

REPORT 37699/M/B/Rev 01

**MATERIAL ANALYSIS AND
COMPONENT ASSESSMENT**

OF A

**“WEDGE LOCK , CUP LOCK AND
TING LOCK” SCAFFOLD
SYSTEMS AND THEIR ASSOCIATED
DECK BOARDS**

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DIMENSIONAL SURVEY TEST CERTIFICATE FOR STEEL TUBE WITH ITS PROTECTIVE COATING REMOVED

Certificate:	37699/M/B/2	Order Ref:	P0253.Rev02.Srpm
Samples Received:	15 October 2007	Tested By:	AD/SRPM
Test Date:	26 November 2007	Test Procedure:	In-House

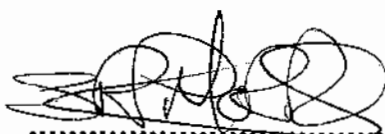
Client:	Coronet Scaffold Equipment Suzhou Co Ltd	Address:	200# Xinghai Street, Suzhou, Jiangsu Province, China
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DIMENSIONAL ASSESSMENT TO BS EN 12810-1:2003 AND BS EN 10219-2 : 2006				
Sample Identification	Wall Thickness (mm) Measurements	Average Wall* Thickness (mm)	Outside Diameter (mm)	Average** Outside Diameter (mm)
MN 761/C Standard Tube	3.110, 3.073, 3.074, 3.098	3.089	48.28, 48.44	48.36
MN 761/C Spigot Tube	3.042, 2.941, 3.000, 3.015	3.000	38.08, 38.11	38.10
MN 762/C Transom Tube	3.166, 3.146, 3.178, 3.188	3.170	48.62, 48.55	48.59
Specification BS EN 10219 - 2 : 2006		where "t" equals $\leq 5\text{mm}$ $\pm 10\%$		$\pm 1\%$

Comments: * The average of four symmetrically placed readings.
** The average of two symmetrically placed readings.

The tube samples above comply with the Dimensional assessment requirements of BS EN 10219 : 2006

For Sandberg LLP:



Report Date: 13 December 2007

Simon R P Morris - Assistant Manager Projects

Materials, samples and test specimens are retained for a period of 2 months from the issue of the final report.
Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.

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TENSILE TEST CERTIFICATE

Certificate:	37699/M/B/3	Order Ref:	P0253.Rev02.Srpm
Samples Received:	15 October 2007	Tested by:	AD
Test Date:	6 December 2007	Test Procedure:	M-19/2/0

Client:	Coronet Scaffold Equipment Suzhou Co Ltd	Address:	200# Xinghai Street, Suzhou, Jiangsu Province, China
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Specimen Reference		Area mm ²	0.2% Proof		Ultimate Tensile		Elongation %
Met Lab Ref	Sample Ref		Load kN	Stress N/mm ²	Load kN	Stress N/mm ²	
MN 761	Standard "Wedge Lock" Spigot Tube	39.53	17.42	441	21.65	548	21.7
MN 761	Standard "Wedge Lock" Tube	34.19	11.90	348	14.52	425	24.5
MN 762	Standard "Wedge Lock" Spigot Tube	37.91	17.48	461	21.15	558	20.2
MN 762	Standard "Wedge Lock" Spigot Tube	24.14	8.12	336	11.24	466	27.1
SPECIFICATION:				Min			Min
Tubes BS EN 10219-1:2006				235		340-470	24
Grade S235				275		410-560	20
Grade S275				355		490-630	20
Grade S355							
Sheet/ BS EN 10025-2:2004				235		340-470	26
Strip Grade S235				275		410-560	23
Grade S275				355		490-630	22
Grade S355							

Comments: Tensile testing in accordance with BS EN 10002 - 1 : 2001.
Samples MN 761 Standard spigot tube and MN 762 Standard spigot tube conformed to the tensile requirements of BS EN 10219-1:2006 Grade S355.
Samples MN 761 Standard tube and MN 762 Standard tube conformed to the tensile requirements of BS EN 10219-1:2006 Grade S275 and BS EN 10025-2:2004 Grade S275.

