	SLS-Char_1/4	0,2	6,9	**0,0**	-2,8	0,2	0,0	6,9
N149	SLS-Char_2/1	1,2	17,9	-0,4	**-4,2**	0,2	0,0	18,0
N151	SLS-Char_1/3	16,6	1,7	-0,7	**0,1**	-0,1	0,0	16,7
N135	SLS-Char_1/3	16,4	3,0	-1,0	-0,1	**-0,2**	0,0	16,7
N163	SLS-Char_2/2	10,6	1,3	-0,9	-0,6	**4,4**	0,0	10,7
N143	SLS-Char_2/5	0,9	0,2	-1,7	-0,1	0,1	**0,0**	1,9

Name	Combination key
SLS-Char_2/1	DL + EO + 0.60*TLs + Wy + DL1 + DL2 + 0.50*LL
SLS-Char_2/2	DL + EO + Wx + 0.60*TLs + DL1 + DL2 + 0.50*LL
SLS-Char_1/3	DL + EE + Wx + DL1 + DL2
SLS-Char_1/4	DL + EE + Wy + DL1 + DL2
SLS-Char_2/5	DL + EO + DL1 + DL2

Values: **U_y**
Linear calculation
Class: SLS_Characteristic
Extreme: Node
Selection: All
Filter: Type of beam = Column



