

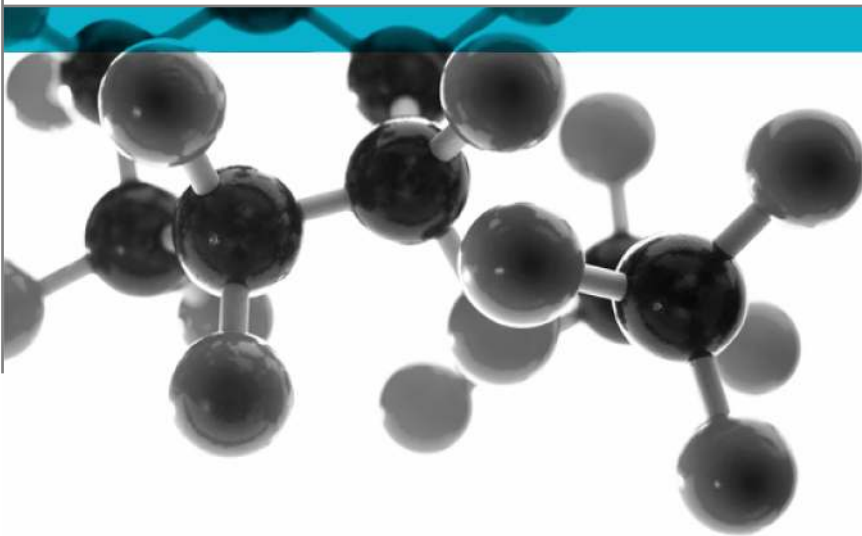
Exova Warringtonfire  
KeyIndustrial Park  
Fernside Road  
Willenhall  
West Midlands  
WV13 3YA

T : +44 (0) 1902 722 122  
F : +44 (0) 1902 727 242  
E : [willemhall@exova.com](mailto:willemhall@exova.com)  
W: [www.exova.com](http://www.exova.com)



# BS EN 14351-1:2006

## Clause 4.8 – Load Bearing Capacity of Safety Devices



**Test of: Window Restrictors**

**Windows and doors – Product standard,  
performance characteristics**

A Report To: Caldwell Hardware UK Limited

Document Reference: WIL 328739

Date:22/06/2013

Copy: 1

Issue No.: 2

Page 1

Testing  
Advising  
Assuring

Registered Office: Exova (UK) Ltd, Lochend Industrial Estate, Newbridge, Midlothian EH28 8PL United Kingdom. Reg No.SC 70429

This report is issued in accordance with our terms and conditions, a copy of which is available on request.



0621

## TEST CONCLUSIONS

Samples of:  
 Manufacturer Caldwell Hardware UK Limited,  
 Product Window restrictors

have been tested in accordance with: BS EN 14351-1:2006  
 By Exova Warringtonfire Willenhall, a UKAS accredited Testing Laboratory (No. 0621) and EC Notified  
 Body number (No. 1104)

At Key Industrial Park, Fernside Rd, Willenhall, West Midlands, WV13 3YA.  
 Results and comments as detailed below:

Clause No.	Description	Compliance
4.8	Load bearing capacity of safety devices – 350N	Yes

No inferences can be made regarding performance against other requirements of this standard

Tests marked “ N/A ” are not applicable to the sample under test.  
 Tests marked “N/T” were not applied to the sample under test

Document No.:	WIL 328739	Page No.:	2 of 29
Author:	M Garfield	Issue Date:	22/06/2013
Client:	Caldwell Hardware UK Limited,	Issue No.:	02



## AUTHORISATION

Tests performed by: Mark Garfield, Test Engineer

Report issued by: Mark Garfield, Test Engineer

Signed



Date 22/06/13

For and on behalf of Exova Warringtonfire

Report authorised by: Mark West, Assistant Operations Manager

Signed



Date 22/06/13

For and on behalf of Exova Warringtonfire

Report issued: 22 June 2013



0621

### NOTE.

Tests marked "Not UKAS Accredited" are not covered by the Laboratory UKAS accreditation schedule.

Tests marked NT were not tested

Tests marked NA are not applicable to the product on test.

The laboratory has tested the product supplied by the client as sampled in accordance with their own requirements

Exova Warringtonfire is an EC Notified Body Number 1104

This report shall not be reproduced except in full, (and then only as permitted by copyright laws), without written approval from Exova Warringtonfire

Document No.: WIL 328739  
 Author: M Garfield  
 Client: Caldwell Hardware UK Limited,

Page No.: 3 of 29  
 Issue Date: 22/06/2013  
 Issue No.: 02



0621

**CONTENTS**

**PAGE NO.**

TEST CONCLUSIONS.....2  
AUTHORISATION.....3  
TEST DETAILS.....5  
TEST PROCEDURE.....7  
INITIAL OBSERVATIONS.....8  
SCHEDULE OF COMPONENTS.....11  
PERFORMANCE CRITERIA & TEST RESULTS.....23  
CONCLUSIONS.....28  
LIMITATIONS.....28  
REVISION HISTORY.....29



## TEST DETAILS

### CLIENT DETAILS

Company name Caldwell Hardware UK Limited  
 Address Herald Way,  
 Coventry,

Postcode CV3 2RQ

Contact Danny Owen

### ORDER DETAILS

Order number  
 Dated 096191DO

### SAMPLE DETAILS

Product Window restrictors  
**Sample 1** (A) RA350AN, (B) RA350ANQR, (C) PE401N,(D) PE633,(E) UK646N(F) 202 & 2032  
**Sample 2** 11207 Folding Opener, FP11207 FO+ Folding Opener, FP11107 FO+ Folding Opener  
**Sample 3** 18007 Folding Opener, 11107 FO+ Folding Opener, 12107 FO+ Folding Opener  
**Sample 4** 99.20.00.001 Truth Limit Device, 37.35.00.100 Truth Friction Adj'r, 37.1 Truth Ratchet Support Arm, 37.26.00.200 Truth Key Release, AMC177 Track Restrictor, AMC419-5-6 Track Restrictor, AMC210i Casement Fric. Hinge, AMC224SG Casement Fric. Hinge  
**Sample 5** PE620  
**Sample 6** RA350TTHD

