

24 November 2006

Ref: ST0468

**Design Quintessence**  
**Attention: Ian Wood**  
**Unit 25**  
**7-9 Percy Street**  
**Auburn NSW 2144**

## RE: Load Tables for F54 Truss

We have been asked to analyse the proposed F54 Truss and provide a set of load tables.

### Summary

Chord Members	6082 T6	φ50 x 4mm	φ50 x 3mm
Bracing	6082 T6	φ50 x 4mm	φ50 x 3mm
Diagonals	6082 T6	φ25 x 3mm	
Coupler	6082 T6		
Spigot	2011T6		

	φ50 x 4mm Truss	φ50 x 3mm Truss
Allowable Normal Force in Main Chord	50.6kN	38.8kN
Allowable Bending Stress in a Chord	114MPa	114MPa
Allowable Normal Force in Diagonals	18.1kN	18.1kN
Moment of Inertia Y axis	128.3E6 mm <sup>4</sup>	98.3E6mm <sup>4</sup>
Allowable Bending Moment	47.5kNm	36.4kNm
Allowable Shear Force	34.0kN	26.0kN

The loadings tables for 4mm thick tube and 3mm thick tube are shown in tables 1 & 2.

Yours faithfully



**Bradley Scott**  
**BE(Hons) MIE(Aust) CPEng NPER**

Truss Type 1:  $\phi 50 \times 4\text{mm}$  Chords

UDL		
Span	LL	Def
mm	kg/m	mm
1000	4607.8	0
2000	2298.6	1
3000	1528.9	2
4000	1144.1	4
5000	913.2	8
6000	707.3	13
7000	516.9	18
8000	393.3	24
9000	308.5	30
10000	247.9	37
11000	203.1	45
12000	169	54
13000	142.4	64
14000	121.4	74
15000	104.4	85
16000	90.5	98
17000	78.9	110
18000	69.3	124
19000	61.1	139
20000	54.1	154
21000	48.1	171
22000	42.9	188
23000	38.4	207
24000	34.4	226

PL		
Span	LL	Def
mm	kg	mm
1000	6927.4	0
2000	6927.4	1
3000	6440.4	4
4000	4818.8	7
5000	3843.3	11
6000	3190.7	16
7000	2722.7	22
8000	2370.1	29
9000	2094.4	36
10000	1872.5	45
11000	1689.8	54
12000	1536.4	65
13000	1405.6	76
14000	1292.6	89
15000	1193.8	102
16000	1106.5	117
17000	1028.7	132
18000	958.8	148
19000	895.6	166
20000	838	184
21000	785.3	204
22000	718.8	220
23000	634.2	230
24000	558.9	240

Note: Maximum Force on any chord between supports is to be limited to 34kN

TABLE 1

Truss Type 2:  $\phi 50 \times 3\text{mm}$  Chords

UDL		
Span	LL	Def
mm	kg/m	mm
1000	3530.5	0
2000	1761	1
3000	1171.2	2
4000	876.3	4
5000	699.3	8
6000	541.6	13
7000	395.6	18
8000	300.9	24
9000	236	30
10000	189.5	38
11000	155.2	45
12000	129	54
13000	108.7	64
14000	92.5	74
15000	79.5	85
16000	68.9	98
17000	60	111
18000	52.6	124
19000	46.4	139
20000	41	155
21000	36.4	171
22000	32.4	189
23000	29	208
24000	25.9	227

PL		
Span	LL	Def
mm	kg	mm
1000	5308.5	0
2000	5308.5	1
3000	4934.5	4
4000	3691.6	7
5000	2943.7	11
6000	2443.4	16
7000	2084.5	22
8000	1814	29
9000	1602.4	36
10000	1432.1	45
11000	1291.8	54
12000	1174	65
13000	1073.5	76
14000	986.6	89
15000	910.6	102
16000	843.4	117
17000	783.5	132
18000	729.7	148
19000	681	166
20000	636.6	185
21000	595.9	204
22000	543.2	220
23000	478	230
24000	420	240

Note: Maximum Force on any chord between supports is to be limited to 26kN

TABLE 2

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