6. Steel check

6.1. Steel slenderness

Linear calculation

Member	CS Name	Part	Sway y	Sway z	Ly [m]	Lz [m]	ky [-]	kz [-]	Iy [m]	Iz [m]	Lam y [-]	Lam z [-]	Iyz [m]	l LTB [m]
B063	CS07	1	Yes	No	2,800	2,800	1,00	1,00	2,800	2,800	36,54	61,26	2,800	2,800
B063	CS07	2	Yes	No	2,800	2,800	1,00	1,00	2,800	2,800	36,54	61,26	2,800	2,800
B063	CS07	3	Yes	No	2,800	2,800	1,00	1,00	2,800	2,800	36,54	61,26	2,800	2,800
B063	CS07	4	Yes	No	2,800	2,800	1,00	1,00	2,800	2,800	36,54	61,26	2,800	2,800
B063	CS07	5	Yes	No	2,800	2,800	1,00	1,00	2,800	2,800	36,54	61,26	2,800	2,800
B063	CS07	6	Yes	No	1,500	1,500	1,00	1,00	1,500	1,500	19,58	32,82	1,500	1,500
B069	CS07	1	Yes	No	2,800	2,800	1,00	1,00	2,800	2,800	36,54	61,26	2,800	2,800
B069	CS07	2	Yes	No	2,800	2,800	1,00	1,00	2,800	2,800	36,54	61,26	2,800	2,800
B069	CS07	3	Yes	No	2,800	2,800	1,00	1,00	2,800	2,800	36,54	61,26	2,800	2,800
B069	CS07	4	Yes	No	2,800	2,800	1,00	1,00	2,800	2,800	36,54	61,26	2,800	2,800
B069	CS07	5	Yes	No	1,500	1,500	1,00	1,00	1,500	1,500	19,58	32,82	1,500	1,500
B066	CS05	1	Yes	No	2,500	2,500	1,00	1,00	2,500	2,500	33,59	55,32	2,500	2,500
B073	CS05	1	Yes	No	2,500	2,500	1,00	1,00	2,500	2,500	33,59	55,32	2,500	2,500
B135	CS07	1	Yes	No	2,030	6,330	1,00	1,00	2,030	6,330	26,49	138,50	6,330	6,330
B135	CS07	2	Yes	No	2,800	6,330	1,00	1,00	2,800	6,330	36,54	138,50	6,330	6,330
B135	CS07	3	Yes	No	2,800	6,330	1,00	1,00	2,800	6,330	36,54	138,50	6,330	6,330
B135	CS07	4	Yes	No	1,500	6,330	1,00	1,00	1,500	6,330	19,58	138,50	6,330	6,330
B135	CS07	5	Yes	No	1,500	6,330	1,00	1,00	1,500	6,330	19,58	138,50	6,330	6,330
B128	CS07	1	Yes	No	2,030	6,330	1,00	1,00	2,030	6,330	26,49	138,50	6,330	6,330
B128	CS07	2	Yes	No	2,800	6,330	1,00	1,00	2,800	6,330	36,54	138,50	6,330	6,330
B128	CS07	3	Yes	No	2,800	6,330	1,00	1,00	2,800	6,330	36,54	138,50	6,330	6,330
B128	CS07	4	Yes	No	1,500	6,330	1,00	1,00	1,500	6,330	19,58	138,50	6,330	6,330
B128	CS07	5	Yes	No	1,500	6,330	1,00	1,00	1,500	6,330	19,58	138,50	6,330	6,330
B137	CS05	1	Yes	No	2,500	2,500	1,00	1,00	2,500	2,500	33,59	55,32	2,500	2,500
B141	CS05	1	Yes	No	2,500	2,500	1,00	1,00	2,500	2,500	33,59	55,32	2,500	2,500
B042	CS07	1	Yes	No	2,800	2,800	1,00	1,00	2,800	2,800	36,54	61,26	2,800	2,800
B042	CS07	2	Yes	No	2,800	2,800	1,00	1,00	2,800	2,800	36,54	61,26	2,800	2,800
B042	CS07	3	Yes	No	1,500	1,500	1,00	1,00	1,500	1,500	19,58	32,82	1,500	1,500
B042	CS07	4	Yes	No	0,750	0,750	1,00	1,00	0,750	0,750	9,79	16,41	0,750	0,750
B047	CS07	1	Yes	No	2,800	2,800	1,00	1,00	2,800	2,800	36,54	61,26	2,800	2,800
B047	CS07	2	Yes	No	2,800	2,800	1,00	1,00	2,800	2,800	36,54	61,26	2,800	2,800
B047	CS07	3	Yes	No	1,500	1,500	1,00	1,00	1,500	1,500	19,58	32,82	1,500	1,500
B047	CS07	4	Yes	No	0,750	0,750	1,00	1,00	0,750	0,750	9,79	16,41	0,750	0,750
B045	CS05	1	Yes	No	2,500	2,500	1,00	1,00	2,500	2,500	33,59	55,32	2,500	2,500
B051	CS05	1	Yes	No	2,500	2,500	1,00	1,00	2,500	2,500	33,59	55,32	2,500	2,500
B138	CS03	1	Yes	No	2,600	2,600	1,00	1,00	2,600	2,600	45,40	73,87	2,600	2,600
B138	CS03	2	Yes	No	2,600	2,600	1,00	1,00	2,600	2,600	45,40	73,87	2,600	2,600
B138	CS03	3	Yes	No	2,600	2,600	1,00	1,00	2,600	2,600	45,40	73,87	2,600	2,600
B138	CS03	4	Yes	No	2,600	2,600	1,00	1,00	2,600	2,600	45,39	73,86	2,600	2,600
B130	CS03	1	Yes	No	2,600	2,600	1,00	1,00	2,600	2,600	45,40	73,87	2,600	2,600
B130	CS03	2	Yes	No	2,600	2,600	1,00	1,00	2,600	2,600	45,40	73,87	2,600	2,600
B130	CS03	3	Yes	No	2,600	2,600	1,00	1,00	2,600	2,600	45,40	73,87	2,600	2,600
B130	CS03	4	Yes	No	2,441	2,441	1,00	1,00	2,441	2,441	42,62	69,35	2,441	2,441
B072	CS03	1	Yes	No	2,500	2,500	1,00	1,00	2,500	2,500	43,65	71,03	2,500	2,500
B072	CS03	2	Yes	No	2,500	2,500	1,00	1,00	2,500	2,500	43,65	71,03	2,500	2,500
B067	CS03	1	Yes	No	2,500	2,500	1,00	1,00	2,500	2,500	43,65	71,03	2,500	2,500
B067	CS03	2	Yes	No	2,500	2,500	1,00	1,00	2,500	2,500	43,65	71,03	2,500	2,500
B124	CS08	1	Yes	No	2,600	2,600	1,00	1,00	2,600	2,600	85,08	166,61	2,600	2,600
B119	CS08	1	Yes	No	2,600	2,600	1,00	1,00	2,600	2,600	85,08	166,61	2,600	2,600
B076	CS03	1	Yes	No	2,500	2,500	1,00	1,00	2,500	2,500	43,65	71,03	2,500	2,500
B074	CS03	1	Yes	No	2,500	2,500	1,00	1,00	2,500	2,500	43,65	71,03	2,500	2,500
B149	CS07	1	Yes	No	2,030	6,330	1,00	1,00	2,030	6,330	26,49	138,50	6,330	6,330
B149	CS07	2	Yes	No	2,800	6,330	1,00	1,00	2,800	6,330	36,54	138,50	6,330	6,330
B149	CS07	3	Yes	No	2,800	6,330	1,00	1,00	2,800	6,330	36,54	138,50	6,330	6,330
B149	CS07	4	Yes	No	1,500	6,330	1,00	1,00	1,500	6,330	19,58	138,50	6,330	6,330
B149	CS07	5	Yes	No	1,500	6,330	1,00	1,00	1,500	6,330	19,58	138,50	6,330	6,330
B147	CS07	1	Yes	No	2,030	6,330	1,00	1,00	2,030	6,330	26,49	138,50	6,330	6,330
B147	CS07	2	Yes	No	2,800	6,330	1,00	1,00	2,800	6,330	36,54	138,50	6,330	6,330
B147	CS07	3	Yes	No	2,800	6,330	1,00	1,00	2,800	6,330	36,54	138,50	6,330	6,330
B147	CS07	4	Yes	No	1,500	6,330	1,00	1,00	1,500	6,330	19,58	138,50	6,330	6,330
B147	CS07	5	Yes	No	1,500	6,330	1,00	1,00	1,500	6,330	19,58	138,50	6,330	6,330
B151	CS05	1	Yes	No	2,500	2,500	1,00	1,00	2,500	2,500	33,59	55,32	2,500	2,500
B139	CS03	1	Yes	No	2,500	2,500	1,00	1,00	2,500	2,500	43,65	71,03	2,500	2,500
B131	CS03	1	Yes	No	2,500	2,500	1,00	1,00	2,500	2,500	43,65	71,03	2,500	2,500
B132	CS03	1	Yes	No	2,500	2,500	1,00	1,00	2,500	2,500	43,65	71,03	2,500	2,500
B142	CS03	1	Yes	No	2,500	2,500	1,00	1,00	2,500	2,500	43,65	71,03	2,500	2,500
B152	CS05	1	Yes	No	2,500	2,500	1,00	1,00	2,500	2,500	33,59	55,32	2,500	2,500
B046	CS04	1	Yes	No	6,000	6,000	1,00	1,00	6,000	6,000	91,46	150,58	6,000	6,000
B046	CS04	2	Yes	No	6,000	6,000	1,00	1,00	6,000	6,000	91,46	150,58	6,000	6,000
B050	CS04	1	Yes	No	6,000	6,000	1,00	1,00	6,000	6,000	91,46	150,58	6,000	6,000