Model	Sample 1 Vertical slider Sample 2 Top hung Sample 3 Top Hung	Sample 4 Top hung Sample 5 Pivot Sample 6 Vertical slider
Manufacturer	Caldwell Hardware UK Limited	
Frame Dimensions	Sample 1 1650mm x 895mm Sample 2 798mm x 801mm Sample 3 798mm x 800mm	Sample 4 798mm x 800mm Sample 5 800mm x 1200mm Sample 6 1310mm x 2200mm
Sash Dimensions	Sample 1 770mm x 800mm 797mm x 822mm Sample 2 742mm x 740mm Sample 3 743mm x 742mm	Sample 4 742mm x 741mm Sample 5 715mm x 1062mm Sample 6 1100mm x 1210mm 1060mm x 1210mm
Material	Sample 1 Aluminium Sample 2 Aluminium Sample 3 Aluminium	Sample 4 Aluminium Sample 5 PVC Sample 6 Aluminium
Markings	None	
Date of Manufacture	Unknown	
Other information	None	

### TEST DETAILS

Test specification BS EN 14351 :2006  
 Full test Yes  
 Test to clauses  
 Test Method BS EN 14609:2004 strength of safety devices

Document No.: WIL 328739

Page No.: 5 of 29

Author: M Garfield

Issue Date: 22/06/2013

Client: Caldwell Hardware UK Limited,

Issue No.: 02



Sample received 29/04/13  
Test started 29/04/13  
Test completed 30/04/13

Special Test  
requirements  
Other reports to be  
used in conjunction  
with this report

---

Document No.: WIL 328739  
Author: M Garfield  
Client: Caldwell Hardware UK  
Limited,

Page No.: 6 of 29  
Issue Date: 22/06/2013  
Issue No.: 02



## TEST PROCEDURE

---

<b>Introduction</b>	<p>This test report should be read in conjunction with the Standard BS EN 14351-1:2006: Windows and doors – Product standard, performance characteristics – Part 1: Windows and external pedestrian door set's with out resistance to fire and/or smoke leakage characteristics.</p> <p>The specimens were judged on their ability to comply with the performance criteria as required in BS EN 14351-1:2006, with test methods BS EN 14609.</p>
<b>Instruction To Test</b>	<p>The test was conducted on the 29/04/13 on behalf of Caldwell Hardware UK Limited.</p> <p>A representative of Caldwell Hardware UK Limited witnessed the test.</p> <p>Initial requirement was as defined in BS6375-2, requiring a performance of a threshold value of 350N for load-bearing capacity of safety devices.</p>
<b>Test Specimen Construction</b>	<p>A description of the test construction is given in the Schedule of Components. The description is based on a detailed survey of the specimens and information supplied by the sponsor of the test.</p>
<b>Sampling</b>	<p>The samples were not independently witnessed or selected and were provided direct from the test sponsor.</p>
<b>Installation</b>	<p>The sample was not fitted with a timber sub-frame.</p>
<b>Test Climate</b>	<p>The sample was conditioned in the laboratory in the range 10-30 °C and 25-75% humidity.</p> <p>The temperature and humidity in the lab was maintained in the range 18.1-24.4°C and 26.5 - 43.3% humidity for the duration of the test.</p>

---

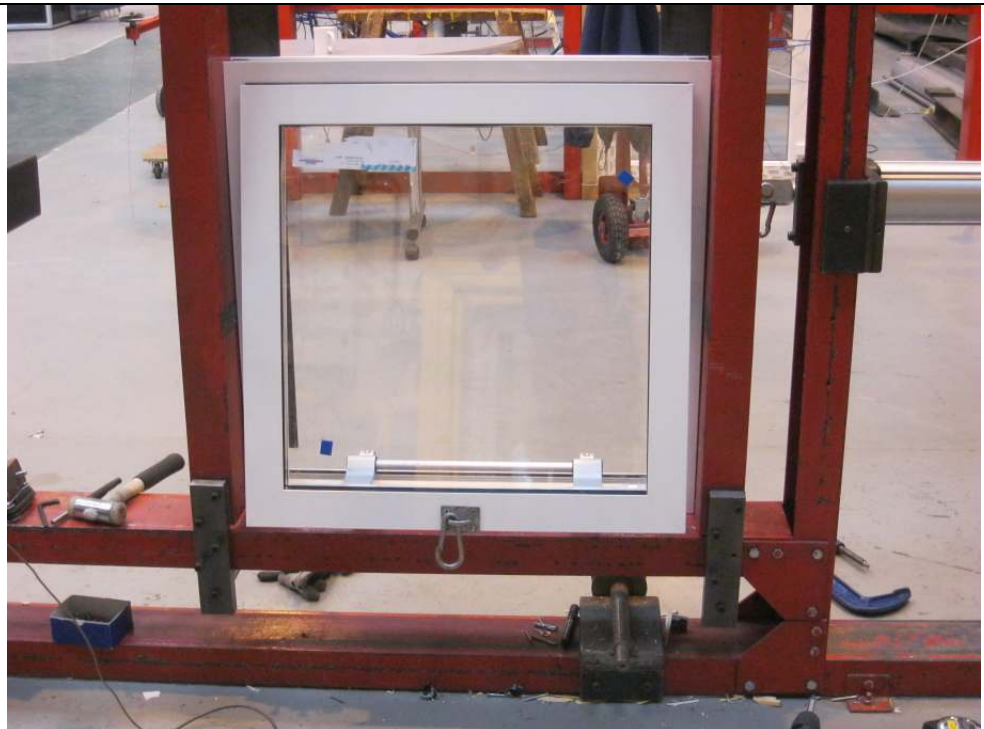
## INITIAL OBSERVATIONS

---

### Sample 1



### Sample 2



---

Document No.: WIL 328739  
Author: M Garfield  
Client: Caldwell Hardware UK Limited,

