


Test Report 8857024.
Smart Systems Limited
Incorporating Smart Extrusions

Introduction.

This report has been prepared by Jack Nicholls and relates to the activity detailed below:

Job/Registration Details	Client Details
Job number: 8857024 Job type: Testing Samples Submitted Start Date: 30/10/2017 Test type: Direct Sample ID: 10174729 Registration: NA Protocol: NA Quality system: NA Registration: NA Protocol: NA Quality system: NA	Smart Systems Limited Incorporating Smart Extrusions Arnolds Way Yatton BS49 4QN United Kingdom

The report has been approved for issue by Mark Manito – Team Manager

Approved For Issue	
	Issue Date: 11 December 2017

Objectives.

Direct Test

Product Scope.

Smart Systems One Smart Wall Bi-Parting Aluminium Door

Report Summary.

The sample was received on 30 October 2017 and the testing was started on 27 November 2017.

The sample submitted complied with the requirements of the test work conducted.

PAS24:2016 Direct Test.

1 off horizontally sliding bi-parting door with two sidelights and with a low threshold

(Sample ID No 10174729)

Date sample received: 30 October 2017

Test Results.

- | | | |
|----|-------------------------------------|---|
| 1. | Manipulation | The test sample met the requirements of the Specification in respect of B.4.3 |
| 2. | Infill Removal | The test sample met the requirements of the Specification in respect of B.4.4 |
| 3. | Mechanical Loading | The test sample met the requirements of the Specification in respect of B.4.5 |
| 4. | Manual Check Test | The test sample met the requirements of the Specification in respect of B.4.6 |
| 5. | Security Hardware and Cylinder Test | The test sample met the requirements of the Specification in respect of Annex A |
| 6. | Letter Plate | None fitted |

B.2 Sample Selection.

The sample submitted for tests were selected using the criteria in B.2 of the Specification. The sample was submitted for test mounted in a 75mm x 100mm timber subframe in accordance with the manufacturer's installation requirements. The test sample was manufactured by the client. Sample description provided by client and not verified by BSI.

B.3 Requirements for Test Apparatus.

The test apparatus for the manual and mechanical tests is shown in figures B.2 to B.5.

B.4 Test Methods.

The method of testing the samples followed the sequence detailed in B.4 of the Specification.

Description of Sample.

Sample Type -	Horizontally sliding bi-parting door with two sidelights and with a low threshold		
Material -	Aluminium		
Construction -	Cleated		
Fittings (each Leaf) -	A two-point locking (two shoot bolts) espagnolette system, key lockable cylinder and one continuous interlock device		
Classification -	D		
Glass -	Double glazed 4-20-4mm toughened glass sealed units		
Panel -	Not applicable		
Glass Retention System -	Internal beads and gaskets		
Sample dimensions -	Overall length:	4500mm	Height: 2660mm
	Left leaf length:	1544mm	Height: 2495mm
	Right leaf length:	1544mm	Height: 2495mm
Date of test -	27 November 2017		
Laboratory temperature -	19.6°C		

Description of Test Sample.

Outer Frame width	4500mm	Outer Frame Material	Aluminium
Outer Frame height	2660mm	Outer Frame Gasket	
Outer Frame Part Numbers		Gasket Type	Wool Pile
Top	IMP115, IMP015,IMP301 IMP114,20MM X 30MM BOX	Manufacturer	Schlegel
Bottom	IMP411, IMP219, IMP616	Product Name	Smart Wall
Lock Side	IMP210, IMP013	Product Code	ACDV205, ACSR011
Hinge Side	IMP210, IMP013	Threshold	
Outer Frame section dimensions		Manufacturer	Smart Systems
Width	53mm	Product name	Smart Wall
Depth	100mm	Product Code	IMP411
Reinforcing:		Materials	Aluminium,
Manufacturer	na	Outer Frame Joint Method	
Product Name	na	Head	Screw Port
Product code	na	Foot	Screw Port
Material	na		

Leaf		Leaf Material:	Aluminium
Leaf Width:	1544mm	Leaf Gasket	
Leaf Height:	2495mm	Gasket type:	Wool Pile
Leaf Part Numbers:		Manufacturer:	Schlegel
Top:	IMP121	Product Name:	Smart Wall
Bottom:	IMP027	Product Code	ACDV 205, ACSR011
Lock side:	IMP042	Leaf Midrail:	
Hinge Side	IMP040, IMP114	Manufacturer:	NA
Leaf section size		Product name:	NA
Width:	74.5MM	Product code:	NA
Depth:	67mm	Material:	NA
Reinforcing to sash interlock		Leaf joint method	
Manufacturer:	Smart Systems	Head:	Glue and Cleat
Product Name:	Smart Wall	Foot:	Glue and Cleat
Product Code:	VG532,533		
Material:	Aluminium		
Bead			
Manufacturer:	Smart Systems		
Product Name:	Smart Wall		
Product Code:	VG12, GL526		
Material:	Aluminium		
Bead Size:	26mm x 22mm		

