



Test Report No: WTH2404#6-1

Date: 22/08/2024

Testing of: Single Top Hung Casement

Tested to: PAS 24 : 2022

Prepared for: Nico Manufacturing Ltd

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Test Report No. WTH2404#6-1	Page 2 of 12
Testing of Single Top Hung Casement	
Testing to PAS 24 : 2022	



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
Picture of test window	12

Test Report No. WTH2404#6-1	Page 3 of 12
Testing of Single Top Hung Casement	
Testing to PAS 24 : 2022	



AUTHORISATION

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Report produced by: J.Morley Position: Junior Technician

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Date: 25/09/2024

For and on behalf of Nico Manufacturing Ltd Test Laboratory

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For and on behalf of Nico Manufacturing Ltd Test Laboratory

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Test Report No. WTH2404#6-1	Page 4 of 12
Testing of Single Top Hung Casement	
Testing to PAS 24 : 2022	



TEST REQUESTED BY

Origin of test request

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

Quotation Details

Quotation No.	WTH2404
Dated:	23/01/2024

Test Report No. WTH2404#6-1	Page 5 of 12
Testing of Single Top Hung Casement	
Testing to PAS 24 : 2022	



DETAILS OF TEST

Description	Projecting casement window
Model / type	Single top hung
Make / Brand	Eurocell Logic
Any special requirements	

Test Specification	PAS24:2016 Enhanced security performance requirements for doorsets and windows in the UK
Date sample received	20/03/2024
Date testing started	22/08/2024
Date testing finished	22/08/2024
Job No.	WTH2404
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.



DETAILS OF SAMPLE

Sample details	Single Top Hung Casement
Fabricator	Quantum Windows Ltd
Material:	PVC-U, Eurocell logic profile Eurocell part numbers; Frame - EWS7011W, Sash - EWS7008W,
Finish	Gloss White
Lock & keeps	Lock - Nico PAS Espag, part no 9291422 Keeps - Nico PAS Espag Keep, part no 9205L
Hinges & protectors	Hinges - Nico 17mm 24" Heavy Duty Restrictor, part no 8360HDL and 17mm 24" Heavy Duty, part no 8260HDR Hinge protectors - Nico Xtra bolt, part no 8100
Handle	Fab & Fix inline white
Fixings	Lock - 4.3 x 25mm pan head pierce point Keeps - 4.3 x 25mm pan head pierce point Hinges - 4.3 x 30mm c'sk head pierce point to sash, 4.3 x 21mm pan head pierce point to frame Hinge protectors - 4.3 x 30mm c'sk head pierce point Weather interlock wedges - 4.3 x 25mm c'sk head pierce point
Weather sealing	Co extruded gaskets Interlocking wedges, part no EWS7201W
Glass (or infill)	4-20-4mm clear toughened double glazed units
Glazing system	Co extruded gaskets Internally bead glazed, part no LSF1301W
Sample dimensions	1470mm (h) x 1475mm (w)
Additional information	Clip in leading ramp, part no LSF1202W

Test Report No. WTH2404#6-1	Page 7 of 12
Testing of Single Top Hung Casement	
Testing to PAS 24 : 2022	



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	No entry gained
C.4.7	Additional mechanical loading test	N/A

Classification (As per clause 4.4)	W
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The results contained in this report apply only to the samples tested as received and to the specific tests carried out within this report.

