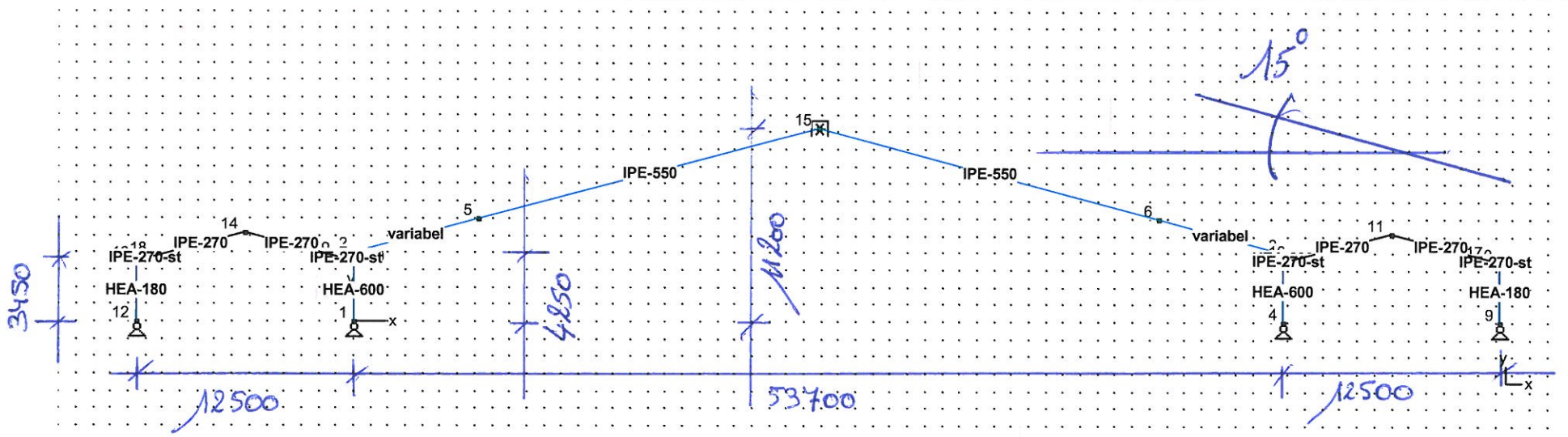
Geometrie


15°
15
IPE-550
IPE-550
5
6
variabel
variabel
14
11
IPE-270
IPE-270
IPE-270-st
IPE-270-st
IPE-270-st
IPE-270-st
HEA-180
HEA-600
HEA-600
HEA-180
12
1
4
9
x
y
x
3450
4850
11200
12500
53700
12500

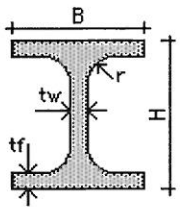
Data - Knopen

kn	x mm	y mm	z mm	sch.	stpt.	massa kg
1	0	0	0		⊁ krx = 0.0 \ kry = 0.0 \ krz = 10000.0	0.0
2	0	4000	0			0.0
3	53700	4000	0			0.0
4	53700	0	0		⊁ krx = 0.0 \ kry = 0.0 \ krz = 10000.0	0.0
5	7244	5943	0			0.0
6	46456	5943	-0			0.0
7	0	3450	0			0.0
8	53700	3450	0			0.0
9	66200	0	0		⊁ krx = 0.0 \ kry = 0.0 \ krz = 5000.0	0.0
10	66200	3450	-0			0.0
11	59950	5125	0			0.0
12	-12500	0	0		⊁ krx = 0.0 \ kry = 0.0 \ krz = 5000.0	0.0
13	-12500	3450	-0			0.0
14	-6250	5125	0			0.0
15	26850	11200	0		⊁ kx = 0.0 \ ky = 0.0 \ krx = 0.0 \ kry = 0.0 \ krz = 0.0	0.0
16	54280	3605	0			0.0
17	65620	3605	-0			0.0
18	-11534	3709	-0			0.0
19	-966	3709	-0			0.0

Data - Staven

st	kn1	kn2	profiel	oriënt. °	lengte mm	helling °	kn1 kN/m - kNm/rad	kn2 kN/m - kNm/rad
1	2	5	variabel	0.00	7500	15.01		
2	3	6	variabel	-0.00	7500	15.01		
3	1	7	HEA-600	0.00	3450	90.00		
4	2	7	HEA-600	0.00	550	-90.00		
5	3	8	HEA-600	0.00	550	-90.00		
6	4	8	HEA-600	0.00	3450	90.00		
7	9	10	HEA-180	0.00	3450	90.00		
8	12	13	HEA-180	0.00	3450	90.00		
9	5	15	IPE-550	-0.00	20299	15.01		
10	6	15	IPE-550	0.00	20299	15.01		
11	8	16	IPE-270-st	0.00	600	15.00		
12	11	16	IPE-270	-0.00	5871	-15.00		
13	10	17	IPE-270-st	-0.00	600	15.00		
14	11	17	IPE-270	0.00	5871	-15.00		
15	13	18	IPE-270-st	0.00	1000	15.00		
16	14	18	IPE-270	0.00	5471	-15.00		
17	7	19	IPE-270-st	-0.00	1000	15.00		
18	14	19	IPE-270	0.00	5471	-15.00		

Data - Profiel HEA-180



B = 180 mm H = 171 mm

tw = 6 mm
tf = 10 mm
r = 15 mm

materiaal : Staal(Fe 360), warm gevormd

Data - Profiel HEA-180

weerstandskarakteristieken :

oppervl. = 45.25 cm²

sterke as y-y :

Iy = 25102837.0 mm4
Wy = 293600.4 mm³
Wpl,y = 324852.6 mm³
iy = 74.5 mm
Avz = 14.47 cm²

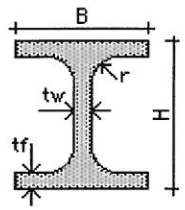
It = 147982.4 mm4
Iw = 60210874125.0 mm6

gewicht = 35.5 kg/m

zwakke as z-z :

Iz = 9246045.1 mm4
Wz = 102733.8 mm³
Wpl,z = 156494.5 mm³
iz = 45.2 mm
Avy = 37.36 cm²

Data - Profiel HEA-600



B = 300 mm H = 590 mm

tw = 13 mm
tf = 25 mm
r = 27 mm

materiaal : Staal(Fe 360), warm gevormd

weerstandskarakteristieken :

oppervl. = 226.46 cm²

sterke as y-y :

Iy = 1412080353.7 mm4
Wy = 4786713.1 mm³
Wpl,y = 5350386.3 mm³
iy = 249.7 mm
Avz = 93.21 cm²

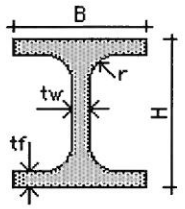
It = 3978054.1 mm4
Iw = 8978203125008.0 mm6

gewicht = 177.8 kg/m

zwakke as z-z :

Iz = 112713083.5 mm4
Wz = 751420.6 mm³
Wpl,z = 1155656.6 mm³
iz = 70.5 mm
Avy = 160.03 cm²

Data - Profiel IPE-270



B = 135 mm H = 270 mm

tw = 7 mm
tf = 10 mm
r = 15 mm

materiaal : Staal(Fe 360), warm gevormd

weerstandskarakteristieken :

oppervl. = 45.95 cm²

sterke as y-y :

Iy = 57897773.3 mm4
Wy = 428872.4 mm³
Wpl,y = 483996.8 mm³
iy = 112.3 mm
Avz = 22.14 cm²

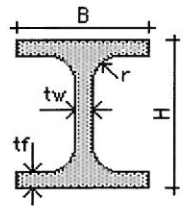
It = 159448.0 mm4
Iw = 70577867001.4 mm6

gewicht = 36.1 kg/m

zwakke as z-z :

