		containment of audience members	
If escape occurs outside Performance hours	Any staff member can raise the alarm	Principals will take charge of the Recovery	Principal to decide recapture procedure
	Management principals are notified	2IC Lindsay Lennon / Janice Lennon / notified to advise authorities: DPI, Police, Vet	Food reward, Herding, Lead Ropes, Recovery Net, Travel Cage, Arena Cage sections
		Recovery Team utilised to achieve a safe effective result	Head Animal Trainer – Glenn West / Mathew Smith responsible for the; location, upkeep & repair of species appropriate Recovery Equipment
		Other staff to meet at Site Managers Caravan to await further instruction	

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PROC: E1(A1)
JUNE 1994

COMPUTATIONS

PROJECT NO: 02132A
DATE: Sept 09

PROJECT TITLE Chair Gallery Seating (AL seating)
for
Stardust Circus
Lennon Bros Circus
Jambo Tent Hire
Burtons Circus

ARCHITECT N.A

REFERENCES AS1170
AS4100
AS1664.1

ENGINEER

David J. Wills
MIEAust CPEng
Chartered Professional Engineer
Membership No. 181147
The Institution of Engineers, Australia

Signature: David J. Wills

Date: Sept' 09

Note :- 1) Allowable LL = 5KPa or point Load 2.5KN

2) See page 12 for baseplate requirements

PROC E1

Janlin Circuses Pty Ltd

Trading as Stardust Circus ABN 29 069 720 225 12 Byloss St
Lennon Bros Circus
Chester Hill 2162
Janlin Tent Hire
0408945518
Burtons Circus Fax
0417 655935

20th September 2009

Design Project Group

Att David Wills

Dear David,

Please find enclosed 4 diagrams of a seating system using 3mm tread plate aluminium.

Stringers and Jacks are the same sizes as the chair gallery seating used in previous design using plywood platforms PROJECT NO 02132 Feb 02 Chair Gallery Seating for Janlin Circuses

In this design Aluminium Platforms are being used instead of Plywood

Cross rails are hooked into the middle of cleat and across to adjoining stringer to give support to the middle area of the floor plate. The

The floor plates are fastened to the stringers by means of slots in the front and back fold where tags come through the plate and they are then secured by an "R" clip through the end of the tag.

The bottom level has a second cross rail placed at the front edge to support that edge

The stringer has an 8mm steel cable fastened at the front end and is then fastened to the base of the rear jack to prevent any forward movement of the stringer.

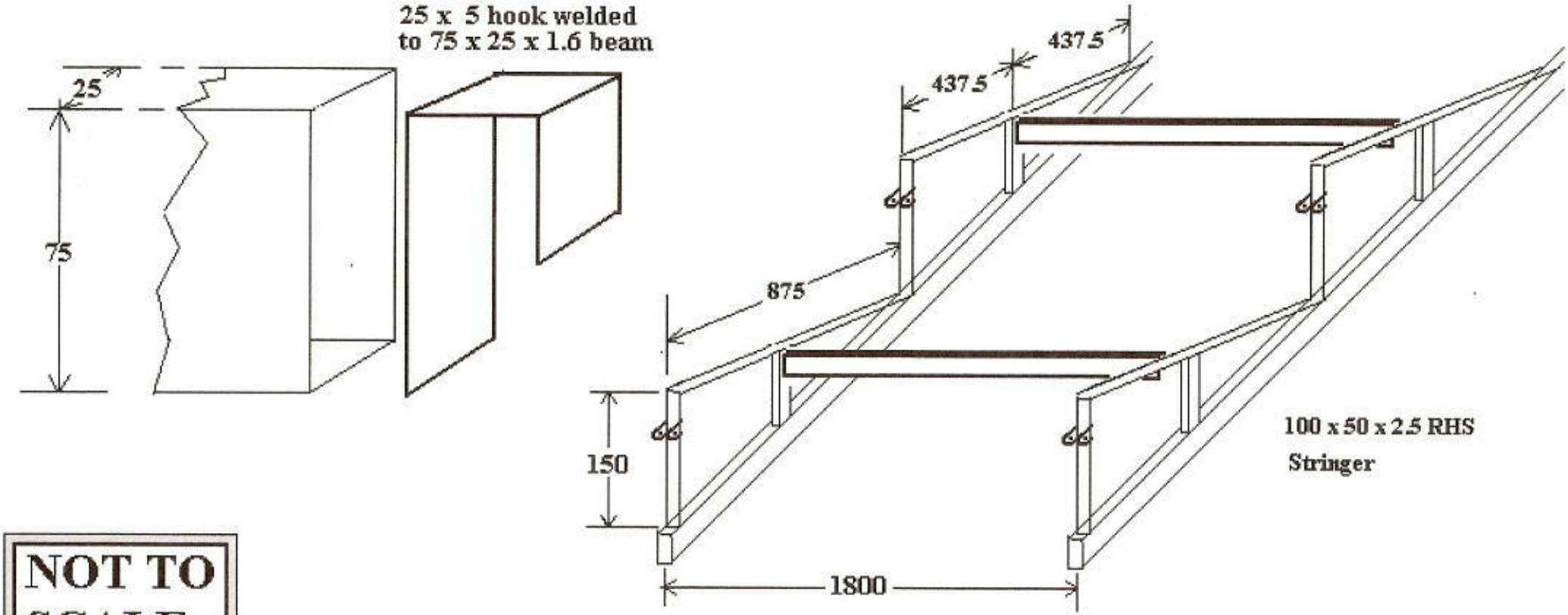
The jacks have a pin in the jaw which locates into the bottom edge of the stringer to stop any movement.

