TESMEC Limited: Test house, Unit 19 Newey Business Park
Sedgley Road West, Tipton, West midlands
DY4 8AH
Telephone: 07947 103 644

TESMEC

Independent Testing & Engineering Services

Report and Load Survey of: Turnlok extendable transom units

Document number: *TES000224*
Client: *VR Access Solutions Ltd*

Address: *1 Swan Court Yard*
Charles Edwards Road
Birmingham
B26 1BU

Date of applied testing/survey: *Start date 6th February to 7th February*

Item description: *Free issue Turnlok extendable transom scaffold components.*
48.3mm tube x 3.2mm wall complete with internal extendable profiled section and lock screw system.
Materials finish Galvanized.

Identification mark affixed to item: *VR extendable transom reference number VREX53-1 04/16 RS*

Client submitted drawing numbers: *Not submitted*

Client design review Ref: *S-Mech to review all findings*

Quantity submitted for test: *12*

Client submitted British standard or procedure number*: Client verbal load requirements and guidance from BSEN 12811 load classification tables*

Address of where testing /surveys were conducted: *TESMEC Limited;*
Independent Testing and Engineering services.
Test House
Unit 19, Newey Business Park
Sedgley Road West
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Number of pages contained in this report: 9

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1.1 TESMEC mission statement

It is the intention of TESMEC Limited; Independent Testing and Engineering services to continuously provide independent advice in addition to a professional and confidential Engineering service to all of its trusted clients and where applicable, engage in incessant professional development through review, investment and training to further our existing service and to support the increasing requirements of our customers.

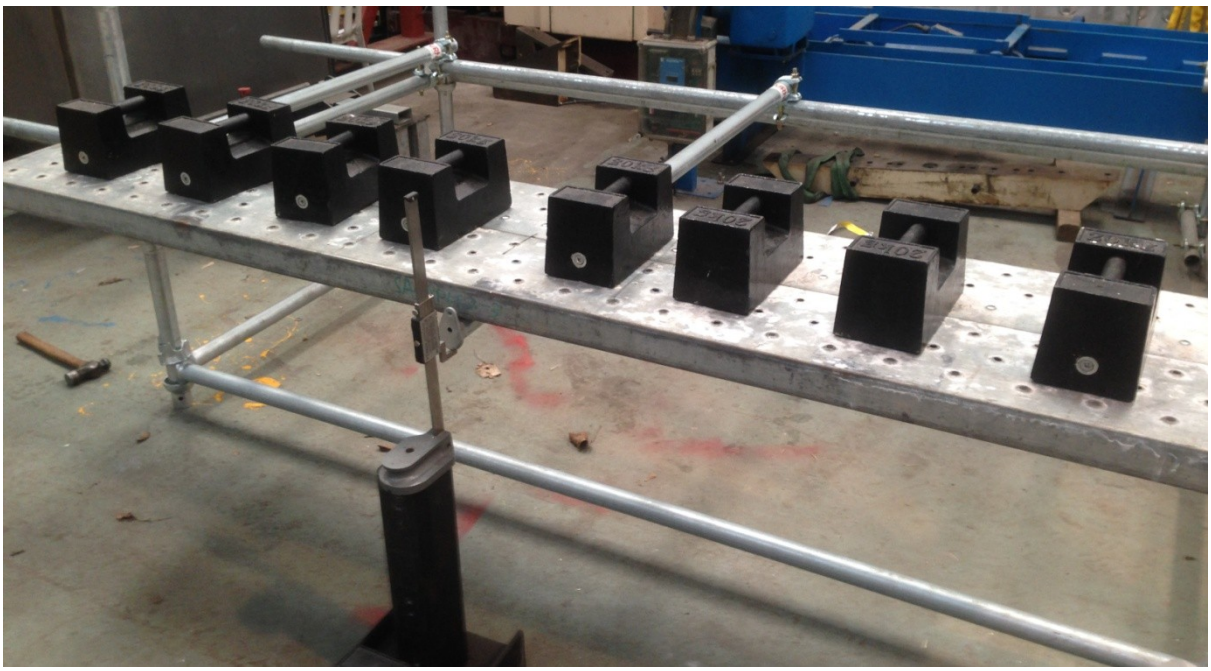
1.2 Test/survey requirements.

The client VR Scaffolding Solutions requested a load survey to the free issued Turnlok extendable transoms, the survey consisted of live mass load application at 2 board extension and 3 board extension. 3 samples at each extension were subject to load displacement survey. The transoms were set at 1.2 metres apart and secured via VR Access solutions BSEN74 drop forged right angled double scaffold fittings 3 transoms fitted at each test. Load was applied inclusive of a 1.1 x 1.5 factor, load cases were adopted from BSEN 12811. Displacements at each UDL max were taken from the end extension at the centre transom.

