



Test Report No: WTH 1614-1
Date: 08/12/2016
Testing of: Side hung next to side hung projecting
Casement window
Tested to: PAS 24 : 2016
Prepared for: Nico Manufacturing Ltd

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Test Report No. WTH 1614-1	Page 2 of 13
Testing of Side hung next to side hung projecting	
Testing to PAS 24 : 2016	Date 08/12/2016



CONTENTS

	Page No.
Authorisation	3
Test requested by	4
Details of test	5
Details of samples	6
Conclusion of tests	7
Test window drawing & loads	8
Manipulation & Infill removal test results	9
Manual check & additional mech loading test results	10
Mechanical load test results	11 to 12
Picture of test window	13

Test Report No. WTH 1614-1	Page 3 of 13
Testing of Side hung next to side hung projecting	
Testing to PAS 24 : 2016	Date 08/12/2016



AUTHORISATION

Test completed by: D.Kury
 Assisted by: M.Currie
 Test witnessed by:


Report produced by: Duncan Kury (Principle Test Engineer)

Signature: 

Date: 19/12/2016

For and on behalf of Nico Manufacturing Ltd Test Laboratory

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Signature: 

Date: 20/12/2016

For and on behalf of Nico Manufacturing Ltd Test Laboratory

Date of issue of report 21/12/2016

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Test Report No. WTH 1614-1	Page 4 of 13
Testing of Side hung next to side hung projecting	
Testing to PAS 24 : 2016	Date 08/12/2016



TEST REQUESTED BY

Origin of test request

Company Name	Nico Manufacturing Ltd
Company Address	109 Oxford Road Clacton on Sea Essex CO15 3TJ
Contact	Mr Ian Harrison
Contact position	Sales Director

Quotation Details

Quotation No.
Dated:

Test Report No. WTH 1614-1	Page 5 of 13
Testing of Side hung next to side hung projecting	
Testing to PAS 24 : 2016	Date 08/12/2016



DETAILS OF TEST

Description	Side hung next to side hung
Model / type	Projecting casement window
Make / Brand	Veka 70
Date sample received	17/11/2016
Any special requirements	None

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

Test Report No. WTH 1614-1	Page 6 of 13
Testing of Side hung next to side hung projecting	
Testing to PAS 24 : 2016	Date 08/12/2016



DETAILS OF SAMPLE

Sample details	Side hung next to side hung projecting casement window
Fabricator	Consort Ltd
Material:	PVC-U, fully welded joints Frame - Veka profile part no 101160 Sash - Veka profile part no 103264 Mullion - Veka profile part no 102261 Reinforcing; Only present in mullion, Veka part no 113041
Finish	White
Lock & keeps	Lock - Nico Telescopic Shootbolt, part no 979111422 keeps - Cast zinc, part nos; Espag keep 9003, corner keep 93K1
Hinges & protectors	Hinges - Nico 16" standard 13mm friction hing, part no 7740 Hinge protectors - Part no 8000
Handle	ERA Maxim 3, L/H & R/H cranked
Fixings	Lock; 3.9 x 30mm c'sk head pierce point Keeps; 4.3 x 25mm c'sk head pierce point to front position, 3.9 x 25mm c'sk head drill point to rear position. Hinges; 4.3 x 25mm pan head pierce point to sash and frame Hinge protectors; 4.3 x 25mm pan head pierce point to sash and frame
Weather sealing	Co-extruded epdm gasket.
Glass (or infill)	28mm double glazed sealed unit ,4-20-4mm Toughened glass.
Glazing system	Internally bead glazed Beads have co-extruded EPDM gaskets
Sample dimensions	1200mm (h) x 1200mm (w), central mullion.
Additional information	

Test Report No. WTH 1614-1	Page 7 of 13
Testing of Side hung next to side hung projecting	
Testing to PAS 24 : 2016	Date 08/12/2016



