



Test Report No: WTH1704#3-1
Date: 12/06/2017
Testing of: Single side hung casement window
Tested to: PAS 24 : 2016
Prepared for: Smartframes South West Ltd

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AUTHORISATION

Test completed by: D.Kury
 Assisted by: M.Currie
 Test witnessed by: N/A

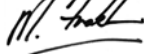
Report produced by: Duncan Kury (Principle Test Engineer)

Signature: 

Date: 03/07/2017

For and on behalf of Nico Manufacturing Ltd Test Laboratory

Report authorised by: Martin Franklin (Laboratory Technical Manager)

Signature: 

Date: 03/07/2017

For and on behalf of Nico Manufacturing Ltd Test Laboratory

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TEST REQUESTED BY

Origin of test request

Company Name	Smartframes South West Ltd
Company Address	Unit 4 Aller Vale Buildings Kingskirkwell Newton Abbot South Devon TQ12 5AZ
Contact	Gary George
Contact position	Managing Director

Quotation Details

Quotation No.	WTH1704
Dated:	21/04/2017

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DETAILS OF TEST

Description	Single side hung
Model / type	Projecting casement window
Make / Brand	Eurocell
Date sample received	24/04/2017
Any special requirements	

C.4.3 Manipulation test. - Using a variety of tools as detailed in Annex A of PAS24:2016 attempts are made to gain entry by such methods as removal of trim, insertion of tools to slide latches or bolts, undoing threaded fasteners and blows by hand to dislodge locking devices. Test a) takes place prior to infill removal test and test b) after the mechanical loading test.

Test a) Duration 15 minutes with no single technique being used for more than 3 minutes

Test b) Duration 3 minutes with the primary intention of releasing threaded fasteners exposed as a result of the mechanical loading test.

C.4.4.2 Infill medium removal test, Manual. - Using a variety of tools as detailed in Annex A of PAS24:2016 attempts are made to remove gaskets, beads, security devices and then infill medium.

Test duration is 3 minutes.

C.4.4.3 Infill medium removal test, Mechanical. - A load of 2000N is applied to each corner of the infill medium via a 150mm x 150mm wooden block and each load is held for 10 seconds. If failure is exhibited at the corners loading is continued along each section in an attempt to deglaze the window.

C.4.5 Mechanical loading test. - Loading consists of the application of a 1000N parallel to plane load which is held until a 3000N perpendicular to plane load has been applied and removed. Loads are applied to each corner and at each locking and hinge point of each opening sash. Loading cases (table C.1) and sequence of loading (figure C.14) are shown in PAS 24:2016.

C.4.6 Manual check test. - Using the tools specified in PAS 24:2016 B.4.6.2 attempts are made to gain entry by levering at any location and in any direction such that the combined location and direction of the force applied does not replicated the standard mechanical loading cases.

If entry is gained the new location and the direction of applied loads shall be noted and an additional mechanical loading test shall be performed.

Test duration 15 minutes with no single technique being used for more than 3 minutes

C.4.7 Additional mechanical loading test. - Carry out load test in accordance with C.4.5 using the loading configuration defined in C.4.6.

The samples were mounted in timber sub frames (nominal 100mm x 50mm in section).

The samples were mounted in the test rig without any twists or bends that might influence the test result.

Note : The test specimens were kept in the test laboratory for a minimum of 12 hours at environmental conditions of between 15°C to 30°C, and 25% to 75% RH before each test was undertaken as specified in PAS 24:2016 Clause C.4.1