Member	CS Name	Part	Sway y	Sway z	Ly [m]	Lz [m]	ky [-]	kz [-]	Iy [m]	Iz [m]	Lam y [-]	Lam z [-]	Iyz [m]	I LTB [m]
B050	CS04	2	Yes	No	6,000	6,000	1,00	1,00	6,000	6,000	91,46	150,58	6,000	6,000
B022	CS07	1	Yes	No	2,800	5,600	1,00	1,00	2,800	5,600	36,54	122,53	5,600	5,600
B022	CS07	2	Yes	No	2,800	5,600	1,00	1,00	2,800	5,600	36,54	122,53	5,600	5,600
B022	CS07	3	Yes	No	1,500	1,500	1,00	1,00	1,500	1,500	19,58	32,82	1,500	1,500
B022	CS07	4	Yes	No	0,750	0,750	1,00	1,00	0,750	0,750	9,79	16,41	0,750	0,750
B024	CS07	1	Yes	No	2,800	5,600	1,00	1,00	2,800	5,600	36,54	122,53	5,600	5,600
B024	CS07	2	Yes	No	2,800	5,600	1,00	1,00	2,800	5,600	36,54	122,53	5,600	5,600
B024	CS07	3	Yes	No	1,500	1,500	1,00	1,00	1,500	1,500	19,58	32,82	1,500	1,500
B024	CS07	4	Yes	No	0,750	0,750	1,00	1,00	0,750	0,750	9,79	16,41	0,750	0,750
B019	CS05	1	Yes	No	2,500	2,500	1,00	1,00	2,500	2,500	33,59	55,32	2,500	2,500
B020	CS04	1	Yes	No	6,000	6,000	1,00	1,00	6,000	6,000	91,46	150,58	6,000	6,000
B020	CS04	2	Yes	No	6,000	6,000	1,00	1,00	6,000	6,000	91,46	150,58	6,000	6,000
B021	CS04	1	Yes	No	6,000	6,000	1,00	1,00	6,000	6,000	91,46	150,58	6,000	6,000
B021	CS04	2	Yes	No	6,000	6,000	1,00	1,00	6,000	6,000	91,46	150,58	6,000	6,000
B012	CS07	1	Yes	No	2,800	5,600	1,00	1,00	2,800	5,600	36,54	122,53	5,600	5,600
B012	CS07	2	Yes	No	2,800	5,600	1,00	1,00	2,800	5,600	36,54	122,53	5,600	5,600
B014	CS07	1	Yes	No	2,800	5,600	1,00	1,00	2,800	5,600	36,54	122,53	5,600	5,600
B014	CS07	2	Yes	No	2,800	5,600	1,00	1,00	2,800	5,600	36,54	122,53	5,600	5,600
B009	CS05	1	Yes	No	2,500	2,500	1,00	1,00	2,500	2,500	33,59	55,32	2,500	2,500
B078	CS03	1	Yes	No	2,500	2,500	1,00	1,00	2,500	2,500	43,65	71,03	2,500	2,500
B080	CS03	1	Yes	No	2,500	2,500	1,00	1,00	2,500	2,500	43,65	71,03	2,500	2,500
B048	CS08	1	Yes	No	3,754	3,754	1,00	1,00	3,754	3,754	122,82	240,54	3,754	3,754
B056	CS08	1	Yes	No	3,754	3,754	1,00	1,00	3,754	3,754	122,82	240,54	3,754	3,754
B057	CS08	1	Yes	No	3,754	3,754	1,00	1,00	3,754	3,754	122,82	240,54	3,754	3,754
B043	CS08	1	Yes	No	3,754	3,754	1,00	1,00	3,754	3,754	122,82	240,54	3,754	3,754
B105	CS03	1	Yes	No	2,500	2,500	1,00	1,00	2,500	2,500	43,65	71,03	2,500	2,500
B104	CS03	1	Yes	No	2,500	2,500	1,00	1,00	2,500	2,500	43,65	71,03	2,500	2,500
B114	CS03	1	Yes	No	2,500	2,500	1,00	1,00	2,500	2,500	43,65	71,03	2,500	2,500
B112	CS03	1	Yes	No	2,500	2,500	1,00	1,00	2,500	2,500	43,65	71,03	2,500	2,500
B125	CS03	1	Yes	No	2,500	2,500	1,00	1,00	2,500	2,500	43,65	71,03	2,500	2,500
B123	CS03	1	Yes	No	2,500	2,500	1,00	1,00	2,500	2,500	43,65	71,03	2,500	2,500
B101	CS08	1	Yes	No	2,865	2,865	1,00	1,00	2,865	2,865	93,75	183,59	2,865	2,865
B120	CS08	1	Yes	No	3,002	3,002	1,00	1,00	3,002	3,002	98,22	192,35	3,002	3,002
B106	CS08	1	Yes	No	3,002	3,002	1,00	1,00	3,002	3,002	98,22	192,35	3,002	3,002
B126	CS08	1	Yes	No	3,002	3,002	1,00	1,00	3,002	3,002	98,22	192,35	3,002	3,002
B121	CS03	1	Yes	No	1,500	1,500	1,00	1,00	1,500	1,500	26,19	42,62	1,500	1,500
B108	CS03	1	Yes	No	1,500	1,500	1,00	1,00	1,500	1,500	26,19	42,62	1,500	1,500
