

Test Performance Form QD		Test Report : TR2014026
Document Owner: QSI Ltd	Approved for use by General Manager	Last Modified



Date: 24/02/2014		<b>Test Report : TR2014026</b>	Page 1 of 12
Department	<b>Height Safety</b>	Test: 15kN and 21kN fixed anchor point (Dynamic Drop Test)	<b>Ref: QSI 20140224-01</b>

**Client:** Safetor Roof Anchors  
27 Giddis Ave  
Napier

**Client Ref:** Nick Collins  
Email: nick.roofanchors@clear.net.nz  
Mobile: 021 448 004

**Test specification:** Compliance test to 6.3.2 dynamic testing procedures of AS/NZS 5532:2013, Manufacturing requirements for single-point anchor device used for harness based work at height.

**Test items:** Safetor fixed roof anchors  
Two (2) Black permanent anchors attached to wooden structure.



**Date of test:** 23/02/2014


**Checked by:** Tanya Edmonds  
Compliance Manager

Date: 24/02/2014

**Prepared & approved by** Jason Myburgh  
Quality Laboratory Manager

Date: 24/02/2014

**IANZ Accredited Signatory:**

  
\_\_\_\_\_  
Jason Myburgh

Test Performance Form QD		Test Report : TR2014026
Document Owner: QSI Ltd	Approved for use by General Manager	Last Modified

Page 2 of 12

### Aim

This test was done in order to determine the compliance of the fixed anchor point of the Safetor product range, with the dynamic test requirements of AS/NZS 5532:2013

The following table covers the test program conducted;

Designation / Attachment Points	Test	Description
Fixed anchor attached to wooden 90x45 double rafter and above purlin block as per Safetor roof anchor assembly instructions (Appendix 8)	6.3.2.2 fixed anchor devices as per table 1 dynamic testing criteria	<b>TEST 1</b> Dynamic drop test:- 15kN anchor rating with a 100kg rigid mass. Free fall distance 2000mm on 12mm three strand polyester hawser-laid rope.
Fixed anchor attached to wooden 90x45 double rafter and above purlin block as per Safetor roof anchor assembly instructions (Appendix 8)	6.3.2.2 fixed anchor devices as per table 1 dynamic testing criteria	<b>TEST 2</b> Dynamic drop test:- 21kN anchor rating with a 150kg rigid mass. Free fall distance 2000mm on 12mm three strand polyester hawser-laid rope.

### Conclusion

The Safetor roof anchor when attached to wooden timber as per the Safetor installation instructions was able to demonstrate compliance with dynamic tests requirements table 1 of 6.3.2.2 of AS/NZS 5532:2013 for both the 15kN and 21kN drop test criteria.  
(See appendix 8 for installation instructions)

### Assessment

#### **Test number DLT2014-14 (15kN Dynamic Drop Test )**

The length of the rope measured 1970mm, mass of 100kg  
Post examination of the anchor point showed slight movement in the wood mounting, and the anchor had bent to absorb some of the energy. Anchor retained the weight after the drop.  
Refer to Appendix 4 for test graph and Appendix 6 for pictures  
Assessment: **Pass**

#### **Test number DLT2014-15 (25kN Dynamic Drop Test )**

The length of the rope measured 1980mm, mass of 150kg  
Post examination of the anchor point showed splitting of the wood mounting, and the anchor had bent to absorb some of the energy. Anchor retained weight after the drop but the timber was damaged.  
Refer to Appendix 5 for test graph and appendix 7 for pictures  
Assessment: **Pass**

### Comments:

This dynamic test program covers Clause 6.3.2 (i),(ii)(a)(b) and (d) of AS/NZS 5532:2013<sup>o</sup>,

<sup>o</sup> The Clause numbers indicated throughout this report refer to the respective Clauses of AS/NZS 5532:2013. Where a clause is followed by brackets '( )', the contents of the brackets refers to part of the clause. i.e. paragraph number or subclause.