Iz = 4198679.9 mm4
Wz = 62202.7 mm³
Wpl,z = 96950.1 mm³
iz = 30.2 mm
Avy = 30.78 cm²

Data - Profiel IPE-270-st



B = 135 mm H1 = 570 mm
H2 = 270 mm
tw = 7 mm
tf = 10 mm
r = 15 mm

materiaal : Staal(Fe 360), warm gevormd

weerstandskarakteristieken (H = H1) :

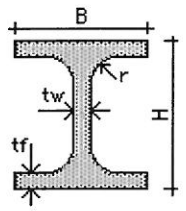
oppervl. = 65.75 cm²
gewicht = 51.6 kg/m

sterke as y-y :

			zwakke as z-z :		
Iy =	321322980.5	mm4	Iz =	4205867.3	mm4
Wy =	1127449.1	mm³	Wz =	62309.1	mm³
Wpl,y =	1321672.1	mm³	Wpl,z =	100217.1	mm³
iy =	221.1	mm	iz =	25.3	mm
Avz =	41.94	cm²	Avy =	30.78	cm²

It = 188197.6 mm4
Iw = 327684594126.5 mm6

Data - Profiel IPE-550



B = 210 mm H = 550 mm
tw = 11 mm
tf = 17 mm
r = 24 mm

materiaal : Staal(Fe 360), warm gevormd

weerstandskarakteristieken :

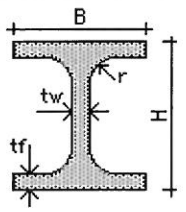
oppervl. = 134.42 cm²
gewicht = 105.5 kg/m

sterke as y-y :

			zwakke as z-z :		
Iy =	671164648.8	mm4	Iz =	26675785.2	mm4
Wy =	2440598.7	mm³	Wz =	254055.1	mm³
Wpl,y =	2787005.6	mm³	Wpl,z =	400536.5	mm³
iy =	223.5	mm	iz =	44.5	mm
Avz =	72.34	cm²	Avy =	80.60	cm²

It = 1232358.3 mm4
Iw = 1884098143874.0 mm6

Data - Profiel variabel



B = 250 mm H1 = 1200 mm
H2 = 550 mm
tw = 10 mm
tf = 25 mm
r = 0 mm

materiaal : Staal(Fe 360), warm gevormd

weerstandskarakteristieken (H = H1) :

oppervl. = 240.00 cm²
gewicht = 188.4 kg/m

sterke as y-y :

			zwakke as z-z :		
Iy =	5582500000.0	mm4	Iz =	65200000.0	mm4
Wy =	9304166.7	mm³	Wz =	521600.0	mm³
Wpl,y =	10650000.0	mm³	Wpl,z =	810000.0	mm³
iy =	482.3	mm	iz =	52.1	mm

Data - Profiel variabel

Avz = 117.50 cm² Avy = 122.50 cm²

It = 2876446.7 mm4

Iw = 22471110026048.0 mm6

Data - Materiaal Staal(Fe 360)

type : staal

karakteristieken :

elasticiteitsmodulus = 210000 N/mm²

coëfficiënt v. Poisson = 0.30

soortelijke massa = 77.0 kN/m³

therm. uitzettingscoëff. = 0.000012 /°C

Staalkwaliteiten (N/mm²) :

staalsoort	t <= 40		40 < t <= 100	
	fy	fu	fy	fu
Staal(Fe 360)	235.00	360.00	215.00	340.00

Veiligheidscoëfficiënten :

γ_{M0} = 1.10

γ_{M1} = 1.10

γ_{M2} = 1.25

Data - Staaflasten - Permanente last-dak

st	kn1	kn2	type	x, y, z x',y',z'	afst. 1 mm	afst. 2 mm	grootte 1 kN, kNm, °C, kN/m, min	grootte 2 °C, kN/m, min
1	2	5		y	0	0	1.500	1.500
2	3	6		y	0	0	1.500	1.500
9	5	15		y	0	0	1.500	1.500
10	6	15		y	0	0	1.500	1.500
11	8	16		y	0	0	1.500	1.500
12	11	16		y	0	0	1.500	1.500
13	10	17		y	0	0	1.500	1.500
14	11	17		y	0	0	1.500	1.500
15	13	18		y	0	0	1.500	1.500
16	14	18		y	0	0	1.500	1.500
17	7	19		y	0	0	1.500	1.500
18	14	19		y	0	0	1.500	1.500

Data - Staaflasten - Permanente last-wanden

st	kn1	kn2	type	x, y, z x',y',z'	afst. 1 mm	afst. 2 mm	grootte 1 kN, kNm, °C, kN/m, min	grootte 2 °C, kN/m, min
3	1	7		y	100	3350	100.000	0.000
6	4	8		y	100	3350	100.000	0.000
7	9	10		y	100	3350	80.000	0.000
8	12	13		y	100	3350	80.000	0.000

Data - Staaflasten - Sneeuw01

st	kn1	kn2	type	x, y, z x',y',z'	afst. 1 mm	afst. 2 mm	grootte 1 kN, kNm, °C, kN/m, min	grootte 2 °C, kN/m, min
1	2	5		y	0	0	2.520	2.520
2	3	6		y	0	0	2.520	2.520
4	2	7		y	0	0	0.000	0.000
5	3	8		y	0	0	0.000	0.000
7	9	10		y	0	0	0.000	0.000
8	12	13		y	0	0	0.000	0.000
9	5	15		y	0	0	2.520	2.520
10	6	15		y	0	0	2.520	2.520
11	8	16		y	0	0	5.040	4.806
12	11	16		y	0	400	2.520	4.651
12	11	16		y	5471	0	4.651	4.806
13	10	17		y	0	0	2.520	2.520
14	11	17		y	0	0	2.520	2.520
15	13	18		y	0	0	2.520	2.520
16	14	18		y	0	0	2.520	2.520
17	7	19		y	0	0	5.040	4.651
18	14	19		y	0	0	2.520	4.651

Data - Staaflasten - Sneeuw02

st	kn1	kn2	type	x, y, z x',y',z'	afst. 1 mm	afst. 2 mm	grootte 1 kN, kNm, °C, kN/m, min	grootte 2 °C, kN/m, min
1	2	5		y	0	0	1.260	1.260
2	3	6		y	0	0	2.520	2.520
4	2	7		y	0	0	0.000	0.000
5	3	8		y	0	0	0.000	0.000
7	9	10		y	0	0	0.000	0.000
8	12	13		y	0	0	0.000	0.000
9	5	15		y	0	0	1.260	1.260
10	6	15		y	0	0	2.520	2.520
11	8	16		y	0	0	5.040	4.806
12	11	16		y	0	400	2.520	4.651
12	11	16		y	5471	0	4.651	4.806
13	10	17		y	0	0	2.520	2.520
14	11	17		y	0	0	2.520	2.520
15	13	18		y	0	0	1.260	1.260
16	14	18		y	0	0	1.260	1.260
17	7	19		y	0	0	5.040	4.651
18	14	19		y	0	0	2.520	4.651

Data - Staaflasten - Sneeuw03

st	kn1	kn2	type	x, y, z x',y',z'	afst. 1 mm	afst. 2 mm	grootte 1 kN, kNm, °C, kN/m, min	grootte 2 °C, kN/m, min
1	2	5		y	0	0	2.520	2.520
2	3	6		y	0	0	1.260	1.260
4	2	7		y	0	0	0.000	0.000
5	3	8		y	0	0	0.000	0.000
7	9	10		y	0	0	0.000	0.000
8	12	13		y	0	0	0.000	0.000
9	5	15		y	0	0	2.520	2.520