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DETAILS OF SAMPLE

Sample details	Single side hung projecting casement window
Fabricator	Smartframes South West Ltd
Material:	PVC-U, fully welded. Eurocell eurologic Eurocell profile numbers; Frame - 7721 Sash - 7705 Frame reinforcement - EWS821P Sash reinforcement - EWS805P
Finish	White
Lock & keeps	Lock - Nico Multilock 1150, part no 9191022S5 Keeps - Nico cast zinc, part nos 9105 at each end 9005 in centre
Hinges & protectors	Hinges - Nico 16" side hung egress, part no Hinge protectors - Nico Xtra bolt, part no 8000
Handle	ERA Connoisseur inline
Fixings	Lock - UKF Windowmaster 3500/25Z (4.3 x 25mm c'sk head pierce point) Hinges - UKF Windowmaster 3577/13Z (4.3 x 13mm pan head pierce point) into frame, 3577/25Z (4.3 x 25mm pan head pierce point) into sash. Hinge protectors - UKF Windowmaster 3500/25Z (4.3 x 25mm c'sk head pierce point) into frame and sash.
Weather sealing	Co-extruded gaskets
Glass (or infill)	4-20-4mm clear toughened glass unit
Glazing system	Internally bead glazed
Sample dimensions	1260mm(h) x 700mm(w) Sash rebate size 1160mm(h) x 595mm(w)
Additional information	Run up blocks - Eurocell part no EWS7202

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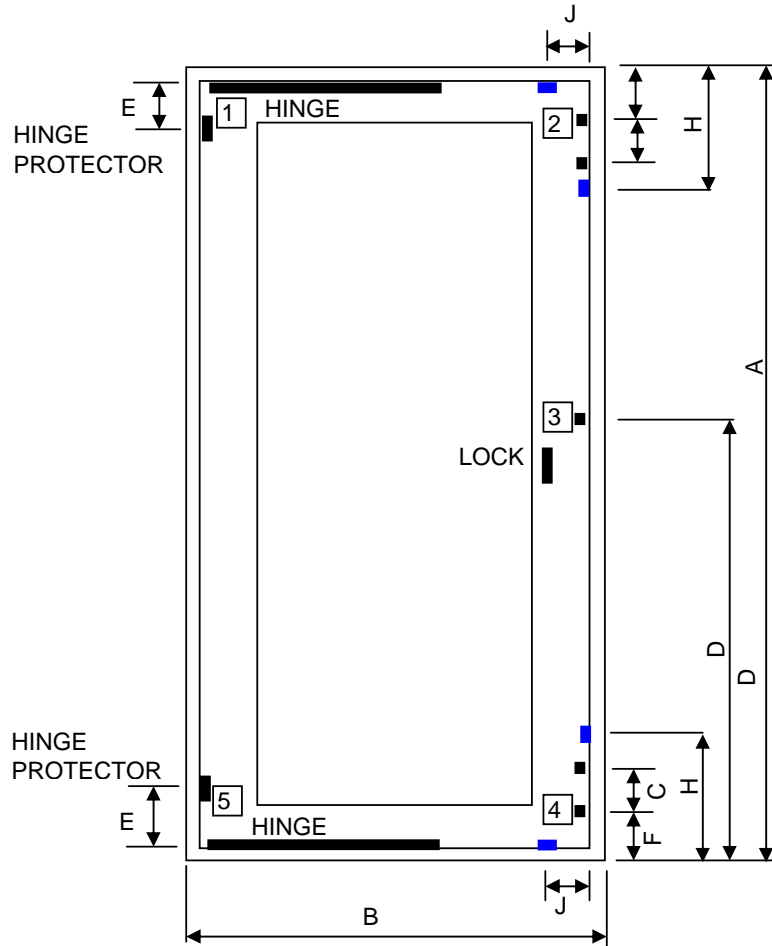
CONCLUSIONS OF TEST

Clause No.	Test Description	Test result
C.4.3	Manipulation test a)	Pass
C.4.3	Manipulation test b)	Pass
C.4.4.2	Infill removal test - manual	Pass
C.4.4.3	Infill removal test - mechanical	Pass
C.4.5	Mechanical loading test	Pass
C.4.6	Manual check test	Pass
C.4.7	Additional mechanical loading test	N/A

Classification (As per clause 4.4)	W
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TEST WINDOW DRAWING



■ Run up blocks

- A = 1260 mm
- B = 700 mm
- C = 75 mm
- D = 630 mm
- E = 95 mm
- F = 105 mm
- G = 85 mm
- H = 220 mm
- J = 80 mm

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MANIPULATION TEST

Laboratory conditions	Temperature	23°C	Humidity	47%RH	Date	12/06/2017
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Clause 4.3 Manipulation test a)