Page No.: 8 of 29  
Issue Date: 22/06/2013  
Issue No.: 02



**Sample 3**



**Sample 4**



**Sample 5**



**Sample 6**



Document No.: WIL 328739  
Author: M Garfield  
Client: Caldwell Hardware UK Limited,

Page No.: 10 of 29  
Issue Date: 22/06/2013  
Issue No.: 02



## SCHEDULE OF COMPONENTS Sample 1

<b>1. Window casement (s)</b>	<b>Details to be supplied by client</b>
Overall Size	1650mm x 895mm
Supplier	: Comar 5pi Vertical Slider
Profile codes	FRAME CILL CS450 UPPER SASH CS444 LOWER SASH CS442
Material	: ALUMINIUM
Density	: kg/m <sup>3</sup> (stated)
Sash framing section sizes	
Corner fixing method Type size quantity	: CLEATS
Reinforcement	INFORMATION NOT SUPPLIED
i. position	: INFORMATION NOT SUPPLIED
ii. profile code	: INFORMATION NOT SUPPLIED
iii. material	: INFORMATION NOT SUPPLIED
iv. density	: kg/m <sup>3</sup> (stated)
v. length	: INFORMATION NOT SUPPLIED
<b>2. Window casement glass</b>	
Supplier	: INFORMATION NOT SUPPLIED
Thickness	: 4 / 16 / 4
Overall size	INFORMATION NOT SUPPLIED
<b>3. Window frame head</b>	
Supplier	: Comar
Profile code	: FRAME CS456
Material	: Aluminium
Density	: kg/m <sup>3</sup> (stated)
Overall section size	: INFORMATION NOT SUPPLIED
Rebate	: INFORMATION NOT SUPPLIED
Fixing jamb to head joints	:
i. type	: INFORMATION NOT SUPPLIED
ii. size	: INFORMATION NOT SUPPLIED
iii. quantity	: INFORMATION NOT SUPPLIED
Reinforcement	INFORMATION NOT SUPPLIED
i. position	:
ii. profile code	:
iii. material	:
iv. density	: kg/m <sup>3</sup> (stated)
v. length	:
<b>4. Window frame jamb</b>	
Supplier	: Comar
Profile code	: FRAME CS456
Material	: Aluminium
Density	: kg/m <sup>3</sup> (stated)
Overall section size	: INFORMATION NOT SUPPLIED
Rebate	: INFORMATION NOT SUPPLIED
Fixing jamb to sill joints	:
i. type	: INFORMATION NOT SUPPLIED
ii. material	: INFORMATION NOT SUPPLIED
iii. size	: INFORMATION NOT SUPPLIED
iv. quantity	: INFORMATION NOT SUPPLIED

Document No.: WIL 328739  
 Author: M Garfield  
 Client: Caldwell Hardware UK Limited,

Page No.: 11 of 29  
 Issue Date: 22/06/2013  
 Issue No.: 02



Reinforcement : INFORMATION NOT SUPPLIED  
 i. position :  
 ii. profile code :  
 iii. material :  
 iv. density : kg/m<sup>3</sup> (stated)  
 v. length :

#### 5. Window frame sill

Supplier : Comar  
 Profile code : CS450  
 Material : Aluminium  
 Density : kg/m<sup>3</sup> (stated)  
 Overall section size : INFORMATION NOT SUPPLIED  
 Rebate : INFORMATION NOT SUPPLIED  
 Reinforcement : INFORMATION NOT SUPPLIED  
 i. position :  
 ii. profile code :  
 iii. material :  
 iv. density :  
 v. length :

#### 6. Hinges

Supplier :  
 Description :  
 Reference :  
 Quantity :  
 Fixing hinge to sash  
 i. type :  
 ii. size :  
 iii. quantity :  
 Fixing hinge to frame  
 i. type :  
 ii. size :  
 iii. quantity :

N/A Vertical Slider

#### 7. Restrictor

Supplier : *Caldwell Hardware*  
 Description : Various Restrictors Fitted and Tested  
 Reference : (A) 350AN,  
 (B) RA350ANQR,  
 (C) PE401N,  
 (D) PE633,  
 (E) UK646N  
 (F) 202 & 20232

Fixing restrictor to sash  
 i. Type, size, quantity :

(A) No 8 x 15mm Pan HD x2  
 (B) No 8 x 15mm Pan HD x2  
 (C) M4 x 20mm M/C Screw x2  
 (D) No 10 x 20 Csk x2  
 (E) M4 M/C Screw x1  
 (F) No 10 x 20 Csk x2

Fixing restrictor to frame  
 i. Type, size, quantity :

(F) No 10 x 20 Csk x2

## Sample 2

### 1. Window casement (s)

#### Details to be supplied by client

Overall Size	798mm x 801mm
Supplier	: Smart - Alitherm 600 Top Hung
Profile codes	FRAME 610 VENT 624
Material	: ALUMINIUM
Density	: kg/m <sup>3</sup> (stated)
Sash framing section sizes	
Corner fixing method Type size quantity	: CLEATS
Reinforcement	INFORMATION NOT SUPPLIED
i. position	:
ii. profile code	:
iii. material	:
iv. density	: kg/m <sup>3</sup> (stated)
v. length	:

### 2. Window casement glass

Supplier	: INFORMATION NOT SUPPLIED
Thickness	: 4 / 16 / 4
Overall size	INFORMATION NOT SUPPLIED

### 3. Window frame head

Supplier	: Smart
Profile code	: 610
Material	: Aluminium
Density	: kg/m <sup>3</sup> (stated)
Overall section size	: INFORMATION NOT SUPPLIED
Rebate	: INFORMATION NOT SUPPLIED
Fixing jamb to head joints	:
i. type	: INFORMATION NOT SUPPLIED
ii. size	: INFORMATION NOT SUPPLIED
iii. quantity	: INFORMATION NOT SUPPLIED
Reinforcement	INFORMATION NOT SUPPLIED
i. position	:
ii. profile code	:
iii. material	:
iv. density	: kg/m <sup>3</sup> (stated)
v. length	:

### 4. Window frame jamb

Supplier	: Smart
Profile code	: 610
Material	: Aluminium
Density	: kg/m <sup>3</sup> (stated)
Overall section size	: INFORMATION NOT SUPPLIED
Rebate	: INFORMATION NOT SUPPLIED
Fixing jamb to sill joints	:
i. type	: INFORMATION NOT SUPPLIED
ii. material	: INFORMATION NOT SUPPLIED
iii. size	: INFORMATION NOT SUPPLIED
iv. quantity	: INFORMATION NOT SUPPLIED
Reinforcement	INFORMATION NOT SUPPLIED

- i. position :
- ii. profile code :
- iii. material :
- iv. density : kg/m<sup>3</sup> (stated)
- v. length :

### 5. Window frame sill

- Supplier : Smart
- Profile code : 610
- Material : Aluminium
- Density : kg/m<sup>3</sup> (stated)
- Overall section size : INFORMATION NOT SUPPLIED
- Rebate : INFORMATION NOT SUPPLIED
- Reinforcement : INFORMATION NOT SUPPLIED
- i. position :
- ii. profile code :
- iii. material :
- iv. density :
- v. length :

### 6. Hinges

- Supplier : INFORMATION NOT SUPPLIED
- Description : INFORMATION NOT SUPPLIED
- Reference : INFORMATION NOT SUPPLIED
- Quantity : INFORMATION NOT SUPPLIED
- Fixing hinge to sash : INFORMATION NOT SUPPLIED
- i. type : INFORMATION NOT SUPPLIED
- ii. size : INFORMATION NOT SUPPLIED
- iii. quantity : INFORMATION NOT SUPPLIED
- Fixing hinge to frame : INFORMATION NOT SUPPLIED
- i. type : INFORMATION NOT SUPPLIED
- ii. size : INFORMATION NOT SUPPLIED
- iii. quantity : INFORMATION NOT SUPPLIED

### 7. Restrictor

- Supplier : *Caldwell Hardware*
- Description : (A) 11207 Folding Opener,  
(B) FP11207 FO+ Folding Opener,  
(C) FP11107 FO+ Folding Opener
- Reference :
- Fixing restrictor to sash
- i. Type, size, quantity : (A) No. 10 x16 Pan Hd x2  
(B) No 6 x 38 Csk x2  
(C) No 6 x 38 Csk x2
- Fixing restrictor to frame
- i. Type, size, quantity : (A) No. 10 x16 Pan Hd x2  
(B) No 6 x 38 Csk x2  
(C) No 6 x 38 Csk x2

## SCHEDULE OF COMPONENTS Sample 3

<b>1. Window casement (s)</b>	<b>Details to be supplied by client</b>
Overall Size	798mm x 800mm
Supplier	: Smart - Alitherm 600 Top Hung
Profile codes	FRAME 610 VENT 624
Material	: ALUMINIUM
Density	: kg/m <sup>3</sup> (stated)
Sash framing section sizes	
Corner fixing method Type size quantity	: CLEATS
Reinforcement	INFORMATION NOT SUPPLIED
i. position	:
ii. profile code	:
iii. material	:
iv. density	: kg/m <sup>3</sup> (stated)
v. length	:
<b>2. Window casement glass</b>	
Supplier	: INFORMATION NOT SUPPLIED
Thickness	: 4 / 16 / 4
Overall size	INFORMATION NOT SUPPLIED
<b>3. Window frame head</b>	
Supplier	: Smart
Profile code	: 610
Material	: Aluminium
Density	: kg/m <sup>3</sup> (stated)
Overall section size	: INFORMATION NOT SUPPLIED
Rebate	: INFORMATION NOT SUPPLIED
Fixing jamb to head joints	: INFORMATION NOT SUPPLIED
i. type	:
ii. size	:
iii. quantity	:
Reinforcement	INFORMATION NOT SUPPLIED
i. position	:
ii. profile code	:
iii. material	:
iv. density	: kg/m <sup>3</sup> (stated)
v. length	:
<b>4. Window frame jamb</b>	
Supplier	: Smart
Profile code	: 610
Material	: Aluminium
Density	: kg/m <sup>3</sup> (stated)
Overall section size	: INFORMATION NOT SUPPLIED
Rebate	: INFORMATION NOT SUPPLIED
Fixing jamb to sill joints	INFORMATION NOT SUPPLIED
i. type	:
ii. material	:
iii. size	:
iv. quantity	:
Reinforcement	INFORMATION NOT SUPPLIED
i. position	:

Document No.: WIL 328739  
 Author: M Garfield  
 Client: Caldwell Hardware UK Limited,

Page No.: 15 of 29  
 Issue Date: 22/06/2013  
 Issue No.: 02



- ii. profile code :
- iii. material :
- iv. density : kg/m<sup>3</sup> (stated)
- v. length :