Data - Staaflasten - Sneeuw03

st	kn1	kn2	type	x, y, z x',y',z'	afst. 1 mm	afst. 2 mm	grootte 1 kN, kNm, °C, kN/m, min	grootte 2 °C, kN/m, min
10	6	15		y	0	0	1.260	1.260
11	8	16		y	0	0	5.040	4.806
12	11	16		y	0	400	2.520	4.651
12	11	16		y	5471	0	4.651	4.806
13	10	17		y	0	0	1.260	1.260
14	11	17		y	0	0	1.260	1.260
15	13	18		y	0	0	2.520	2.520
16	14	18		y	0	0	2.520	2.520
17	7	19		y	0	0	5.040	4.651
18	14	19		y	0	0	2.520	4.651

Data - Staaflasten - Wind01

st	kn1	kn2	type	x, y, z x',y',z'	afst. 1 mm	afst. 2 mm	grootte 1 kN, kNm, °C, kN/m, min	grootte 2 °C, kN/m, min
1	2	5		z'	0	5181	-2.280	-2.280
2	3	6		z'	0	0	-0.456	-0.456
4	2	7		z'	0	0	3.001	3.001
5	3	8		z'	0	0	0.775	0.775
7	9	10		z'	0	0	0.569	0.569
8	12	13		z'	0	0	3.001	3.001
10	6	15		z'	17979	0	-3.192	-3.192
10	6	15		z'	0	2319	-0.456	-0.456
11	8	16		z'	0	0	-1.674	-1.674
12	11	16		z'	4152	0	-1.674	-1.674
13	10	17		z'	0	0	-0.335	-0.335
14	11	17		z'	0	3552	-2.344	-2.344
14	11	17		z'	2319	0	-0.335	-0.335
15	13	18		z'	0	0	-1.674	-1.674
16	14	18		z'	4152	0	-1.674	-1.674
17	7	19		z'	0	0	-0.335	-0.335
18	14	19		z'	0	3152	-2.344	-2.344
18	14	19		z'	2319	0	-0.335	-0.335

Data - Staaflasten - Wind02

st	kn1	kn2	type	x, y, z x',y',z'	afst. 1 mm	afst. 2 mm	grootte 1 kN, kNm, °C, kN/m, min	grootte 2 °C, kN/m, min
1	2	5		z'	0	5181	-2.280	-2.280
2	3	6		z'	0	0	1.368	1.368
4	2	7		z'	0	0	3.001	3.001
5	3	8		z'	0	0	0.775	0.775
7	9	10		z'	0	0	0.569	0.569
8	12	13		z'	0	0	3.001	3.001
10	6	15		z'	0	0	1.368	1.368
11	8	16		z'	0	0	-1.674	-1.674
12	11	16		z'	4152	0	-1.674	-1.674
13	10	17		z'	0	0	1.004	1.004
14	11	17		z'	0	0	1.004	1.004
15	13	18		z'	0	0	-1.674	-1.674
16	14	18		z'	4152	0	-1.674	-1.674
17	7	19		z'	0	0	1.004	1.004

Data - Staaflasten - Wind02

st	kn1	kn2	type	x, y, z x',y',z'	afst. 1 mm	afst. 2 mm	grootte 1 kN, kNm, °C, kN/m, min	grootte 2 °C, kN/m, min
18	14	19		z'	0	0	1.004	1.004

Data - Staaflasten - Wind03

st	kn1	kn2	type	x, y, z x',y',z'	afst. 1 mm	afst. 2 mm	grootte 1 kN, kNm, °C, kN/m, min	grootte 2 °C, kN/m, min
1	2	5		z'	0	0	2.280	2.280
2	3	6		z'	0	0	-0.456	-0.456
4	2	7		z'	0	0	3.001	3.001
5	3	8		z'	0	0	0.775	0.775
7	9	10		z'	0	0	0.569	0.569
8	12	13		z'	0	0	3.001	3.001
9	5	15		z'	0	0	2.280	2.280
10	6	15		z'	17979	0	-3.192	-3.192
10	6	15		z'	0	2319	-0.456	-0.456
11	8	16		z'	0	0	1.674	1.674
12	11	16		z'	0	0	1.674	1.674
13	10	17		z'	0	0	-0.335	-0.335
14	11	17		z'	0	3552	-2.344	-2.344
14	11	17		z'	2319	0	-0.335	-0.335
15	13	18		z'	0	0	1.674	1.674
16	14	18		z'	0	0	1.674	1.674
17	7	19		z'	0	0	-0.335	-0.335
18	14	19		z'	0	3152	-2.344	-2.344
18	14	19		z'	2319	0	-0.335	-0.335

Data - Staaflasten - Wind04

st	kn1	kn2	type	x, y, z x',y',z'	afst. 1 mm	afst. 2 mm	grootte 1 kN, kNm, °C, kN/m, min	grootte 2 °C, kN/m, min
1	2	5		z'	0	0	2.280	2.280
2	3	6		z'	0	0	1.368	1.368
4	2	7		z'	0	0	3.001	3.001
5	3	8		z'	0	0	0.775	0.775
7	9	10		z'	0	0	0.569	0.569
8	12	13		z'	0	0	3.001	3.001
9	5	15		z'	0	0	2.280	2.280
10	6	15		z'	0	0	1.368	1.368
11	8	16		z'	0	0	1.674	1.674
12	11	16		z'	0	0	1.674	1.674
13	10	17		z'	0	0	1.004	1.004
14	11	17		z'	0	0	1.004	1.004
15	13	18		z'	0	0	1.674	1.674
16	14	18		z'	0	0	1.674	1.674
17	7	19		z'	0	0	1.004	1.004
18	14	19		z'	0	0	1.004	1.004

Data - Staaflasten - Wind05

st	kn1	kn2	type	x, y, z x',y',z'	afst. 1 mm	afst. 2 mm	grootte 1 kN, kNm, °C, kN/m, min	grootte 2 °C, kN/m, min
1	2	5		z'	0	5181	-4.560	-4.560
1	2	5		z'	2319	0	-2.280	-2.280
2	3	6		z'	0	0	-2.736	-2.736
4	2	7		z'	0	0	1.637	1.637
5	3	8		z'	0	0	2.713	2.713
7	9	10		z'	0	0	1.992	1.992
8	12	13		z'	0	0	1.637	1.637
9	5	15		z'	0	0	-2.280	-2.280
10	6	15		z'	17979	0	-5.472	-5.472
10	6	15		z'	0	2319	-2.736	-2.736
11	8	16		z'	0	0	-3.348	-3.348
12	11	16		z'	4152	0	-3.348	-3.348
12	11	16		z'	0	1719	-1.674	-1.674
13	10	17		z'	0	0	-2.009	-2.009
14	11	17		z'	0	3552	-4.018	-4.018
14	11	17		z'	2319	0	-2.009	-2.009
15	13	18		z'	0	0	-3.348	-3.348
16	14	18		z'	4152	0	-3.348	-3.348
16	14	18		z'	0	1319	-1.674	-1.674
17	7	19		z'	0	0	-2.009	-2.009
18	14	19		z'	0	3152	-4.018	-4.048
18	14	19		z'	2319	0	-2.009	-2.009

Data - Staaflasten - Wind06

st	kn1	kn2	type	x, y, z x',y',z'	afst. 1 mm	afst. 2 mm	grootte 1 kN, kNm, °C, kN/m, min	grootte 2 °C, kN/m, min
1	2	5		z'	0	5181	-4.560	-4.560
1	2	5		z'	2319	0	-2.280	-2.280
1	2	5		z'	0	5181	-4.560	-4.560
1	2	5		z'	2319	0	-2.280	-2.280
2	3	6		z'	0	0	-0.912	-0.912
4	2	7		z'	0	0	1.637	1.637
4	2	7		z'	0	0	1.637	1.637
5	3	8		z'	0	0	2.713	2.713
5	3	8		z'	0	0	2.713	2.713
7	9	10		z'	0	0	1.992	1.992
7	9	10		z'	0	0	1.992	1.992
8	12	13		z'	0	0	1.637	1.637
8	12	13		z'	0	0	1.637	1.637
9	5	15		z'	0	0	-2.280	-2.280
9	5	15		z'	0	0	-2.280	-2.280
10	6	15		z'	0	0	-0.912	-0.912
11	8	16		z'	0	0	-3.348	-3.348
12	11	16		z'	4152	0	-3.348	-3.348
12	11	16		z'	0	1719	-1.674	-1.674
13	10	17		z'	0	0	-0.670	-0.670
14	11	17		z'	0	0	-0.670	-0.670
15	13	18		z'	0	0	-3.348	-3.348
16	14	18		z'	4152	0	-3.348	-3.348
16	14	18		z'	0	1319	-1.674	-1.674
17	7	19		z'	0	0	-0.670	-0.670

