Test Report 8563970.

Smart Systems Limited

Incorporating Smart Extrusions

...making excellence a habit.

Introduction.

This report has been prepared by Adam Pearce and relates to the activity detailed below:

Job/Registration Details		Client Details
Job number:	**8563970**	Smart Systems Limited
Job type:	Testing Samples Submitted	Incorporating Smart Extrusions
Start Date:	23/07/2016	Arnolds Way
Test type:	Direct	Yatton
Sample ID:	10164479	BS49 4QN
Registration:	**NA**	United Kingdom
Protocol:	NA	
Quality system:	NA	
Registration:	**NA**	
Protocol:	NA	
Quality system:	NA	

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

Approved For Issue	
M. Manito	Issue Date:26 October 2016

Objectives.

Direct test

Product Scope.

Smart Systems Smart Wall Double Door

Report Summary.

The sample was received on 24 June 2016 and the testing was started on 24 June 2016.

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

Description of Test Sample.

Manufacturer	Smart systems
Product Range Name	Smart wall
Configuration	Double door set
Orientation	Open out

Outer Frame width	2400	**Outer Frame Material**	ALUMINIUM
Outer Frame height	2500	**Outer Frame Gasket**	
Outer Frame Part Numbers		Gasket Type	WOOL PILE
Top	IMP110,IMP011	Manufacturer	REDDIPLEX, SCHLEGEL
Bottom	IMP263,IMP261	Product Name	
Lock Side	NA	Product Code	ACSH035,ACVL033
Hinge Side	IMP210,013,035	**Threshold**	
Outer Frame section dimensions		Manufacturer	SMART SYSTEMS
Width	53MM	Product name	SMART WALL
Depth	100MM	Product Code	IMP263,261
Reinforcing:		Materials	ALUMINIUM
Manufacturer	NA	**Outer Frame Joint Method**	
Product Name	NA	Head	SCREWPORT, BRACKET
Product code	NA	Foot	SCREWPORT
Material	NA		

Leaf		**Leaf Material:**	ALUMINIUM
Leaf Width:	1121MM	**Leaf Gasket**	
Leaf Height:	2413MM	Gasket type:	WOOLPILE
Leaf Part Numbers:		Manufacturer:	REDDIPLEX, SCHLEGEL
Top:	IMP120	Product Name:	
Bottom:	IMP027	Product Code	ACSH035,ACVL033
Lock side:	IMP039,IMP040	**Leaf Midrail:**	
Hinge Side	IMP036	Manufacturer:	SMART SYSTEMS
Leaf section size		Product name:	SMART WALL
Width:	64MM	Product code:	IMP034
Depth:	67MM	Material:	ALUMINIUM
Reinforcing		**Leaf joint method**	
Manufacturer:	NA	Head:	CLEAT AND SCREW, GLUE
Product Name:	NA	Foot:	CLEAT AND SCREW, GLUE
Product Code:	NA		
Material:	NA		
Bead			
Manufacturer:	**SMART SYSYEMS**		
Product Name:			
Product Code:	**VG12,GL526**		
Material:	**ALUMINIUM**		
Bead Size:	**22MM X 26MM**		

Description of Test Sample. (Continued)

Glazing Unit		**Glazing Gasket**	
Manufacturer:	ASHTON GLASS	Gasket Type:	EDPM
Inner Thickness:	6MM	Manufacturer:	SEMPERIT
Spacer Material:	16MM	Product Name:	
Outer Thickness:	6MM	Product Code	ACVG31, ACVG34
Unit Sizes:	980X737, 980X1323	**Glazing Clip**	
Glazing Tape Details		Manufacturer:	NA
Manufacturer:	NA	Product Name:	NA
Product Name:	NA	Product Code	NA
Product Code	NA		

