Test Report No:	WTH1709#2-1
Date:	06/09/2017
Testing of:	Single top hung casement window
Tested to:	PAS 24 : 2016
Prepared for:	Nico Manufacturing Ltd

CONTENTS

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For and on behalf of Nico Manufacturing Ltd Test Laboratory

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Date: 14/11/2017

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Date of issue of report 14/11/2017

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TEST REQUESTED BY

Origin of test request

Company Name	Nico Manufacturing Ltd
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Quotation Details

Quotation No.	WTH1709
Dated:	14/08/2017

DETAILS OF TEST

Description	Single top hung
Model / type	Projecting casement window
Make / Brand	Swift System
Date sample received	30/08/2017
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

DETAILS OF SAMPLE

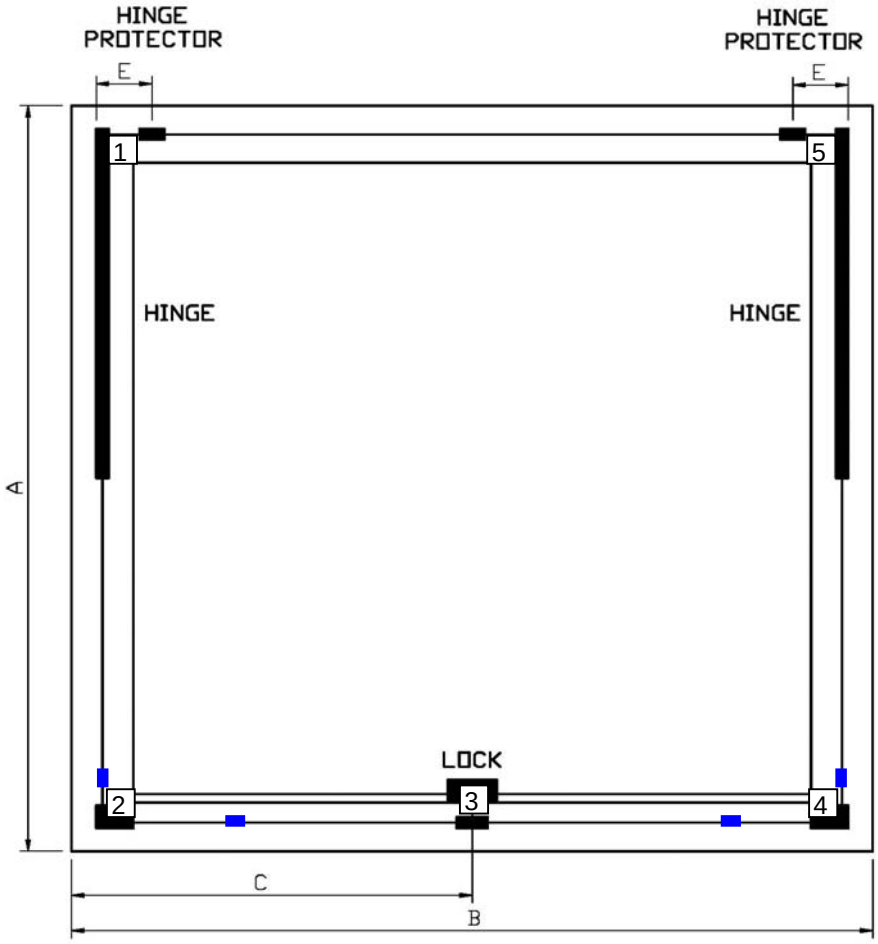
Sample details	Single top hung projecting casement window
Fabricator	Swift Frame Ltd
Material:	PVC-U Swift frame part numbers;Outer frame 5101, sash 5206 Reinforcing; Outer frame, fully reinforced part number SS705 Sash reinforcement SS708
Finish	White
Lock & keeps	Nico Mk2 shootbolt system. Part nos; Gearbox 93905 Shootbolt extensions 93945 Cast zinc keeps, part nos; espag keep 9023, corner keep K2
Hinges & protectors	Nico 24" standard friction hinge 13mm stack height. Part no 7760 Nico Xtra bolt hinge protector 13mm stack height. Part no 8000
Handle	ERA Maxim 3 handed
Fixings	Lock - SFR 4.8 x 38mm c'sk head pierce point Keeps - 4.8 x 38mm c'sk head drill point into head and top and bottom frame 4.8 x 25mm c'sk head pierce point into frame sides Friction hinges - SFR 4.8 x 25mm pan head drill point into sash and frame Hinge protectors - SFR 4.8 x 25mm pan head drill point into sash and frame Run up blocks - 4.8 x 25mm c'sk pierce point
Weather sealing	Co extruded gaskets.
Glass (or infill)	4-20-4mm clear toughened double glazed units
Glazing system	Internally bead glazed GT products Snap-Lok SK001
Sample dimensions	1200mm(w) x 1200mm(h)
Additional information	