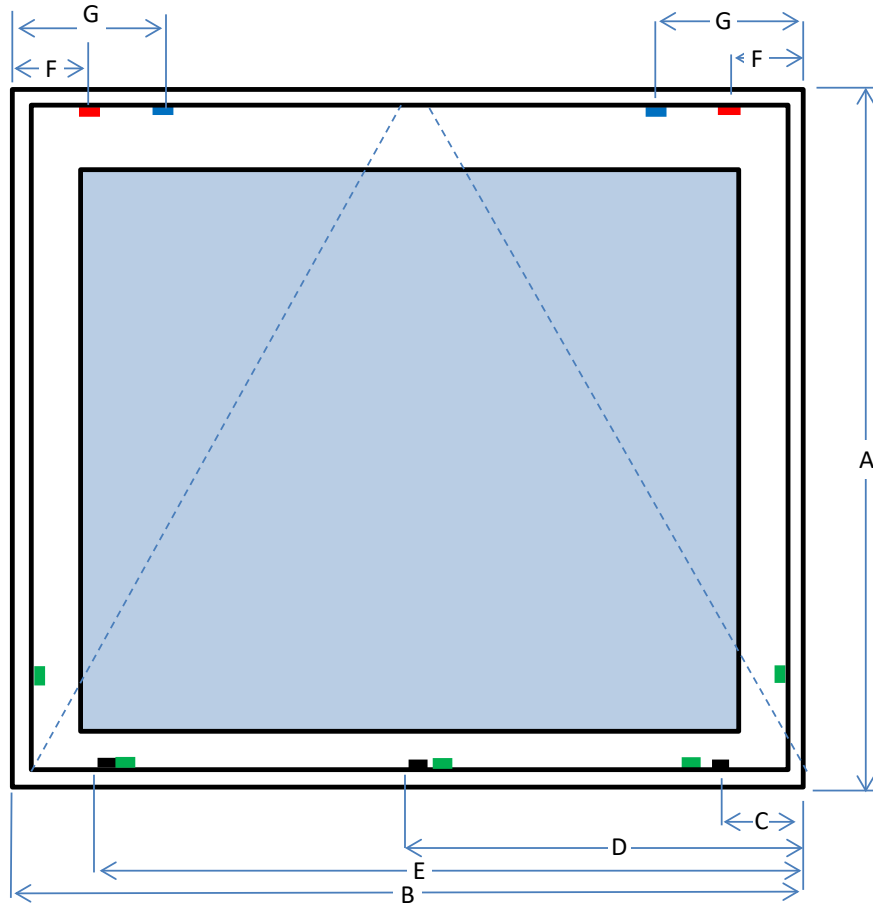
Test specimen details





Details of the samples construction and hardware components is based on information supplied by the test client, while these details have been checked and verified where possible WTH accepts no responsibility for the accuracy of details supplied.

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 WINDOW DRAWING



- | | | |
|---|------------------|-------------|
|  | Hinge protectors | A = 1400 mm |
|  | Riser block | B = 1475 mm |
|  | Pull in wedge | C = 100 mm |
|  | Lock point | D = 735 mm |
| | | E = 1375 mm |
| | | F = 105 mm |
| | | G = 430 mm |

Test Report No. WTH2404#6-1	Page 9 of 12
Testing of Single Top Hung Casement	
Testing to PAS 24 : 2022	



MANIPULATION TEST

Sample No	Temperature	Measured Humidity	Adjusted humidity	Date
WTH2404D	24.5 °C	56.7 %RH	56.3 %RH	22/08/2024

Clause 4.3 Manipulation test a)

Craft knife used to cut away sash profile adjacent to centre lock point, paint scraper used with hand blows in attempt to disengage cam from keep - No entry gained

Craft knife used to cut away sash profile adjacent to L/H lock point, paint scraper used with hand blows in attempt to disengage cam from keep - No entry gained

Craft knife used to cut away sash profile adjacent to L/H hinge protector - No entry gained

Craft knife used to cut away sash profile adjacent to R/H lock point, paint scraper used with hand blows in attempt to disengage cam from keep - No entry gained

As no further potentially vulnerable attack points could be identified, the test was halted

INFILL MEDIUM REMOVAL TEST

Sample No	Temperature	Measured Humidity	Adjusted humidity	Date
WTH2404D	24.4 °C	56.1 %RH	55.6 %RH	22/08/2024

Clause 4.4.2 Infill manual test

Craft knife used to cut vee notch in sash profile, 6mm chisel used to remove upstand in glazing rebate, 6mm flat blade screwdriver used in attempt to remove glazing bead - No entry gained

MANUAL CHECK TEST

Sample No	Temperature	Measured Humidity	Adjusted humidity	Date
WTH2404D	24.4 °C	57.3 %RH	56.9 %RH	22/08/2024