Test Performance Form QD		Test Report : TR2014026
Document Owner: QSI Ltd	Approved for use by General Manager	Last Modified

Page 3 of 12

## Appendix 1

### TEST SPECIMEN DETAILS

Specimen Number	Description	Model	Serial No:	Date of manufacture
QSI20140223-01	Safetor Roof Anchor	SE015	5399	-
QSI20140223-02	Safetor Roof Anchor	SE015	5400	-
QSI20140223-03	12mm three strand polyester hawser-laid rope	SPR12	120871	02-2014
QSI20140223-04	12mm three strand polyester hawser-laid rope	SPR12	120561	02-2014
QSI20140223-05	12mm three strand polyester hawser	SPR12	120559	02-2014
QSI20140223-06	12mm three strand polyester hawser	SPR12	120872	02-2014
QSI20140223-07	12mm three strand polyester hawser	SPR12	120873	02-2014
QSI20140223-08	12mm three strand polyester hawser	SPR12	120870	02-2014
QSI20140223-09	12mm three strand polyester hawser	SPR12	120558	02-2014
QSI20140223-10	12mm three strand polyester hawser	SPR12	120560	02-2014

Test Performance Form QD	Test Report : TR2014026
Document Owner: QSI Ltd	Approved for use by General Manager
	Last Modified

Page 4 of 12  
**Appendix 2**

**TEST 1**  
**15 kN TEST RESULTS**  
**(100kg 2m drop)**  
**Control**

Test Number	Specimen Number	Overall Length (2000mm ± 50mm)	Drop Height (M)	Max Load (kN)	Assessment
DT2014-19	QSI20140223-05	1970	2	14.05 kN	<b>Control 1 (1433 kg)</b>
DT2014-20	QSI20140223-06	1975	2	14.02 kN	<b>Control 2 (1430 kg)</b>
DT2014-21	QSI20140223-07	1970	2	14.60 kN	<b>Control 3 (1489 kg)</b>

**100kg weight was dropped 2m onto 10 ton rigid anchor:  
Average force after 3 Drops – 14.22 kN**

**Roof anchor fixed to wooden rafters**  
**15 kN Test**

Test Number	Specimen Number	Overall Length (2000mm ± 50mm)	Drop Height (M)	Max Load (kN)	Highest Force averaged over 50m/s period	Assessment
DT2014-15	QSI20140223-01 QSI20140223-03	1970	2	10.69 kN	8.82 kN	<b>PASS (15kN)</b>

The roof anchor bent during the drop to reduce the force on the structure to 10.69 kN.



Test Performance Form QD	Test Report : TR2014026
Document Owner: QSI Ltd	Approved for use by General Manager
	Last Modified

Page 5 of 12  
**Appendix 3**

**TEST 2**  
**21 kN TEST RESULT DETAILS**  
**(150kg 2m drop)**  
**Control**

Test Number	Specimen Number	Overall Length (2000mm ± 50mm)	Drop Height (M)	Max Load (kN)	Assessment
DT2014-16	QSI20140223-08	1970	2	20.91 kN	<b>Control 1 (2133 kg)</b>
DT2014-17	QSI20140223-09	1980	2	19.96 kN	<b>Control 2 (2036 kg)</b>
DT2014-18	QSI20140223-10	1965	2	20.78 kN	<b>Control 3 (2119 kg)</b>

**150kg weight was dropped 2m onto 10 ton rigid anchor:  
Average force after 3 Drops – 20.55 kN**

**Roof anchor fixed to wooden rafters**  
**21 kN Test**

Test Number	Specimen Number	Overall Length (2000mm ± 50mm)	Drop Height (M)	Max Load (kN)	Highest Force averaged over 50m/s period	Assessment
DT2014-15	QSI20140223-02 QSI20140223-04	1980	2	14.12kN	13.75kN	<b>PASS (21kN)</b>

The roof anchor bent during the drop to reduce the force on the structure to 14.12 kN.