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

TEST WINDOW DRAWING



Run up blocks

Weather wedges

A	=	1200	mm
B	=	1200	mm
B1	=		mm
C	=	600	mm
D	=		mm
E	=	50	mm
F	=		mm

MANIPULATION TEST

Sample No	WTH1709B	Temperature	22°C	Humidity	61%RH	Date	06/09/2017

Clause 4.3 Manipulation test a)

Craft knife used to cut away sash profile at side of sash at L/H lock corner of sash, paint scraper used used in attempt to disengage shootbolt from keep. - No entry gained

Craft knife used to cut away more profile at bottom edge of sash at L/H lock corner of sash, 3mm blade screwdriver used in attempt to disengage shootbolt from keep and shootbar from sash. - No entry gained

Craft knife and 3mm blade screwdriver used to cut away sash profile adjacent to centre lock point.
No entry gained

Craft knife and 3mm blaade screwdriver used in attempt to dissengage locking bar from gearbox.
No entry gained

2 off 3mm blade screwdrivers used in attempt to lever L/H sash corner to disengage hinge.
No entry gained

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

INFILL MEDIUM REMOVAL TEST

Sample No	WTH1709B	Temperature	22°C	Humidity	61%RH	Date	06/09/2017

Clause 4.4.2 Infill manual test

Craft knife used to cut vee notch in bottom of sash profile, 6mm blade screwdriver used to dislodge glazing bead, craft knife used to cut vee notch in side sash profile. - No entry gained

MANUAL CHECK TEST

Sample No	WTH1709B	Temperature	22°C	Humidity	62%RH	Date	06/09/2017

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

2 off nail bars used to lever between L/H lock corner and centre lock point - No entry gained

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

2 off nail baars used to lever at centre of top of sash - No entry gained

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

IINFILL MEDIUM REMOVAL TEST

Sample No	WTH1709B	Temperature	21°C	Humidity	61%RH	Date	06/09/2017

Clause 4.4.3 Infill mechanical test

All four corners of the glass 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	WTH1709B	Temperature	22°C	Humidity	62%RH	Date	06/09/2017

Clause 4.3 Manipulation test b)

3mm blade screwdriver and 6mm blade screwdriver used in attempt to remove fixings securing hinge protectors as these were the only fixings visible after menhanical loading.

No entry gained

MECHANICAL LOAD TEST

Clause 4.5 Mechanical Load test

Sample No	WTH1709B	Temperature	22°C	Humidity	62%RH	Date	06/09/2017

Load location	Parallel to plain load	Perpendicular to plain load	Observations / Assessment
1 L/H hinge corner & hinge protector Horizontally	1000 N (10 sec)	3000 N (10 sec)	Held for 10 sec
1 L/H hinge corner & hinge protector Vertically down	1000 N (10 sec)	3000 N (10 sec)	Held for 10 sec
2 L/H lock corner Horizontally	1000 N (10 sec)	3000 N (10 sec)	Held for 10 sec
2 L/H lock corner Vertically up	1000 N (10 sec)	3000 N (10 sec)	Held for 10 sec
3 Centre lock point Horizontally	1000 N (10 sec)	3000 N (10 sec)	Held for 10 sec
3 Centre lock point Vetically up	1000 N (10 sec)	3000 N (10 sec)	Held for 10 sec
4 R/H lock corner Horizontally	1000 N (10 sec)	3000 N (10 sec)	Held for 10 sec
4 R/H lock corner Vertically up	1000 N (10 sec)	3000 N (10 sec)	Held for 10 sec
5 R/H hinge corner & hinge protector Horizontally	1000 N (10 sec)	3000 N (10 sec)	Held for 10 sec
5 R/H hinge corner & hinge protector Vertically down	1000 N (10 sec)	3000 N (10 sec)	Held for 10 sec
	1000 N (10 sec)	3000 N (10 sec)	

PICTURE OF TEST WINDOW

END OF REPORT