B102	CS03	1	Yes	No	1,500	1,500	1,00	1,00	1,500	1,500	26,19	42,62	1,500	1,500
B109	CS08	1	Yes	No	3,002	3,002	1,00	1,00	3,002	3,002	98,22	192,35	3,002	3,002
B110	CS08	1	Yes	No	3,002	3,002	1,00	1,00	3,002	3,002	98,22	192,35	3,002	3,002
B127	CS03	1	Yes	No	1,500	1,500	1,00	1,00	1,500	1,500	26,19	42,62	1,500	1,500
B115	CS03	1	Yes	No	1,500	1,500	1,00	1,00	1,500	1,500	26,19	42,62	1,500	1,500
B107	CS03	1	Yes	No	1,500	1,500	1,00	1,00	1,500	1,500	26,19	42,62	1,500	1,500
B116	CS08	1	Yes	No	3,002	3,002	1,00	1,00	3,002	3,002	98,21	192,34	3,002	3,002
B117	CS08	1	Yes	No	3,002	3,002	1,00	1,00	3,002	3,002	98,23	192,38	3,002	3,002
B077	CS10	1	Yes	No	1,953	1,953	1,00	1,00	1,953	1,953	35,85	111,37	1,953	1,953
B054	CS10	1	Yes	No	1,953	1,953	1,00	1,00	1,953	1,953	35,85	111,37	1,953	1,953
B075	CS10	1	Yes	No	1,953	1,953	1,00	1,00	1,953	1,953	35,85	111,37	1,953	1,953
B052	CS10	1	Yes	No	1,953	1,953	1,00	1,00	1,953	1,953	35,85	111,37	1,953	1,953
B032	CS03	1	Yes	No	2,500	2,500	1,00	1,00	2,500	2,500	43,65	71,03	2,500	2,500
B018	CS03	1	Yes	No	2,500	2,500	1,00	1,00	2,500	2,500	43,65	71,03	2,500	2,500
B111	CS08	1	Yes	No	2,600	2,600	1,00	1,00	2,600	2,600	85,08	166,61	2,600	2,600
B118	CS08	1	Yes	No	2,600	2,600	1,00	1,00	2,600	2,600	85,08	166,61	2,600	2,600
B058	CS05	1	Yes	No	2,500	2,500	1,00	1,00	2,500	2,500	33,59	55,32	2,500	2,500
B081	CS05	1	Yes	No	2,500	2,500	1,00	1,00	2,500	2,500	33,59	55,32	2,500	2,500
B144	CS05	1	Yes	No	2,500	2,500	1,00	1,00	2,500	2,500	33,59	55,32	2,500	2,500
B154	CS05	1	Yes	No	2,500	2,500	1,00	1,00	2,500	2,500	33,59	55,32	2,500	2,500
B140	CS08	1	Yes	No	3,607	3,607	1,00	1,00	3,607	3,607	118,02	231,14	3,607	3,607
B113	CS08	1	Yes	No	3,607	3,607	1,00	1,00	3,607	3,607	118,02	231,12	3,607	3,607
B122	CS08	1	Yes	No	3,607	3,607	1,00	1,00	3,607	3,607	118,03	231,15	3,607	3,607
B103	CS08	1	Yes	No	3,607	3,607	1,00	1,00	3,607	3,607	118,02	231,14	3,607	3,607
B026	CS05	1	Yes	No	2,500	2,500	1,00	1,00	2,500	2,500	33,59	55,32	2,500	2,500
B053	CS04	1	Yes	No	6,000	6,000	1,00	1,00	6,000	6,000	91,46	150,58	6,000	6,000
B053	CS04	2	Yes	No	6,000	6,000	1,00	1,00	6,000	6,000	91,46	150,58	6,000	6,000
B055	CS04	1	Yes	No	6,000	6,000	1,00	1,00	6,000	6,000	91,46	150,58	6,000	6,000
B055	CS04	2	Yes	No	6,000	6,000	1,00	1,00	6,000	6,000	91,46	150,58	6,000	6,000
B033	CS03	1	Yes	No	2,500	2,500	1,00	1,00	2,500	2,500	43,65	71,03	2,500	2,500
B068	CS03	1	Yes	No	0,158	0,158	1,00	1,00	0,158	0,158	2,75	4,48	0,158	0,158
B028	CS03	1	Yes	No	2,500	2,500	1,00	1,00	2,500	2,500	43,65	71,03	2,500	2,500
B145	CS03	1	Yes	No	2,500	2,500	1,00	1,00	2,500	2,500	43,65	71,03	2,500	2,500
B133	CS03	1	Yes	No	2,500	2,500	1,00	1,00	2,500	2,500	43,65	71,03	2,500	2,500
B134	CS03	1	Yes	No	2,500	2,500	1,00	1,00	2,500	2,500	43,65	71,03	2,500	2,500
B146	CS03	1	Yes	No	2,500	2,500	1,00	1,00	2,500	2,500	43,65	71,03	2,500	2,500
B037	CS11	1	Yes	No	1,200	1,200	1,00	1,00	1,200	1,200	17,28	59,47	1,200	1,200
B037	CS11	2	Yes	No	1,200	1,200	1,00	1,00	1,200	1,200	17,28	59,47	1,200	1,200