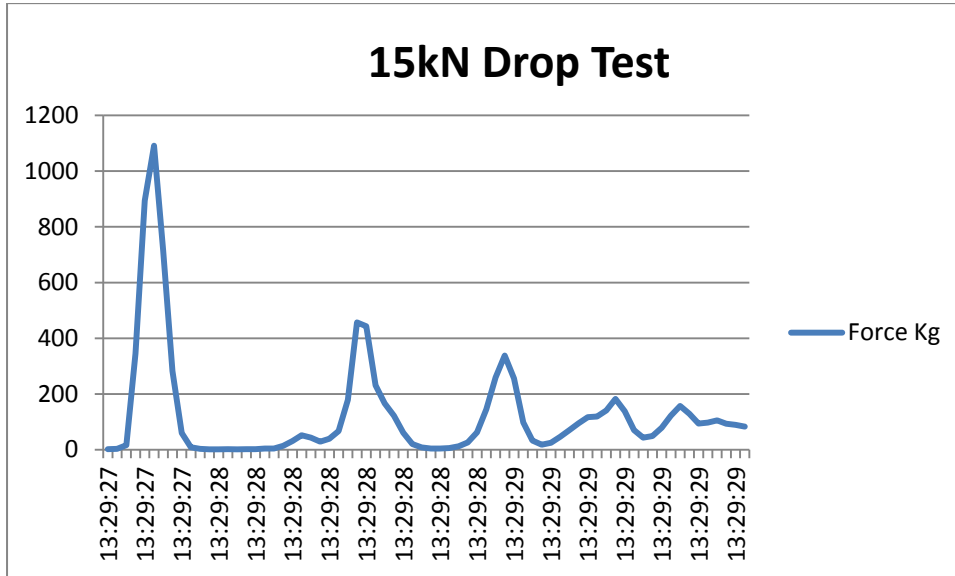


Test Performance Form QD		Test Report : TR2014026
Document Owner: QSI Ltd	Approved for use by General Manager	Last Modified

Page 6 of 12

### Appendix 4

#### Test 1



**A&D**  
A&D Company, Limited

Auto-Scaling  
 Data  Time

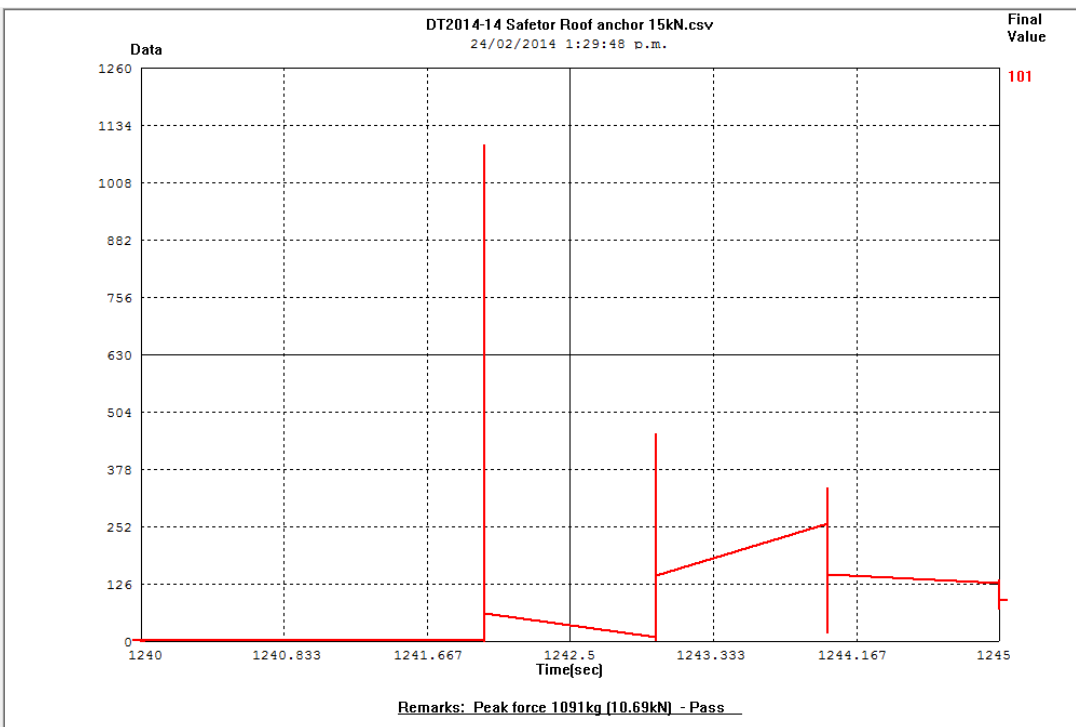
Repeat/Auto Stop  
 Repeat 5 seconds  
 Auto Stop 0 minutes