Data - Staaflasten - Wind06

st	kn1	kn2	type	x, y, z x',y',z'	afst. 1 mm	afst. 2 mm	grootte 1 kN, kNm, °C, kN/m, min	grootte 2 °C, kN/m, min
18	14	19		z'	0	0	-0.670	-0.670

Data - Staaflasten - Wind07

st	kn1	kn2	type	x, y, z x',y',z'	afst. 1 mm	afst. 2 mm	grootte 1 kN, kNm, °C, kN/m, min	grootte 2 °C, kN/m, min
2	3	6		z'	0	0	-2.736	-2.736
4	2	7		z'	0	0	1.637	1.637
5	3	8		z'	0	0	2.713	2.713
7	9	10		z'	0	0	1.992	1.992
8	12	13		z'	0	0	1.637	1.637
10	6	15		z'	17979	0	-5.472	-5.472
10	6	15		z'	0	2319	-2.736	-2.736
13	10	17		z'	0	0	-2.009	-2.009
14	11	17		z'	0	3552	-4.018	-4.018
14	11	17		z'	2319	0	-2.009	-2.009
17	7	19		z'	0	0	-2.009	-2.009
18	14	19		z'	0	3152	-4.018	-4.018
18	14	19		z'	2319	0	-2.009	-2.009

Data - Staaflasten - Wind08

st	kn1	kn2	type	x, y, z x',y',z'	afst. 1 mm	afst. 2 mm	grootte 1 kN, kNm, °C, kN/m, min	grootte 2 °C, kN/m, min
2	3	6		z'	0	0	-0.912	-0.912
4	2	7		z'	0	0	1.637	1.637
5	3	8		z'	0	0	2.713	2.713
7	9	10		z'	0	0	1.992	1.992
8	12	13		z'	0	0	1.637	1.637
10	6	15		z'	0	0	-0.912	-0.912
13	10	17		z'	0	0	-0.670	-0.670
14	11	17		z'	0	0	-0.670	-0.670
17	7	19		z'	0	0	-0.670	-0.670
18	14	19		z'	0	0	-0.670	-0.670

Data - Eigengewicht

st	profiel	materiaal	lengte mm	gew./l kg/m	volume m³	gewicht kg	schilderoppervlakte cm²
1	variabel	Staal(Fe 360)	7500	162.9	0.16	1221.9	253500.00
2	variabel	Staal(Fe 360)	7500	162.9	0.16	1221.9	253500.00
3	HEA-600	Staal(Fe 360)	3450	177.8	0.08	613.4	79613.79
4	HEA-600	Staal(Fe 360)	550	177.8	0.01	97.8	12692.05
5	HEA-600	Staal(Fe 360)	550	177.8	0.01	97.8	12692.05
6	HEA-600	Staal(Fe 360)	3450	177.8	0.08	613.4	79613.79
7	HEA-180	Staal(Fe 360)	3450	35.5	0.02	122.6	35336.55
8	HEA-180	Staal(Fe 360)	3450	35.5	0.02	122.6	35336.55
9	IPE-550	Staal(Fe 360)	20299	105.5	0.27	2142.3	380922.92
10	IPE-550	Staal(Fe 360)	20299	105.5	0.27	2142.3	380922.92
11	IPE-270-st	Staal(Fe 360)	600	43.8	0.00	26.3	9846.29
12	IPE-270	Staal(Fe 360)	5871	36.1	0.03	211.8	61115.32

Data - Eigengewicht

st	profiel	materiaal	lengte mm	gew./l kg/m	volume m³	gewicht kg	schilderoppervlakte cm²
13	IPE-270-st	Staal(Fe 360)	600	43.8	0.00	26.3	9846.29
14	IPE-270	Staal(Fe 360)	5871	36.1	0.03	211.8	61115.32
15	IPE-270-st	Staal(Fe 360)	1000	43.8	0.01	43.8	16410.48
16	IPE-270	Staal(Fe 360)	5471	36.1	0.03	197.4	56951.13
17	IPE-270-st	Staal(Fe 360)	1000	43.8	0.01	43.8	16410.48
18	IPE-270	Staal(Fe 360)	5471	36.1	0.03	197.4	56951.13
			96379		1.19	9354.8	1812777.03

Data - Lastengroepen

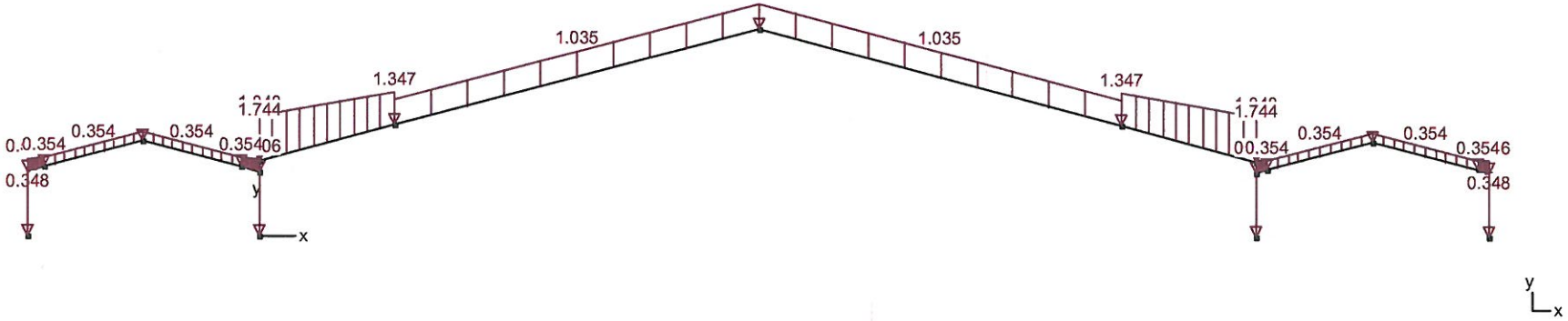
lastengroepen	γ_{u-}	γ_{u+}	γ_{g-}	γ_{g+}	ψ_0	ψ_1	ψ_2	
Eigengewicht	1,2	1	1	1	1	1	1	
Permanente last-dak	1,2	1	1	1	1	1	1	
Permanente last-wanden	1,2	1	1	1	1	1	1	
Sneeuw01	1,35	0	1	0	0	0,2	0	
Sneeuw02	1,35	0	1	0	0	0,2	0	
Sneeuw03	1,35	0	1	0	0	0,2	0	
Wind01	1,35	0	1	0	0	0,2	0	
Wind02	1,35	0	1	0	0	0,2	0	
Wind03	1,35	0	1	0	0	0,2	0	
Wind04	1,35	0	1	0	0	0,2	0	
Wind05	1,35	0	1	0	0	0,2	0	
Wind06	1,35	0	1	0	0	0,2	0	
Wind07	1,35	0	1	0	0	0,2	0	
Wind08	1,35	0	1	0	0	0,2	0	

= altijd samen
= alle combinaties
= alle combinaties, maar één last tegelijkertijd
= Seismisch event
= massa's voor trillingsanalyse