1.3 Equipment arrangement

Typical image of Load Bay Beam test assembly

Image showing 2 board extensions



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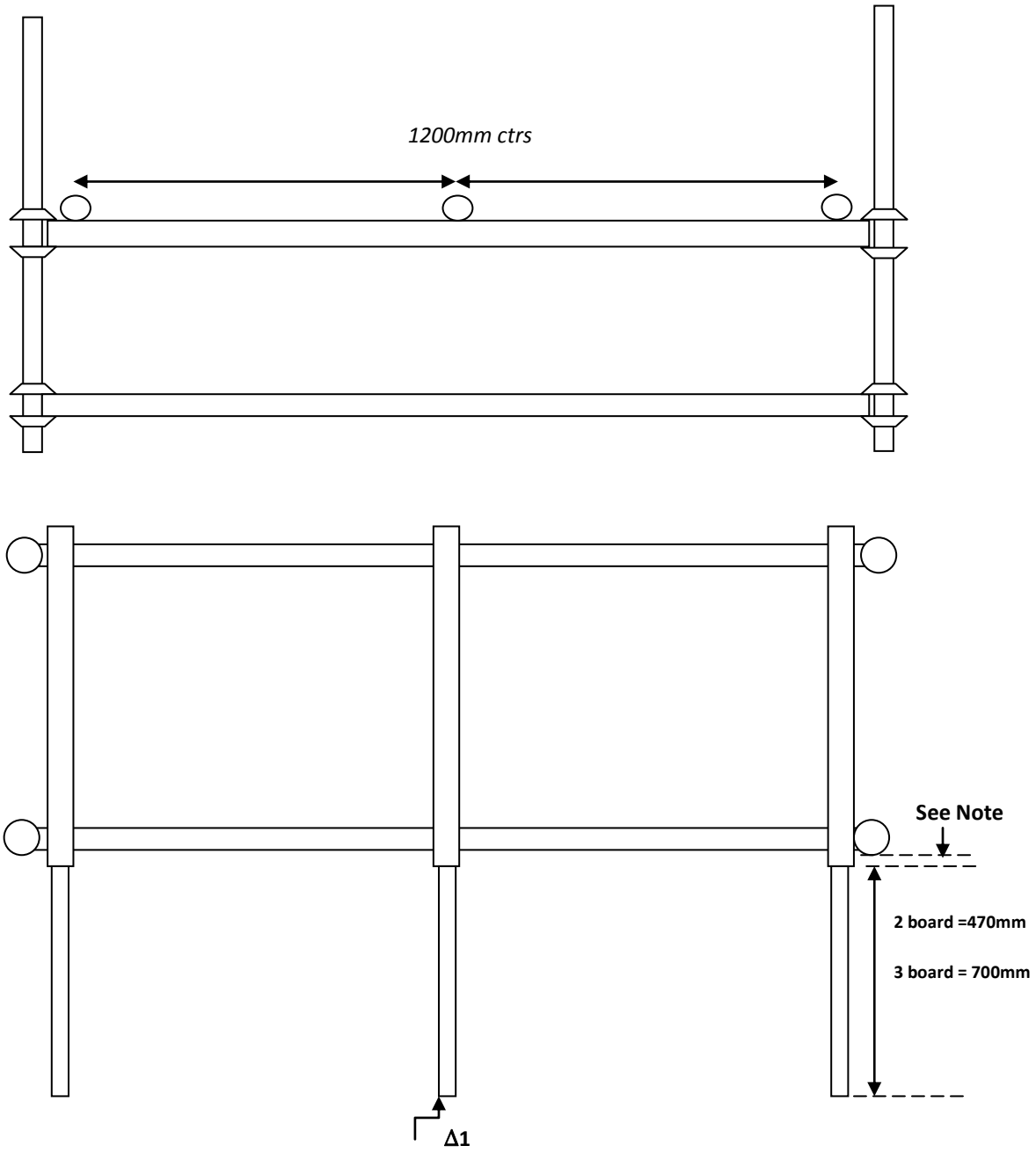
1.4.1. Typical diagram of board bearer assembly.



