



Test Report No: WTH1808#1-1 Nico

Date: 14/03/2018

Testing of: Side hung next to fixed light projecting casement window

Tested to: PAS 24 : 2016

Prepared for: Nico Manufacturing Ltd

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AUTHORISATION

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

Report produced by: D.Kury Position: Principal Test Engineer
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 Date: 21/03/2018
 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
Company Address	109 Oxford Road Clacton on Sea Essex CO15 3TJ
Contact	Ian Harrison
Contact position	Sales Director

Quotation Details

Quotation No.	WTH1808
Dated:	25/01/2018

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DETAILS OF TEST

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

Test Specification	BS 6375-1:2015+A1:2016 Performance of windows & doors. Classification for operation and strength characteristics
Date sample received	13/03/2018
Date testing started	14/03/2018
Date testing finished	15/03/2018
Job No.	WTH1808
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.

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DETAILS OF SAMPLE

Sample details	Side hung next to fixed light projecting casement window
Fabricator	Affordable Window Systems Ltd
Material:	PVC-U Kommerling O70 profile. Profile nos, Sash - 2917, Frame - 2900, Mullion - 2921 Reinforcing - Steel, supplied by Northwest Metals, part nos Sash - 1369, Frame - 1368, Mullion - 1365
Finish	Gloss white
Lock & keeps	Nico RAM bolt - part no 9591222 Nico cast zinc keeps - part no 9119 at top & bottom, 9019 in centre
Hinges & protectors	Nico Standard 16" Friction hinge - Part no 8240 Hing protectors - Nico Xtra bolt 17mm, part no 8100
Handle	Fab & Fix Connoisseur inline, part no SLG201
Fixings	Lock - M4 x 32mm c'sk head drill point Keeps - M4 x 32mm c'sk head drill point to rear, 4.8 x 38mm c'sk head pierce point to front Hinges - 3.9 x 32mm pan head drill point to frame M4 x 32mm c'sk head drill point to sash Hinge protectors - 3.9 x 32mm pan head drill point to frame M4 x 32mm c'sk head drill point to sash
Weather sealing	Co extruded gaskets
Glass (or infill)	4-20-4 mm double glazed units
Glazing system	Internally bead glazed with co extruded gaskets Glazing beads - Kommerling part no 1933 GT Securi clip part nos - SB000 base plate, GT028 yellow packer, SC121 clip
Sample dimensions	1300mm(h) x 1300mm(w) central mullion
Additional information	Run up blocks - Kommerling part no 7199

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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	Pass
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 and to the specific tests carried out within this report.