For Sandberg LLP:

Simon Morris - Assistant Manager Projects

Report Date: 13 December 2007

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TENSILE TEST CERTIFICATE

Certificate:	37699/M/B/4	Order Ref:	P0253.Rev02.Srpm
Samples Received:	15 October 2007	Tested by:	AD
Test Date:	6 December 2007	Test Procedure:	M-19/2/0

Client:	Coronet Scaffold Equipment Suzhou Co Ltd	Address:	200# Xinghai Street, Suzhou, Jiangsu Province, China
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Specimen Reference		Area mm ²	0.2% Proof		Ultimate Tensile		Elongation %
Met Lab Ref	Sample Ref		Load kN	Stress N/mm ²	Load kN	Stress N/mm ²	
MN 763	Transom "Wedge Lock" Angle	92.75	31.30	338	43.00	464	32.4
MN 763	Transom "Wedge Lock" Wedge	24.41	7.95	326	11.16	457	27.00
SPECIFICATION:				Min			Min
Tubes BS EN 10219-1:2006				235		340-470	24
Grade S235				275		410-560	20
Grade S275				355		490-630	20
Grade S355							
Sheet/ BS EN 10025-2:2004				235		340-470	26
Strip Grade S235				275		410-560	23
Grade S275				355		490-630	22
Grade S355							

Comments: Tensile testing in accordance with BS EN 10002 - 1 : 2001.
Samples MN 763 Transom angle and MN 763 Transom wedge conformed to the tensile requirements of Grade S275 to both BS EN 10219-1:2006 and BS EN 10025-2:2004.

For Sandberg LLP:

Simon Morris - Assistant Manager Projects

Report Date: 13 December 2007

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TEST CERTIFICATE

Certificate:	37699/M/B/6	Order Ref:	P0253.Rev02.Srpm
Samples Received:	15 October 2007	Tested By:	AD/SRPM
Test Date:	4 December 2007	Test Procedure:	M28 rev 0
Client:	Coronet Scaffold Equipment Suzhou Co Ltd	Address:	200# Xinghai Street, Suzhou, Jiangsu Province, China

WELD QUALITY ASSESSMENT TO BS ISO 5817 : 2007 LEVEL B - STRINGENT

Key: NSD - No significant defects LORF - Lack of root fusion
 LOSWF - Lack of side wall fusion LORP - Lack of root penetration

Component Identification	No of Welds Assessed	Type of weld	Level of Imperfections
Standard Component MN 764/D			
Cluster 1 Cup to tube	3	Fillet	NSD, NSD, NSD
Standard top locking pin	2	Fillet	NSD, NSD,
Standard Component MN 765/D			
Cluster 2 Cup to tube	3	Fillet	NSD, NSD, NSD
Standard top locking pin	2	Fillet	NSD, NSD
Transom Component MN 766/A			
Transom Foot	2	Fillet	NSD, NSD
Transom Component MN 767/D			
Ledger Foot	2	Fillet	NSD, NSD, NSD

Comments: Macro examination of samples MN 764/D, MN765/D, MN 766/A and MN 767/D complied with the acceptance requirements of BS EN ISO 5817 : 2007 level B imperfections.

For Sandberg LLP:

Report Date: 13 December 2007

Simon R P Morris - Assistant Manager Projects

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DIMENSIONAL SURVEY TEST CERTIFICATE FOR STEEL TUBE WITH ITS PROTECTIVE COATING REMOVED

Certificate:	37699/M/B/7	Order Ref:	P0253.Rev02.Srpm
Samples Received:	15 October 2007	Tested By:	AD/SRPM
Test Date:	21 November 2007	Test Procedure:	In-house

Client:	Coronet Scaffold Equipment Suzhou Co Ltd	Address:	200# Xinghai Street, Suzhou, Jiangsu Province, China
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DIMENSIONAL ASSESSMENT TO BS EN 12810-1:2003 AND BS EN 10219-2 : 2006				
Sample Identification	Wall Thickness (mm) Measurements	Average Wall* Thickness (mm)	Outside Diameter (mm)	Average** Outside Diameter (mm)
MN 764/D Standard Tube	3.160, 3.193, 3.170, 3.174	3.174	48.06, 48.20	48.13
MN 765/D Standard Tube	3.049, 3.034, 3.033, 3.045	3.040	48.58, 48.53	48.58
MN 766/A Transom tube	3.071, 3.053, 3.061, 3.049	3.059	48.63, 48.53	48.58
MN 767/D Ledger Tube	3.059, 3.034, 3.042, 3.047	3.046	48.67, 48.71	48.69
Specification BS EN 10219 - 2 : 2006		where "t" equals $\leq 5\text{mm}$ $\pm 10\%$		$\pm 1\%$

Comments: * The average of four symmetrically placed readings.
** The average of two symmetrically placed readings.