The length of each floor plate is 1800 and they butt up to the next plate.

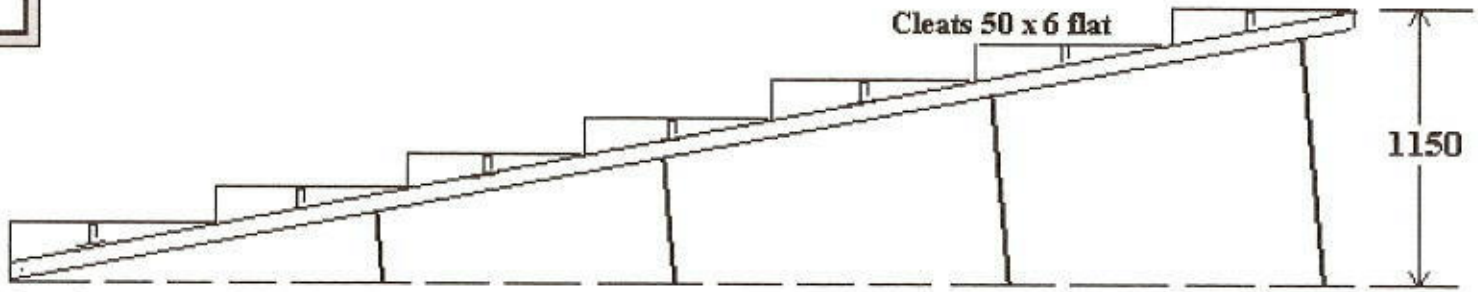
Thanking you

Lindsay Lennon

CHAIR GALLERY SEATING WITH ALUMINIUM FLOOR PLATES

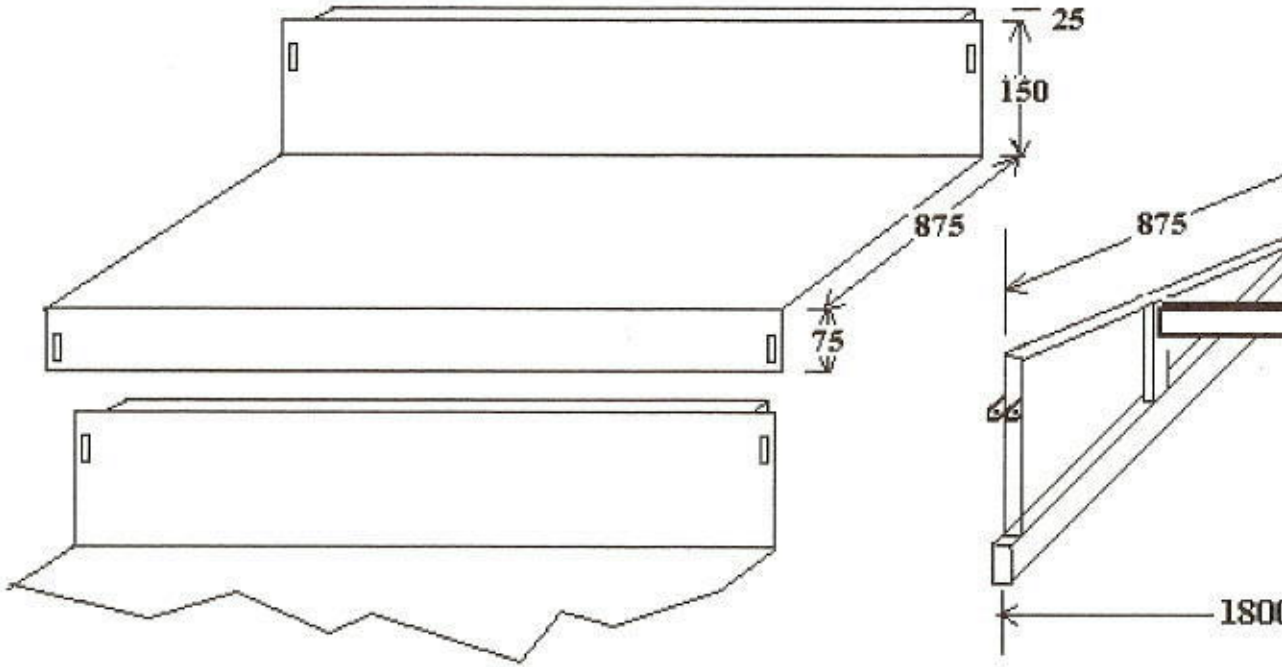


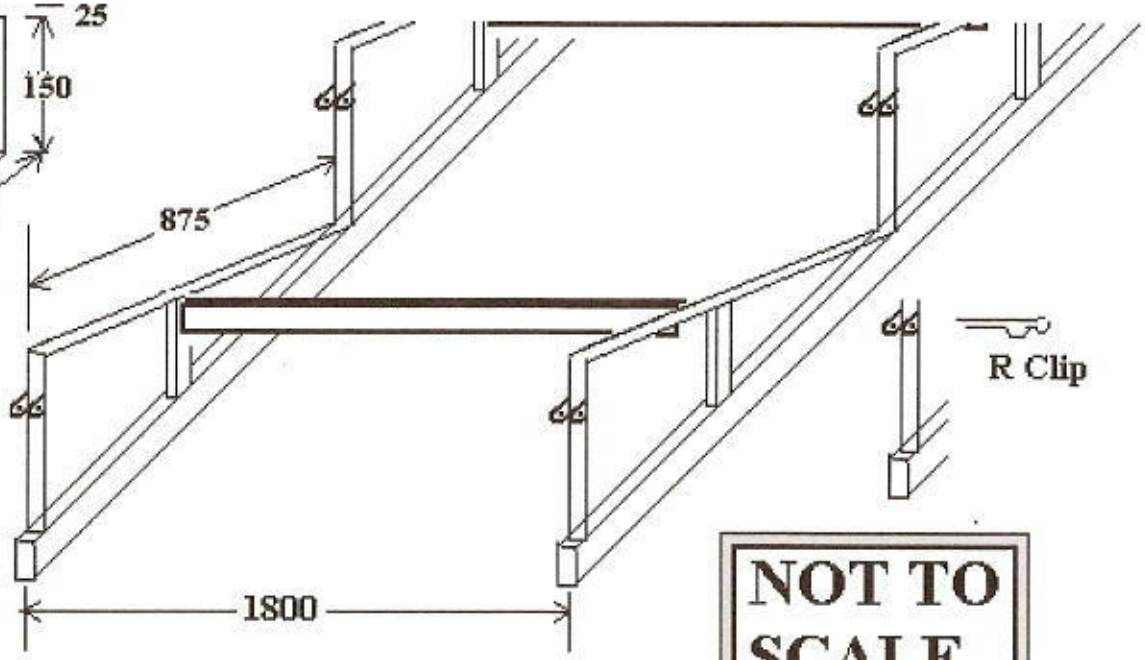