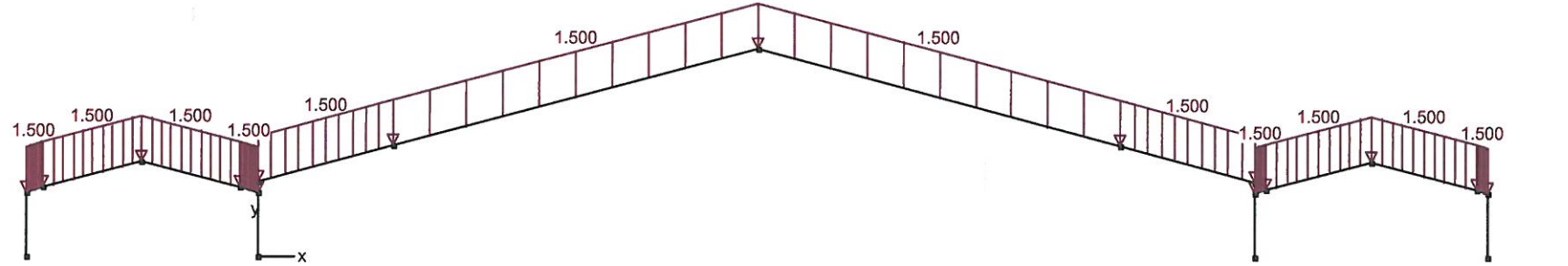
Data - Parameters staal

Toegepaste staalnorm : EN 1993-1-1

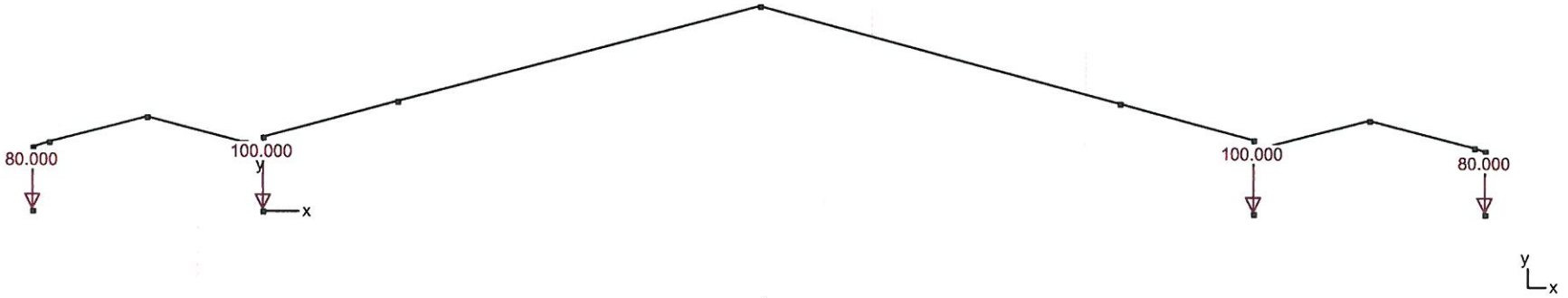
Lasten - Eigengewicht (kN, kNm, kN/m)



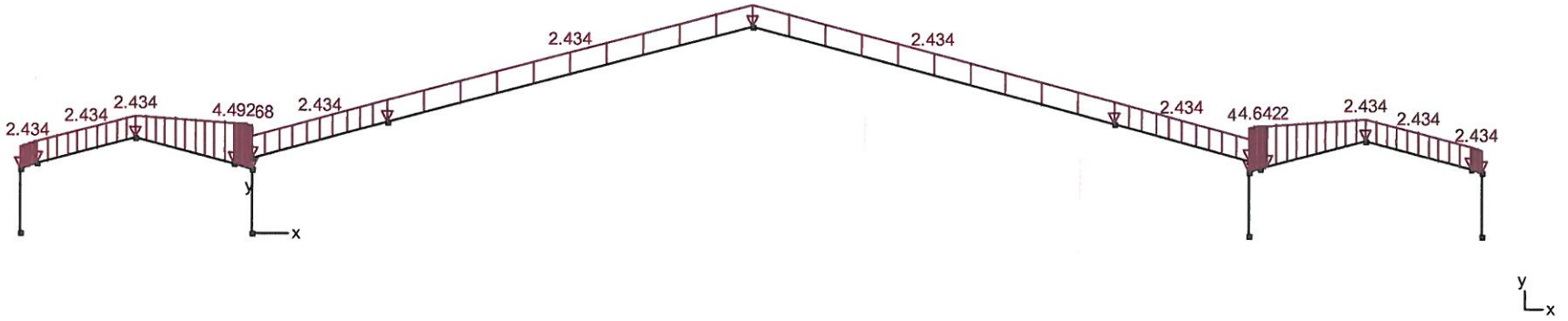
Lasten - Permanente last-dak (kN, kNm, kN/m)



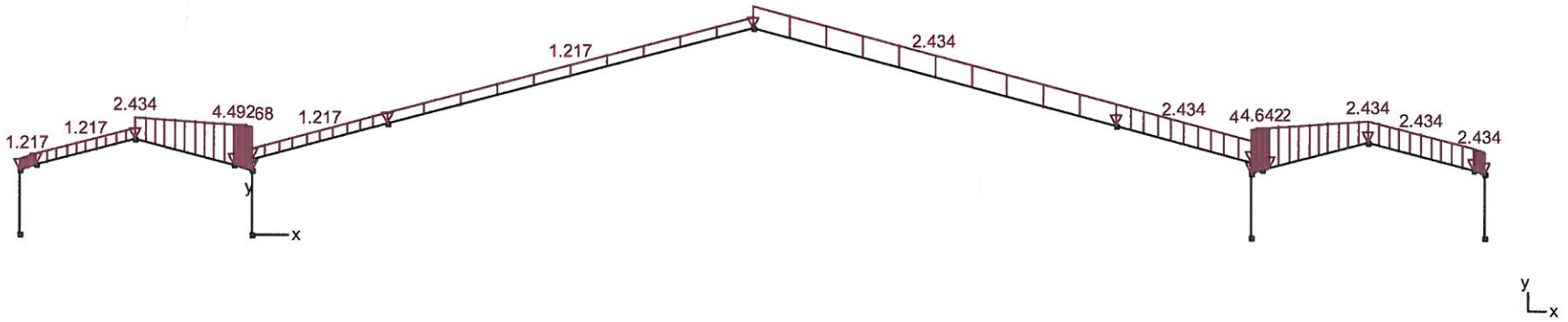
Lasten - Permanente last-wanden (kN, kNm, kN/m)



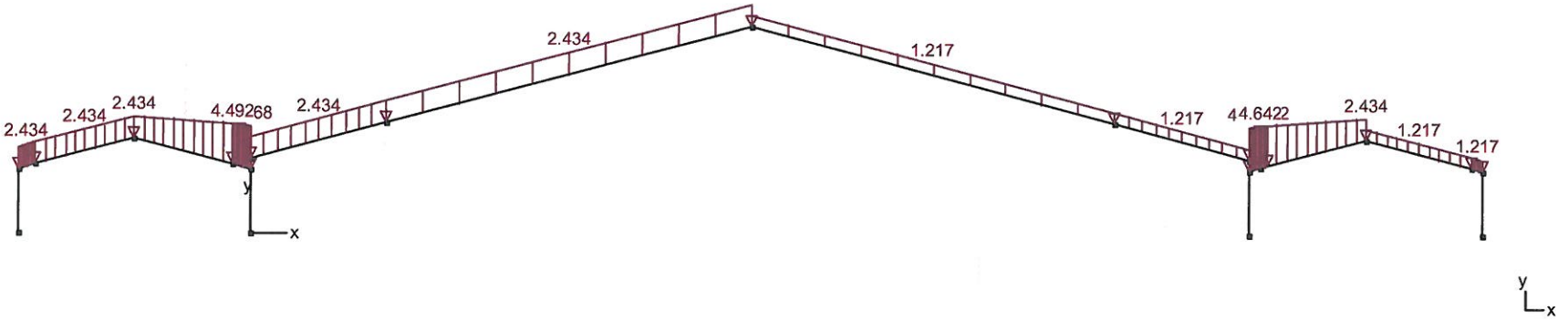
Lasten - Sneeuw01 (kN, kNm, kN/m)



