Test Report No:	WTH2103#1-1
Date:	09/02/2021
Testing of:	Single side hung projecting casement window
Tested to:	PAS 24 : 2016
Prepared for:	Nico Manufacturing Ltd

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For and on behalf of Nico Manufacturing Ltd Test Laboratory

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TEST REQUESTED BY

Origin of test request

Company Name	Nico Manufacturing Ltd
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Contact	Ian Harrison
Contact position	Sales Director

Quotation Details

Quotation No.	WTH2103
Dated:	05/01/2021

DETAILS OF TEST

Description	Single side hung
Model / type	Projecting casement window
Make / Brand	Veka
Any special requirements	

Test Specification	PAS24:2016 Enhanced security performance requirements for doorsets and windows in the UK
Date sample received	18/04/2019
Date testing started	09/02/2021
Date testing finished	10/02/2021
Job No.	WTH2103
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 side hung projecting casement window
Fabricator	Consort Ltd
Material:	PVC-U Veka part nos;- 56mm Frame, part no 101160 75mm sculptured sash, part no 103264
Finish	White gloss
Lock & keeps	Lock - Nico Mk 1 shootbolt, gearbox part no 94225, Shootbolt extension 6, part no 93865 Keeps - Nico cast zinc keeps, part no 9003 centre, 9003 & K1 at corners
Hinges & protectors	Hinges - Nico standard 16" Egress easy clean, part number 8547 Hinge protectors - Nico Xtra bolt, part number 8000
Handle	Winlock white inline nonlocking
Fixings	Hinges - 4.8 x 25mm pan head pierce point to sash and frame Lock and keeps - 4.3 x 25mm c'sk head pierce point to sash and frame Cavity wedges - 4.3 x 25mm c'sk head pierce point Hinge protectors - 4.8 x 25mm pan head pierce point into sash & frame
Weather sealing	Co-extruded gaskets
Glass (or infill)	28mm Double glazed unit. 4-20-4mm.
Glazing system	Internally bead glazed with co-extruded gaskets. Shaped 28mm bead, part no 107.155
Sample dimensions	850mm (W) x 1300mm (H)
Additional information	Cavity wedges - Veka part no 9898 & 9905 Run up block - Veka part no 109.380

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

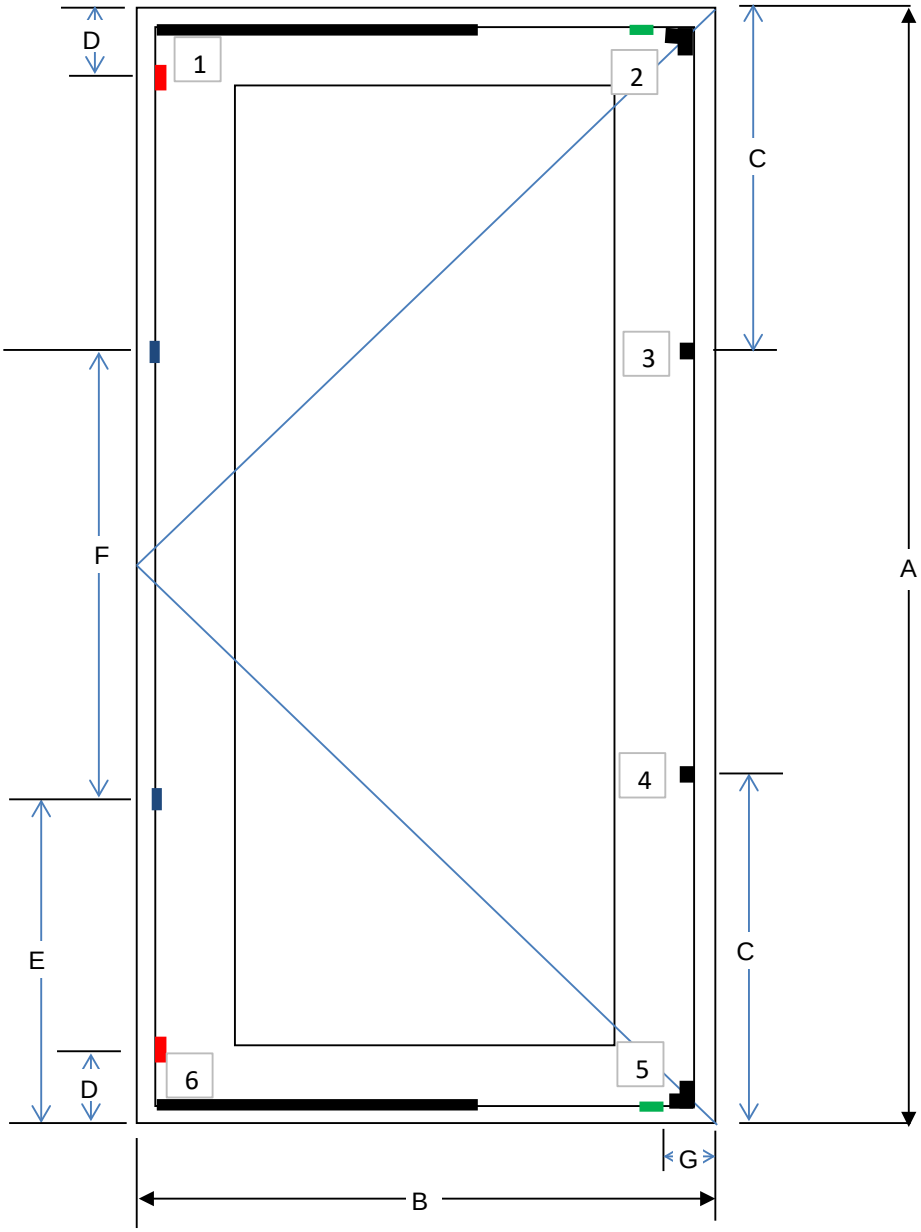
The results contained in this report apply only to the samples tested and to the specific tests carried out within this report.