NOT TO SCALE



An 8mm cable is fastened from end of stringer to base of rear jack

3





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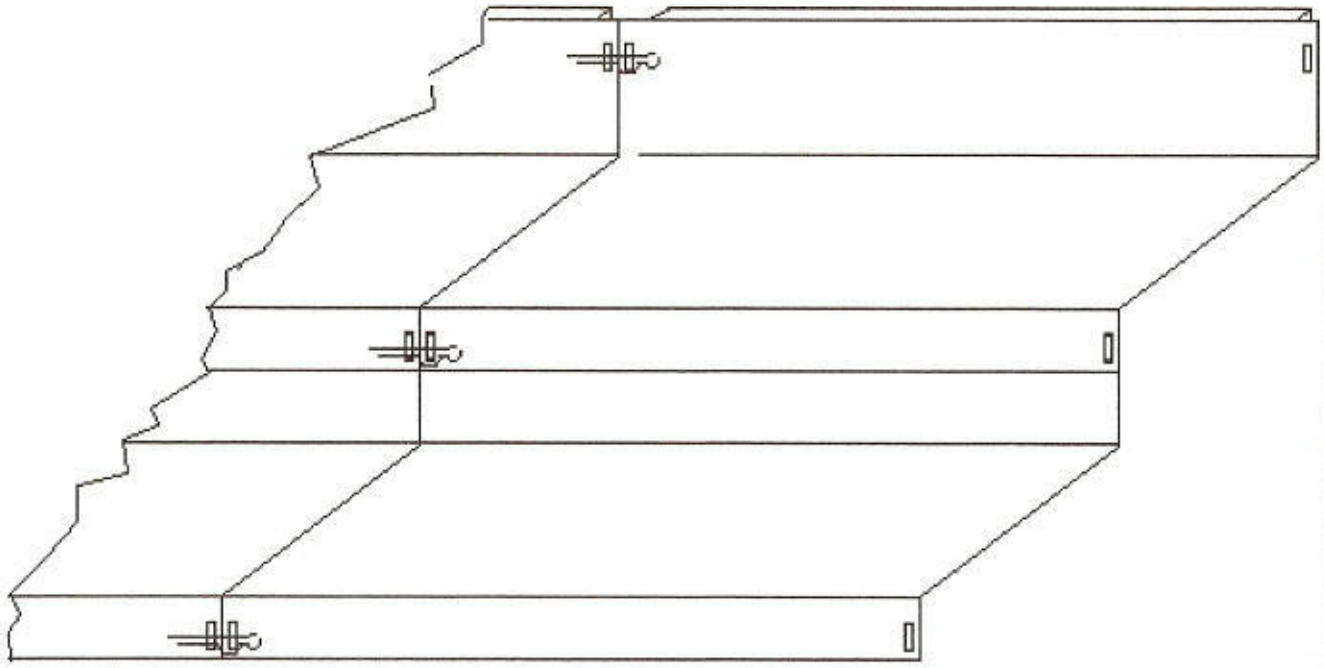


CHAIR GALLERY FLOOR PLATES

The Aluminium tread plate is 3mm thick.