Description of Test Sample.(continued)

Glazing Unit		Glazing Gasket	
Manufacturer:	Ashton Glass	Gasket Type:	EDPM
Inner Thickness:	6mm	Manufacturer:	Smart Systems
Spacer Material:	Aluminium	Product Name:	Smart Wall
Outer Thickness:	6mm	Product Code	ACVG31, ACGV34
Unit Sizes:	28mm. 1357mm x 2317mm. 711mm x 2477mm.	Glazing Clip	NA
Glazing Tape Details		Manufacturer:	
Manufacturer:	na	Product Name:	
Product Name:	na	Product Code	
Product Code	na		

Hardware			Fixings	Quantity
Hinges:	NA			
Hinge Protectors:	NA			
Lock:	ACSZ042	BT LOCK	ACDV266, ACDV241 M5 X 100MM, M5 X 67MM	10 OFF 4 OFF 4 OFF
Cylinder:	ACIM 442			
Handle:	NA			
Touch Bar:	NA			
Cylinder Support:	ACSZ750,751		M6	4 OFF
Cylinder Escutcheon:	NA			
Keeps:	NA			
Drip Bar	NA			
Additional Hardware	ES 200	Dorma Auto Door Gearing.	ACMC 109	35 OFF
	ACIM121	Bracket for auto door gear	M8 x25mm Bolts.	8 OFF
		Shoot bolt support angles	M6 X 30mm	4 OFF
		Interlock Support Angles, Top	M6 X 50mm Nuts and Bolts.	12 off.
		Interlock Support Angles, Bottom	M6 Nuts And Bolts. Or fitted into structure.	8 off
		Auto Door Header Box Support Angles.	PUA 028.	10 OFF

Test Results.

Performance Requirements

Assessment

Clause B.4.3 Manipulation Test A

The sample was mounted, vertically and square, in the test rig as described in B.3.1.

The test was carried out in accordance with the given objective of this Annex using the procedure detailed in B.4.3.1 and the tools described in Group A and Group B where applicable.

The sample was closed and locked and the key removed. The overall time limit is 15 minutes but no one technique was used for more than three minutes.

A craft knife and a flat blade screwdriver were used to attempt to expose and manipulate the locking mechanism.

No entry could be affected by any technique within three minutes.

Pass

Clause B.4.4 Cutting and Infill Medium Removal Test

B.4.4.2 Infill Manual Test

The sample was mounted, vertically and square, in the test rig as described in B.3.1.

The test was carried out in accordance with the requirements of this Annex using the tools described in Group A and Group B where applicable.

A craft knife and paint scraper were used to cut the glazing gaskets.

No entry could be affected within three minutes.

Pass

B.4.4.3 Infill Mechanical Test

The sample was mounted, vertically and square, in the test rig as described in B.3.1.

The test was carried out with a perpendicular-to-plane load of 2.0kN applied to each corner of the glazing.

No evidence of bead failure. No entry could be affected.