#### 5. Window frame sill

- Supplier : Smart
- Profile code : 610
- Material : Aluminium
- Density : kg/m<sup>3</sup> (stated)
- Overall section size : INFORMATION NOT SUPPLIED
- Rebate : INFORMATION NOT SUPPLIED
- Reinforcement : INFORMATION NOT SUPPLIED

- i. position :
- ii. profile code :
- iii. material :
- iv. density :
- v. length :

#### 6. Hinges

- Supplier : INFORMATION NOT SUPPLIED
- Description : INFORMATION NOT SUPPLIED
- Reference : INFORMATION NOT SUPPLIED
- Quantity : INFORMATION NOT SUPPLIED
- Fixing hinge to sash : INFORMATION NOT SUPPLIED
- i. type : INFORMATION NOT SUPPLIED
- ii. size : INFORMATION NOT SUPPLIED
- iii. quantity : INFORMATION NOT SUPPLIED
- Fixing hinge to frame : INFORMATION NOT SUPPLIED
- i. type : INFORMATION NOT SUPPLIED
- ii. size : INFORMATION NOT SUPPLIED
- iii. quantity : INFORMATION NOT SUPPLIED

#### 7. Restrictor

- Supplier : *Caldwell Hardware*
- Description : (D) 18007 Folding Opener,  
(E) 11107 FO+ Folding Opener,  
(F) 12107 FO+ Folding Opener

Reference :

Fixing restrictor to sash

- i. Type, size, quantity : (D) No. 10 x16 Pan Hd x2  
(E) No. 10 x16 Pan Hd x2  
(F) No. 10 x16 Pan Hd x2

Fixing restrictor to frame

- i. Type, size, quantity : (A) No. 10 x16 Pan Hd x2  
(B) No. 10 x16 Pan Hd x2  
(C) No. 10 x16 Pan Hd x2



## SCHEDULE OF COMPONENTS Sample 4

<b>1. Window casement (s)</b>	<b>Details to be supplied by client</b>
Overall Size	798mm x 800mm
Supplier	: Smart - Alitherm 600 Top Hung
Profile codes	FRAME 610 VENT 624
Material	: ALUMINIUM
Density	: kg/m <sup>3</sup> (stated)
Sash framing section sizes	
Corner fixing method Type size quantity	: CLEATS
Reinforcement	INFORMATION NOT SUPPLIED
i. position	:
ii. profile code	:
iii. material	:
iv. density	: kg/m <sup>3</sup> (stated)
v. length	:
<b>2. Window casement glass</b>	
Supplier	: INFORMATION NOT SUPPLIED
Thickness	: 4 / 16 / 4
Overall size	INFORMATION NOT SUPPLIED
<b>3. Window frame head</b>	
Supplier	: Smart
Profile code	: 610
Material	: Aluminium
Density	: kg/m <sup>3</sup> (stated)
Overall section size	: INFORMATION NOT SUPPLIED
Rebate	: INFORMATION NOT SUPPLIED
Fixing jamb to head joints	: INFORMATION NOT SUPPLIED
i. type	:
ii. size	:
iii. quantity	:
Reinforcement	INFORMATION NOT SUPPLIED
i. position	:
ii. profile code	:
iii. material	:
iv. density	: kg/m <sup>3</sup> (stated)
v. length	:
<b>4. Window frame jamb</b>	
Supplier	: Smart
Profile code	: 610
Material	: Aluminium
Density	: kg/m <sup>3</sup> (stated)
Overall section size	: INFORMATION NOT SUPPLIED
Rebate	: INFORMATION NOT SUPPLIED
Fixing jamb to sill joints	: INFORMATION NOT SUPPLIED
i. type	:
ii. material	:
iii. size	:
iv. quantity	:
Reinforcement	INFORMATION NOT SUPPLIED

Document No.: WIL 328739  
 Author: M Garfield  
 Client: Caldwell Hardware UK Limited,

Page No.: 17 of 29  
 Issue Date: 22/06/2013  
 Issue No.: 02



- i. position :
- ii. profile code :
- iii. material :
- iv. density : kg/m<sup>3</sup> (stated)
- v. length :

### 5. Window frame sill

- Supplier : Smart
- Profile code : 610
- Material : Aluminium
- Density : kg/m<sup>3</sup> (stated)
- Overall section size : INFORMATION NOT SUPPLIED
- Rebate : INFORMATION NOT SUPPLIED
- Reinforcement : INFORMATION NOT SUPPLIED
- i. position :
- ii. profile code :
- iii. material :
- iv. density :
- v. length :

### 6. Hinges

- Supplier : **INFORMATION NOT SUPPLIED**
- Description : INFORMATION NOT SUPPLIED
- Reference : INFORMATION NOT SUPPLIED
- Quantity : INFORMATION NOT SUPPLIED
- Fixing hinge to sash : INFORMATION NOT SUPPLIED
- i. type : INFORMATION NOT SUPPLIED
- ii. size : INFORMATION NOT SUPPLIED
- iii. quantity : INFORMATION NOT SUPPLIED
- Fixing hinge to frame : INFORMATION NOT SUPPLIED
- i. type : INFORMATION NOT SUPPLIED
- ii. size : INFORMATION NOT SUPPLIED
- iii. quantity : INFORMATION NOT SUPPLIED

### 7. Restrictor

- Supplier : *Caldwell Hardware*
- Description : (G) 99.20.00.001 Truth Limit Device,  
(H) 37.35.00.100 Truth Friction Adj'r,  
(I) 37.1 Truth Ratchet Support Arm  
(J) 37.26.00.200 Truth Key Release  
(K) AMC177 Track Restrictor  
(L) AMC419-5-6 Track Restrictor  
(M) AMC210i Casement Fric. Hinge  
(N) AMC224SG Casement Fric. Hinge