A rail is hooked into the cleats between the 2 stringers to support the middle area of the floor plate.

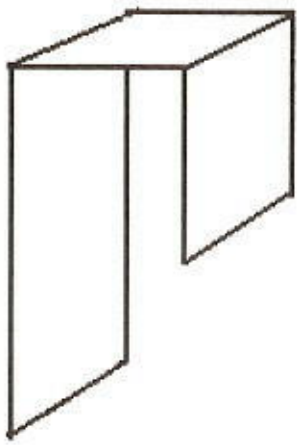
The sections are fastened to the stringers by a suitable heavy R clip through the end of the locating tag.

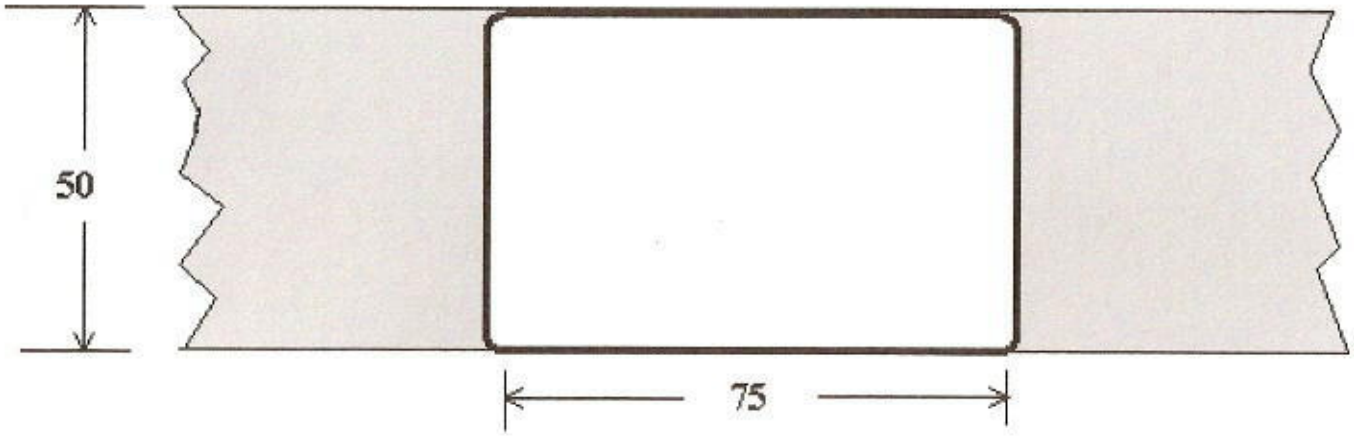
The top of the wall at the rear of the plate has a fold around to strengthen that edge.

4

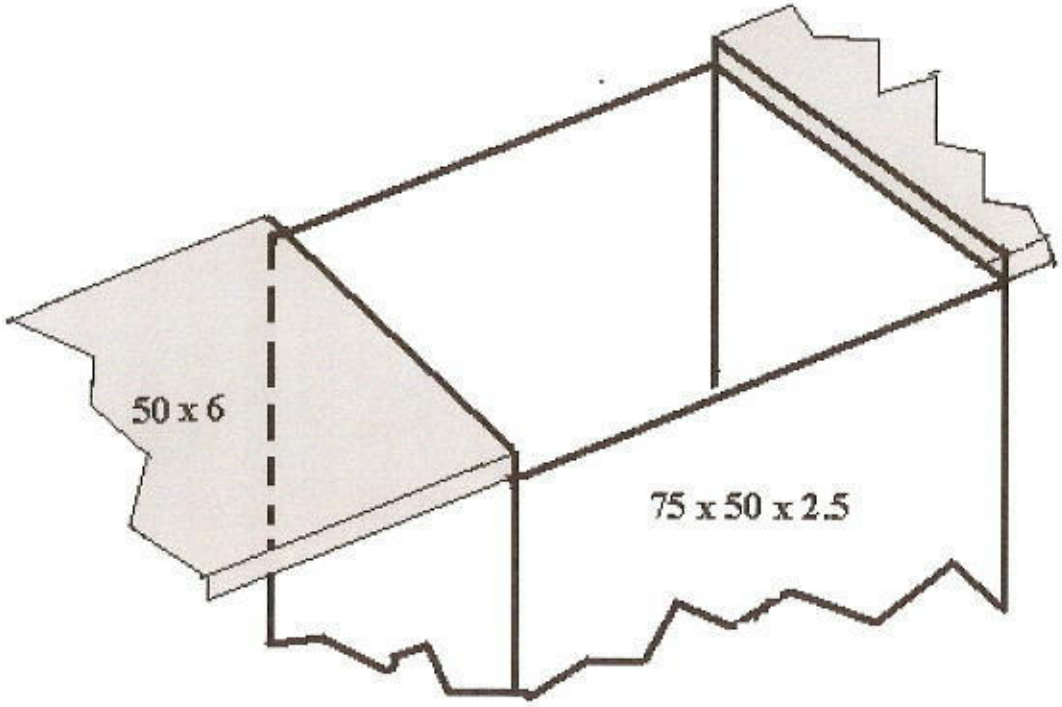
CHAIR GALLERY SEATING WITH ALUMINIUM FLOOR PLATES

25 x 5 hook welded
to 75 x 25 x 1.6 beam





The cleat is made from 50 x 6 flat and has a cut away on each side with a post connecting it to the stringer and the cross rail hook is inserted into it.