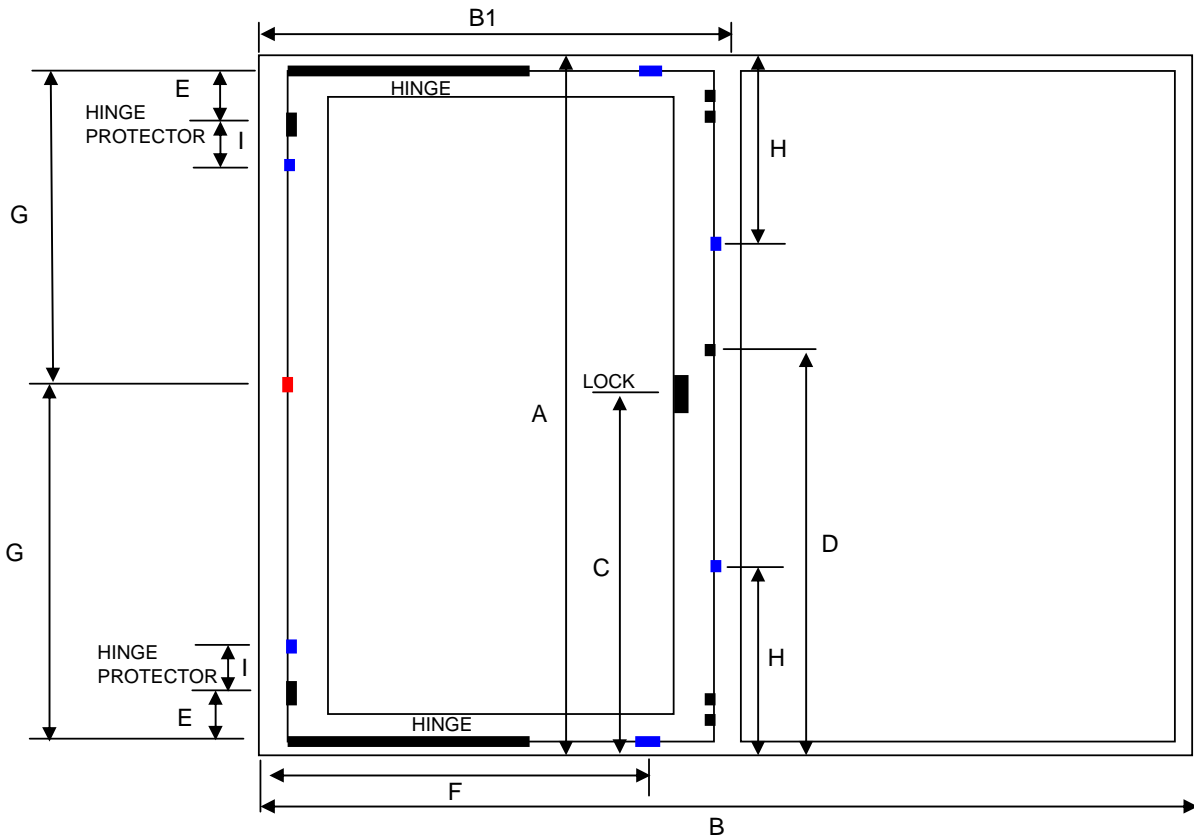
Test specimen details

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



- Run up blocks
- Weather wedges

A	=	1300	mm
B	=	1300	mm
B1	=	650	mm
C	=	650	mm
D	=	760	mm
E	=	100	mm
F	=	550	mm
G	=	610	mm
H	=	360	mm
I	=	70	mm

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MANIPULATION TEST

Sample No	WTH1808A	Temperature	21°C	Humidity	42%RH	Date	15/03/2018
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Clause 4.3 Manipulation test a)

Craft knife used to cut away sash profile adjacent to central locking point, paint scraper used with hand blows in attempt to disengage locking cam. - No entry gained

Craft knife used to cut away sash profile adjacent to lower lock point, paint scraper used with hand blows in attempt to disengage locking cams. - No entry gained

Paint scraper used at lower locking point in attempt to lever sash, wire used in attempt to loop around locking cam. - No entry gained

Craft knife used to cut away sash profile adjacent to bottom hinge protector, 3mm blade screwdriver used in attempt to remove fixings and lever hinge protector. - No entry gained

Paint scraper and 3mm blade screwdriver used in attempt to remove bottom keep, front legs of keep broken off, access gained to centre leg but unable to break. - No entry gained

INFILL MEDIUM REMOVAL TEST

Sample No	WTH1808A	Temperature	21°C	Humidity	44%RH	Date	15/03/2018
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Clause 4.4.2 Infill manual test

Craft knife used to cut vee notch in profile, paint scraper & 3mm blade screwdriver used to remove section of profile. - No entry gained

MANUAL CHECK TEST

Sample No	WTH1808A	Temperature	21°C	Humidity	46%RH	Date	15/03/2018
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Clause 4.6 Manual check test (note tools used and time taken)

2 off Nail bars used to lever midway down hinge side of sash. - No entry gained

2 off Nail bars used to lever between centre and bottom locking 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 300mm from bottom of sash on hinge side. - No entry gained

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

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IINFILL MEDIUM REMOVAL TEST

Sample No	WTH1808B	Temperature	21°C	Humidity	45%RH	Date	14/03/2018
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Clause 4.4.3 Infill mechanical test

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

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

ADDITIONAL MECHANICAL LOADING TEST

Sample No		Temperature	°C	Humidity	%RH	Date	
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Clause 4.7 Additional mechanical loading test

MANIPULATION TEST

Sample No	WTH1808B	Temperature	21°C	Humidity	45%RH	Date	14/03/2018
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Clause 4.3 Manipulation test b)

3mm blade screwdriver used to undo screws fixing hinge protector to sash, all 3 screws almost fully removed.

No entry gained



MECHANICAL LOAD TEST

Clause 4.5 Mechanical Load test

Sample No	WTH1808B	Temperature	21°C	Humidity	45%RH	Date	14/03/2018
Load location	Parallel to plain load	Perpendicular to plain load	Observations / Assessment				
1 Top hinge corner and hinge protectors Vertically down	1000 N (10 sec)	3000 N (10 sec)	Held for 10 seconds				
1 Top hinge corner and hinge protectors Horizontal	1000 N (10 sec)	3000 N (10 sec)	Held for 10 seconds				
2 Top opening corner of sash and mushroom cams Vertically down	1000 N (10 sec)	3000 N (10 sec)	Held for 10 seconds				
2 Top opening corner of sash and mushroom cams Horizontal + mullion pull	1000 N (10 sec)	3000 N (10 sec)	Held for 10 seconds				
3 Centre locking mushroom Vertically down	1000 N (10 sec)	3000 N (10 sec)	Held for 10 seconds				
3 Centre locking mushroom Horizontal + mullion pull	1000 N (10 sec)	3000 N (10 sec)	Held for 10 seconds				
4 Bottom opening corner of sash and mushroom cams Vertically up	1000 N (10 sec)	3000 N (10 sec)	Held for 10 seconds				
4 Bottom opening corner of sash and mushroom cams Horizontal + mullion pull	1000 N (10 sec)	3000 N (10 sec)	Held for 10 seconds				
5 Bottom hinge corner and hinge protectors Vertically up	1000 N (10 sec)	3000 N (10 sec)	Held for 10 seconds				
5 Bottom hinge corner and hinge protectors Horizontal	1000 N (10 sec)	3000 N (10 sec)	Held for 10 seconds				
	1000 N (10 sec)	3000 N (10 sec)					

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PICTURE OF TEST WINDOW



END OF REPORT