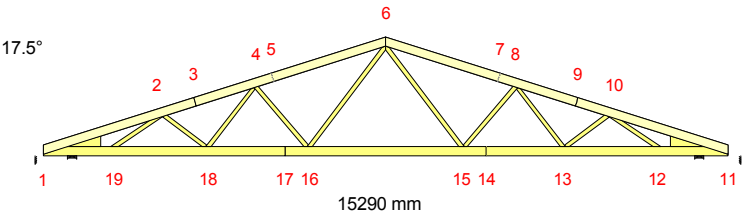


PROJECT ID.

Project code : T1  
Client :

Job no. : 1726302  
Code type no.: T1  
Drawing no. : T1



GENERAL PROJECT PARAMETERS

Basis of structural design : LVS-EN 1990 + NA  
Design of timber structures : LVS-EN 1995-1-1 + NA  
Dead load and live load : EN 1991-1-1:2002 + NA  
Snow load : EN 1991-1-3:2002 + NA  
Wind load : EN 1991-1-4:2005 + NA

Manufacturing inspection: NO  
Service class : 2  
Load-sharing factor : 1.1  
No. ply : 3  
Truss centre : 2400 mm

Deviating parameters that apply to part of the truss are specified under the heading "TIMBER PARAMETERS".

The form of the truss is shown in the accompanying drawing.

Forces are calculated according to first order deformation theory. Affect of shear deformation has been taken into account. Forces are shown for a single truss, support reactions are shown for all plies together. The static model is build up according to chapter 5.4.3.

STANDARD LOADS

DEAD LOAD

Top chord L 1 = 400 N/m<sup>2</sup>  
Top chord R 1 = 400 N/m<sup>2</sup>  
Bottom chord 1 = 900 N/m<sup>2</sup>

WEIGHT OF CONSTRUCTION

Top chord L 1 = 172 N/m  
Top chord R 1 = 172 N/m  
Bottom chord 1 = 129 N/m  
Miscellaneous = 67 N/m  
Weight = 200 kg/ply

SNOW LOAD

Base value = 1750 N/m<sup>2</sup>  
Snow fence No

WIND LOAD

Base value = 595 N/m<sup>2</sup>  
Building dimensions (mm): L=50000,W=15290,H=10000

LIVE LOAD

LL 1 = 500 N/m<sup>2</sup>

Main pos.	Distr.	Alt.pos	Distr.
From	To	From	To
	mm		mm
1	11	10388	

## SPECIAL LOADS

### EXTRA POINT LOAD

#### POSITIONS

Pos	Joint	Dim.	Timber group	Rotation	Name	Bottom	Extra properties
1	4	1432	Top chord L	None		NO	NO
3	6	1461	Top chord R	None		NO	NO
5	18	-1047	Bottom chord	None		NO	NO

#### VALUES FOR POINT LOAD

Pos	Rot °	Vert N	Hori N	Moment kNm	Load case Type
1		1000	0	0.00	Man on top chord left
3		1000	0	0.00	Man on top chord right
5		1000	0	0.00	Man on ceiling