The tube samples above comply with the Dimensional assessment requirements of BS EN 10219 : 2006

For Sandberg LLP:



Report Date: 13 December 2007

Simon R P Morris -Assistant Manager Projects

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TENSILE TEST CERTIFICATE

Certificate:	37699/M/B/8	Order Ref:	P0253.Rev02.Srpm
Samples Received:	15 October 2007	Tested by:	AD
Test Date:	5 December 2007	Test Procedure:	M-19/2/0

Client:	Coronet Scaffold Equipment Suzhou Co Ltd	Address:	200# Xinghai Street, Suzhou, Jiangsu Province, China
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Specimen Reference		Area mm ²	0.2% Proof		Ultimate Tensile		Elongation %
Met Lab Ref	Sample Ref		Load kN	Stress N/mm ²	Load kN	Stress N/mm ²	
MN 764	Standard "Cup Lock" Tube	38.28	16.28	426	18.98	496	24.1
MN 765	Standard "Cup Lock" Tube	34.55	17.04	493	20.45	592	21.9
MN 766	Transom "Cup Lock" Tube	36.01	15.88	441	19.12	531	23.5
MN 767	Ledger "Cup Lock" Tube	35.86	15.32	428	18.64	520	21.4
SPECIFICATION:				Min			Min
Tubes	BS EN 10219-1:2006						
	Grade S235			235		340-470	24
	Grade S275			275		410-560	20
Sheet/ Strip	BS EN 10025-2:2004			355		490-630	20
	Grade S235			235		340-470	26
	Grade S275			275		410-560	23
	Grade S355			355		490-630	22

Comments: Tensile testing in accordance with BS EN 10002 - 1 : 2001.
Samples MN 764 Standard tube and MN 766 Transom tube conformed to the tensile requirements of Grade S355 to both BS EN 10219-1:2006 and BS EN 10025-2:2004.
Sample MN 765 Standard tube and MN 767 Ledger tube conformed to the tensile requirements of BS EN 10219-1:2006 Grade S355.

For Sandberg LLP:

Simon Morris - Assistant Manager Projects

Report Date: 13 December 2007

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TENSILE TEST CERTIFICATE

Certificate:	37699/M/B/9	Order Ref:	P0253.Rev02.Srpm
Samples Received:	15 October 2007	Tested by:	AD
Test Date:	26/27 December 2007	Test Procedure:	In House

Client:	Coronet Scaffold Equipment Suzhou Co Ltd	Address:	200# Xinghai Street, Suzhou, Jiangsu Province, China
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PERFORMANCE TESTING OF "CUP LOCK" SCAFFOLD COMPONENTS

Sample Identification	Test Type	Maximum Accepted Force (kN)	Comments
Standard MN 764/B2 Transom MN766/B	Tensile	76.5	Blade deformed excessively with tearing of the bottom cup occurring
Standard MN 765/B2 Ledger MN 767/B	Tensile	88.4	Blade deformed excessively with tearing of the bottom cup occurring
Standard MN 765/B3 Transom MN 766/C	Shear	96.6	Excessive deformation of scaffold tube with tearing of the bottom cup welds
Standard MN 764/B3 Ledger MN 767/C	Shear	85.6	Excessive deformation of scaffold tube with tearing of the bottom cup welds

Comments: In each case the above attachment features were fully closed prior to load testing.

