



Test Report No: WTH2309#2-1

Date: 01/08/2024

Testing of: Side hung next to fixed light casement window

Tested to: PAS 24 : 2022

Prepared for: Nico Manufacturing Ltd

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**AUTHORISATION**

Test completed by: D.Kury  
 Assisted by: J.Morley  
 Test witnessed by:

Report produced by: D.kury Position: Senior Test Engineer

Signature: 

Date: 04/11/2024

For and on behalf of Nico Manufacturing Ltd Test Laboratory

Report authorised by: Position:

Signature: 

Date: 04/11/2024

For and on behalf of Nico Manufacturing Ltd Test Laboratory

Date of issue of report 04/11/2024

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**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.	WTH2309
Dated:	03/05/2023

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**DETAILS OF TEST**

Description	Projecting casement window
Model / type	Side hung next to fixed light
Make / Brand	Linjar
Any special requirements	

Test Specification	PAS24:2016 Enhanced security performance requirements for doorsets and windows in the UK
Date sample received	17/07/2024
Date testing started	01/08/2024
Date testing finished	02/08/2024
Job No.	WTH2309
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	Side hung next to fixed light casement window
Fabricator	Polycastle Nu-Span Ltd
Material:	PVC-U Liniar profile Part nos; Frame - LSW011, Sash - LSW031, Mullion - LSW021 Reinforcement; Frame - LSR011, Sash - LSR031, Mullion - LSR021.
Finish	Gloss white
Lock & keeps	Lock - Nico Multilock 950mm, part no 9191022S5 Keeps - Nico cast zinc, part no 9103 top & bottom, 9022 centre
Hinges & protectors	Hinges, Nico 12" Standard high stack, part no 8235 Hinge protectors - Maco
Handle	White inline VBH
Fixings	Hinges - 4.3 x 25mm pan head, gimlet point into frame and sash Lock - 4.3 x 25mm c'sk head gimlet point Keeps - 4.3 x 25mm c'sk head gimlet point to front, 3.9 x 25mm c'sk head drill point to rear. Hinge protectors - 4.3 x 25mm c'sk head gimlet point into frame and sash Weather interlock wedges - 4.3 x 25mm c'sk head gimlet point
Weather sealing	Co extruded gaskets Interlocking wedges - Liniar part no LMO302
Glass (or infill)	4-20-4mm toughened double glazed units
Glazing system	Internally bead glazed with integral co-extruded gaskets
Sample dimensions	1070mm(h) x 1000mm(w), central mullion
Additional information	Run up ramp, Liniar part no LMO303

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

<b>Classification (As per clause 4.4)</b>	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.