#### LOAD COMBINATIONS

No	State	Type	Heading
1	ULS	P	1.35*Dead
2	ULS	M	1.15*Dead + 1.5*SnowL(0.5R) + 1.05*(LL1 + LL2 + LL3)
3	ULS	M	1.15*Dead + 1.5*SnowR(0.5L) + 1.05*(LL1 + LL2 + LL3)
4	ULS	M	1.15*Dead + 1.5*Snow + 1.05*(LL1 + LL2 + LL3)
5	ULS	M	1.15*Dead + 1.5*LL1 + 1.05*(LL2 + LL3) + 0.75*Snow
6	ULS	S	1.15*Dead+1.5*Snow+1.05*(LL1+LL2+LL3)+0.9*WindL(0suct)
7	ULS	S	1.15*Dead+1.5*Snow+1.05*(LL1+LL2+LL3)+0.9*WindR(0suct)
8	ULS	S	Dead + 1.5*WindGable
9	ULS	I	1.15*Dead + 1.5*Man on top chord left
10	ULS	I	1.15*Dead + 1.5*Man on top chord right
11	ULS	I	1.15*Dead + 1.5*Man on ceiling + 1.05*(LL1 + LL2 + LL3)
12	ULS	S	Dead + 1.5*WindL(maxsuct)
13	ULS	S	Dead + 1.5*WindR(maxsuct)
14	ULS	S	1.15*Dead+1.5*SnowL(0.2R)+1.05*(LL1+LL2+LL3)+0.9*WindL
15	ULS	S	1.15*Dead+1.5*SnowR(0.2L)+1.05*(LL1+LL2+LL3)+0.9*WindR
16	ULS	S	1.15*Dead+1.5*WindL+1.05*(LL1+LL2+LL3)+0.75*SnowL(0.2R)
17	ULS	S	1.15*Dead+1.5*WindR+1.05*(LL1+LL2+LL3)+0.75*SnowR(0.2L)
18	SLS		Dead + Snow + 0.7*(LL1 + LL2 + LL3), Winst
19	SLS		Dead + 0.2*Snow + 0.3*(LL1 + LL2 + LL3), 6.15fin
20	SLS		Dead + LL1 + 0.7*(LL2 + LL3) + 0.5*Snow, Winst
21	SLS		Dead + 0.5*LL1 + 0.3*(LL2 + LL3) + 0*Snow, 6.15fin
22	SLS		Dead + SnowR(0.5L) + 0.7*(LL1 + LL2 + LL3), Winst
23	SLS		Dead + 0.2*SnowR(0.5L) + 0.3*(LL1 + LL2 + LL3), 6.15fin
24	SLS		Dead + SnowL(0.5R) + 0.7*(LL1 + LL2 + LL3), Winst
25	SLS		Dead + 0.2*SnowL(0.5R) + 0.3*(LL1 + LL2 + LL3), 6.15fin
26	SLS		Dead + WindL + 0.7*(LL1 + LL2 + LL3) + 0.5*SnowL(0.5R), Winst
27	SLS		Dead + 0.2*WindL + 0.3*(LL1 + LL2 + LL3) + 0*SnowL(0.5R), 6.15fin
28	SLS		Dead + WindR + 0.7*(LL1 + LL2 + LL3) + 0.5*SnowR(0.5L), Winst
29	SLS		Dead + 0.2*WindR + 0.3*(LL1 + LL2 + LL3) + 0*SnowR(0.5L), 6.15fin

# **PARTIAL RESULT FROM DESIGN FOR WORST LOAD COMBINATION**

Forces and moments for 1 ply.

Member		LC	Dist.	Dep.	Grade	Buckl.	B.Moment	Axial	Shear	BM Axial		Shear	Max		
Fr	To		(mm)	(mm)		(mm)	BM (kNm)	AX (N)	SH (N)	CSI	CSI	CSI	CSI	km	inst
1-	2	4	2411	195	C24	1050y	1.02	-36302	89	0.12	0.66	0.01	0.77		
2-	4	4	2179	195	C24	1050y	-1.46	-47648	-2927	0.13	0.86	0.21	0.99	1.30	
4-	6	4	1432	195	C24	1050y	1.47	-42932	186	0.17	0.78	0.01	0.95		
6-	8	4	1461	195	C24	1050y	1.47	-42932	-186	0.17	0.78	0.01	0.95		
8-	10	4	29	195	C24	1050y	-1.46	-47647	2927	0.13	0.86	0.21	0.99	1.30	
10-	11	4	132	195	C24	1050y	1.02	-36300	-89	0.12	0.66	0.01	0.77		
11-	12	4	-1230	195	C24		1.67	34601	-8151	0.83	0.00	0.77	0.83	1.300.33	
12-	13	4	-1109	195	C24		-0.84	44668	14	0.18	0.52	0.00	0.70	0.33	
13-	15	4	-2262	195	C24		1.25	45650	2096	0.21	0.53	0.20	0.74	1.300.33	
15-	16	5	-1699	195	C24		-1.54	26694	0	1.00	0.00	0.00	1.00	0.33	
16-	18	4	0	195	C24		1.25	45650	-2095	0.21	0.53	0.20	0.74	1.300.33	
18-	19	4	-1047	195	C24		-0.84	44669	65	0.18	0.52	0.01	0.70	0.33	
19-	1	4	-359	195	C24		1.67	34603	8151	0.83	0.00	0.77	0.83	1.300.33	
2-	18	15		95	C24		0.00	2952	0	0.00	0.06	0.00	0.06		
10-	13	14		95	C24		0.00	2960	0	0.00	0.06	0.00	0.06		
8-	13	17		95	C24		0.00	2293	0	0.00	0.04	0.00	0.04		
4-	18	16		95	C24		0.00	2285	0	0.00	0.04	0.00	0.04		
8-	15	3		95	C24	1753y	0.00	-7653	0	0.00	0.72	0.00	0.72		
4-	16	2		95	C24	1753y	0.00	-7653	0	0.00	0.72	0.00	0.72		
6-	15	15		95	C24		-0.18	13760	63	0.13	0.27	0.01	0.40		
6-	16	14		95	C24		0.18	13760	-63	0.13	0.27	0.01	0.40		
2-	19	4		95	C24	1150y	0.00	-12133	0	0.00	0.53	0.00	0.53		
10-	12	4		95	C24	1150y	0.00	-12134	0	0.00	0.53	0.00	0.53		