Member	CS Name	Part	Sway y	Sway z	Ly [m]	Lz [m]	ky [-]	kz [-]	Iy [m]	Iz [m]	Lam y [-]	Lam z [-]	Iyz [m]	I LTB [m]
B034	CS11	1	Yes	No	1,200	1,200	1,00	1,00	1,200	1,200	17,28	59,47	1,200	1,200
B038	CS11	1	Yes	No	1,000	1,000	1,00	1,00	1,000	1,000	14,40	49,56	1,000	1,000
B061	CS07	1	Yes	No	6,000	6,000	1,00	1,00	6,000	6,000	78,30	131,28	6,000	6,000
B061	CS07	2	Yes	No	6,000	6,000	1,00	1,00	6,000	6,000	78,30	131,28	6,000	6,000
B061	CS07	3	Yes	No	6,000	6,000	1,00	1,00	6,000	6,000	78,30	131,28	6,000	6,000
B061	CS07	4	Yes	No	6,000	6,000	1,00	1,00	6,000	6,000	78,30	131,28	6,000	6,000
B061	CS07	5	Yes	No	6,000	6,000	1,00	1,00	6,000	6,000	78,30	131,28	6,000	6,000
B061	CS07	6	Yes	No	6,000	6,000	1,00	1,00	6,000	6,000	78,30	131,28	6,000	6,000
B061	CS07	7	Yes	No	6,000	6,000	1,00	1,00	6,000	6,000	78,30	131,28	6,000	6,000
B060	CS07	1	Yes	No	6,000	6,000	1,00	1,00	6,000	6,000	78,30	131,28	6,000	6,000
B060	CS07	2	Yes	No	6,000	6,000	1,00	1,00	6,000	6,000	78,30	131,28	6,000	6,000
B060	CS07	3	Yes	No	6,000	6,000	1,00	1,00	6,000	6,000	78,30	131,28	6,000	6,000
B060	CS07	4	Yes	No	6,000	6,000	1,00	1,00	6,000	6,000	78,30	131,28	6,000	6,000
B060	CS07	5	Yes	No	6,000	6,000	1,00	1,00	6,000	6,000	78,30	131,28	6,000	6,000
B060	CS07	6	Yes	No	6,000	6,000	1,00	1,00	6,000	6,000	78,30	131,28	6,000	6,000
B060	CS07	7	Yes	No	6,000	6,000	1,00	1,00	6,000	6,000	78,30	131,28	6,000	6,000
B094	CS11	1	Yes	No	5,952	5,952	1,00	1,00	5,952	5,952	85,72	294,97	5,952	5,952
B094	CS11	2	Yes	No	5,952	5,952	1,00	1,00	5,952	5,952	85,72	294,97	5,952	5,952
B091	CS11	1	Yes	No	5,952	5,952	1,00	1,00	5,952	5,952	85,72	294,97	5,952	5,952
B091	CS11	2	Yes	No	5,952	5,952	1,00	1,00	5,952	5,952	85,72	294,97	5,952	5,952
B087	CS03	1	No	Yes	1,000	0,200	1,00	2,00	1,000	0,400	17,46	11,36	0,200	0,200
B087	CS03	2	No	No	1,000	1,200	1,00	1,00	1,000	1,200	17,46	34,09	1,200	1,200
B087	CS03	3	Yes	No	0,400	1,200	2,00	1,00	0,800	1,200	13,97	34,09	1,200	1,200
B086	CS03	1	No	Yes	1,000	0,200	1,00	2,00	1,000	0,400	17,46	11,36	0,200	0,200
B086	CS03	2	No	No	1,000	1,200	1,00	1,00	1,000	1,200	17,46	34,09	1,200	1,200
B086	CS03	3	Yes	No	0,400	1,200	2,00	1,00	0,800	1,200	13,97	34,09	1,200	1,200
B098	CS11	1	Yes	No	2,500	2,700	2,00	1,00	5,000	2,700	72,01	133,81	2,700	2,700
B098	CS11	2	Yes	No	2,500	2,700	2,00	1,00	5,000	2,700	72,01	133,81	2,700	2,700
B098	CS11	3	No	No	1,200	2,700	1,00	1,00	1,200	2,700	17,28	133,81	2,700	2,700
B098	CS11	4	No	No	1,200	1,000	1,00	1,00	1,200	1,000	17,28	49,56	1,000	1,000
B090	CS11	1	No	No	2,500	2,700	1,00	1,00	2,500	2,700	36,00	133,81	2,700	2,700
B090	CS11	2	Yes	No	1,200	2,700	2,00	1,00	2,400	2,700	34,56	133,81	2,700	2,700
B090	CS11	3	Yes	No	1,200	1,000	2,00	1,00	2,400	1,000	34,56	49,56	1,000	1,000
B097	CS08	1	Yes	No	1,562	1,562	1,00	1,00	1,562	1,562	51,11	100,10	1,562	1,562
B092	CS08	1	Yes	No	1,806	1,806	1,00	1,00	1,806	1,806	59,10	115,75	1,806	1,806
B099	CS08	1	Yes	No	1,806	1,806	1,00	1,00	1,806	1,806	59,10	115,75	1,806	1,806
B088	CS03	1	Yes	No	1,414	1,414	1,00	1,00	1,414	1,414	24,69	40,18	1,414	1,414
B089	CS03	1	Yes	No	1,414	1,414	1,00	1,00	1,414	1,414	24,69	40,18	1,414	1,414
B031	CS11	1	Yes	No	2,500	2,500	1,00	1,00	2,500	2,500	36,00	123,90	2,500	2,500
B030	CS11	1	Yes	No	2,500	2,500	1,00	1,00	2,500	2,500	36,00	123,90	2,500	2,500
B036	CS11	1	Yes	No	2,500	2,500	1,00	1,00	2,500	2,500	36,00	123,90	2,500	2,500
B041	CS11	1	Yes	No	2,500	2,500	1,00	1,00	2,500	2,500	36,00	123,90	2,500	2,500
B062	CS03	1	Yes	No	2,500	2,500	1,00	1,00	2,500	2,500	43,65	71,03	2,500	2,500
B039	CS08	1	Yes	No	1,562	1,562	1,00	1,00	1,562	1,562	51,11	100,10	1,562	1,562
B002	CS07	1	Yes	No	2,800	5,600	1,00	1,00	2,800	5,600	36,54	122,53	5,600	5,600
B002	CS07	2	Yes	No	2,800	5,600	1,00	1,00	2,800	5,600	36,54	122,53	5,600	5,600
B004	CS07	1	Yes	No	2,800	5,600	1,00	1,00	2,800	5,600	36,54	122,53	5,600	5,600
B004	CS07	2	Yes	No	2,800	5,600	1,00	1,00	2,800	5,600	36,54	122,53	5,600	5,600
B001	CS05	1	Yes	No	2,500	2,500	1,00	1,00	2,500	2,500	33,59	55,32	2,500	2,500
B010	CS04	1	Yes	No	6,000	6,000	1,00	1,00	6,000	6,000	91,46	150,58	6,000	6,000
B010	CS04	2	Yes	No	6,000	6,000	1,00	1,00	6,000	6,000	91,46	150,58	6,000	6,000
B011	CS04	1	Yes	No	6,000	6,000	1,00	1,00	6,000	6,000	91,46	150,58	6,000	6,000
B011	CS04	2	Yes	No	6,000	6,000	1,00	1,00	6,000	6,000	91,46	150,58	6,000	6,000
B008	CS03	1	Yes	No	2,500	2,500	1,00	1,00	2,500	2,500	43,65	71,03	2,500	2,500
B093	CS11	1	Yes	No	1,200	1,200	1,00	1,00	1,200	1,200	17,28	59,47	1,200	1,200
B029	CS05	1	Yes	No	2,500	2,500	1,00	1,00	2,500	2,500	33,59	55,32	2,500	2,500
B035	CS04	1	Yes	No	1,200	1,200	2,00	1,00	2,400	1,200	36,58	30,12	1,200	1,200
B035	CS04	2	No	No	2,500	2,500	1,00	1,00	2,500	2,500	38,11	62,74	2,500	2,500
B040	CS04	1	Yes	No	1,200	1,200	2,00	1,00	2,400	1,200	36,58	30,12	1,200	1,200
B040	CS04	2	No	No	2,500	2,500	1,00	1,00	2,500	2,500	38,11	62,74	2,500	2,500
B100	CS11	1	Yes	No	5,796	5,796	1,00	1,00	5,796	5,796	83,48	287,26	5,796	5,796
B100	CS11	2	Yes	No	5,796	5,796	1,00	1,00	5,796	5,796	83,48	287,26	5,796	5,796
B096	CS11	1	Yes	No	5,796	5,796	1,00	1,00	5,796	5,796	83,48	287,26	5,796	5,796
B096	CS11	2	Yes	No	5,796	5,796	1,00	1,00	5,796	5,796	83,48	287,26	5,796	5,796
B095	CS11	1	Yes	No	1,200	1,200	1,00	1,00	1,200	1,200	17,28	59,47	1,200	1,200
B095	CS11	2	Yes	No	1,200	1,200	1,00	1,00	1,200	1,200	17,28	59,47	1,200	1,200
B017	CS05	1	Yes	No	2,500	2,500	1,00	1,00	2,500	2,500	33,59	55,32	2,500	2,500
B007	CS05	1	Yes	No	2,500	2,500	1,00	1,00	2,500	2,500	33,59	55,32	2,500	2,500
B232	CS08	1	Yes	No	3,536	3,536	1,00	1,00	3,536	3,535	115,69	226,56	3,536	3,536
B233	CS08	1	Yes	No	3,536	3,536	1,00	1,00	3,536	3,535	115,69	226,56	3,536	3,536

