## Test Performance Form QD

**Test Report:** TR2014026

**Date:** 24/02/2014

<table>
<thead>
<tr>
<th>Department</th>
<th>Height Safety</th>
<th>Test: 15kN and 21kN fixed anchor point (Dynamic Drop Test)</th>
<th>Ref: QSI 20140224-01</th>
</tr>
</thead>
</table>

**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
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;

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

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.

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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 SPECIMEN DETAILS

<table>
<thead>
<tr>
<th>Specimen Number</th>
<th>Description</th>
<th>Model</th>
<th>Serial No:</th>
<th>Date of manufacture</th>
</tr>
</thead>
<tbody>
<tr>
<td>QSI20140223-01</td>
<td>Safetor Roof Anchor</td>
<td>SE015</td>
<td>5399</td>
<td>-</td>
</tr>
<tr>
<td>QSI20140223-02</td>
<td>Safetor Roof Anchor</td>
<td>SE015</td>
<td>5400</td>
<td>-</td>
</tr>
<tr>
<td>QSI20140223-03</td>
<td>12mm three strand polyester hawser-laid rope</td>
<td>SPR12</td>
<td>120871</td>
<td>02-2014</td>
</tr>
<tr>
<td>QSI20140223-04</td>
<td>12mm three strand polyester hawser-laid rope</td>
<td>SPR12</td>
<td>120561</td>
<td>02-2014</td>
</tr>
<tr>
<td>QSI20140223-05</td>
<td>12mm three strand polyester hawser</td>
<td>SPR12</td>
<td>120559</td>
<td>02-2014</td>
</tr>
<tr>
<td>QSI20140223-06</td>
<td>12mm three strand polyester hawser</td>
<td>SPR12</td>
<td>120872</td>
<td>02-2014</td>
</tr>
<tr>
<td>QSI20140223-07</td>
<td>12mm three strand polyester hawser</td>
<td>SPR12</td>
<td>120873</td>
<td>02-2014</td>
</tr>
<tr>
<td>QSI20140223-08</td>
<td>12mm three strand polyester hawser</td>
<td>SPR12</td>
<td>120870</td>
<td>02-2014</td>
</tr>
<tr>
<td>QSI20140223-09</td>
<td>12mm three strand polyester hawser</td>
<td>SPR12</td>
<td>120558</td>
<td>02-2014</td>
</tr>
<tr>
<td>QSI20140223-10</td>
<td>12mm three strand polyester hawser</td>
<td>SPR12</td>
<td>120560</td>
<td>02-2014</td>
</tr>
</tbody>
</table>
TEST 1
15 kN TEST RESULTS
(100kg 2m drop)
Control

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

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

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

The roof anchor bent during the drop to reduce the force on the structure to 10.69 kN.
## TEST 2
### 21 kN TEST RESULT DETAILS
(150kg 2m drop)
#### Control

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

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

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

The roof anchor bent during the drop to reduce the force on the structure to 14.12 kN.
Appendix 4

Test 1

15kN Drop Test

[Graph showing force in Kg against time]

Data file: DT2814-14 Sattler Roof anchor 15kN.csv
24/02/2014 1:29:48 p.m.

Final Value: 101

Remarks: Peak force 1001kg (0.59kN) - Pass
Appendix 5

Test 2

21kN Drop Test

Force kg

Data

Remarks: Peak Force 1468 kg (14.12 kN): Pass
Appendix 6

TEST 1 (15kN)

PICTURES BEFORE DROP
Appendix 6 (Continued)

TEST 1 (15kN)

PICTURES AFTER DROP
Appendix 7

TEST 2 (21kN)

PICTURES BEFORE DROP
Appendix 7 (Continued)

TEST 2 (21kN)

PICTURES AFTER DROP
Appendix 8
Structure and fixing guidelines as per manufacturer