

20 May 2008
Ref: ST0515

Design Quintessence
Attention: Ian Wood
Unit 25
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Auburn NSW 2144

RE: Load Tables for F104 Square Truss

We have been asked to analyse the proposed F104 Square Truss and provide a set of load tables.

Summary

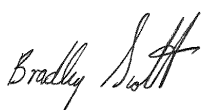
Chord Members	6082 T6	$\phi 60 \times 6\text{mm}$		
Bracing 1	6082 T6	$\phi 48 \times 3\text{mm}$		
Bracing 2	6082 T6	$\phi 20 \times 3\text{mm}$		
Diagonals	6082 T6	$\phi 48 \times 3\text{mm}$		
Coupler	6082 T6			
Spigot	2011T6			
Pins	Fup	565 MPa	Fyp	310MPa

Allowable Normal Force in Main Chord	89.0kN
Allowable Normal Force in Diagonals	37.0kN
Moment of Inertia X axis	920.13E6 mm ⁴
Moment of Inertia Y axis	276.74E6 mm ⁴
Allowable Bending Moment	169.2 kNm
Allowable Shear Force Chord	46.5kN (per Chord)
Allowable Shear Force Diagonals	24.0kN
Dead weight of Truss	22kg/m

Assumptions:

1. Frame has not been designed to resist wind loads
2. The loads specified are in addition to self weight loads
3. All loads are to be applied to the bottom chord of the frame
4. Trusses are to be connected using standard connectors supplied by manufacturer.
5. Spans need to be supported at each end.

Yours faithfully



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

F104 Square Truss

Span mm	UDL		Span mm	PL	
	Summary LL kg/m	Def mm		Summary LL kg	Def mm
2000	6279	0	2000	12567	0
3000	4179	1	3000	12532	1
4000	3119	2	4000	11461	2
5000	2487	3	5000	9153	4
6000	2069	5	6000	7611	5
7000	1774	9	7000	6508	7
8000	1420	12	8000	5678	9
9000	1118	15	9000	5030	12
10000	902	19	10000	4511	15
11000	743	22	11000	4084	18
12000	621	27	12000	3727	22
13000	527	31	13000	3423	25
14000	452	36	14000	3161	29
15000	391	42	15000	2934	34
16000	342	48	16000	2733	39
17000	301	54	17000	2555	44
18000	266	61	18000	2396	49
19000	237	68	19000	2253	55
20000	212	75	20000	2123	61
21000	191	83	21000	2005	68
22000	172	91	22000	1897	75
23000	156	100	23000	1797	82
24000	142	109	24000	1705	90
25000	130	119	25000	1619	98
26000	119	129	26000	1540	107
27000	109	139	27000	1466	116
28000	100	150	28000	1396	125
29000	92	162	29000	1331	135
30000	85	174	30000	1269	146
31000	78	185	31000	1211	156
32000	72	197	32000	1155	168
33000	67	211	33000	1103	179
34000	62	225	34000	1053	192
35000	58	240	35000	1006	204
36000	53	252	36000	961	218
37000	50	270	37000	917	231
38000	46	284	38000	876	246
39000	43	301	39000	836	261
40000	40	318	40000	798	277

Note: ϕ 20mm tube: Maximum point load allowed 77kg
 Other tubes: Maximum central point load between any nodes 729kg

TABLE 1