Note: 48.3 tube outer set at 40mm from leading edge of ledger

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1.4. *Test equipment*

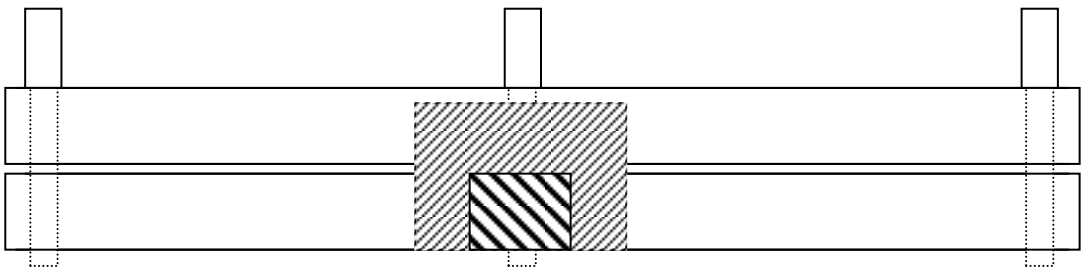
Vertical displacement gauge
1000kgs of 20kg hand weights
Cuplock system scaffold rig secured at rear to reduce overturning moment.

2.0. *2 board extension patch load survey*

2.1. *3 samples subject to patch load, patch loadings applied as per figure 2.1.1. Centre transom.*

sample	number of boards	loading (kg)	Patch size(mm)	Δ1 displacement(mm)	Δ1 set
	2 BOARD PATCH LOADAPPLICATION				
1	2	100	200x200	6.07	0.4
1	2	150	500x500	7.5	0.21
2	2	100	200x200	5.9	0.33
2	2	150	500x500	6.96	0.17
3	2	100	200x200	6.64	0.33
3	2	150	500x500	7.39	0.11

2.1.1. Schematic showing patch load area



 *Denotes 500x500mm*

 *Denotes 200x200mm*

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2.2. *Two board extension UDL application*

Table 2.2.1.

Sample number	N° Boards	Applied load kg	Load application	Δ1 displacement(mm)	Set mm	Load class
1	2	160	udl	5.82	0.12	LC1
1	2	315	udl	10.43	0.52	LC2
1	2	420	udl	14.01	0.56	LC3
1	2	630	udl	20.36	1.38	LC4
2	2	160	udl	6.31	0.03	LC1
2	2	315	udl	9.95	0.47	LC 2
2	2	420	udl	12.66	0.47	LC3
2	2	630	udl	19.15	0.96	LC4
3	2	160	udl	6.18	0.02	LC1
3	2	315	udl	9.8	0.09	LC2
3	2	420	udl	13.19	0.53	LC3
3	2	630	udl	19.61	0.79	LC4

extension from leading edge of ledger 0.51m
area 2.4x0.51=1.248m^2
Load class 1
0.75kN=76kg
76x1.248=94.84(95) x 1.1x1.5=157kg
Load class 2
1.5kN=153kg
153x1.248=191 x1.1 x1.5=315kg
Load class 3
2kN=204kg
204x1.248=254x1.1x1.5=420
Load class 4
3kn=306kg
306x1.248=381.88x1.1x1.5=630

Where applicable the UDL requirement was rounded up to the applied loads as per table 2.2.1.

Typical image of two board UDL assembly

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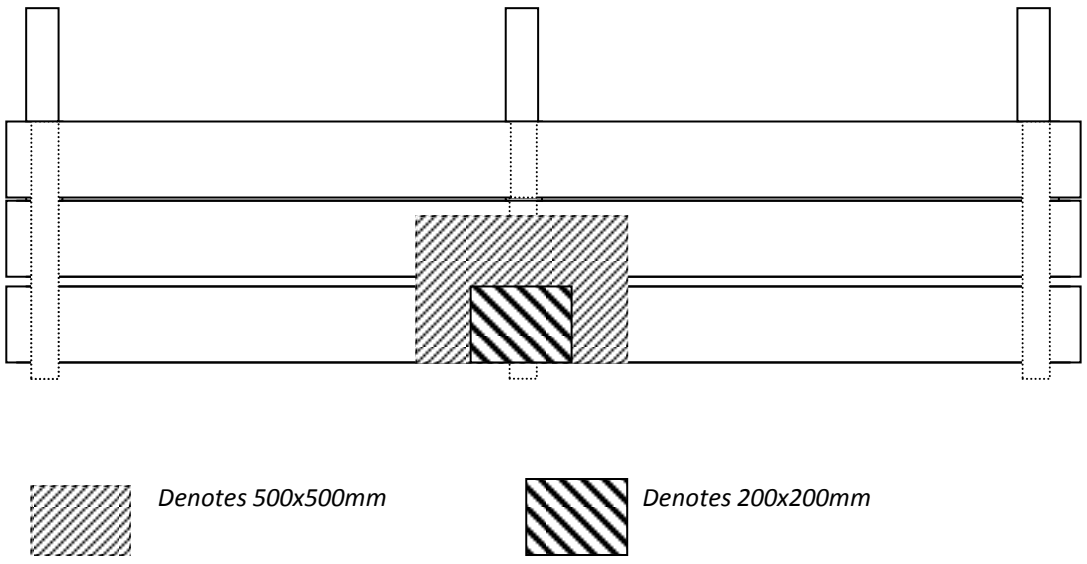
3.0. *Three board extension patch load survey*