Hardware	**Manufacturer**	**Product Code/Description**	**Fixings**	**Quantity**
Hinges:	ASSA ABLOY	ACIM424, OVER HEAD CLOSURE. BOTTOM PIVOT	M5 AND M6 MACHINE SCREWS WITH M6 NUTS.	2
Hinge Protectors:	NA			
Lock:	ALPRO	48AL2400-LP VORTEX MAG LOCKS.	M6 AND M4 MACHINE SCREWS.	2
Cylinder:	NA			
Handle:	NA			
Touch Bar:	NA			
Cylinder Support:	NA			
Cylinder Escutcheon:	NA			
Keeps:	NA			
Drip Bar	VL72			
Additional Hardware	ALPRO	2.0AMP POWER SUPPLY.	NA	2

PAS24:2012 Direct Test

Product Description.

1 off double leaf open out glaze in hinged door assembly with glass above and below midrail and low threshold

(Sample ID No 10164479)

Date sample received: 24 June 2016

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 infill removal	The test sample met the requirements of the Specification in respect of B.4.4.3
4.	Mechanical loading	The test sample met the requirements of the Specification in respect of B.4.5
5.	Manual check test	The test sample met the requirements of the Specification in respect of B.4.6
6.	Soft body impact	The test sample met the requirements of the Specification in respect of B.4.8
7.	Hard body impact	The test sample met the requirements of the Specification in respect of B.4.9.2.2
8.	Security hardware and cylinder test	Not applicable.
9.	Letter plate	Not fitted.

B.2 Sample Selection.

The samples submitted for tests were selected using the criteria in B.2 of the Specification.
Each sample was submitted for test mounted in a 75mm x 100mm timber subframe in accordance with the manufacturer's installation requirements.
Sample manufactured by client

B.4 Test Methods.

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

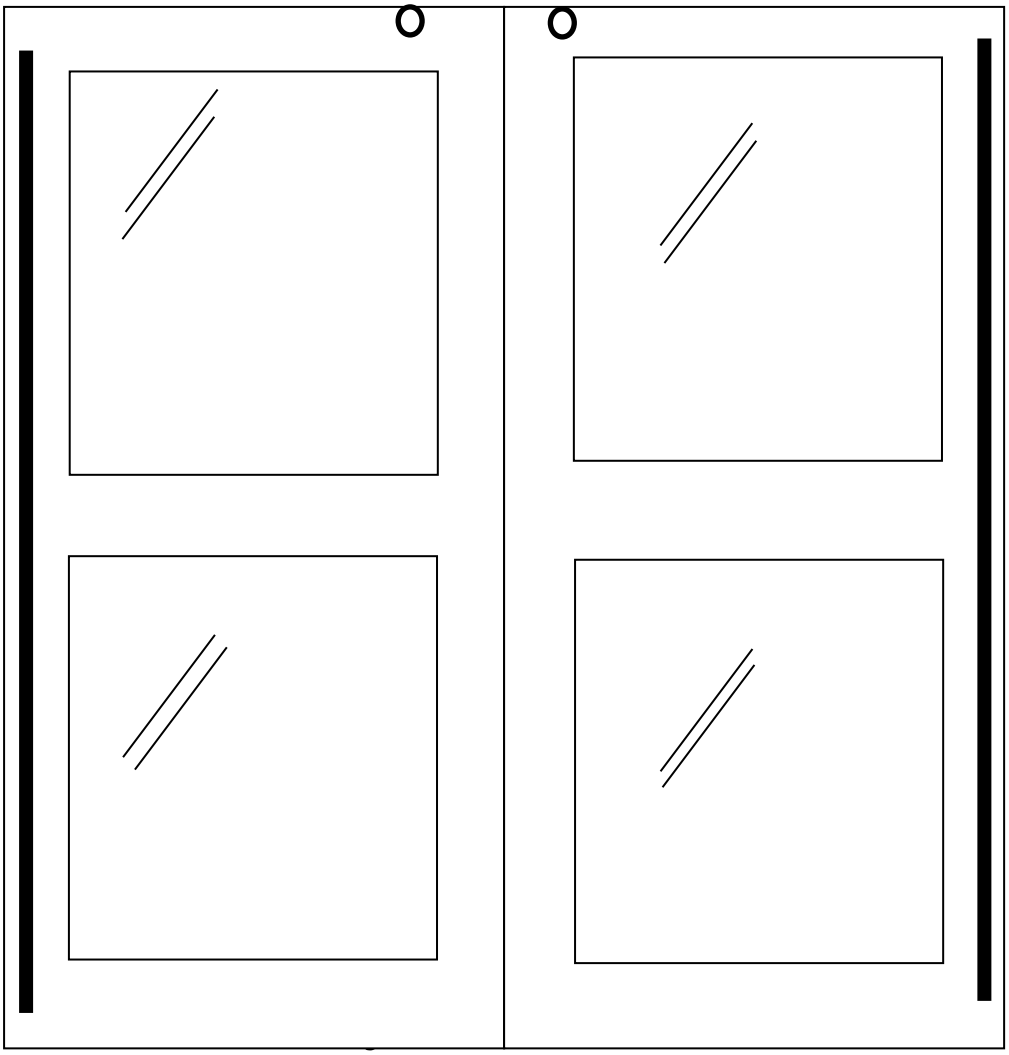
B.3 Requirements for Test Apparatus.