Command Data  
 Q

Received Data

Start Command

No.	Time	Header	Data	Unit
1741	13:29:27	WT	+0000002	
1742	13:29:27	WT	+0000003	
1743	13:29:27	WT	+0000016	
1744	13:29:27	WT	+0000345	
1745	13:29:27	WT	+0000894	
1746	13:29:27	WT	+0001091	
1747	13:29:27	WT	+0000715	
1748	13:29:27	WT	+0000282	
1749	13:29:27	WT	+0000060	
1750	13:29:28	WT	+0000009	
1751	13:29:28	WT	+0000003	
1752	13:29:28	WT	+0000001	
1753	13:29:28	WT	+0000001	
1754	13:29:28	WT	+0000002	
1755	13:29:28	WT	+0000001	
1756	13:29:28	WT	+0000002	
1757	13:29:28	WT	+0000002	
1758	13:29:28	WT	+0000004	

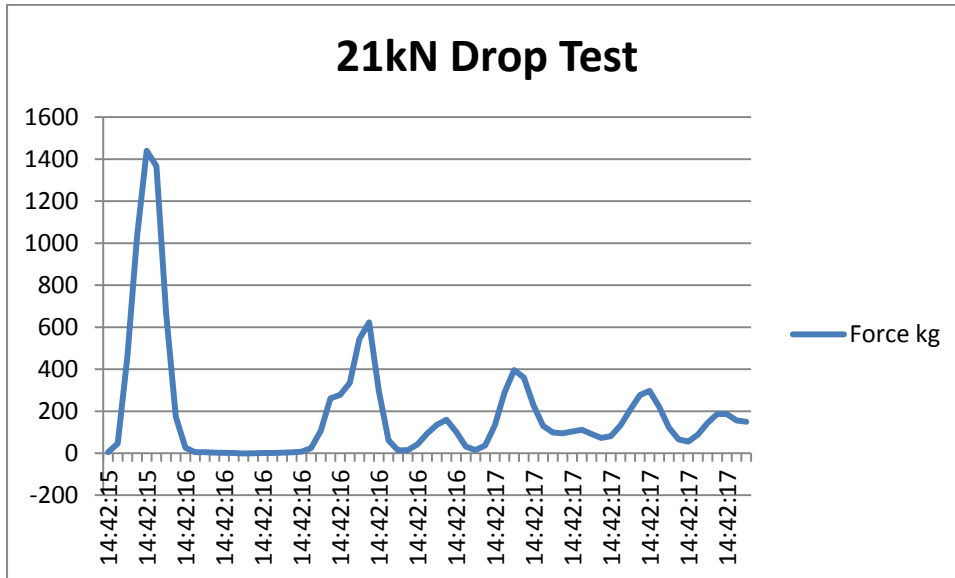


Test Performance Form QD		Test Report : TR2014026
Document Owner: QSI Ltd	Approved for use by General Manager	Last Modified