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
Run up block
Weather wedge

A	=	1300	mm
B	=	850	mm
C	=	380	mm
D	=	125	mm
E	=	450	mm
F	=	400	mm
G	=	100	mm

MANIPULATION TEST

Sample No	WTH1903B	Temperature	22°C	Humidity	26%RH	Date	10/02/2021

Clause 4.3 Manipulation test a)

Craft knife used to cut away sash profile adjacent to lower intermediatelock point, 3mm flat blade screwdriver used in attempt to disengage mushroom. - No Entry gained

Craft knife used to cut away sash profile adjacent to gearbox, 3mm flat blade screwdriver used to lever top cover of gearbox and attempt to disengage shoot bars - No entry gained

3mm flat blade screwdriver and paint scraper used to lever at bottom hinge corner of sash - No entry gained

Craft knife used to cut away profile adjacent to upper intermediate lock point, paint scraper used with hand blows in attempt to disengage mushroom.- No entry gained

INFILL MEDIUM REMOVAL TEST

Sample No	WTH1903B	Temperature	22°C	Humidity	27%RH	Date	10/02/2021

Clause 4.4.2 Infill manual test

Craft knife used to cut a vee notch at th bottom of the sash, 6mm flat blade screwdriver used in attempt to knock out the glazing bead. - No entry gained

MANUAL CHECK TEST

Sample No	WTH1903B	Temperature	22°C	Humidity	27%RH	Date	10/02/2021

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

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

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

2 off Nail bars used to lever between bottom corner of sash and lower intermediate lock point - No entry gained

2 off nail bars used to lever at centre of lock side of sash between intermediate lock points - No entry gained

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

IINFILL MEDIUM REMOVAL TEST

Sample No	WTH1903B	Temperature	21°C	Humidity	27%RH	Date	09/02/2021

Clause 4.4.3 Infill mechanical test

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

ADDITIONAL MECHANICAL LOADING TEST

Sample No		Temperature	°C	Humidity	%RH	Date	

Clause 4.7 Additional mechanical loading test

MANIPULATION TEST

Sample No	WTH1903B	Temperature	21°C	Humidity	28%RH	Date	09/02/2021

Clause 4.3 Manipulation test b)

3mm flat blade screwdriver used in attempt to remove screws securing hinge protectors to frame.

No entry gained

MECHANICAL LOAD TEST

Clause 4.5 Mechanical Load test

Sample No	WTH1903B	Temperature	21°C	Humidity	27%RH	Date	09/02/2021

Load location	Parallel to plain load	Perpendicular to plain load	Observations / Assessment
1 Top hinge corner of sash Hinge and hinge protector Vertically down	1000 N (10 sec)	3000 N (10 sec)	Held for 10 seconds
1 Top hinge corner of sash Hinge and hinge protector Horizontally	1000 N (10 sec)	3000 N (10 sec)	Held for 10 seconds
2 Top lock corner of sash and top lock point Vertically down	1000 N (10 sec)	3000 N (10 sec)	Held for 10 seconds
2 Top lock corner of sash and top lock point Horizontally	1000 N (10 sec)	3000 N (10 sec)	Held for 10 seconds
3 Top intermediate lock point Vertically down	1000 N (10 sec)	3000 N (10 sec)	Held for 10 seconds
3 Top intermediate lock point Horizontally	1000 N (10 sec)	3000 N (10 sec)	Held for 10 seconds
4 Lower intermediate lock point Vertically up	1000 N (10 sec)	3000 N (10 sec)	Held for 10 seconds
4 Lower intermediate lock point Horizontally	1000 N (10 sec)	3000 N (10 sec)	Held for 10 seconds
5 Bottom lock corner of sash and bottom lock point Vertically up	1000 N (10 sec)	3000 N (10 sec)	Held for 10 seconds
5 Bottom lock corner of sash and bottom lock point Horizontally	1000 N (10 sec)	3000 N (10 sec)	Held for 10 seconds
6 Bottom hinge corner of sash, bottom hinge and hinge protector Vertically up	1000 N (10 sec)	3000 N (10 sec)	Held for 10 seconds