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

Description of Sample.

Sample type -	Double leaf open out glaze in hinged door assembly with glass above and below midrail and low threshold
Material -	Aluminium
Finish -	White
Fittings -	A two point (D KT) Alpro (two Mag Locks) Mag Lock system with continuous hinges
Weathersealing -	Wool Pile
Glass -	Double glazed with 6-16-6mm toughened glass sealed units
Panel -	Not applicable
Glass retention system -	Internal beads and gaskets
Sample dimensions -	Overall - Length: 2400mm Height: 2500mm Each Leaf - Length: 1121mm Height: 2413mm
Date of test -	24 June 2016
Laboratory temperature -	19.6°C
Laboratory humidity -	50.6%

Elevation Drawing of Door Assembly.



▌ - Hinge

O - Mag Lock

Test Results.

CLAUSE 7 PERFORMANCE REQUIREMENTS **ASSESSMENT**

B.4.3 Manipulation 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 objective of this Annex using the procedure detailed in B.4.3.1 and the tools described in Group A and B where applicable.

The sample was closed and Mag Locks were on.
Although there is no overall time limit no one technique was used for more than 3 minutes.

The tools were ineffective.

No entry could be effected by any technique within 3 minutes Pass

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 tools in Group A and B where applicable.

The tools were ineffective. No entry could be effected within 3 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 and each corner of the boundaries of components in turn as specified.

No evidence of bead failure
No entry could be effected Pass

B.4.4.4 Manual Cutting Test

Not Applicable

Test Results (Continued).