Reference :

Fixing restrictor to sash

- i. Type, size, quantity : No 10 x 16 Pan Hd x1 – USED ON ALL PARTS

Fixing restrictor to frame

- i. Type, size, quantity : No 10 x 16 Pan Hd x1 – USED ON ALL PARTS

## SCHEDULE OF COMPONENTS Sample 5

<b>1. Window casement (s)</b>	<b>Details to be supplied by client</b>
Overall Size	1200mm x 800mm
Supplier	: Deceuninck SYSTEM ZENDOW 3 Profile Pivot Window (UPVC)
Profile codes	FRAME 3002 SASH 3062 GOAL POST PROFILE 3179
Material	: UPVC
Density	: kg/m <sup>3</sup> (stated)
Sash framing section sizes	
Corner fixing method Type size quantity	: Welded
Reinforcement	INFORMATION NOT SUPPLIED
i. position	:
ii. profile code	:
iii. material	:
iv. density	: kg/m <sup>3</sup> (stated)
v. length	:
<b>2. Window casement glass</b>	
Supplier	: INFORMATION NOT SUPPLIED
Thickness	: 4 / 16 / 4
Overall size	INFORMATION NOT SUPPLIED
<b>3. Window frame head</b>	
Supplier	: Deceuninck
Profile code	: 3002
Material	: UPVC
Density	: kg/m <sup>3</sup> (stated)
Overall section size	: INFORMATION NOT SUPPLIED
Rebate	: INFORMATION NOT SUPPLIED
Fixing jamb to head joints	: INFORMATION NOT SUPPLIED
i. type	:
ii. size	:
iii. quantity	:
Reinforcement	INFORMATION NOT SUPPLIED
i. position	:
ii. profile code	:
iii. material	:
iv. density	: kg/m <sup>3</sup> (stated)
v. length	:
<b>4. Window frame jamb</b>	
Supplier	: Deceuninck
Profile code	: 3002
Material	: UPVC
Density	: kg/m <sup>3</sup> (stated)
Overall section size	: INFORMATION NOT SUPPLIED
Rebate	: INFORMATION NOT SUPPLIED
Fixing jamb to sill joints	INFORMATION NOT SUPPLIED
i. type	:
ii. material	:
iii. size	:
iv. quantity	:

Document No.: WIL 328739  
 Author: M Garfield  
 Client: Caldwell Hardware UK Limited,

Page No.: 19 of 29  
 Issue Date: 22/06/2013  
 Issue No.: 02



Reinforcement	:	INFORMATION NOT SUPPLIED
i. position	:	
ii. profile code	:	
iii. material	:	
iv. density	:	kg/m <sup>3</sup> (stated)
v. length	:	

#### 5. Window frame sill

Supplier	:	Deceuninck
Profile code	:	3002
Material	:	UPVC
Density	:	kg/m <sup>3</sup> (stated)
Overall section size	:	INFORMATION NOT SUPPLIED
Rebate	:	INFORMATION NOT SUPPLIED
Reinforcement	:	INFORMATION NOT SUPPLIED
i. position	:	
ii. profile code	:	
iii. material	:	
iv. density	:	
v. length	:	

#### 6. Hinges

Supplier	:	<b>Caldwell Hardware</b>
Description	:	3000 Series Pivot
Reference	:	3498CSHIPCAHIPCA
Quantity	:	INFORMATION NOT SUPPLIED
Fixing hinge to sash	:	
i. type	:	No 8 x 25 Pan Head x3
ii. size	:	
iii. quantity	:	
Fixing hinge to frame	:	
i. type	:	No 8 x 25 Pan Head x3
ii. size	:	
iii. quantity	:	

#### 7. Restrictor

Supplier	:	INFORMATION NOT SUPPLIED
Description	:	PE620
Reference	:	INFORMATION NOT SUPPLIED
Fixing restrictor to sash	:	
i. type	:	INFORMATION NOT SUPPLIED
ii. size	:	INFORMATION NOT SUPPLIED
iii. quantity	:	INFORMATION NOT SUPPLIED
Fixing restrictor to frame	:	
i. type	:	INFORMATION NOT SUPPLIED
ii. size	:	INFORMATION NOT SUPPLIED
iii. quantity	:	INFORMATION NOT SUPPLIED

## SCHEDULE OF COMPONENTS Sample 6

<b>1. Window casement (s)</b>	<b>Details to be supplied by client</b>
Overall Size	2200mm x 1310mm
Supplier	: WHS Halo Vertical slider
Profile codes	FRAME P10173 SASH P10118
Material	: UPVC
Density	: kg/m <sup>3</sup> (stated)
Sash framing section sizes	
Corner fixing method Type size quantity	: Welded
Reinforcement	INFORMATION NOT SUPPLIED
i. position	:
ii. profile code	:
iii. material	:
iv. density	: kg/m <sup>3</sup> (stated)
v. length	:
<b>2. Window casement glass</b>	
Supplier	: INFORMATION NOT SUPPLIED
Thickness	: 4 / 16 / 4
Overall size	INFORMATION NOT SUPPLIED
<b>3. Window frame head</b>	
Supplier	: WHS Halo
Profile code	: P10173
Material	: UPVC
Density	: kg/m <sup>3</sup> (stated)
Overall section size	: INFORMATION NOT SUPPLIED
Rebate	: INFORMATION NOT SUPPLIED
Fixing jamb to head joints	: INFORMATION NOT SUPPLIED
i. type	:
ii. size	:
iii. quantity	:
Reinforcement	INFORMATION NOT SUPPLIED
i. position	:
ii. profile code	:
iii. material	:
iv. density	: kg/m <sup>3</sup> (stated)
v. length	:
<b>4. Window frame jamb</b>	
Supplier	: WHS Halo
Profile code	: P10173
Material	: UPVC
Density	: kg/m <sup>3</sup> (stated)
Overall section size	: INFORMATION NOT SUPPLIED
Rebate	: INFORMATION NOT SUPPLIED
Fixing jamb to sill joints	INFORMATION NOT SUPPLIED
i. type	:
ii. material	:
iii. size	:
iv. quantity	:
Reinforcement	