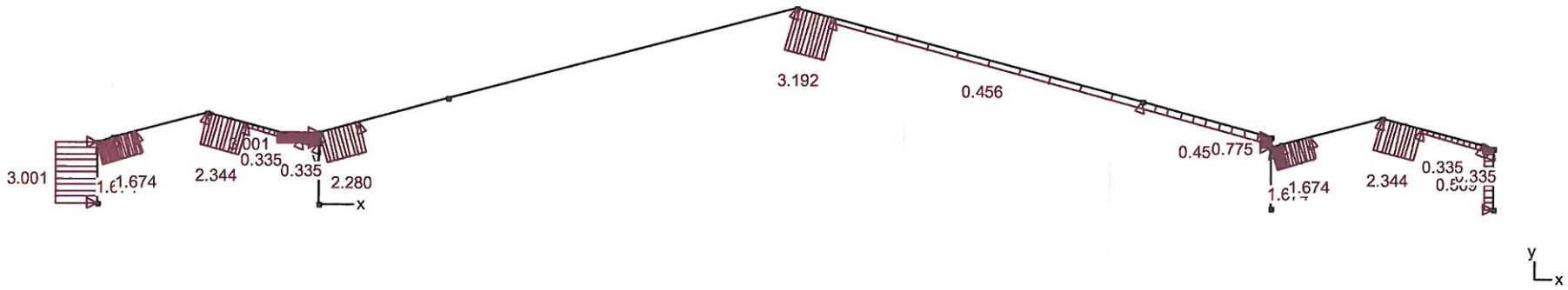
Lasten - Sneeuw02 (kN, kNm, kN/m)



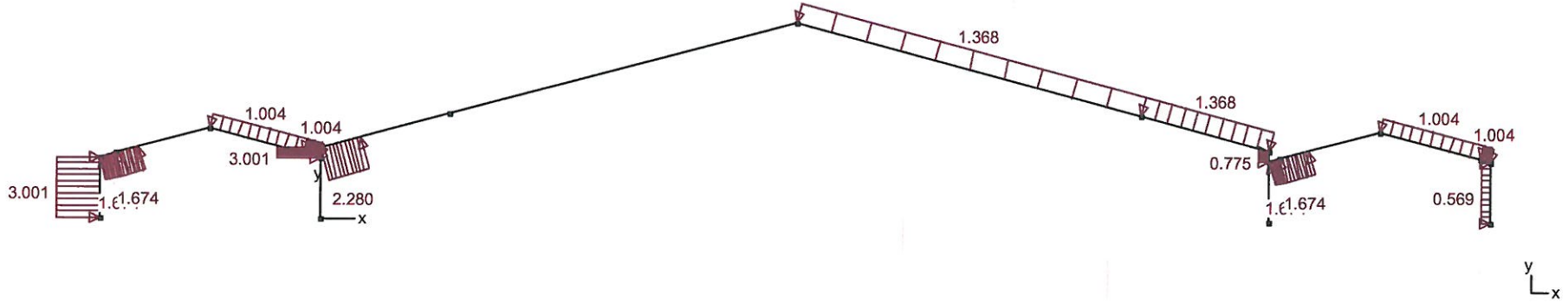
Lasten - Sneeuw03 (kN, kNm, kN/m)



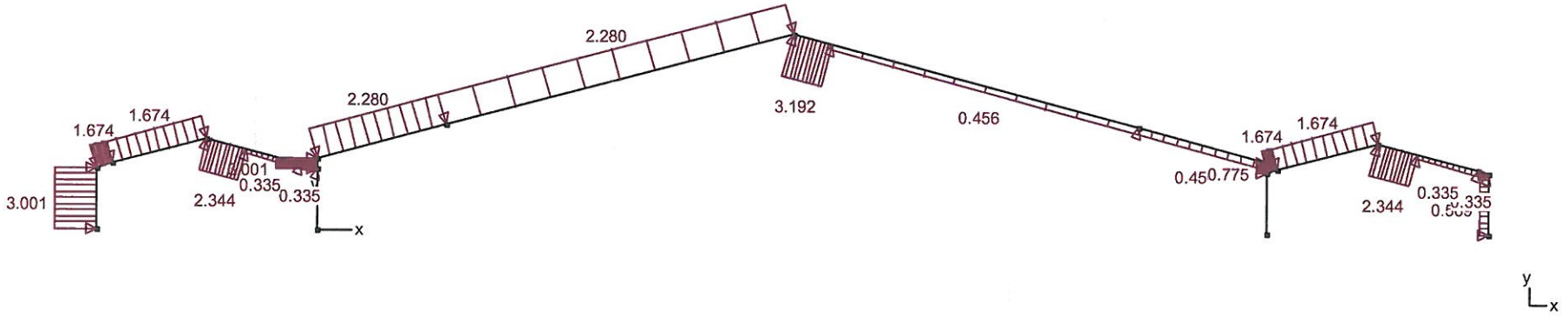
Lasten - Wind01 (kN, kNm, kN/m)



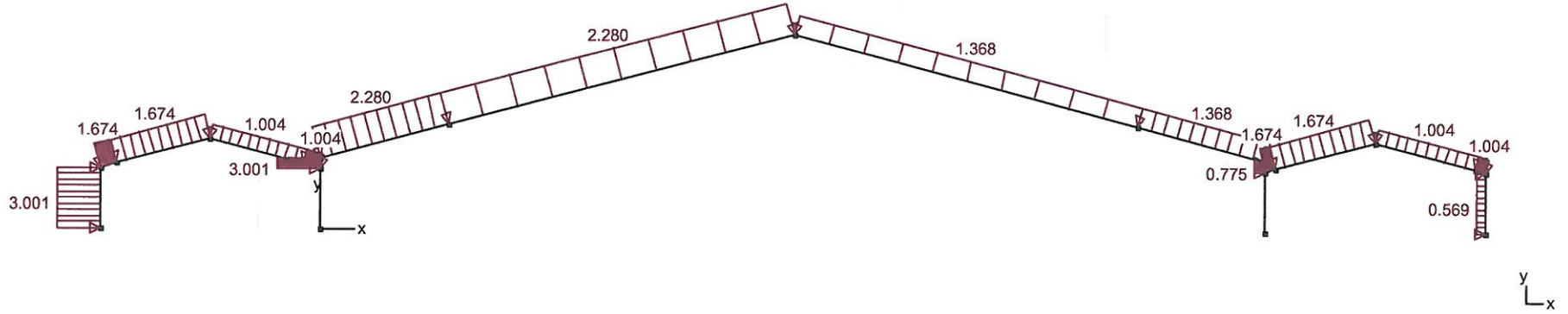
Lasten - Wind02 (kN, kNm, kN/m)



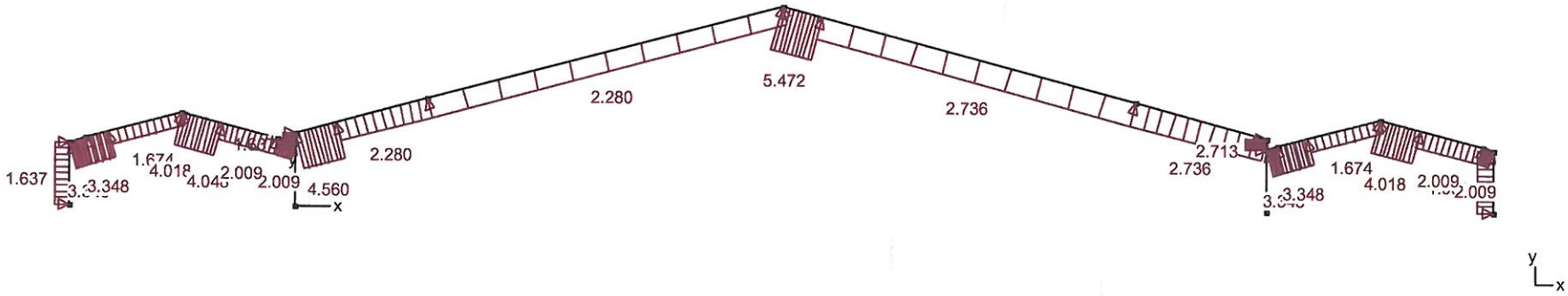
Lasten - Wind03 (kN, kNm, kN/m)