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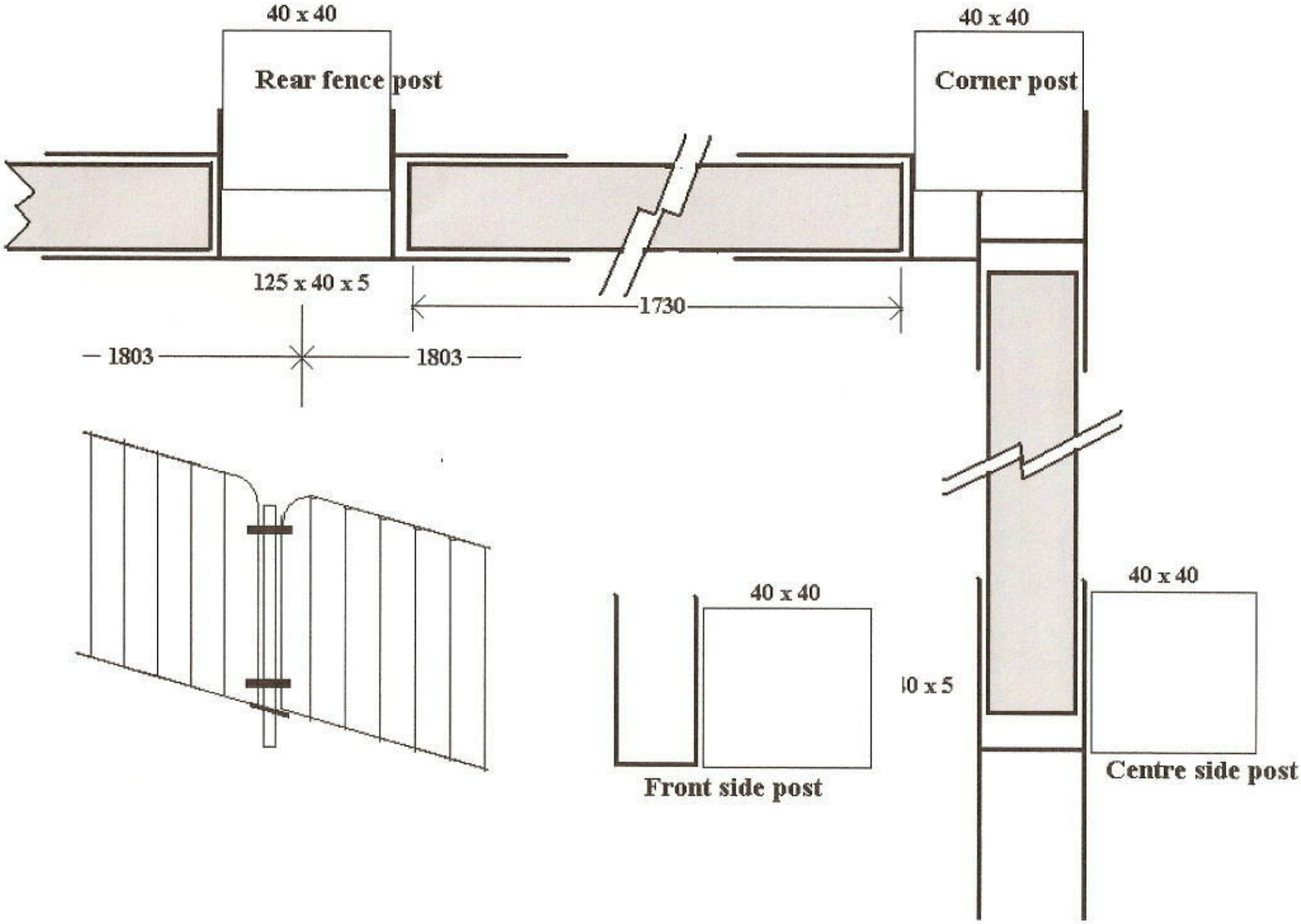
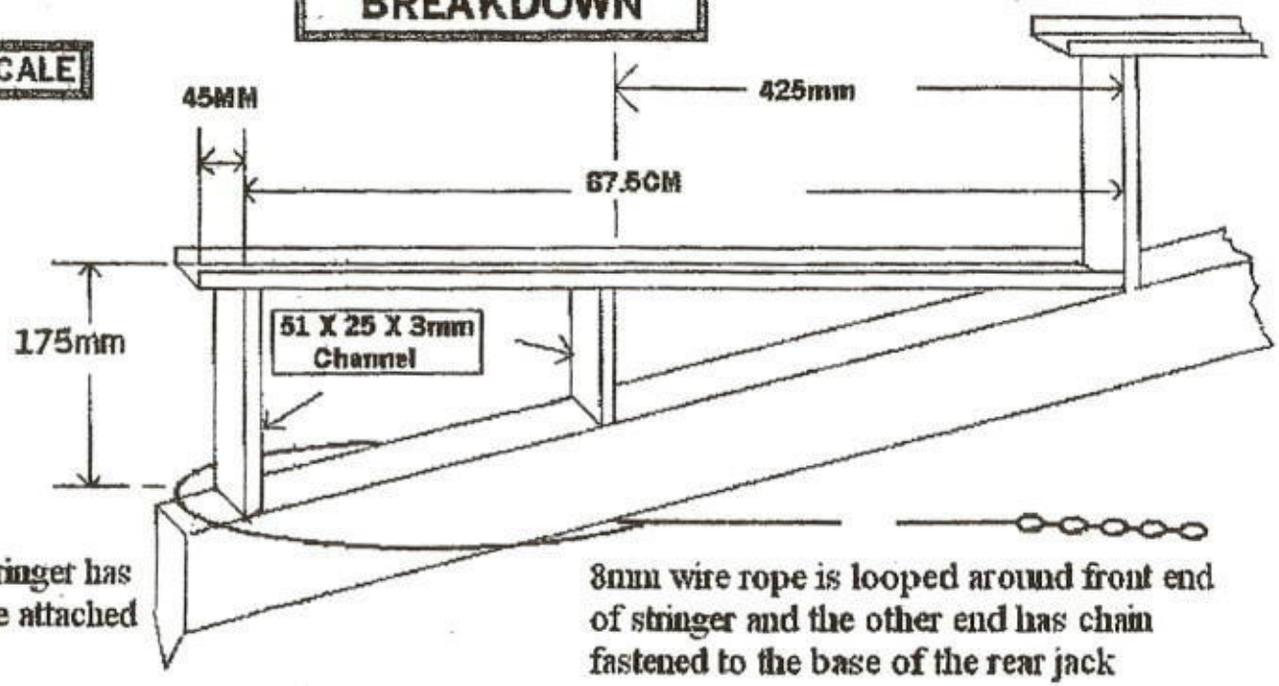


