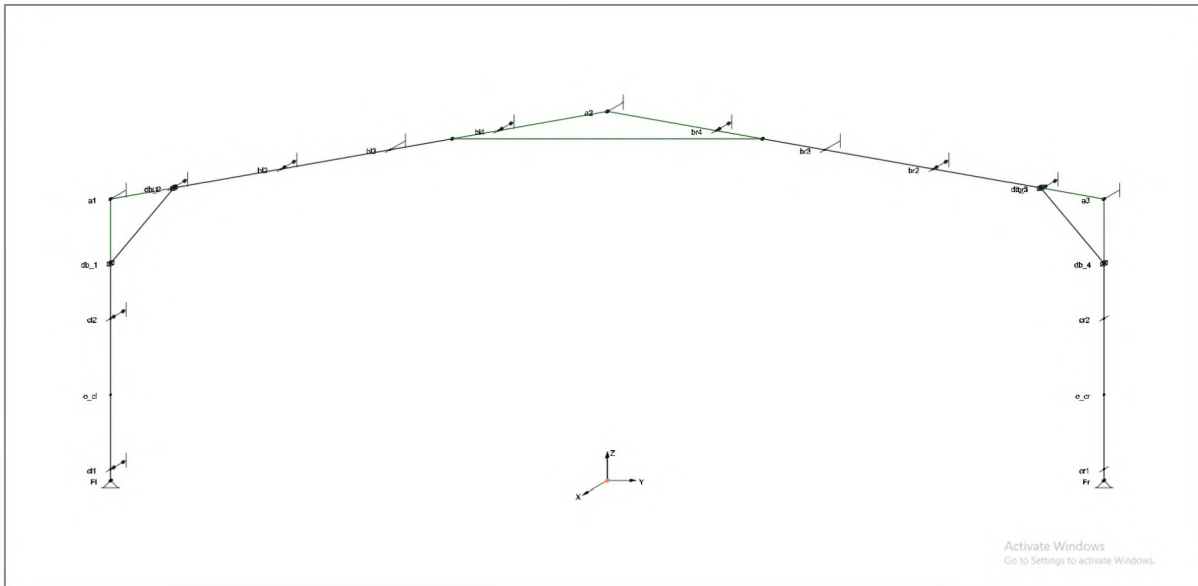


PROJECT	
Project ID	ax2300057
Client	Petanque Club Dordrecht
Location	Netherlands
Date	30.01.2023
StrEngS version	StrEngS 22.12 (#64)
FRAME DATA	
Hangar type	Frisohall Delta+ EU
Shape	Duopitch roof
Width	14.000 m
Height	4.000 m
Length	28.000 m
Frame distance	4.000 m
Roof inclination	10.00 deg
LOAD DATA	
Wall cladding	Wall girts + EPS panels 80.00 mm (0.15 kN/m ²)
Roof cladding	Roof purlins + EPS panels 80.00 mm (0.16 kN/m ²)
Maintenance load	10.00 kN
Snow	0.70 kN/m ²
Wind	27.000 m/s (Wind zone: II; Wind exposure: II)
FOUNDATION DATA	
Foundation level	0.000 m
DESIGN PARAMETERS	
H/Delta_max	150
L/Delta_max	250
Gamma_M0	1.000
Gamma_M1	1.000

1. Overview



2. Girders

Name	Start joint	End joint	Material	Section	Bolts
CL	1	6	S 390 GD	2 x C 300.2,5	-
CLG	6	2	S 390 GD	2 x C 300.2,5	6
CR	5	8	S 390 GD	2 x C 300.3	-
CRG	8	4	S 390 GD	2 x C 300.3	6
BLG	2	7	S 390 GD	2 x C 300.2,5	6
BL1	7	10	S 390 GD	2 x C 300.2,5	-
BLR	10	3	S 390 GD	2 x C 300.2,5	6
BRG	4	9	S 390 GD	2 x C 300.2,5	6
BR1	9	11	S 390 GD	2 x C 300.2,5	-
BRR	11	3	S 390 GD	2 x C 300.2,5	6
DGL	6	7	S 390 GD	C 300.2	4
DGR	8	9	S 390 GD	C 300.2	4
DR	10	11	S 390 GD	C 300.2	3

3. Bill of quantity

Section	Weight, kg	
S 390 GD		
C 300.2,5	339	
C 300.2	51	
C 300.3	90	
Total (S 390 GD):		480
S 235		
1 x D+ beam ridge	5	
Total (S 235):		5
Total:		485

4. Support reactions

Load case/combination	Rx, kN	Ry, kN	Rz, kN	Mx, kN.m	My, kN.m	Mz, kN.m
Support: Fl (Joint: 1)						
[1.2·G+1.5·Ssym]d	0.0000	15.0851	34.5633	0.0000	0.0000	0.0000
[0.9·G+1.5·Wl1+1.5·Wol]d	0.0000	-14.9182	-16.5390	0.0000	0.0000	0.0000
Support: Fr (Joint: 5)						
[1.2·G+1.5·Ssym]d	0.0000	-15.0851	37.2919	0.0000	0.0000	0.0000
[0.9·G+1.5·Wl1+1.5·Wol]d	0.0000	6.6519	-17.3264	0.0000	0.0000	0.0000
[0.9·G+1.5·Wr2+1.5·Wor]d	0.0000	16.6542	-15.6466	0.0000	0.0000	0.0000

5. Design checks by component

Component	Load combination	Design check	Security
CL	$[1.2 \cdot G + 1.5 \cdot S_{sym}]_d$	Buckling	0.944
CLG	$[G + W_{I1} + W_{ul}]_k$	Horizontal displacement	1.045
CR	$[1.2 \cdot G + 1.5 \cdot S_{sym}]_d$	Buckling	0.996
CRG	$[G + W_{I1} + W_{ul}]_k$	Horizontal displacement	0.976
BLG	$[0.9 \cdot G + 1.5 \cdot W_{I2} + 1.5 \cdot W_{ol}]_d$	Buckling (single chord)	0.618
BL1	$[0.9 \cdot G + 1.5 \cdot W_{I2} + 1.5 \cdot W_{ol}]_d$	Buckling	0.761
BLR	$[1.2 \cdot G + 1.5 \cdot S_{sym}]_d$	Buckling	0.799
BRG	$[0.9 \cdot G + 1.5 \cdot W_{r2} + 1.5 \cdot W_{or}]_d$	Buckling (single chord)	0.567
BR1	$[0.9 \cdot G + 1.5 \cdot W_{I2} + 1.5 \cdot W_{ul}]_d$	Buckling	0.778
BRR	$[1.2 \cdot G + 1.5 \cdot S_{sym}]_d$	Buckling	0.852
DGL	$[1.2 \cdot G + 1.5 \cdot S_{sym}]_d$	Bolt connection - pin	0.852
DGR	$[1.2 \cdot G + 1.5 \cdot S_{sym}]_d$	Bolt connection - pin	0.852
DR	$[1.2 \cdot G + 1.5 \cdot S_{sym}]_d$	Bolt connection - pin	0.914
Overall structure security:			1.045