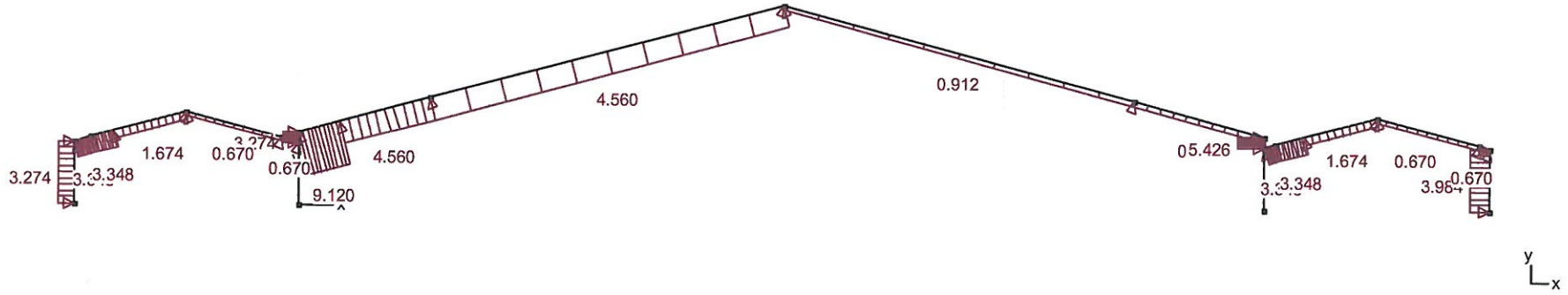
Lasten - Wind04 (kN, kNm, kN/m)



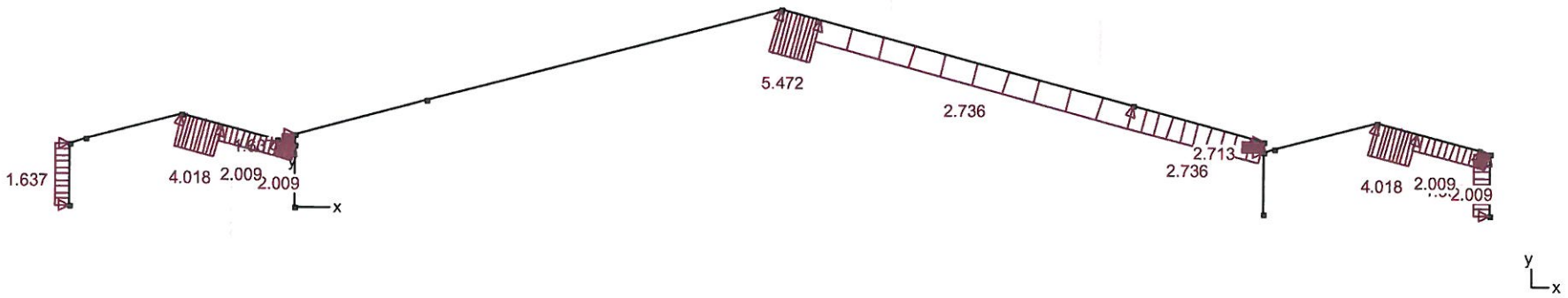
Lasten - Wind05 (kN, kNm, kN/m)



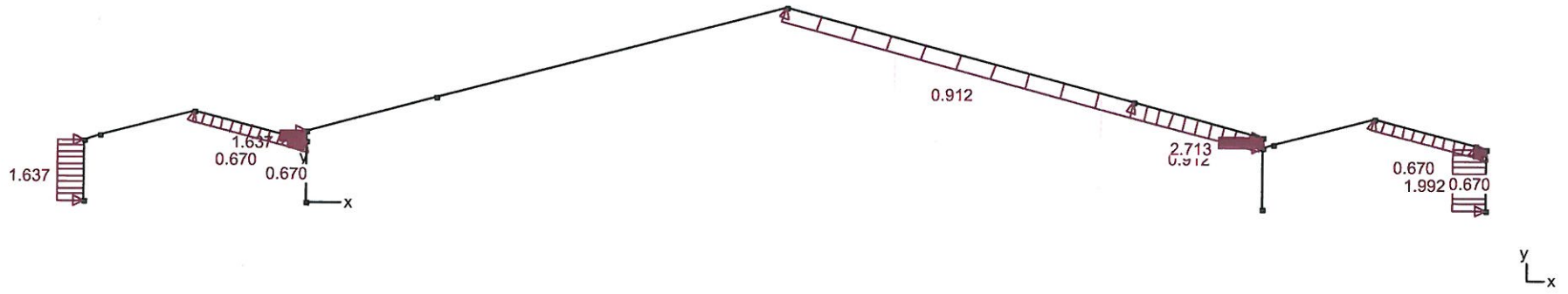
Lasten - Wind06 (kN, kNm, kN/m)



Lasten - Wind07 (kN, kNm, kN/m)



Lasten - Wind08 (kN, kNm, kN/m)



Resultaten - Knoopverplaatsingen - GGT ZC

kn	dx- mm	dx+ mm	dy- mm	dy+ mm	dz- mm	dz+ mm
1	-0	0	-0	-0	0	0
2	-24	18	-0	0	0	0
3	-22	29	-0	-0	-0	0
4	0	0	-0	-0	0	0
5	-37	30	-50	47	0	0
6	-33	37	-43	36	-0	0
7	-21	16	-0	0	0	0
8	-18	25	-0	-0	-0	0
9	0	0	-0	-0	-0	0
10	-15	29	-0	-0	-0	0
11	-17	27	-18	1	-0	0
12	-0	0	-0	-0	0	0
13	-24	16	-0	0	0	0
14	-21	16	-16	3	0	0
15	-23	21	-58	-2	-0	0
16	-19	26	-4	3	-0	0
17	-16	29	-3	2	-0	0
18	-24	17	-3	3	0	0
19	-22	17	-6	5	0	0

Resultaten - Reacties - GGT ZC

knp	Rx- kN	Rx+ kN	Ry- kN	Ry+ kN	Rz- kN	Rz+ kN	Mx- kNm	Mx+ kNm	My- kNm	My+ kNm	Mz- kNm
1	-0.373	163.264	72.627	283.820	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-56.954
4	-163.288	-0.524	103.016	283.662	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-50.487
9	-21.166	-1.384	79.362	110.305	-0.000	0.000	-0.000	-0.000	-0.000	-0.000	-9.641
12	-10.756	21.190	76.417	110.246	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-28.124
15	-0.000	-0.000	-0.000	-0.000	-0.000	0.000	-0.000	-0.000	-0.000	-0.000	-0.000
TOT	-195.583	182.545	331.422	788.032	-0.000	0.000	0.000	0.000	0.000	0.000	-145.205

knp	Mz+ kNm
1	40.631
4	77.223
9	29.784
12	15.481
15	-0.000
TOT	163.119

Resultaten - Krachten - UGT FC

st-knp	N- kN	N+ kN	Vz'- kN	Vz'+ kN	Vy'- kN	Vy'+ kN	My'- kNm	My'+ kNm	Mz'- kNm	Mz'+ kNm
1-2	-259.929	35.987	-68.092	107.755	-0.000	0.000	-802.691	241.320	-0.000	0.000
1-5	-247.092	42.030	-30.085	59.985	-0.000	0.000	-178.407	86.226	-0.000	0.000
2-6	-247.080	50.825	-11.261	59.937	-0.000	0.000	-185.443	111.507	-0.000	0.000
2-3	-259.917	44.782	-16.523	107.707	-0.000	0.000	-801.370	106.021	-0.000	0.000
3-1	-328.631	-30.372	-196.160	30.598	0.000	0.000	-63.048	70.284	-0.000	0.000
3-7	-215.406	75.644	-196.160	30.598	0.000	0.000	-620.802	174.254	0.000	0.000
4-7	-172.162	72.374	-32.714	222.168	-0.000	0.000	-680.499	234.855	-0.000	-0.000
4-2	-171.137	73.333	-31.499	222.168	-0.000	0.000	-802.691	241.320	-0.000	-0.000