Lab Form: met100b.wpd

For Sandberg LLP:

Simon Morris - Assistant Manager Projects

Report Date: 13 December 2007

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DIMENSIONAL SURVEY TEST CERTIFICATE FOR STEEL TUBE WITH ITS PROTECTIVE COATING REMOVED

Certificate:	37699/M/B/11	Order Ref:	P0253.Rev02.Srpm
Samples Received:	15 October 2007	Tested By:	AD/SRPM
Test Date:	21 November 2007	Test Procedure:	In-House

Client:	Coronet Scaffold Equipment Suzhou Co Ltd	Address:	200# Xinghai Street, Suzhou, Jiangsu Province, China
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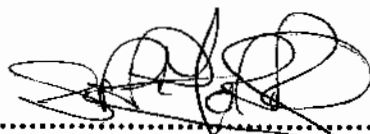
DIMENSIONAL ASSESSMENT TO BS EN 12810-1:2003 AND BS EN 10219-2 : 2006

Sample Identification	Wall Thickness (mm) Measurements	Average Wall* Thickness (mm)	Outside Diameter (mm)	Average** Outside Diameter (mm)
MN 768/D Standard Tube	3.141, 3.150, 3.164, 3.166	3.155	48.14, 48.23	48.19
MN 769/D Standard Tube	3.097, 3.070, 3.104, 3.074	3.086	48.69, 48.68	48.69
MN 770/D Transom Tube	3.132, 3.098, 3.096, 3.121	3.112	48.52, 48.48	48.50
MN 771/D Ledger Tube	3.007, 3.012, 2.998, 2.998	3.004	48.49, 48.65	48.57
Specification BS EN 10219 - 2 : 2006		where "t" equals $\leq 5\text{mm}$ $\pm 10\%$		$\pm 1\%$

Comments: * The average of four symmetrically placed readings.
** The average of two symmetrically placed readings.

The tube samples above comply with the Dimensional assessment requirements of BS EN 10219 : 2006

For Sandberg LLP:



Report Date: 13 December 2007

Simon R P Morris - Assistant Manager Projects

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TENSILE TEST CERTIFICATE

Certificate:	37699/M/B/12	Order Ref:	P0253.Rev02.Srpm
Samples Received:	15 October 2007	Tested by:	AD
Test Date:	5 December 2007	Test Procedure:	M-19/2/0

Client:	Coronet Scaffold Equipment Suzhou Co Ltd	Address:	200# Xinghai Street, Suzhou, Jiangsu Province, China
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Specimen Reference		Area mm ²	0.2% Proof		Ultimate Tensile		Elongation %
Met Lab Ref	Sample Ref		Load kN	Stress N/mm ²	Load kN	Stress N/mm ²	
MN 768	Standard "Ring Lock" Tube	37.14	13.76	370	14.98	403	26.5
MN 769	Standard "Ring Lock" Tube	36.93	16.90	458	21.15	573	21.4
MN 770	Transom "Ring Lock" Tube	36.37	16.28	448	19.28	530	24.2
MN 770	Transom "Cup Lock" Wedge	27.64	11.00	398	14.90	539	24.4
SPECIFICATION:				Min			Min
Tubes BS EN 10219-1:2006							
Grade S235				235		340-470	24
Grade S275				275		410-560	20
Grade S355				355		490-630	20
Sheet/ BS EN 10025-2:2004							
Strip Grade S235				235		340-470	26
Grade S275				275		410-560	23
Grade S355				355		490-630	22

Comments: Tensile testing in accordance with BS EN 10002 - 1 : 2001.
Sample MN 768 Standard tube conformed to the tensile requirements of Grade S235 to both BS EN 10219-1:2006 and BS EN 10025-2:2004.
Sample MN 769 Standard tube conformed to the tensile requirements of BS EN 10219-1:2006 Grade S355.
Sample MN 770 Transom tube and MN 770 Transom wedge conformed to the tensile requirements of Grade S355 to both BS EN 10219-1:2006 and BS EN 10025-2:2004.

For Sandberg LLP:

Simon Morris - Assistant Manager Projects

Report Date: 20 December 2007

Materials, samples and test specimens are retained for a period of 2 months from the issue of the final report.
Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.