Page 3 of 3  
Page 7 of 12

### Appendix 5

#### Test 2



**A&D**  
A&D Company Limited

Auto-Scaling  
 Data     Time

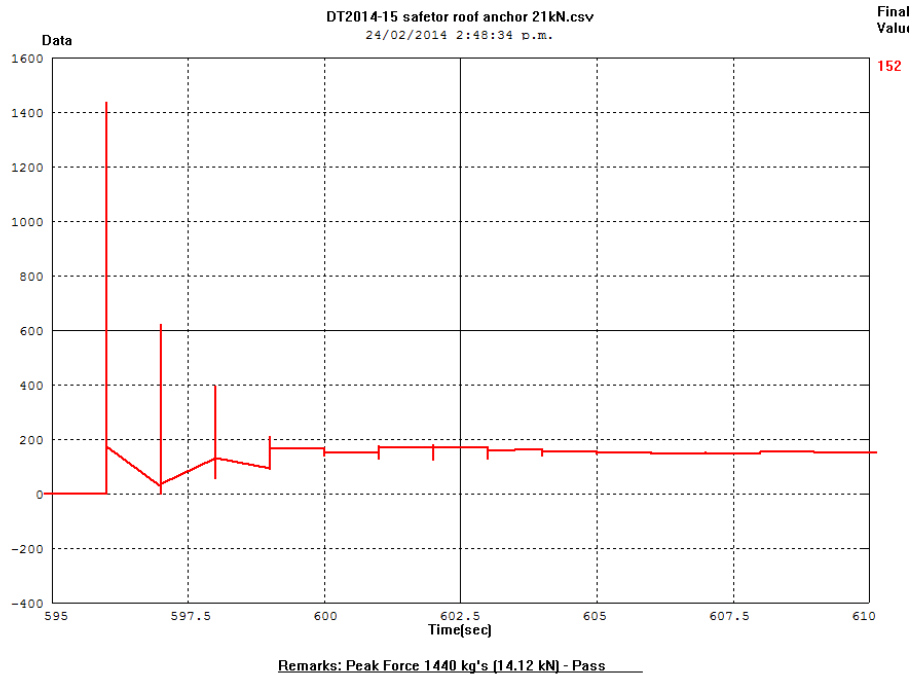
Repeat/Auto Stop  
 Repeat    5 seconds  
 Auto Stop    0 minutes

Command Data  
 Q

Received Data

Start    Command

No.	Time	Header	Data	Un
3331	14:42:15	WT	+0000001	
3332	14:42:15	WT	+0000001	
3333	14:42:15	WT	+0000001	
3334	14:42:15	WT	+0000001	
3335	14:42:15	WT	+0000001	
3336	14:42:15	WT	+0000005	
3337	14:42:15	WT	+0000046	
3338	14:42:15	WT	+0000456	
3339	14:42:15	WT	+0001033	
3340	14:42:15	WT	+0001440	
3341	14:42:15	WT	+0001367	
3342	14:42:15	WT	+0000670	
3343	14:42:15	WT	+0000173	
3344	14:42:16	WT	+0000026	
3345	14:42:16	WT	+0000005	
3346	14:42:16	WT	+0000005	
3347	14:42:16	WT	+0000003	
3348	14:42:16	WT	+0000002	





Test Performance Form QD	Test Report : TR2014026
Document Owner: QSI Ltd	Approved for use by General Manager
	Last Modified

Page 8 of 12

**Appendix 6**

**TEST 1 (15kN)**

**PICTURES BEFORE DROP**





Test Performance Form QD	Test Report : TR2014026
Document Owner: QSI Ltd	Approved for use by General Manager
	Last Modified

Page 9 of 12

**Appendix 6 (Continued)**

**TEST 1 (15kN)**

**PICTURES AFTER DROP**



Test Performance Form QD	Test Report : TR2014026
Document Owner: QSI Ltd	Approved for use by General Manager
	Last Modified

Page 10 of 12

**Appendix 7**

**TEST 2 (21kN)**

**PICTURES BEFORE DROP**





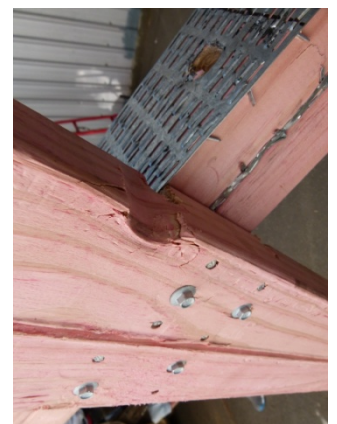
Test Performance Form QD	Test Report : TR2014026
Document Owner: QSI Ltd	Approved for use by General Manager
	Last Modified

Page 11 of 12

**Appendix 7 (Continued)**

**TEST 2 (21kN)**

**PICTURES AFTER DROP**



Test Performance Form QD	Test Report : TR2014026
Document Owner: QSI Ltd	Approved for use by General Manager
	Last Modified

Page 12 of 12

## Appendix 8 Structure and fixing guidelines as per manufacturer