Clause 4.6 Manual check test (note tools used and time taken)

2 off Nail bars used to lever at centre of R/H side of sash - No entry gained

2 off Nail bars used to lever the sash between the mid and R/H locking points - No entry gained

2 off Nail bars used to lever the sash between mid-way between the L/H and R/H hinges - No entry gained

As no further potentially vulnerable attack points could be identified, the test was halted

Test Report No. WTH2404#6-1	Page 10 of 12
Testing of Single Top Hung Casement	
Testing to PAS 24 : 2022	



INFILL MEDIUM REMOVAL TEST

Sample No	Temperature		Measured Humidity		Adjusted humidity		Date
WTH2404D	24.7	°C	50.7	%RH	49.9	%RH	22/08/2024

Clause 4.4.3 Infill mechanical test

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

ADDITIONAL MECHANICAL LOADING TEST

Sample No	Temperature		Measured Humidity		Adjusted humidity		Date
		°C		%RH	-4.0	%RH	

Clause 4.7 Additional mechanical loading test

MANIPULATION TEST

Sample No	Temperature		Measured Humidity		Adjusted humidity		Date
WTH2404D	24.5	°C	56.8	%RH	56.4	%RH	22/08/2024

Clause 4.3 Manipulation test b)

3mm flat head screwdriver used to partially loosen top two screws of R/H and L/H hinge - No entry gained



MECHANICAL LOAD TEST

Clause 4.5 Mechanical Load test

Sample No	Temperature	Measured Humidity	Adjusted humidity	Date
WTH2404D	23.9 °C	57.3 %RH	56.9 %RH	22/08/2024
Load location	Parallel to plain load (1000N)	Perpendicular to plain load (3000N)	Observations / Assessment	
1 R/H hinge and hinge protector Horizontal	Load applied	Load applied	No entry gained	
	1002N	3005N		
	Applied for (s)	Applied for (s)		
	30	10		
1 R/H hinge and hinge protector Vertically down	Load applied	Load applied	No entry gained	
	1001N	3004N		
	Applied for (s)	Applied for (s)		
	32	10		
2 R/H opening corner of sash and R/H lock point Horizontal	Load applied	Load applied	No entry gained	
	998N	3003N		
	Applied for (s)	Applied for (s)		
	27	10		
2 R/H opening corner of sash and R/H lock point Vertically up	Load applied	Load applied	No entry gained	
	999N	3005N		
	Applied for (s)	Applied for (s)		
	30	10		
3 Centre lock point Horizontal	Load applied	Load applied	No entry gained	
	997N	3007N		
	Applied for (s)	Applied for (s)		
	28	10		
3 Centre lock point Vertically up	Load applied	Load applied	No entry gained	
	1001N	3002N		
	Applied for (s)	Applied for (s)		
	30	10		
4 L/H opening corner of sash and R/H lock point Horizontal in direction to disengage locking point	Load applied	Load applied	No entry gained	
	1002N	3018N		
	Applied for (s)	Applied for (s)		
	30	10		
4 L/H opening corner of sash and R/H lock point Horizontal away from corner	Load applied	Load applied	No entry gained	
	998N	2999N		
	Applied for (s)	Applied for (s)		
	31	10		
4 L/H opening corner of sash and R/H lock point Vertically up	Load applied	Load applied	No entry gained	
	999N	3005N		
	Applied for (s)	Applied for (s)		
	29	10		
5 L/H hinge and hinge protector Horizontal	Load applied	Load applied	No entry gained	
	998N	3002N		
	Applied for (s)	Applied for (s)		
	30	10		
5 L/H hinge and hinge protector Vertically down	Load applied	Load applied	No entry gained	
	1002N	3008N		
	Applied for (s)	Applied for (s)		
	30	10		

Test Report No. WTH2404#6-1	Page 12 of 12
Testing of Single Top Hung Casement	
Testing to PAS 24 : 2022	



PICTURE OF TEST WINDOW



END OF REPORT