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TENSILE TEST CERTIFICATE

Certificate:	37699/M/B/13	Order Ref:	P0253.Rev02.Srpm
Samples Received:	15 October 2007	Tested by:	AD
Test Date:	5 December 2007	Test Procedure:	M-19/2/0

Client:	Coronet Scaffold Equipment Suzhou Co Ltd	Address:	200# Xinghai Street, Suzhou, Jiangsu Province, China
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Specimen Reference		Area mm ²	0.2% Proof		Ultimate Tensile		Elongation %
Met Lab Ref	Sample Ref		Load kN	Stress N/mm ²	Load kN	Stress N/mm ²	
MN 771	Ledger "Ring Lock" Tube	36.29	16.22	447	20.15	555	22.8
MN 763	Ledger "Ring Lock" Wedge	27.71	10.88	392	14.82	535	24.5
SPECIFICATION:				Min			Min
Tubes BS EN 10219-1:2006				235		340-470	24
Grade S235				275		410-560	20
Grade S275				355		490-630	20
Grade S355							
Sheet/ BS EN 10025-2:2004				235		340-470	26
Strip Grade S235				275		410-560	23
Grade S275				355		490-630	22
Grade S355							

Comments: Tensile testing in accordance with BS EN 10002 - 1 : 2001.
Sample MN 771 Ledger tube and MN 763 Ledger wedge conformed to the tensile requirements of Grade S355 to both BS EN 10219-1:2006 and BS EN 10025-2:2004.

For Sandberg LLP:

Simon Morris - Assistant Manager Projects

Report Date: 13 December 2007

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TEST CERTIFICATE

Certificate:	37699/M/B/15	Order Ref:	PO253.Rev02.SRPM
Samples Received:	15 October 2007	Tested By:	AD/SRPM
Test Date:	4 & 6 December 2007	Test Procedure:	M28 rev 0

Client:	Coronet Scaffold Equipment Suzhou Co Limited	Address:	200 # Xinghai Street Suzhou Jiangsu Province China
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WELD QUALITY ASSESSMENT TO BS ISO 5817 : 2003 LEVEL B - STRINGENT

Metal Deck Component	Number of Welds Assessed	Type of Joint	Level of Imperfections
MN 772/A - Pressed steel clip to sheet board	2	Fillets	Weld No. 1 - None apparent Weld No. 2 - None apparent
MN 773/A - Deck to deck material	2	Fillets	Weld No. 1 - None apparent Weld No. 2 - None apparent

Comments:	Macro examination of samples MN 772/A and MN 773/A complied with the quality acceptance requirements of BS EN ISO 5817 : 2003 level B assessment.
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Plain-01

For Sandberg LLP

Simon R P Morris - Assistant Manager Projects

Date: 19 December 2007

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TEST CERTIFICATE

Certificate:	37699/M/B/17	Order Ref:	PO253.Rev02.SRPM
Samples Received:	15 October 2007	Tested By:	SRPM/AD
Test Date:	13 December 2007	Test Procedure:	In house

Client:	Coronet Scaffold Equipment Suzhou Co Limited	Address:	200 # Xinghai Street Suzhou Jiangsu Province China
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CONCENTRATED LOAD TESTING OF SINGLE "CLIP ON" METAL DECK PANEL MN 772/B

Effective Length of Panel: 1.7 metres
Deck Width: 0.230 metres
Deck Depth: 60 mm
Test Load: 1.00 kN over 200 x 200 mm area (F2)

Load/Deflection Results

Load (kN)	0.0	0.2	0.4	0.6	0.8	1.0	0.0
Deflection (mm)	0.0	1.13	1.64	2.79	3.56	4.35	0.09

Comments: The above metal deck MN 772 was found to be capable of supporting the 1.0 kN concentrated load as specified in table 3 of BS EN 12811 - 1 2003, without exceeding 1/100 of its span.