Resultaten - Krachten - UGT FC

st-knp	N- kN	N+ kN	Vz'- kN	Vz'+ kN	Vy'- kN	Vy'+ kN	My'- kNm	My'+ kNm	Mz'- kNm	Mz'+ kNm
5-3	-171.088	24.266	-222.168	49.699	0.000	0.000	-106.021	801.370	-0.000	0.000
5-8	-172.112	23.307	-222.168	45.670	0.000	0.000	-91.891	679.177	-0.000	0.000
6-8	-215.208	34.599	-29.399	196.181	0.000	0.000	-71.367	621.326	0.000	0.000
6-4	-328.433	-71.416	-29.399	196.181	0.000	0.000	-97.666	76.330	-0.000	0.000
7-9	-122.504	-74.364	-1.342	25.988	-0.000	-0.000	-36.831	17.208	-0.000	0.000
7-10	-35.780	6.839	-19.898	25.988	-0.000	0.000	-19.432	56.429	-0.000	0.000
8-13	-35.696	10.820	-26.009	10.120	-0.000	0.000	-56.814	23.003	-0.000	0.000
8-12	-122.420	-70.383	-26.009	17.744	-0.000	-0.000	-25.063	34.612	-0.000	0.000
9-5	-246.103	42.488	-30.081	59.985	-0.000	0.000	-178.407	86.226	-0.000	0.000
9-15	-214.593	55.816	-64.680	45.176	-0.000	0.000	-156.627	61.072	-0.000	0.000
10-15	-214.581	64.612	-58.932	25.582	-0.000	0.000	-156.627	61.072	-0.000	0.000
10-6	-246.090	51.284	-11.261	59.937	-0.000	0.000	-185.443	111.507	-0.000	0.000
11-8	-36.375	15.158	-9.196	38.324	-0.000	0.000	-76.933	40.455	-0.000	0.000
11-16	-35.056	15.459	-7.602	33.409	-0.000	0.000	-57.566	39.527	-0.000	0.000
12-16	-34.940	15.485	-33.409	7.602	-0.000	0.000	-57.566	39.527	-0.000	0.000
12-11	-24.672	18.302	-14.428	17.075	-0.000	0.000	-3.647	19.974	-0.000	0.000
13-10	-34.438	19.920	-5.160	27.833	-0.000	0.000	-56.429	19.432	-0.000	0.000
13-17	-33.607	20.221	-4.651	24.734	-0.000	0.000	-40.845	20.716	-0.000	0.000
14-17	-33.533	20.247	-24.734	4.651	-0.000	0.000	-40.845	20.716	-0.000	0.000
14-11	-26.025	23.064	-10.969	6.254	-0.000	0.000	-3.647	19.974	-0.000	0.000
15-13	-34.486	9.769	-9.135	27.746	-0.000	0.000	-56.814	23.003	-0.000	0.000
15-18	-33.100	10.270	-6.480	22.581	-0.000	0.000	-34.210	24.532	-0.000	0.000
16-18	-32.978	10.314	-22.581	6.480	-0.000	0.000	-34.210	24.532	-0.000	0.000
16-14	-26.238	12.939	-5.187	13.169	-0.000	0.000	-8.366	18.784	-0.000	0.000
17-7	-36.512	5.747	-7.722	38.698	-0.000	0.000	-80.353	60.601	-0.000	0.000
17-19	-34.337	6.247	-8.682	30.604	-0.000	0.000	-45.761	52.392	-0.000	0.000
18-19	-34.148	6.291	-30.604	8.682	-0.000	0.000	-45.761	52.392	-0.000	0.000
18-14	-24.723	8.916	-14.426	13.717	-0.000	0.000	-8.366	18.784	-0.000	0.000

st-knp	Tx'- kNm	Tx'+ kNm
1-2	-0.000	-0.000
1-5	-0.000	-0.000
2-6	-0.000	0.000
2-3	-0.000	0.000
3-1	-0.000	0.000
3-7	-0.000	0.000
4-7	-0.000	0.000
4-2	-0.000	0.000
5-3	-0.000	0.000
5-8	-0.000	0.000
6-8	-0.000	0.000
6-4	-0.000	0.000
7-9	-0.000	0.000
7-10	-0.000	0.000
8-13	-0.000	0.000
8-12	-0.000	0.000
9-5	-0.000	-0.000
9-15	-0.000	-0.000
10-15	-0.000	0.000
10-6	-0.000	0.000
11-8	-0.000	0.000
11-16	-0.000	0.000
12-16	-0.000	0.000
12-11	-0.000	0.000

Resultaten - Krachten - UGT FC

st-knp	Tx'- kNm	Tx'+ kNm
13-10	-0.000	0.000
13-17	-0.000	0.000
14-17	-0.000	0.000
14-11	-0.000	0.000
15-13	-0.000	0.000
15-18	-0.000	0.000
16-18	-0.000	0.000
16-14	-0.000	0.000
17-7	-0.000	0.000
17-19	-0.000	0.000
18-19	-0.000	0.000
18-14	-0.000	0.000

Resultaten - Spanningen - UGT FC

st-knp	sigma y'- N/mm²	sigma y'+ N/mm²	sigma z'- N/mm²	sigma z'+ N/mm²
1-2	-97.10	75.44	-10.83	1.50
1-5	-64.24	38.72	-14.12	2.40
2-6	-63.97	43.64	-14.12	2.90
2-3	-96.96	75.30	-10.83	1.87
3-1	-26.96	13.06	-14.51	-1.34
3-7	-139.20	120.18	-9.51	3.34
4-7	-149.77	134.56	-7.60	3.20
4-2	-175.25	160.13	-7.56	3.24
5-3	-174.97	159.86	-7.55	1.07
5-8	-149.49	134.29	-7.60	1.03
6-8	-139.31	120.30	-9.50	1.53
6-4	-29.78	11.32	-14.50	-3.15
7-9	-148.24	103.85	-27.07	-16.43
7-10	-200.10	184.29	-7.91	1.51
8-13	-201.40	185.62	-7.89	2.39
8-12	-143.49	93.49	-27.05	-15.55
9-5	-90.46	57.45	-18.31	3.16
9-15	-78.68	49.67	-15.96	4.15
10-15	-79.00	49.35	-15.96	4.81
10-6	-90.06	64.11	-18.31	3.82
11-8	-73.13	63.35	-5.53	2.31
11-16	-135.95	137.42	-7.63	3.36
12-16	-135.92	137.43	-7.60	3.37
12-11	-51.03	42.80	-5.37	3.98
13-10	-55.29	44.81	-5.24	3.03
13-17	-102.13	88.37	-7.31	4.40
14-17	-102.11	88.38	-7.30	4.41
14-11	-50.96	43.83	-5.66	5.02
15-13	-55.64	45.15	-5.25	1.49
15-18	-86.61	72.92	-7.20	2.24
16-18	-86.60	72.94	-7.18	2.24
16-14	-48.12	39.47	-5.71	2.82
17-7	-76.15	66.39	-5.55	0.87
17-19	-125.63	118.73	-7.47	1.36
18-19	-125.62	118.74	-7.43	1.37
18-14	-48.22	39.38	-5.38	1.94