Used craft knife to cut away sash profile around bottom lock area, then used paint scraper with hand blows in attempt to disengage cams. - No entry gained
 Used paint scraper and 3mm flat blade screwdriver to lever at centre lock point in attempt to disengage cam. - No entry gained
 Used craft knife to cut away sash profile around centre lock area, then used 3mm flat blade screwdriver in attempt to disengage cam. - No entry gained
 Used craft knife to cut away sash profile around bottom hinge protector, then used 3mm flat blade screwdriver in attempt to disengage hinge protectors. - No entry gained
 Paint scraper and 3mm flat blade screwdriver used in attempt to disengage bottom hinge protectors. No entry gained

As no further potentially vulnerable locations could be identified the test was halted

INFILL MEDIUM REMOVAL TEST

Laboratory conditions	Temperature	23°C	Humidity	47%RH	Date	12/06/2017
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Clause 4.4.2 Infill manual test

Craft knife used to cut vee notch in profile, 6mm flat blade screwdriver used with hand blows and manipulation in multiple attempts to dislodge glazing bead, end of screwdriver pushing through bead profile. 6mm chisel used to bore hole in profile and then in attempt to dislodge glazing bead. No entry gained

MANUAL CHECK TEST

Laboratory conditions	Temperature	23°C	Humidity	48%RH	Date	12/06/2017
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Clause 4.6 Manual check test (note tools used and time taken)

2 off nail bars used to lever between centre and bottom lock points - No entry gained
 2 off nail bars used to lever at centre of hinge side of sash - No entry gained
 2 off nail bar used to lever at centre of bottom sash rail. - No entry gained

As no other potentially vulnerable points could be identified the test was halted.

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IINFILL MEDIUM REMOVAL TEST

Laboratory conditions	Temperature	23°C	Humidity	48%RH	Date	12/06/2017
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Clause 4.4.3 Infill mechanical test

All four corners loaded in turn to 2000N and held for 10 seconds
 No entry gained

ADDITIONAL MECHANICAL LOADING TEST

Laboratory conditions	Temperature	°C	Humidity	%RH	Date	
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Clause 4.7 Additional mechanical loading test

N/A

MANIPULATION TEST

Laboratory conditions	Temperature	23°C	Humidity	48%RH	Date	12/06/2017
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Clause 4.3 Manipulation test b)

Used crosspoint screwdriver and 3mm flat blade screwdriver to partially remove screws securing bottom hinge protector to sash. - No entry gained

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MECHANICAL LOAD TEST

Clause 4.5 Mechanical Load test

Laboratory conditions	Temperature	23°C	Humidity	47%RH	Date	12/06/2017
Load location	Parallel to plain load		Perpendicular to plain load		Observations / Assessment	
1 Top hinge corner & hinge protector vert down	1000 N (10 sec)		3000 N (10 sec)		Held for 10 seconds	
1 Top hinge corner & hinge protector Horizontal	1000 N (10 sec)		3000 N (10 sec)		Held for 10 seconds	
2 Top lock corner & locking cams Vertically down	1000 N (10 sec)		3000 N (10 sec)		Held for 10 seconds	
2 Top lock corner & locking cams Horizontal	1000 N (10 sec)		3000 N (10 sec)		Held for 10 seconds	
3 Centre lock point Vertically down	1000 N (10 sec)		3000 N (10 sec)		Held for 10 seconds	
3 Centre lock point Horizontal	1000 N (10 sec)		3000 N (10 sec)		Held for 10 seconds	
4 Bottom lock corner & locking cams Vertically down	1000 N (10 sec)		3000 N (10 sec)		Held for 10 seconds	
4 Bottom lock corner & locking cams Horizontal	1000 N (10 sec)		3000 N (10 sec)		Held for 10 seconds	
5 Bottom hinge corner & hinge protector vert up	1000 N (10 sec)		3000 N (10 sec)		Held for 10 seconds	
5 Bottom hinge corner & hinge protector Horizontal	1000 N (10 sec)		3000 N (10 sec)		Held for 10 seconds	
	1000 N (10 sec)		3000 N (10 sec)			

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PICTURE OF TEST WINDOW