Plain-01

For Sandberg LLP

Date: 19 December 2007

Simon R P Morris - Assistant Manager Projects

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TEST CERTIFICATE

Certificate:	37699/M/B/18	Order Ref:	PO253.Rev02.SRPM
Samples Received:	15 October 2007	Tested By:	SRPM/AD
Test Date:	13 December 2007	Test Procedure:	In house

Client:	Coronet Scaffold Equipment Suzhou Co Limited	Address:	200 # Xinghai Street Suzhou Jiangsu Province China
----------------	----------------------------------------------	-----------------	-------------------------------------------------------------

UNIFORMLY DISTRIBUTED LOAD TESTING OF SINGLE "CLIP ON" METAL DECK PANEL MN 772/B

Effective Length of Panel: 1.7 metres
Deck Width: 0.230 metres
Deck Depth: 60 mm
Total Projected Deck Area: 0.391m²
Load Class: 6 kN/m² (BS EN 12811 - 1 2003 Table 3 q1)
Equivalent Test Load (kN): 2.4 kN

Load/Deflection Results

Load (kN)	0.0	0.4	0.8	1.2	1.6	2.0	2.4	0.0
Deflection (mm)	0.0	1.78	2.86	3.57	4.09	4.48	4.71	0.10

Comments: The above metal deck MN 772 was found to be capable of supporting the 6 kN/m² UDL (q1) as specified in table 3 of BS EN 12811 - 1 2003, without any significant permanent deflection.

Plain-01

For Sandberg LLP

Simon R P Morris - Assistant Manager Projects

Date: 19 December 2007

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TEST CERTIFICATE

Certificate:	37699/M/B/19	Order Ref:	PO253.Rev02.SRPM
Samples Received:	15 October 2007	Tested By:	SRPM/AD
Test Date:	13 December 2007	Test Procedure:	In house

Client:	Coronet Scaffold Equipment Suzhou Co Limited	Address:	200 # Xinghai Street Suzhou Jiangsu Province China
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CONCENTRATED LOAD TESTING OF SINGLE "SIT ON" METAL DECK PANEL MN 773/B

Effective Length of Panel: 1.25 metres
Deck Width: 0.230 metres
Deck Depth: 60 mm
Test Load: 1.00 kN over 200 x 200 mm² area (F2)

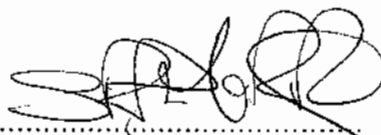
Load/Deflection Results

Load (kN)	0.0	0.2	0.4	0.6	0.8	1.0	0.0
Deflection (mm)	0.0	1.69	2.23	2.75	3.00	3.50	0.10

Comments: The above metal deck MN 773 was found to be capable of supporting the 1.0 kN concentrated load as specified in table 3 of BS EN 12811 - 1 2003, without its deflection exceeding 1/100 of its span.

Plain-01

For Sandberg LLP


Simon R P Morris - Assistant Manager Projects

Date: 19 December 2007

Materials, samples and test specimens are retained for a period of 2 months from the issue of the final report.
Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.



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TEST CERTIFICATE

Certificate:	37699/M/B/20	Order Ref:	PO253.Rev02.SRPM
Samples Received:	15 October 2007	Tested By:	SRPM/AD
Test Date:	13 December 2007	Test Procedure:	In house
Client:	Coronet Scaffold Equipment Suzhou Co Limited	Address:	200 # Xinghai Street Suzhou Jiangsu Province China

UNIFORMLY DISTRIBUTED LOAD TESTING OF SINGLE "CLIP ON" METAL DECK PANEL MN 772/B

Effective Length of Panel: 1.7 metres
Deck Width: 0.230 metres
Deck Depth: 60 mm
Total Projected Deck Area: 0.391m²
Load Class: 6 kN/m² (BS EN 12811 - 1 2003 Table 3 q1)
Equivalent Test Load (kN): 1.725 kN


Load/Deflection Results

Load (kN)	0.0	0.4	0.8	1.2	1.6	1.8	0.0
Deflection (mm)	0.0	2.18	2.77	3.26	3.49	3.51	0.0

Comments: The above metal deck MN 773 was found to be capable of supporting the 6 kN/m² UDL (q1) as specified in table 3 of BS EN 12811 - 1 2003, without any significant permanent deflection.

Plain-01

For Sandberg LLP


Simon R P Morris - Assistant Manager Projects

Date: 19 December 2007

Materials, samples and test specimens are retained for a period of 2 months from the issue of the final report.
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Where our involvement consists exclusively of testing samples, the results and our conclusions relate only to the samples tested.