Pass

Clause B.4.4.4 Manual Cutting Test

Not applicable

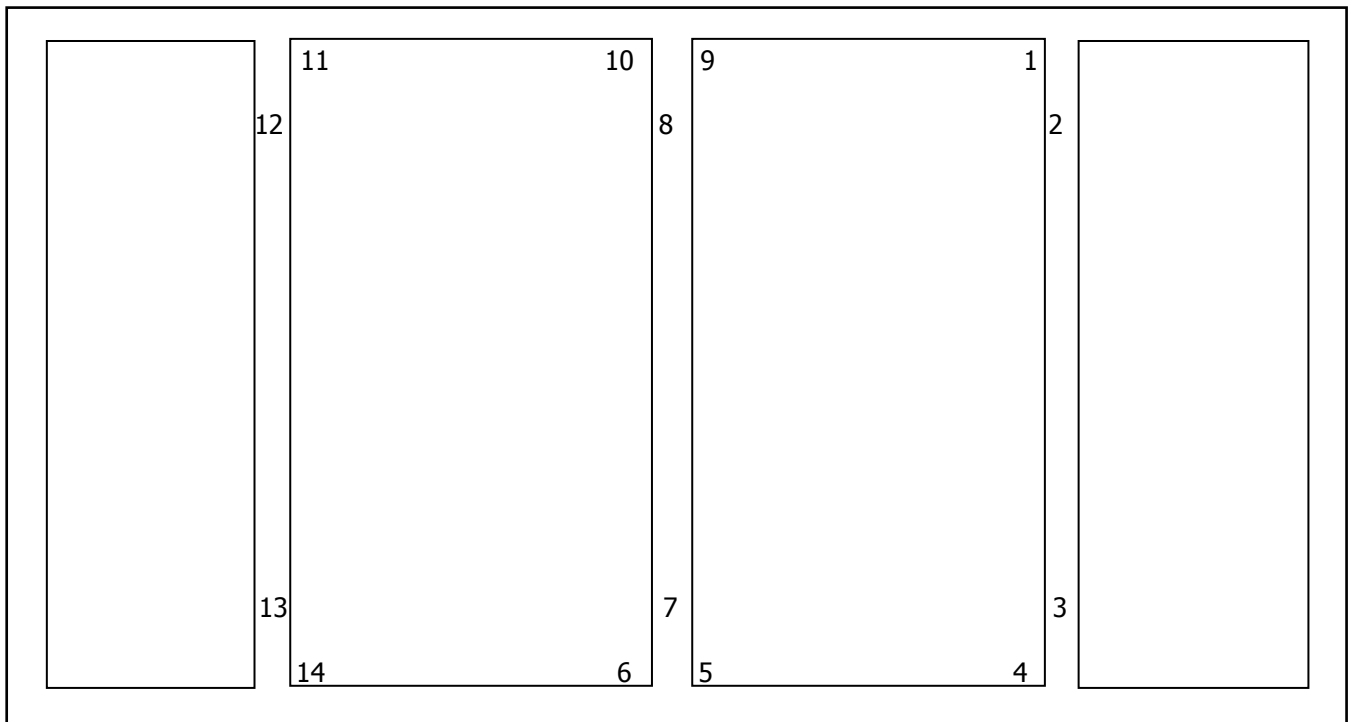
Test Results (Continued).

B.4.5 Mechanical Loading Test

The sample was mounted, vertically and square, in the test rig.

The test was carried out in accordance with the procedures detailed in B.4.5, using loading cases B.1 to B.6 and Figures B.12 for loading sequence, and using the test apparatus detailed in Figures B.6 to B.6.

Diagram of load points



B.4.5.2 Loading Procedure

Point of application of load

First Sequence

1. Non Meeting Edge Corner (upper right jamb of right leaf)

Standard loading case used: 1

Load applied in plane: 4.5kN in direction of opening

Load applied perpendicular to plane: 1.5kN applied for 10 seconds

Load applied in plane: 1.5kN vertical away from edge

Load applied perpendicular to plane: 4.5kN applied for 10 seconds

Test Results (Continued).

B.4.5.2 Loading Procedure (continued)

Point of application of load

First Sequence (continued)

2. Continuous Interlock Device (upper right jamb of right leaf)

Standard loading case used: 4

Load applied perpendicular to plane: 4.5kN at right angles to the edge and towards the opposite edge
4.5kN at the mullion to oppose the above load

3. Continuous Interlock Device (lower right jamb of right leaf)

Standard loading case used: 4

Load applied perpendicular to plane: 4.5kN at right angles to the edge and towards the opposite edge
4.5kN at the mullion to oppose the above load

4. Non Meeting Edge Corner (lower right jamb of right leaf)

Standard loading case used: 1

Load applied in plane: 4.5kN in direction of opening

Load applied perpendicular to plane: 1.5kN applied for 10 seconds

Load applied in plane: 1.5kN vertical away from edge

Load applied perpendicular to plane: 4.5kN applied for 10 seconds

5. Shoot Bolt (threshold of right leaf)

Standard loading case used: 5

Load applied in plane: 1.5kN centred over loading point and towards the opposite edge

Load applied perpendicular to plane: 4.5kN applied for 10 seconds

6. Shoot Bolt (threshold of left leaf)

Standard loading case used: 5

Load applied in plane: 1.5kN centred over loading point and towards the opposite edge

Load applied perpendicular to plane: 4.5kN applied for 10 seconds

Test Results (Continued).

B.4.5.2 Loading Procedure (continued)

Point of application of load

First Sequence (continued)

7. Meeting Edge Corner (lower left jamb of right leaf)

Standard loading case used: 2

Load applied perpendicular to plane: 4.5kN at right angles to the edge and towards the opposite edge
4.5kN at the mullion to oppose the above load

Load applied in plane: 1.5kN vertical away from edge
Load applied perpendicular to plane: 1.5kN applied for 10 seconds

8. Meeting Edge Corner (upper left jamb of right leaf)

Standard loading case used: 2

Load applied perpendicular to plane: 4.5kN at right angles to the edge and towards the opposite edge
4.5kN at the mullion to oppose the above load

Load applied in plane: 1.5kN vertical away from edge
Load applied perpendicular to plane: 1.5kN applied for 10 seconds

9. Shoot Bolt (head of right leaf)

Standard loading case used: 5

Load applied in plane: 1.5kN centred over loading point and towards the opposite edge
Load applied perpendicular to plane: 4.5kN applied for 10 seconds

10. Shoot Bolt (head of left leaf)

Standard loading case used: 5

Load applied in plane: 1.5kN centred over loading point and towards the opposite edge
Load applied perpendicular to plane: 4.5kN applied for 10 seconds

Test Results (Continued).