6.2. EC-EN 1993 Steel check ULS

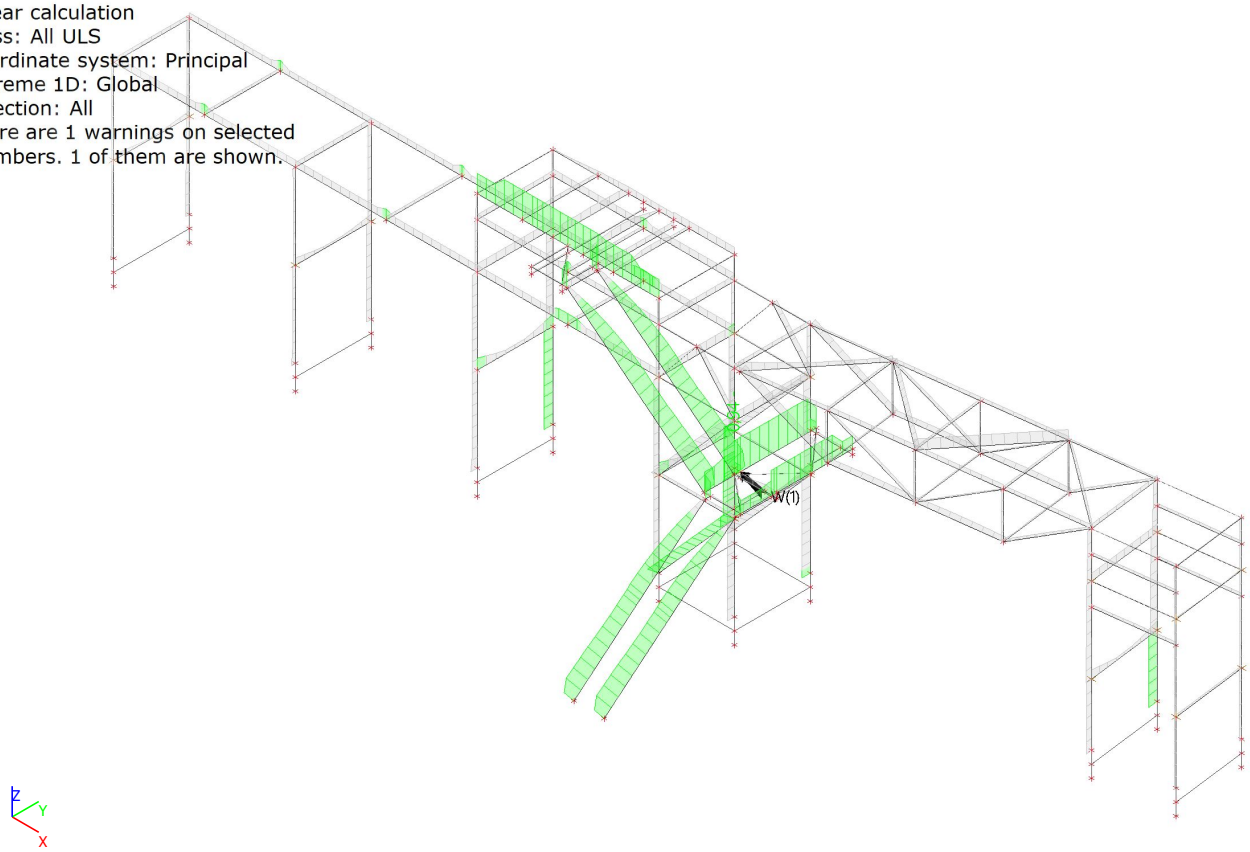
Linear calculation
Class: All ULS
Coordinate system: Principal
Extreme 1D: Cross-section
Selection: All
There are 1 warnings on selected members. 1 of them are shown.
Overall Unity Check

Name	dx [m]	Case	Cross-section	Material	$UC_{Overall}$ [-]	UC_{Sec} [-]	UC_{Stab} [-]	Errors, warnings, notes
B061	2,500-	ULS_2/1	CS07 - HEB180	S 355	**0,79**	0,56	0,79	
B058	2,500	ULS_2/2	CS05 - HEA180	S 355	**0,34**	0,34	0,00	W30
B087	0,000	ULS_2/3	CS03 - HEA140	S 355	**0,31**	0,31	0,00	
B043	0,000	ULS_2/3	CS08 - HFLeq80x80x8	S 355	**0,28**	0,02	0,28	
B055	3,000+	ULS_2/4	CS04 - HEA160	S 355	**0,30**	0,16	0,30	
B077	0,000	ULS_2/5	CS10 - UNP140	S 355	**0,14**	0,04	0,14	
B090	2,500+	ULS_2/6	CS11 - UNP180	S 355	**0,94**	0,57	0,94	W30