6

STRINGER
8 tier with cleats

8 TIER STRINGER BREAKDOWN

NOT TO SCALE



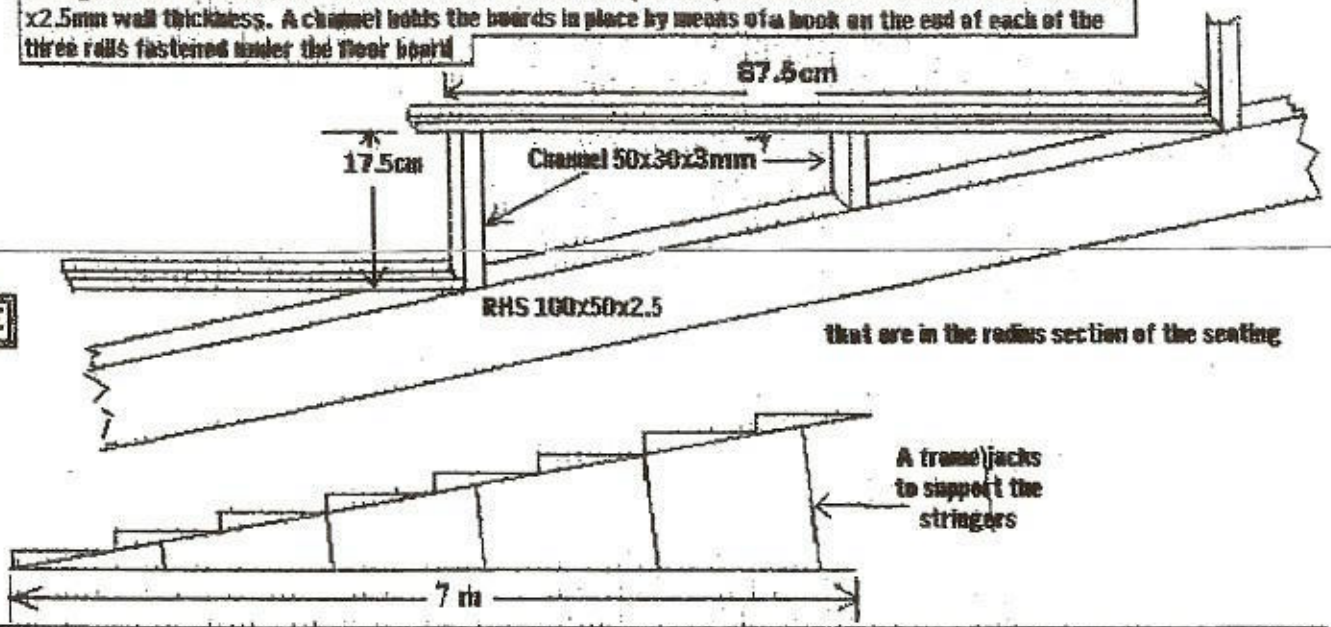
The end of stringer has a tapered plate attached