3.1. *3 samples subject to patch load, patch loadings applied as per figure 2.1.1. Centre transom.*

3 BOARD PATCH LOAD APPLICATION

sample	number of boards	loading (kg)	Patch size(mm)	Δ1 displacement(mm)	Δ1 set
1	3	100	200x200	10.54	0.5
1	3	150	500x500	10.71	0.44
2	3	100	200x200	10.08	0.24
2	3	150	500x500	9.88	0.13
3	3	100	200x200	10.64	0.34
3	3	150	500x500	10.06	0.27

3.1.1. Schematic showing patch load area



Denotes 500x500mm

Denotes 200x200mm

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3.2. *Three board extension UDL application*

UDL area 2.4x0.72=1.728m^2

Table 3.2.1.

3 BOARD UDL APPLICATION					
sample	number of boards	loading (kg)	Patch size(mm)	Δ1 displacement(mm)	Δ1 set
1	3	220	udl	10.84	0.56
1	3	440	udl	20.88	0.57
1	3	600	udl	24.67	0.64
1	3	880	udl	41.85	1.29
2	3	220	udl	10.64	0.26
2	3	440	udl	23.18	0.29
2	3	600	udl	29.2	0.35
2	3	880	udl	43.35	1.14
3	3	220	udl	11.13	0.56
3	3	440	udl	21	0.3
3	3	600	udl	28.7	0.23
3	3	880	udl	42.32	0.61

Where applicable the UDL requirement was rounded up to the applied loads as per table 3.2.1.

Load class 1: 0.75kN/m^2 (76kg) 76x1.728=131kg x1.1x1.5=216.7kg
Load class 2: 1.5kN/m^2 (153kg) 153x1.728=264kg x1.1x1.5=436kg
Load class 3: 2kN/m^2 (204kg) 204x1.728=352.5kg x1.1x1.5=581.6kg
Load class 4: 3kN/m^2 (306kg) 306x1.728=528.7kg x1.1x1.5=872.35kg

4.0. Digital images

2 BOARD 157KG (160KG APPLIED)

2 BOARD 315KG (320KG APPLIED)

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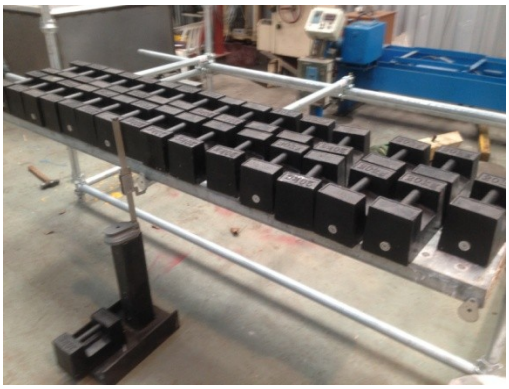
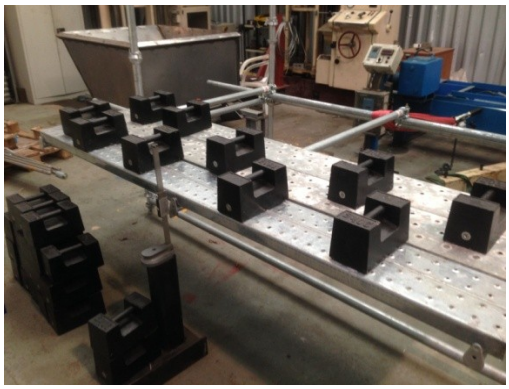
2 BOARD 420KG APPLIED



2 BOARD 630KG (640 APPLIED)

3 BOARD 216.7KG (220KG APPLIED)



3 BOARD 872KG (880KG APPLIED)

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Signed:

Mr S.J.Rogers Senior Test Engineer
Mr A Farmer Test technician.
On behalf of TESMEC Limited.

Report and testing conducted for: VR Access Solutions Ltd