B.4.5.2 Loading Procedure (continued)

Assessment

Point of application of load

First Sequence (continued)

11. Non Meeting Edge Corner (upper left jamb of left leaf)

Standard loading case used: 1

Load applied in plane: 4.5kN in direction of opening

Load applied perpendicular to plane: 1.5kN applied for 10 seconds

Load applied in plane: 1.5kN vertical away from edge

Load applied perpendicular to plane: 4.5kN applied for 10 seconds

12. Continuous Interlock Device (upper left jamb of left leaf)

Standard loading case used: 4

Load applied perpendicular to plane: 4.5kN at right angles to the edge and towards the opposite edge
4.5kN at the mullion to oppose the above load

13. Continuous Interlock Device (lower left jamb of left leaf)

Standard loading case used: 4

Load applied perpendicular to plane: 4.5kN at right angles to the edge and towards the opposite edge
4.5kN at the mullion to oppose the above load

14. Non Meeting Edge Corner (lower left jamb of left leaf)

Standard loading case used: 1

Load applied in plane: 4.5kN in direction of opening

Load applied perpendicular to plane: 1.5kN applied for 10 seconds

Load applied in plane: 1.5kN vertical away from edge

Load applied perpendicular to plane: 4.5kN applied for 10 seconds

No entry gained

Pass

Test Results (Continued).

Clause 4.3 Manipulation (Test B)

Assessment

The sample was mounted vertically in the test rig as described in Clause 3.

The test was carried out in accordance with the given objectives of this Clause using the tools specified in A.2.1

The key for the lockable hardware was removed.

No fixing were exposed during mechanical loading.

Pass

Clause B.4.6 Manual Check Test

The sample was mounted, vertically and square, in the test rig as described in B.3.1.

The test was carried out in accordance with the given objectives of this clause using the procedure detailed in B.4.6.3 and the tools described in B.4.6.2.

No one technique was used for more than 3 minutes.

No alternative method of entry could be found.

Pass

Clause B.4.7 Additional Mechanical Loading Test

Not applicable – no alternative method of entry found during manual check testing

Clause B.4.3 Letter Plates

None fitted

Test Results (Continued).

Annex A Security Hardware and Cylinder Test

Assessment

Annex A.3.2 (Part 1)

The sample was mounted, vertically and square, in the test rig as described in Clause 3.1.

The test was carried out in accordance with the given objectives of this Annex using the procedure detailed in Annex A.3.1 and the tools described in A.2.

Mole grips were used to snap cylinder and a flat bladed screwdriver was then used to try and manipulate locking.

No entry could be affected within three minutes.

Pass

Annex A.3.2 (Part 2)

The sample was mounted, vertically and square, in the test rig as described in Clause 3.1.

The test was carried out in accordance with the given objectives of this Annex using the procedure detailed in Annex A.3.1 and the tools described in A.2.

The sample was closed and locked and the key removed.

The total attack time was three minutes and the total rest time was seven minutes.

No entry could be affected within three minutes.

Pass

Test Sample.

Sample Id	ER Number	Description
1	10174729	Aluminium Bi-Parting Door

Description of Test Sample.

Sample Description
1 off horizontally sliding bi-parting door with two sidelights and with a low threshold

Test Requirements.

PAS24 Door Direct Test

Clause	Requirements
Results table	<i>PAS24 Door Direct Test</i>

Summary of Test Comments.

Clause	Comments
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Glossary of Terms.

PASS: Complies. Tested by BSI engineers at BSI laboratories.

PASS1: Complies. Witnessed by BSI engineers in manufacturers laboratory.

PASS2: Complies. Tests carried out by third party lab; results accepted by BSI.

PASS*: Report resulted in uncertainty and states that Compliance is more probable than non-compliance.

FAIL: Non compliance – Product does not meet the requirements of this clause.

FAIL*: Report resulted in uncertainty and states that Non-compliance is more probable than compliance.

N/A: Not applicable to design under consideration.

N/T: Not tested due to similarity to previously tested item; reference earlier test report.

Conditions of Issue.

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*** End of Report ***