Name	Combination key
ULS_2/1	1.20*DL + 1.20*EO + 0.90*TLs + 0.90*Wy + 1.20*DL1 + 1.20*DL2 + 1.50*LL
ULS_2/2	0.90*DL + 0.90*EO + 0.90*TLs + 1.50*Wy + 0.90*DL1 + 0.90*DL2
ULS_2/3	1.20*DL + 1.20*EO + 1.50*Wy + 1.20*DL1 + 1.20*DL2 + 0.75*LL
ULS_2/4	1.20*DL + 1.20*EO + 0.90*TLs + 1.50*Wy + 1.20*DL1 + 1.20*DL2
ULS_2/5	1.20*DL + 1.20*EO + 1.50*Wx + 0.90*TLs + 1.20*DL1 + 1.20*DL2 + 0.75*LL
ULS_2/6	1.20*DL + 1.20*EO + 0.90*Wx + 1.20*DL1 + 1.20*DL2 + 1.50*LL

E/W/N	Description
W30	Not all conditions of the Dutch NEN-EN NA (Art. NB.NB.1) are fulfilled, therefore the standard EC-EN approach is used.

Values: **$UC_{Overall}$**
Linear calculation
Class: All ULS
Coordinate system: Principal
Extreme 1D: Global
Selection: All
There are 1 warnings on selected members. 1 of them are shown.



6.3. EC-EN 1993 Steel Check SLS - uz,max

Linear calculation
Class: SLS_Characteristic
Coordinate system: Principal
Extreme 1D: Global
Selection: All
Filter: Type of beam = Beam
Limit setting

Name	dx [m]	$L_{def,y}$ [m] $L_{def,z}$ [m]	Total load y [1/xx] Total load z [1/xx]	Variable load y [1/xx] Variable load z [1/xx]	Lim. $u_{y,max}$ [mm] Lim. $u_{z,max}$ [mm]	Lim. $u_{y,var}$ [mm] Lim. $u_{z,var}$ [mm]
B046	0,000	**6,000**	1/250	1/333	24,0	18,0
		6,000	1/250	1/333	24,0	18,0

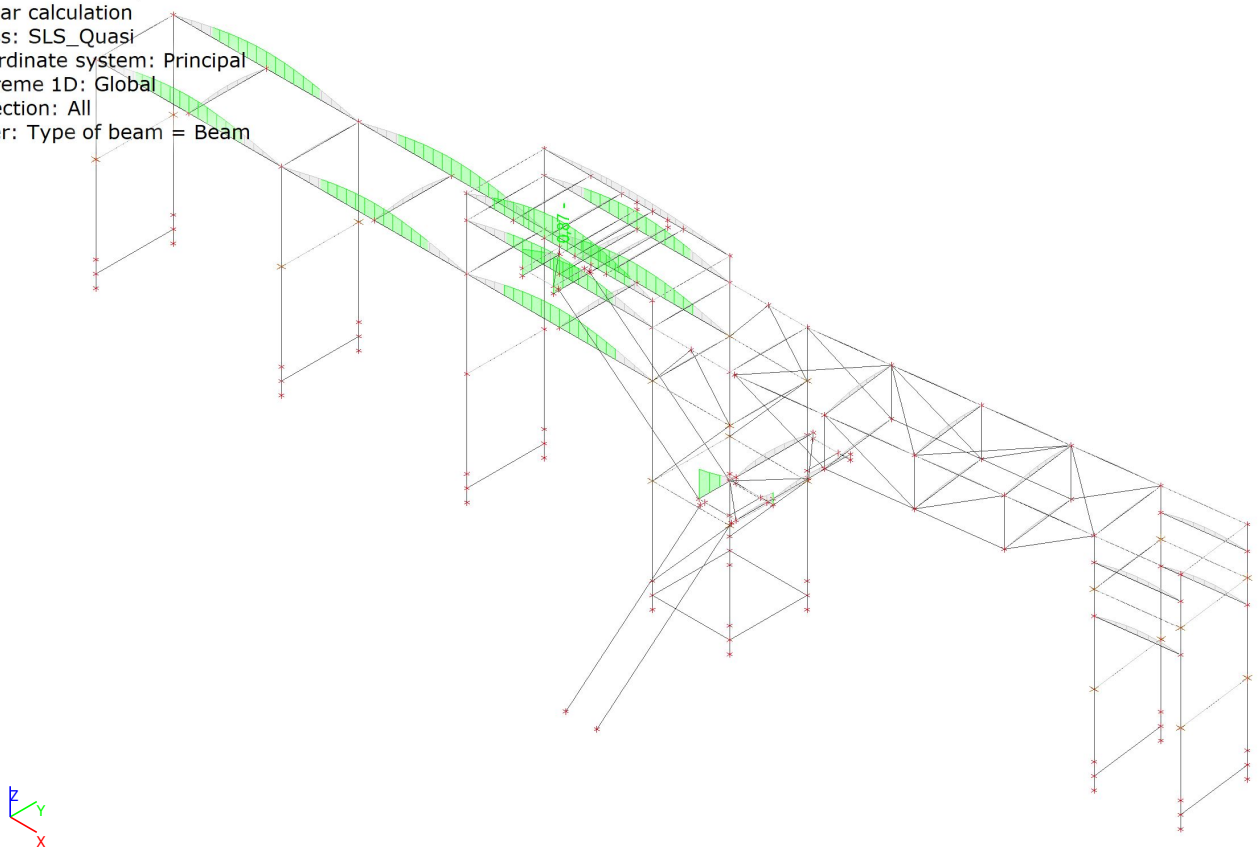
6.4. EC-EN 1993 Steel Check SLS

Linear calculation
Class: SLS_Quasi
Coordinate system: Principal
Extreme 1D: Global
Selection: All
Filter: Type of beam = Beam
Deformation u_z

Name	dx [m]	Case	$u_{z,max}$ [mm]	$u_{z,var}$ [mm]	Lim. $u_{z,max}$ [mm]	Lim. $u_{z,var}$ [mm]	Check $u_{z,max}$ [-]	Check $u_{z,var}$ [-]	Camber dx u_z [mm]	Camber [mm]	Check u_z [-]
B040	0,000	SLS-Quasi_2/1	-8,3	-3,1	9,6	7,2	**0,87**	0,43	-	-	**0,87**