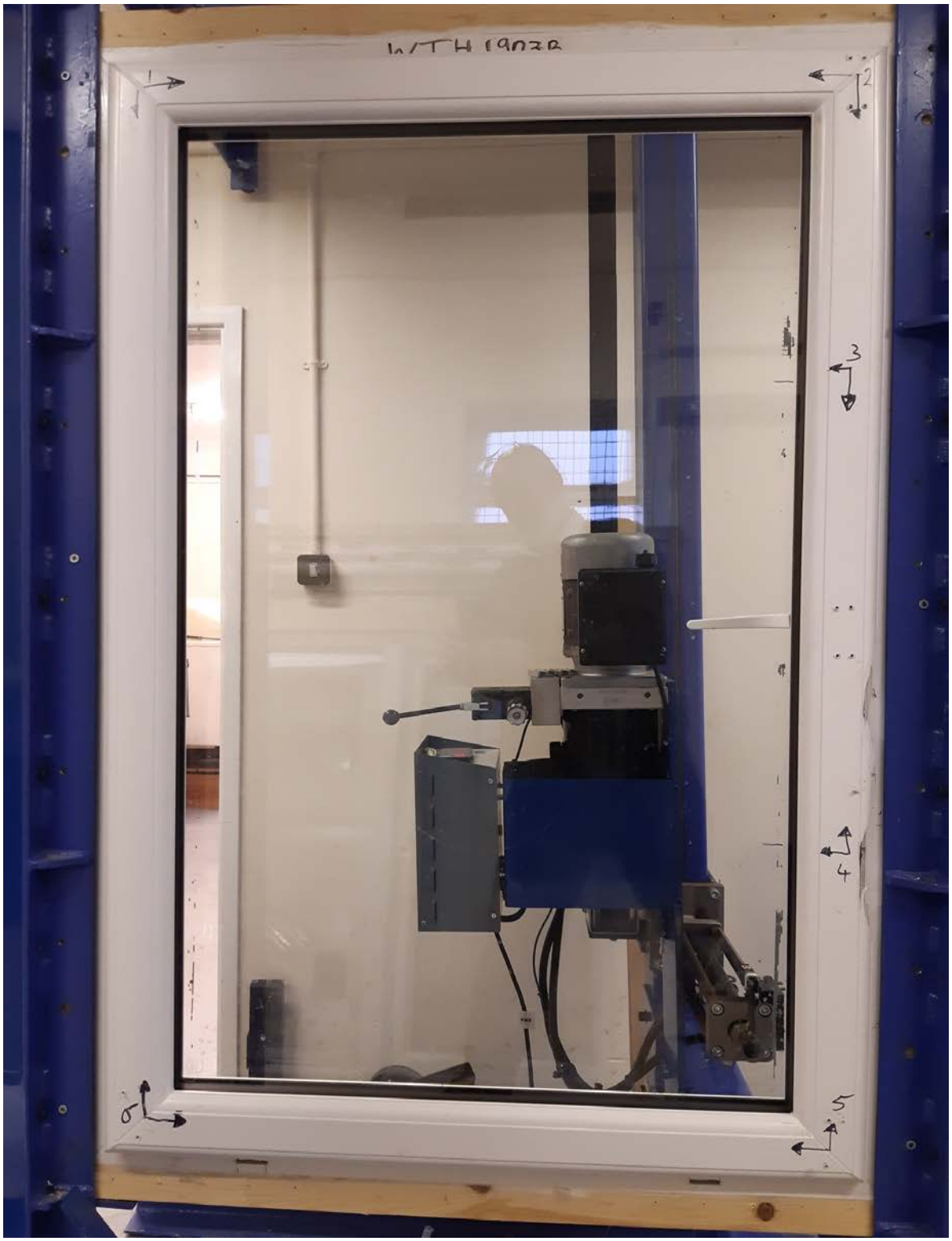
MECHANICAL LOAD TEST CONT.

Clause 4.5 Mechanical Load test

Sample No	WTH1903B	Temperature	21°C	Humidity	27%RH	Date	09/02/2021

Load location	Parallel to plain load	Perpendicular to plain load	Observations / Assessment
6 Bottom hinge corner of sash, bottom hinge and hinge protector Horizontally	1000 N (10 sec)	3000 N (10 sec)	Held for 10 seconds
	1000 N (10 sec)	3000 N (10 sec)	
	1000 N (10 sec)	3000 N (10 sec)	
	1000 N (10 sec)	3000 N (10 sec)	
	1000 N (10 sec)	3000 N (10 sec)	
	1000 N (10 sec)	3000 N (10 sec)	
	1000 N (10 sec)	3000 N (10 sec)	
	1000 N (10 sec)	3000 N (10 sec)	
	1000 N (10 sec)	3000 N (10 sec)	
	1000 N (10 sec)	3000 N (10 sec)	
	1000 N (10 sec)	3000 N (10 sec)	

PICTURE OF TEST WINDOW



END OF REPORT