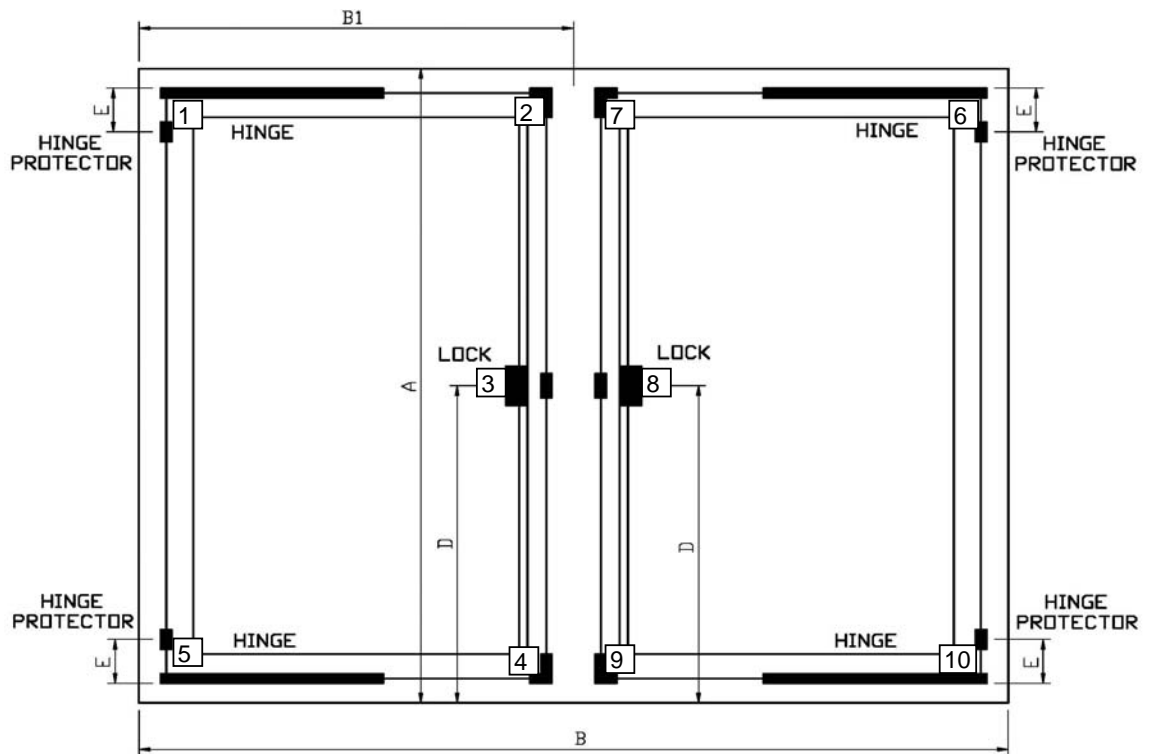
CONCLUSIONS OF TEST

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	NA

Classification (As per clause 4.4)	W
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TEST WINDOW DRAWING



- A = 1200 mm
- A1 = mm
- B = 1200 mm
- B1 = 600 mm
- C = mm
- D = 600 mm
- E = 85 mm

Test Report No. WTH 1614-1	Page 9 of 13
Testing of Side hung next to side hung projecting	
Testing to PAS 24 : 2016	Date 08/12/2016



MANIPULATION TEST

Laboratory conditions	Temperature	18.6°C	Humidity	36%RH	Date	08/12/2016
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Clause 4.3 Manipulation test a)

Craft knife used to cut away profile around centre lock point, 3mm screwdriver used in attempt to remove cam from keep. - No entry gained.

Wire & 3mm screwdriver used in attempt to loop wire around centre cam and disengage it from centre keep. - No entry gained

Craft knife used to cut away profile around bottom shootbolt, paint scraper used in attempt to disengage shootbolt - No entry gained

Craft knife used to cut profile around bottom hinge corner, paint scraper used to lever sash. No entry gained

Paint scraper used to lever sash at bottom hinge corner in attempt to gain access to hinge protector fixing screws, 3mm screwdriver used in attempt to undo screws. - No entry gained

Total time taken was 8 minutes and 50 seconds. The test standard requires 15 minutes, however as no potential vulnerability was found it was decided to terminate the test at this point.

INFILL MEDIUM REMOVAL TEST

Laboratory conditions	Temperature	18.6°C	Humidity	36%RH	Date	08/12/2016
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Clause 4.4.2 Infill manual test

6mm chisel used to bore through profile and 6mm screwdriver inserted through hole in attempt to dislodge bottom glazing bead without success.

Craft knife used to cut vee notch in profile and 6mm screwdriver used in attempt to dislodge bead.

No entry gained

MANUAL CHECK TEST

Laboratory conditions	Temperature	18.6°C	Humidity	36%RH	Date	08/12/2016
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Clause 4.6 Manual check test (note tools used and time taken)

Used 2 off nail bars to lever at mid point of hinge side of L/H sash, no entry gained.

Used 2 off nail bars to lever at mid point between centre and lower lock points of L/H sash, no entry gained.

Used 2 off nail bars to lever at centre of the bottom of L/H sash, no entry gained.

Total time taken was 6 minutes. The test standard requires 15 minutes, however as no potential vulnerability was found it was decided to terminate the test at this point.

Test Report No. WTH 1614-1	Page 10 of 13
Testing of Side hung next to side hung projecting	
Testing to PAS 24 : 2016	Date 08/12/2016



IINFILL MEDIUM REMOVAL TEST

Laboratory conditions	Temperature	18.6°C	Humidity	36%RH	Date	08/12/2016
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Clause 4.4.3 Infill mechanical test

All four corners of the glass unit on the R/H opening sash were loaded to 2000N for 10 seconds in turn.