Name	Combination key
SLS-Quasi_2/1	DL + EO + DL1 + DL2 + 0.30*LL

Values: **Check $u_{z,max}$**
Linear calculation
Class: SLS_Quasi
Coordinate system: Principal
Extreme 1D: Global
Selection: All
Filter: Type of beam = Beam



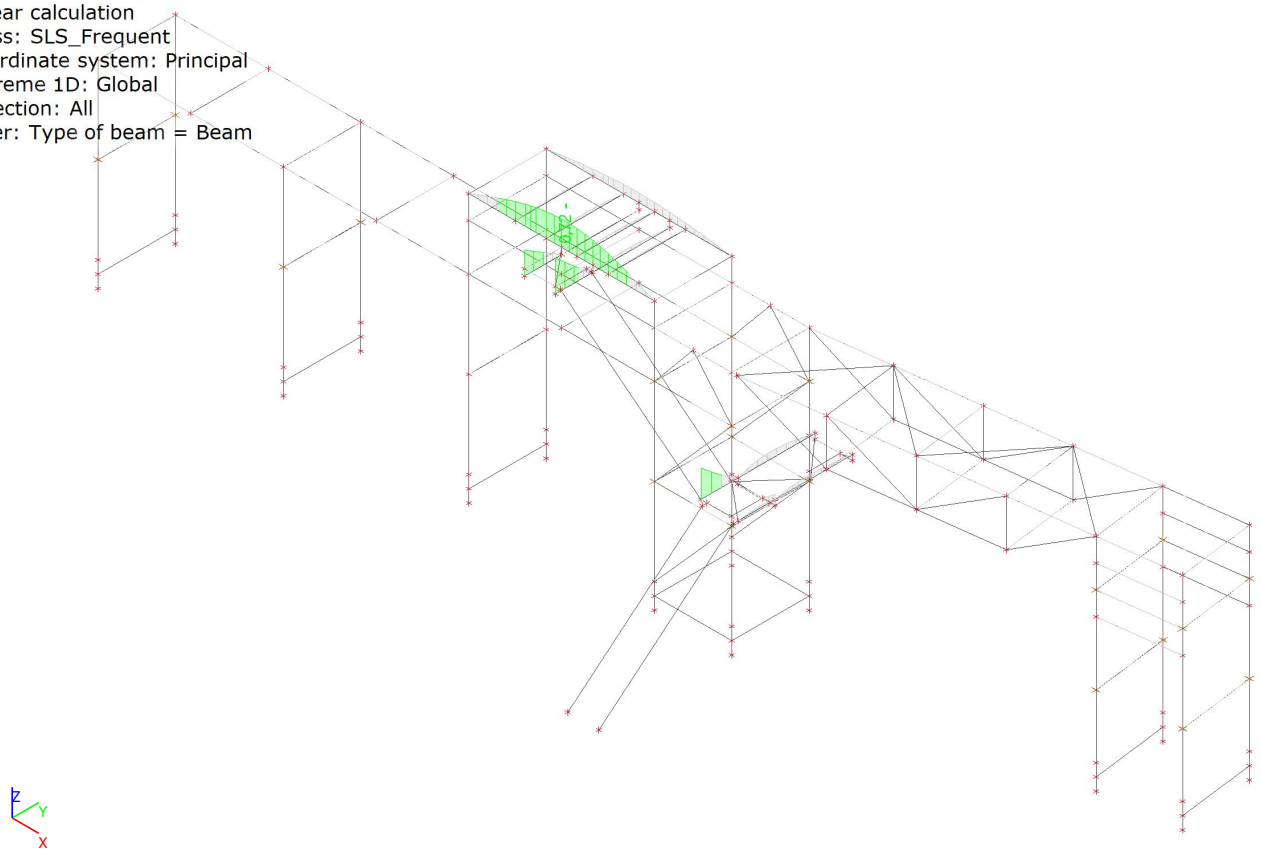
6.5. EC-EN 1993 Steel Check SLS - uz,var

Linear calculation
Class: SLS_Frequent
Coordinate system: Principal
Extreme 1D: Global
Selection: All
Filter: Type of beam = Beam
Deformation u_z

Name	dx [m]	Case	$u_{z,max}$ [mm]	$u_{z,var}$ [mm]	Lim. $u_{z,max}$ [mm]	Lim. $u_{z,var}$ [mm]	Check $u_{z,max}$ [-]	Check $u_{z,var}$ [-]	Camber dx u_z [mm]	Camber [mm]	Check u_z [-]
B040	0,000	SLS-Freq_2/1	-10,4	-5,2	9,6	7,2	1,08	**0,72**	-	-	**1,08**

Name	Combination key
SLS-Freq_2/1	DL + EO + DL1 + DL2 + 0.50*LL

Values: **Check $u_{z,var}$**
Linear calculation
Class: SLS_Frequent
Coordinate system: Principal
Extreme 1D: Global
Selection: All
Filter: Type of beam = Beam



6.6. EC-EN 1993 Steel Check SLS - uy,var

Linear calculation
Class: SLS_Frequent
Coordinate system: Principal
Extreme 1D: Global
Selection: All
Filter: Type of beam = Beam
Deformation u_y

Name	dx [m]	Case	$u_{y,max}$ [mm]	$u_{y,var}$ [mm]	Lim. $u_{y,max}$ [mm]	Lim. $u_{y,var}$ [mm]	Check $u_{y,max}$ [-]	Check $u_{y,var}$ [-]	Check u_y [-]
B087	0,000	SLS-Freq_2/1	-0,2	-0,1	1,6	1,2	0,15	**0,11**	**0,15**

Name	Combination key
SLS-Freq_2/1	DL + EO + 0.20*Wy + DL1 + DL2 + 0.30*LL

Values: **Check $u_{y,var}$**
Linear calculation
Class: SLS_Frequent
Coordinate system: Principal
Extreme 1D: Global
Selection: All
Filter: Type of beam = Beam