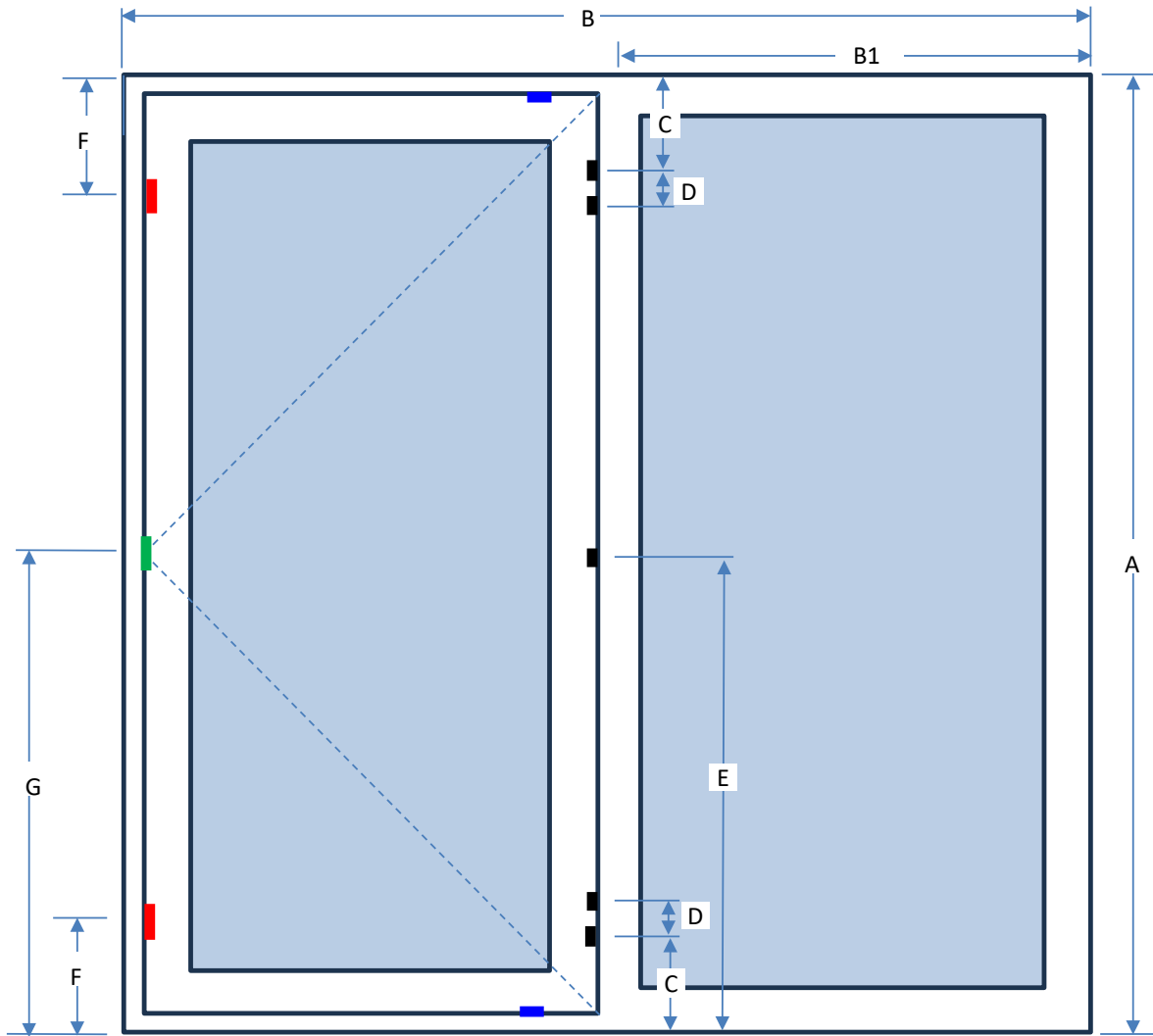
#### **Test specimen details**

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 protector
- Interlocking wedges
- Lock point
- Riser block

- A = 1070 mm
- B = 1000 mm
- B1 = 500 mm
- C = 100 mm
- D = 170 mm
- E = 535 mm
- F = 120 mm
- G = 535 mm

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#### MANIPULATION TEST

Sample No	Temperature	Measured Humidity	Adjusted humidity	Date
WTH2309B	27.5 °C	53.3 %RH	52.7 %RH	02/08/2024

##### Clause 4.3 Manipulation test prior to infill removal test.

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

Craft knife used to cut away sash profile adjacent to bottom lock point, paint scraper used in attempt to disengage locking cams from keep - No entry gained

Craft knife used to cut away sash profile adjacent to bottom hinge, 3mm flat head screwdriver used in attempt to unscrew hinge screws - No entry gained

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

#### INFILL MEDIUM REMOVAL TEST

Sample No	Temperature	Measured Humidity	Adjusted humidity	Date
WTH2309B	27.5 °C	53.3 %RH	52.7 %RH	02/08/2024

##### Clause 4.4.2 Infill manual test

Vee notch cut in sash profile - No entry gained

Vee notch cut in fixed light profile, 6mm chisel used to bore through packer. - No entry gained

#### MANUAL CHECK TEST

Sample No	Temperature	Measured Humidity	Adjusted humidity	Date
WTH2309B	27.5 °C	56.8 %RH	56.4 %RH	02/08/2024

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

2 off Nail bars used to lever mid point of hinge side of sash - No entry gained

2 off Nail bars used to lever between top and centre lock points - No entry gained

2 off Nail bars used to lever at bottom of sash - No entry gained

2 off Nail bars used to lever between bottom and centre lock points - No entry gained

As no further potential attack points could be identified the test was halted

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**INFILL MEDIUM REMOVAL TEST**