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	18.9°C	Humidity	37%RH	Date	08/12/2016
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Clause 4.3 Manipulation test b)

Used 3mm screwdriver, crosspoint screwdriver and cross head screwdriver in attempt to undo screws securing hinge protectors.
Although the screw heads were visible it was not possible to gain sufficient engagement to unfasten them.

Test Report No. WTH 1614-1	Page 11 of 13
Testing of Side hung next to side hung projecting	
Testing to PAS 24 : 2016	Date 08/12/2016



MECHANICAL LOAD TEST

Clause 4.5 Mechanical Load test

Laboratory conditions	Temperature	18.9°C	Humidity	37%RH	Date	08/12/2016
Load location	Parallel to plain load		Perpendicular to plain load		Observations / Assessment	
1 Top hinge & hinge protector L/H sash Vertically down	1000 N (10 sec)		3000 N (10 sec)		Held for 10 sec sash deflected until hinge protector engaged	
1 Top hinge & hinge protector L/H sash Horizontal	1000 N (10 sec)		3000 N (10 sec)		Held for 10 sec No further damage	
2 Top lock corner & shootbolt L/H sash Vertically down	1000 N (10 sec)		3000 N (10 sec)		Held for 10 sec No visible damage	
2 Top lock corner & shootbolt L/H sash Horizontal + mullion pull	1000 N (10 sec)		3000 N (10 sec)		Held for 10 sec No visible damage	
3 Centre locking cams L/H sash Vertically down	1000 N (10 sec)		3000 N (10 sec)		Held for 10 sec No visible damage	
3 Centre locking cams L/H sash Horizontal + mullion pull	1000 N (10 sec)		3000 N (10 sec)		Held for 10 sec No visible damage	
4 Bottom lock corner & shootbolt L/H sash Vertically up	1000 N (10 sec)		3000 N (10 sec)		Held for 10 sec No visible damage	
4 Bottom lock corner & shootbolt L/H sash Horizontal + mullion pull	1000 N (10 sec)		3000 N (10 sec)		Held for 10 sec No visible damage	
5 Bottom hinge & hinge protector L/H sash Vertically down	1000 N (10 sec)		3000 N (10 sec)		Held for 10 sec sash deflected until hinge protector engaged	
5 Bottom hinge & hinge protector L/H sash Horizontal	1000 N (10 sec)		3000 N (10 sec)		Held for 10 sec No further damage	
6 Top hinge & hinge protector R/H sash Vertically down	1000 N (10 sec)		3000 N (10 sec)		Held for 10 sec sash deflected until hinge protector engaged	

Continued overleaf

Test Report No. WTH 1614-1	Page 12 of 13
Testing of Side hung next to side hung projecting	
Testing to PAS 24 : 2016	Date 08/12/2016



MECHANICAL LOAD TEST CONT.

Clause 4.5 Mechanical Load test

Laboratory conditions	Temperature	18.9°C	Humidity	37%RH	Date	08/12/2016
Load location	Parallel to plain load		Perpendicular to plain load		Observations / Assessment	
6 Top hinge & hinge protector R/H sash Horizontal	1000 N (10 sec)		3000 N (10 sec)		Held for 10 sec No further damage	
7 Top lock corner & shootbolt R/H sash Vertically down	1000 N (10 sec)		3000 N (10 sec)		Held for 10 sec No visible damage	
7 Top lock corner & shootbolt R/H sash Horizontal + mullion pull	1000 N (10 sec)		3000 N (10 sec)		Held for 10 sec No visible damage	
8 Centre locking cams R/H sash Vertically down	1000 N (10 sec)		3000 N (10 sec)		Held for 10 sec No visible damage	
8 Centre locking cams R/H sash Horizontal + mullion pull	1000 N (10 sec)		3000 N (10 sec)		Held for 10 sec No visible damage	
9 Bottom lock corner & shootbolt R/H sash Vertically up	1000 N (10 sec)		3000 N (10 sec)		Held for 10 sec No visible damage	
9 Bottom lock corner & shootbolt R/H sash Horizontal + mullion pull	1000 N (10 sec)		3000 N (10 sec)		Held for 10 sec No visible damage	
10 Bottom hinge & hinge protector R/H sash Vertically down	1000 N (10 sec)		3000 N (10 sec)		Held for 10 sec sash deflected until hinge protector engaged	
10 Bottom hinge & hinge protector R/H sash Horizontal	1000 N (10 sec)		3000 N (10 sec)		Held for 10 sec No further damage	
	1000 N (10 sec)		3000 N (10 sec)			
	1000 N (10 sec)		3000 N (10 sec)			

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Test Report No. WTH 1614-1	Page 13 of 13
Testing of Side hung next to side hung projecting	
Testing to PAS 24 : 2016	Date 08/12/2016



PICTURE OF TEST WINDOW