8mm wire rope is looped around front end of stringer and the other end has chain fastened to the base of the rear jack

JANLIN CIRCUSES PTY LTD
12 BYLOSS ST CHESTER HILL 2162
0418 238881 FAX 017 806088

(1)

Stringers that hold the boards that the rows of chairs are placed upon are made from RHS 100mmx50mm x2.5mm wall thickness. A channel holds the boards in place by means of a hook on the end of each of the three rails fastened under the floor board



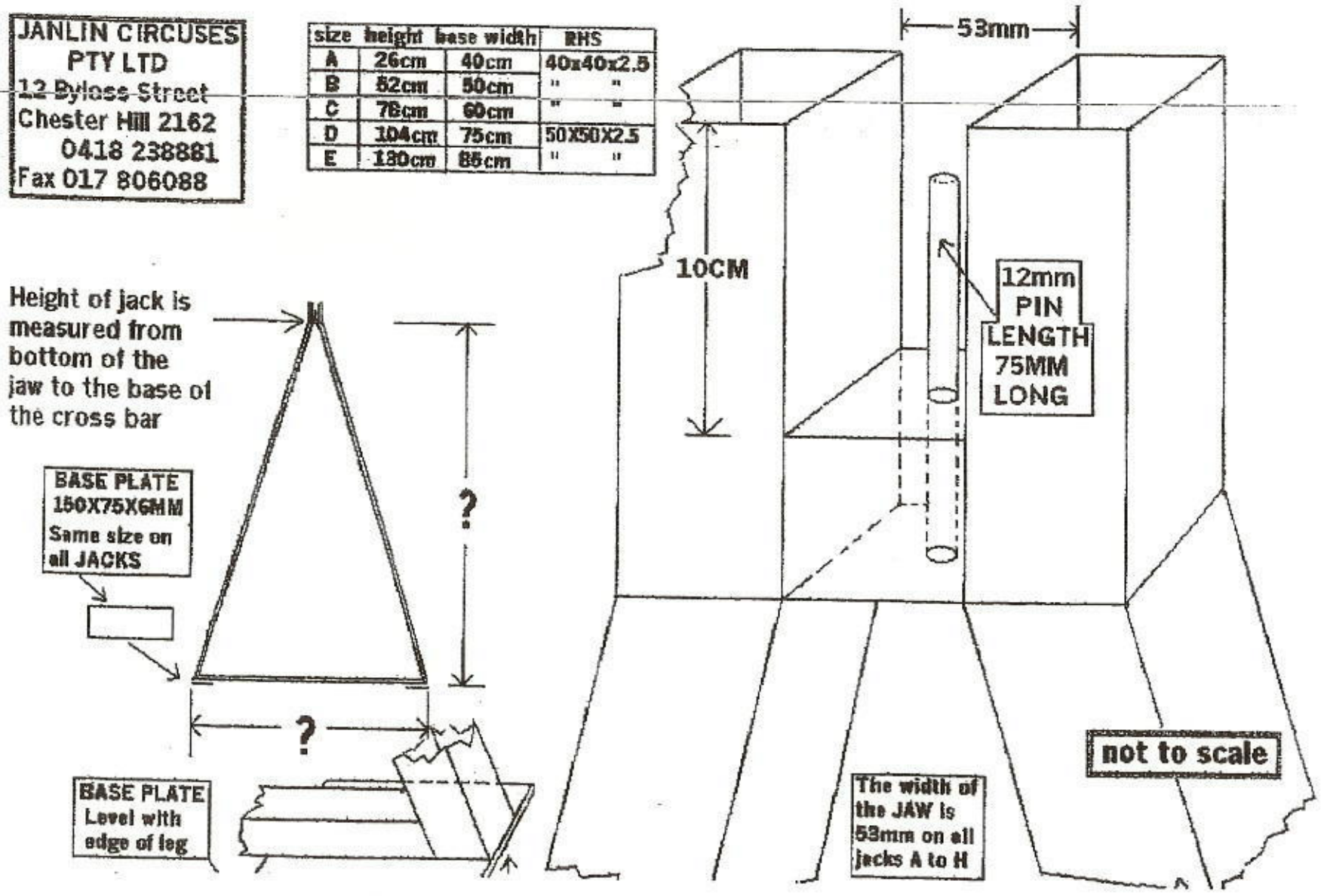
NOT TO SCALE

The stringers are supported by 5 jacks 1.31m apart and have a locating pin pointing upwards in the jaw at top of the jack. The pin locates in the underside of the stringer thereby securing so it cannot slip.
The stringers are spaced 1.83 m apart at the top end of the stringer and are 1.83 m apart at the bottom end of the stringer
The stringers in the section will hold a maximum of 32 persons per 8 tier stringer.