Sample No	Temperature		Measured Humidity		Adjusted humidity		Date
WTH2309B	28.6	°C	57	%RH	56.6	%RH	01/08/2024

**Clause 4.4.3 Infill mechanical test**

Each corner of opening sash and fixed light loaded to 2000N and held for 10 seconds in turn. -  
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
WTH2309B	27.1	°C	53.8	%RH	53.2	%RH	02/08/2024

**Clause 4.3 Manipulation test b)**

3mm flat head screwdriver used to uscrew top hinge protector - No entry gained

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**MECHANICAL LOAD TEST**

**Clause 4.5 Mechanical Load test**

Sample No	Temperature	Measured Humidity	Adjusted humidity	Date
WTH2309B	27 °C	55.4 %RH	54.9 %RH	02/08/2024
Load location	Parallel to plain load (1000N)	Perpendicular to plain load (3000N)	Observations / Assessment	
1 Top hinge & hinge protector Vertically down	Load applied	Load applied	No entry gained	
	998N	3018N		
	Applied for (s)	Applied for (s)		
	31	10		
1 Top hinge & hinge protector Horizontal	Load applied	Load applied	No entry gained	
	1004N	3002N		
	Applied for (s)	Applied for (s)		
	33	10		
2 Top opening corner of sash Vertically down	Load applied	Load applied	No entry gained	
	1002N	3010N		
	Applied for (s)	Applied for (s)		
	32	10		
2 Top opening corner of sash Horizontal	Load applied	Load applied	No entry gained	
	999N	3001N		
	Applied for (s)	Applied for (s)		
	33	10		
3 Top lock point Vertically down	Load applied	Load applied	No entry gained	
	997N	3002N		
	Applied for (s)	Applied for (s)		
	34	10		
3 Top lock point Horizontal + mullion pull	Load applied	Load applied	No entry gained	
	1003N	3004N		
	Applied for (s)	Applied for (s)		
	32	10		
4 Centre lock point Vertically down	Load applied	Load applied	No entry gained	
	1000N	3002N		
	Applied for (s)	Applied for (s)		
	32	10		
4 Centre lock point Horizontal + mullion pull	Load applied	Load applied	No entry gained	
	1003N	2997N		
	Applied for (s)	Applied for (s)		
	36	10		
5 Bottom lock point Vertically down	Load applied	Load applied	No entry gained	
	1002N	2993N		
	Applied for (s)	Applied for (s)		
	30	10		
5 Bottom lock point Horizontal + mullion pull	Load applied	Load applied	No entry gained	
	998N	3001N		
	Applied for (s)	Applied for (s)		
	34	10		
6 Bottom opening corner of sash Vertically up	Load applied	Load applied	No entry gained	
	999N	3001N		
	Applied for (s)	Applied for (s)		
	35	10		



**MECHANICAL LOAD TEST**

**Clause 4.5 Mechanical Load test**

Sample No	Temperature	Measured Humidity	Adjusted humidity	Date
WTH2309B	27 °C	57.1 %RH	56.7 %RH	02/08/2024
Load location	Parallel to plain load (1000N)	Perpendicular to plain load (3000N)	Observations / Assessment	
6 Bottom opening corner of sash Horizontal	Load applied	Load applied	No entry gained	
	980N	2992N		
	Applied for (s)	Applied for (s)		
7 Bottom hinge and hinge protector Vertically up	Load applied	Load applied	No entry gained	
	997N	2994N		
	Applied for (s)	Applied for (s)		
7 Bottom hinge and hinge protector Vertically up	Load applied	Load applied	No entry gained	
	998N	2998N		
	Applied for (s)	Applied for (s)		
	Load applied	Load applied		
	Applied for (s)	Applied for (s)		
	Load applied	Load applied		
	Applied for (s)	Applied for (s)		
	Load applied	Load applied		
	Applied for (s)	Applied for (s)		
	Load applied	Load applied		
	Applied for (s)	Applied for (s)		
	Load applied	Load applied		
	Applied for (s)	Applied for (s)		
	Load applied	Load applied		
	Applied for (s)	Applied for (s)		



**PICTURE OF TEST WINDOW**



**END OF REPORT**