## **MAX/MIN SUPPORT REACTIONS (N) IN ULTIMATE LIMIT STATE**

Support reactions for all plies.

### **Joint**

No	Dir.	LC	P	(No)	LC	L	(No)	LC	M	(No)	LC	S	(No)	LC	I	(No)
1	Hori	Max:	0	( 1)	0	( 0)	0	( 2)	4023	(16)	0	( 9)				
		Min:	0	( 1)	0	( 0)	0	( 2)	0	( 8)	0	( 9)				
1	Vert	Max:	36600	( 1)	0	( 0)	76253	( 4)	80778	( 6)	39008	(11)				
		Min:	36600	( 1)	0	( 0)	59792	( 5)	13750	( 8)	31771	(10)				
11	Vert	Max:	36600	( 1)	0	( 0)	76253	( 4)	80778	( 7)	37935	(11)				
		Min:	36600	( 1)	0	( 0)	59792	( 5)	13750	( 8)	31771	( 9)				

Joint No	Actual mm	CSI with plate	Req. truss				Req. supp.	
			mm	LC	Area	kc90	mm	LC
1	200	-	163	4	10035	1.50	0	
11	200	-	163	4	10035	1.50	0	

## **MAX VERTICAL DEFLECTION (mm)**

Truss/ Member	Total		(LC)
	Vert	Hori	
15- 16	24.2	2.8	(19)
6- 7	19.9	1.4	(18)
5- 6	19.9	4.4	(18)
4- 5	18.2	4.3	(18)
7- 8	18.2	1.4	(18)
16- 17	18.0	2.2	(19)

## **MAX HORIZONTAL DEFLECTION (mm)**

Truss/ Member	Total		(LC)
	Vert	Hori	
11	-2.2	6.2	(18)
12	8.4	5.4	(18)
13	15.4	4.5	(18)
5	18.9	4.4	(18)
3- 4	17.1	4.2	(18)
2- 3	14.6	4.0	(18)

**MAX/MIN SUPPORT REACTIONS (N) IN SERVICEABILITY LIMIT STATE**

Support reactions for all plies.

**Joint**

<b>No</b>	<b>Dir</b>	<b>(LC)</b>
1	Hori	Max: 2682 (26) Min: 0 (18)
1	Vert	Max: 57161 (18) Min: 28905 (29)
11	Vert	Max: 57161 (18) Min: 28905 (27)

**LIMITS DEFLECTION CHECK**

<b>Check</b>	<b>Global</b>	<b>Local</b>
Horizontal (mm):	20	-
Truss - top chord (L/x): Winst	300	300
Truss - bottom chord (L/x): Winst	300	300
Eaves (L/x): Winst	150	150
Truss - top chord (L/x): 6.15fin	300	300
Truss - bottom chord (L/x): 6.15fin	300	300
Eaves (L/x): 6.15fin	150	150

**MAX DEFLECTIONS**

<b>Check</b>		<b>Lc</b>	<b>Length</b>	<b>Allowed</b>		<b>Actual</b>	
			<b>(mm)</b>	<b>L/X</b>	<b>(mm)</b>	<b>L/X</b>	<b>(mm)</b>
Max instantaneous deflection	(Winst)	18	14000	300	46.7	620	22.6
Max horizontal deflection		18		-	20.0	-	5.9
Max final deflection	(6.15fin)	19	14000	300	46.7	578	24.2