CHAIR GALLERY. JANLIN CIRCUSES P/L

JANLIN CIRCUSES
PTY LTD
12 Bylose Street
Chester Hill 2162
0418 238881
Fax 017 806088

size	height	base width	RHS
A	26cm	40cm	40x40x2.5
B	52cm	50cm	" "
C	78cm	60cm	" "
D	104cm	75cm	50X50X2.5
E	130cm	85cm	" "



(4)

DESIGN
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ABN 13 006 777 920

Computations
Job No. 02133A Sheet No 10
Eng DW Date Sept 09

Platform Boards

a) Al Treat Plate

3mm Span 437.5 5kPa.

$M = 5 \times \frac{0.437^2}{8} = 0.119$ kNm $\quad f_b = \frac{0.1194}{\frac{1}{6} \times 1000 \times 3^2} = 80$ MPa OK

Point Load 2.5kN

M = 0.1093 kNm (spread over 1m) OK

b) Support Rails

w self wt Al = 0.10
LL 5×0.44 = 1.20
2.30 kN/m.

Worst Case Point Load $M = \frac{4.5 \times 1.8}{4} = 2.02$ kNm
75 x 25 x 1.6 SHS Mcap = 1.22 kNm
∴ Allowable point load = 2.5 kN

$M_w = \frac{1.8^2}{8} \times 2.36 = 1$ kNm OK

Support Bracket

Shear Capacity $= 0.4 \times 250 \times \frac{25 \times 5}{1000} = 12.5$ kN

$M_{cap} = 175 \times \frac{1}{6} \times 25 \times 5^2 = 0.0182$

Actual $M = 2.30 \times \frac{1.8}{2} \times 0.01 \times \frac{1}{2} = \frac{0.0207}{2}$ kNm OK

Checked .....
Date .....

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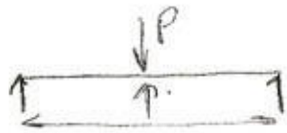
Computations

Job No. 02133A Sheet No. 11

Eng. DMV Date. Sept 09

Stringers

a) 50 x 25 x 3 L's on side



No bending load is transferred to studs columns

$P_{max} = 1.83 \times 2.39 = 4.38\,kN$

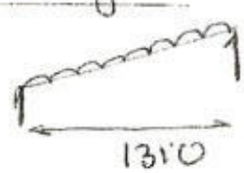
Capacity of 50 x 25 x 3 L 175 High?

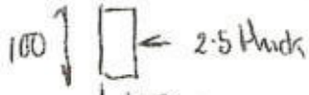
$\frac{L}{r_y} = \frac{175 \times 2}{7.5} = 46 \Rightarrow F_{sc} = 136\,MPa \Rightarrow P_{all} = 39\,kN$

($A_t = 284\,mm^2$)

∴ OK

b) Stringer





$M_{cap} = 4.19\,kNm$

$I = 0.912 \times 10^6\,mm^4$

w

self wt of stringer 0.06 kN/m
Platform Board DL 0.50
LL 5 x 1.83 = 9.15
9.71 kN/m

$M = \frac{9.71 \times 1.31^2}{8} = 2.08\,kNm$

$\Delta_n = \frac{5}{384} \times \frac{9.71 \times 1310^4}{2 \times 10^5 \times 0.912 \times 10^6}$

$= 2.04\,mm$

OK.

Checked .....

Date .....

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Computations

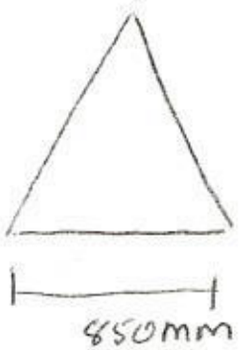
Job No. 02133A Sheet No. 12

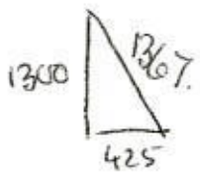
Eng. DMW Date. Sept 09

Jacks.

Worst Case

↓ Pmax = 9.71 × 1.31 = 12.7 KN.





Axial load $= 12.7 \times \frac{1}{2} \times \frac{1.367}{1.30}$

$= 6.68$ KN

50×50×2.5 SHS.

Axial Capacity = 76.5 KN.

OK.

Bearing Under Plate = $\frac{6.68}{0.15 \times 0.075} = 593.77$ kPa

(For 100kPa Ground Provide timbers 300×300 under plate or equiv area)

Checked .....

Date .....

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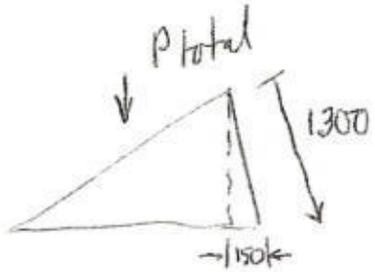
Computations

Job No. 02133A Sheet No. 13

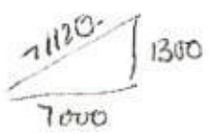
Eng. GNW Date. Sept 09

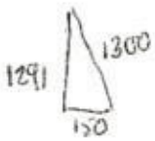
Lateral Loads



P total = 7 × 9.71

= 67.97 kN





Horiz component

$= 67.97 \times \frac{0.15}{1.291} = 7.9\,kN$

Tensile capacity 8mm cable $= \frac{\pi \times 8^2}{4} \times 0.6 \times 350$

= 10.55 kN OK

Checked .....

Date .....