- i. position :
- ii. profile code :
- iii. material :
- iv. density : kg/m<sup>3</sup> (stated)
- v. length :

#### 5. Window frame sill

- Supplier : WHS Halo
- Profile code : P10155
- Material : UPVC
- Density : kg/m<sup>3</sup> (stated)
- Overall section size : INFORMATION NOT SUPPLIED
- Rebate : INFORMATION NOT SUPPLIED
- Reinforcement : INFORMATION NOT SUPPLIED
- i. position :
- ii. profile code :
- iii. material :
- iv. density :
- v. length :

#### 6. Hinges

- Supplier : **N/A**
- Description :
- Reference :
- Quantity :
- Fixing hinge to sash
- i. type :
- ii. size :
- iii. quantity :
- Fixing hinge to frame
- i. type :
- ii. size :
- iii. quantity :

#### 7. Restrictor

- Supplier : **Caldwell Hardware**
- Description : Heavy Duty Bar Restrictor
- Reference : RA350TTTHD
- Fixing restrictor to sash
- i. type :
- ii. size :
- iii. quantity :
- Fixing restrictor to frame
- i. type : No 8 xPan Hd 15mm x2
- ii. size :
- iii. quantity :

## PERFORMANCE CRITERIA & TEST RESULTS

Clause	Result	Pass/Fail
<b>4.8 Load-bearing capacity of safety devices</b>	<b>Restrictor: 202 (tested in duel configuration)</b>	<b>PASS</b>
	Testing was carried out, 350N was applied for 60 seconds with out damage occurring.	
<b>Sample 1</b>	<b>Restrictor: 202 (tested in Single configuration)</b>	<b>PASS</b>
	Testing was carried out, 350N was applied for 60 seconds with out damage occurring.	
	<b>Restrictor: PE633 (tested in duel configuration)</b>	<b>PASS</b>
	Testing was carried out, 350N was applied for 60 seconds with out damage occurring.	
	<b>Restrictor: PE633 (tested in Single configuration)</b>	<b>PASS</b>
	Testing was carried out, 350N was applied for 60 seconds with out damage occurring.	
	<b>Restrictor: PE401N (tested in duel configuration)</b>	<b>PASS</b>
	Testing was carried out, 350N was applied for 60 seconds with out damage occurring.	
	<b>Restrictor: PE401N (tested in Single configuration)</b>	<b>PASS</b>
	Testing was carried out, 350N was applied for 60 seconds with out damage occurring.	
	<b>Restrictor: UK646N (tested in duel configuration)</b>	<b>PASS</b>
	Testing was carried out, 350N was applied for 60 seconds with out damage occurring.	
	<b>Restrictor: UK646N (tested in Single configuration)</b>	<b>PASS</b>
	Testing was carried out, 350N was applied for 60 seconds with out damage occurring.	
	<b>Restrictor: RA 350 AN QR (tested in duel configuration)</b>	<b>PASS</b>
	Testing was carried out, 350N was applied for 60 seconds, the sash twisted slightly but the restrictor continued to operate.	

Clause	Result	Pass/Fail
	<b>Restrictor: RA 350 AN QR (tested in Single configuration)</b>	<b>PASS</b>
	Testing was carried out, 350N was applied for 60 seconds, the sash twisted slightly but the restrictor continued to operate.	
	<b>Restrictor: RA 350 AN (tested in duel configuration)</b>	<b>PASS</b>
	Testing was carried out, 350N was applied for 60 seconds, the sash twisted slightly but the restrictor continued to operate.	
	<b>Restrictor: RA 350 AN (tested in Single configuration)</b>	<b>PASS</b>
	Testing was carried out, 350N was applied for 60 seconds, the sash twisted slightly but the restrictor continued to operate.	
<b>4.8 Load-bearing capacity of safety devices</b>	<b>Restrictor: FP11207 (tested in Single configuration)</b>	<b>PASS</b>
	Testing was carried out, 350N was applied for 60 seconds with out damage occurring.	
<b>Sample 2</b>	<b>Restrictor: FP11107 (tested in duel configuration)</b>	<b>PASS</b>
	Testing was carried out, 350N was applied for 60 seconds with out damage occurring.	
	<b>Restrictor: FP11107 (tested in Single configuration)</b>	<b>PASS</b>
	Testing was carried out, 350N was applied for 60 seconds with out damage occurring.	
	<b>Restrictor: 11207 (tested in duel configuration)</b>	<b>PASS</b>
	Testing was carried out, 350N was applied for 60 seconds with out damage occurring.	
	<b>Restrictor: 11207 (tested in Single configuration)</b>	<b>PASS</b>
	Testing was carried out, 350N was applied for 60 seconds with out damage occurring.	



Clause	Result	Pass/Fail
<b>4.8 Load-bearing capacity of safety devices</b>	<b>Restrictor: 901 (tested in duel configuration)</b>	<b>PASS</b>
	Testing was carried out, 350N was applied for 60 seconds with out damage occurring.	
<b>Sample 3</b>	<b>Restrictor: 901 (tested in Single configuration)</b>	<b>PASS</b>
	Testing was carried out, 350N was applied for 60 seconds with out damage occurring.	
	<b>Restrictor: 900 (tested in duel configuration)</b>	<b>PASS</b>
	Testing was carried out, 350N was applied for 60 seconds with out damage occurring.	
	<b>Restrictor: 900 (tested in Single configuration)</b>	<b>PASS</b>
	Testing was carried out, 350N was applied for 60 seconds with out damage occurring.	
	<b>Restrictor: 11107 (tested in duel configuration)</b>	<b>PASS</b>
	Testing was carried out, 350N was applied for 60 seconds with out damage occurring.	
	<b>Restrictor: 11107 (tested in Single configuration)</b>	<b>PASS</b>
	Testing was carried out, 350N was applied for 60 seconds with out damage occurring.	
	<b>Restrictor: 12107 (tested in duel configuration)</b>	<b>PASS</b>
	Testing was carried out, 350N was applied for 60 seconds with out damage occurring.	
	<b>Restrictor: 12107 (tested in Single configuration)</b>	<b>PASS</b>
	Testing was carried out, 350N was applied for 60 seconds with out damage occurring.	
<b>Restrictor: 18007 (tested in Single configuration)</b>	<b>PASS</b>	
Testing was carried out, 350N was applied for 60 seconds with out damage occurring.		

Clause	Result	Pass/Fail
4.8 Load-bearing capacity of safety devices	<b>Restrictor: 99.20.00.001 (tested in Single configuration)</b>	<b>PASS</b>
	Testing was carried out, 350N was applied for 60 seconds with out damage occurring.	
<b>Sample 4</b>	<b>Restrictor: 37.35.00.100 (tested in Single configuration)</b>	<b>PASS</b>
	Testing was carried out, 350N was applied for 60 seconds with out damage occurring.	
	<b>Restrictor: 37.10 (tested in Single configuration)</b>	<b>PASS</b>
	Testing was carried out, 350N was applied for 60 seconds with out damage occurring.	
	<b>Restrictor: 37.26.00.200 (tested in Single configuration)</b>	<b>PASS</b>
	Testing was carried out, 350N was applied for 60 seconds with out damage occurring.	
	<b>Restrictor: AMC 419/5/6 (tested in Single configuration)</b>	<b>PASS</b>
	Testing was carried out, 350N was applied for 60 seconds with out damage occurring.	
	<b>Restrictor: AMC 177 (tested in Single configuration)</b>	<b>PASS</b>
	Testing was carried out, 350N was applied for 60 seconds with out damage occurring.	
	<b>Restrictor: AMC 210 I (tested in Single configuration)</b>	<b>PASS</b>
	Testing was carried out, 350N was applied for 60 seconds with out damage occurring.	
	<b>Restrictor: AMC 224SG (tested in Single configuration)</b>	<b>PASS</b>
	Testing was carried out, 350N was applied for 60 seconds with out damage occurring.	
	<b>Restrictor: AMC 419/5/6 (tested in Single configuration)</b>	<b>PASS</b>
	Testing was carried out, 350N was applied for 60 seconds with out damage occurring.	

Clause	Result	Pass/Fail
<b>4.8 Load-bearing capacity of safety devices</b>	<b>Restrictor: PE620 (tested in vent Position)</b>	<b>PASS</b>
	Testing was carried out, 350N was applied for 60 seconds with out damage occurring.	
<b>Sample 5</b>	<b>Restrictor: PE620 (tested reversed Position)</b>	<b>PASS</b>
	Testing was carried out, 350N was applied for 60 seconds with out damage occurring.	
<b>4.8 Load-bearing capacity of safety devices</b>	<b>Restrictor: RA350 WH HD</b>	<b>PASS</b>
	Testing was carried out, 350N was applied for 60 seconds with out damage occurring.	
<b>Sample 6</b>		

## CONCLUSIONS

---

**Evaluation against objective** The samples as provided by the client was subjected to operational & strength testing in accordance with BS EN 14351-1:2006 and achieved the requirements of clause 4.8 Load-bearing capacity of safety devices.

**Observations & comments**

---

## LIMITATIONS

---

**Limitations** The results relate only to the behaviour of the specimens of the element of construction under the particular conditions of test. They are not intended to be the sole criteria for assessing the potential performance of the element in use, nor do they reflect the actual behaviour in use.

**Range of window assemblies covered by this report** It is our opinion that the range of window assemblies covered by this report are limited to the following

- Assemblies with identical hardware fitted no further apart than in the tested assembly
- Assemblies of the same or smaller overall dimensions to the tested assembly

**Uncertainty of Measurement** The uncertainties of measurements calculated for a confidence level of 95% throughout these tests are within the limits of these tolerances.

The standard specifies the following tolerances

- Forces:  $\pm 2\%$
  - Distances:  $\pm 1\text{mm}$  for tape measures  $\pm 0.01\text{mm}$  for dial gauges
  - Times:  $\pm 5\text{s}$
- 

Document No.: WIL 328739  
Author: M Garfield  
Client: Caldwell Hardware UK Limited,

Page No.: 28 of 29  
Issue Date: 22/06/2013  
Issue No.: 02



## REVISION HISTORY

<b>Issue No :</b>	<b>Re - Issue Date :</b>
<b>Revised By:</b>	<b>Approved By:</b>
<b>Reason for Revision:</b>	

<b>Issue No :</b>	<b>Re - Issue Date :</b>
<b>Revised By:</b>	<b>Approved By:</b>
<b>Reason for Revision:</b>	

**END OF REPORT**

Document No.: WIL 328739  
Author: M Garfield  
Client: Caldwell Hardware UK Limited,

Page No.: 29 of 29  
Issue Date: 22/06/2013  
Issue No.: 02