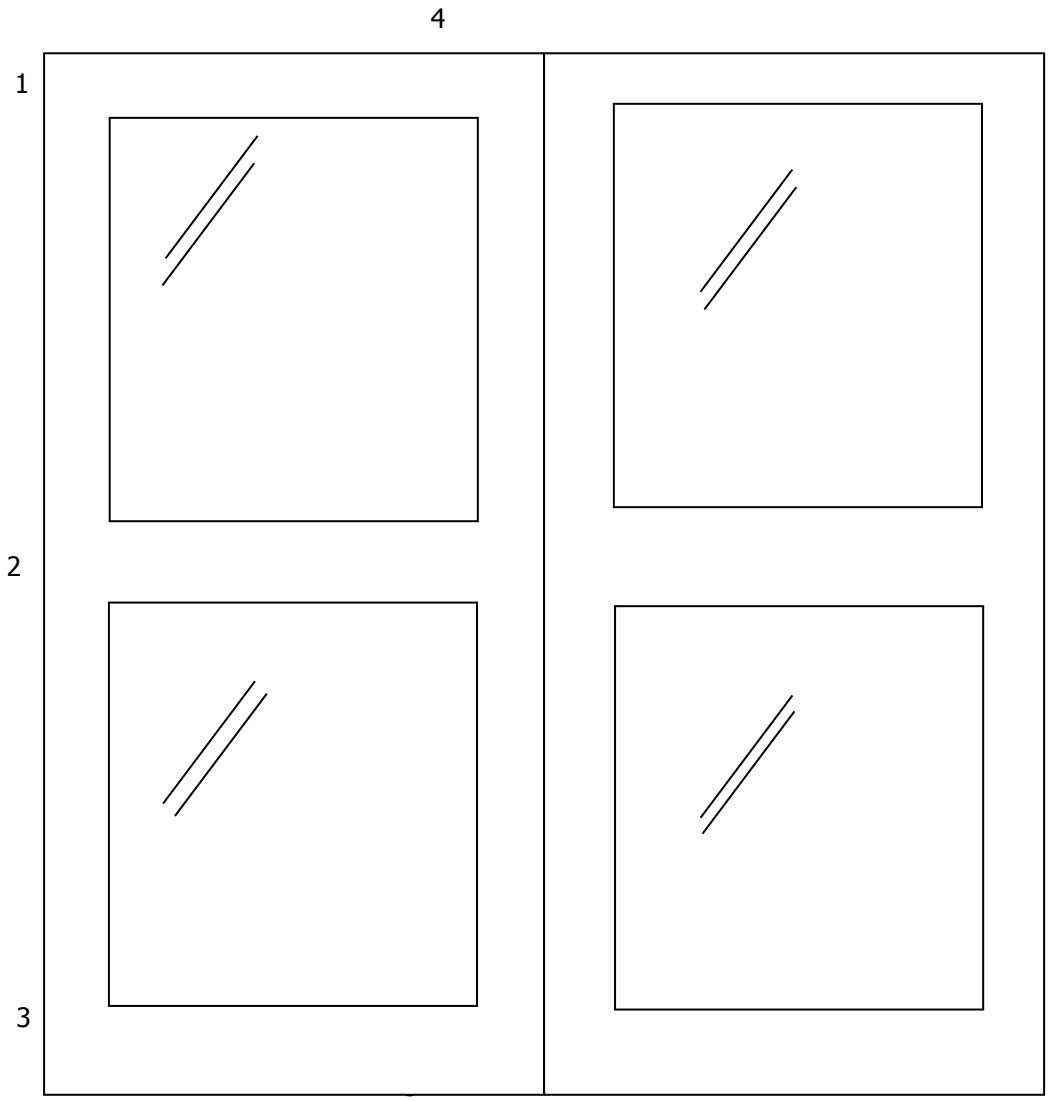
PERFORMANCE REQUIREMENTS

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.9.

Diagram of points of application of loads



Test Results (Continued).

PERFORMANCE REQUIREMENTS

B.4.5 Mechanical Loading Test

B.4.5.2 Loading Procedures

Point of application of load

First Sequence **ASSESSMENT**

1. Top of continuous hinge (upper left jamb)

   Standard loading case used: 8
   Load applied in plane: 1.5kN at right angles to the edge and towards the opposite edge
   Load applied perpendicular to plane: 4.5kN applied for 10 seconds

2. Centre of continuous hinge (centre left jamb)

   Standard loading case used: 9
   Load applied in plane: 1.5kN at right angles to the edge and towards the opposite edge
   Load applied perpendicular to plane: 4.5kN applied for 10 seconds

3. Bottom of continuous hinge (lower left jamb)

   Standard loading case used: 10
   Load applied in plane: 1.5kN at right angles to the edge and towards the opposite edge
   Load applied perpendicular to plane: 4.5kN applied for 10 seconds

4. Mag Lock (Head of left leaf)

   Standard loading case used: 12
   Load applied in plane: 1.5kN at right angles to the edge and towards the opposite edge
   Load applied perpendicular to plane: 4.5kN applied for 10 seconds

No entry effected Pass

Test Results (Continued).

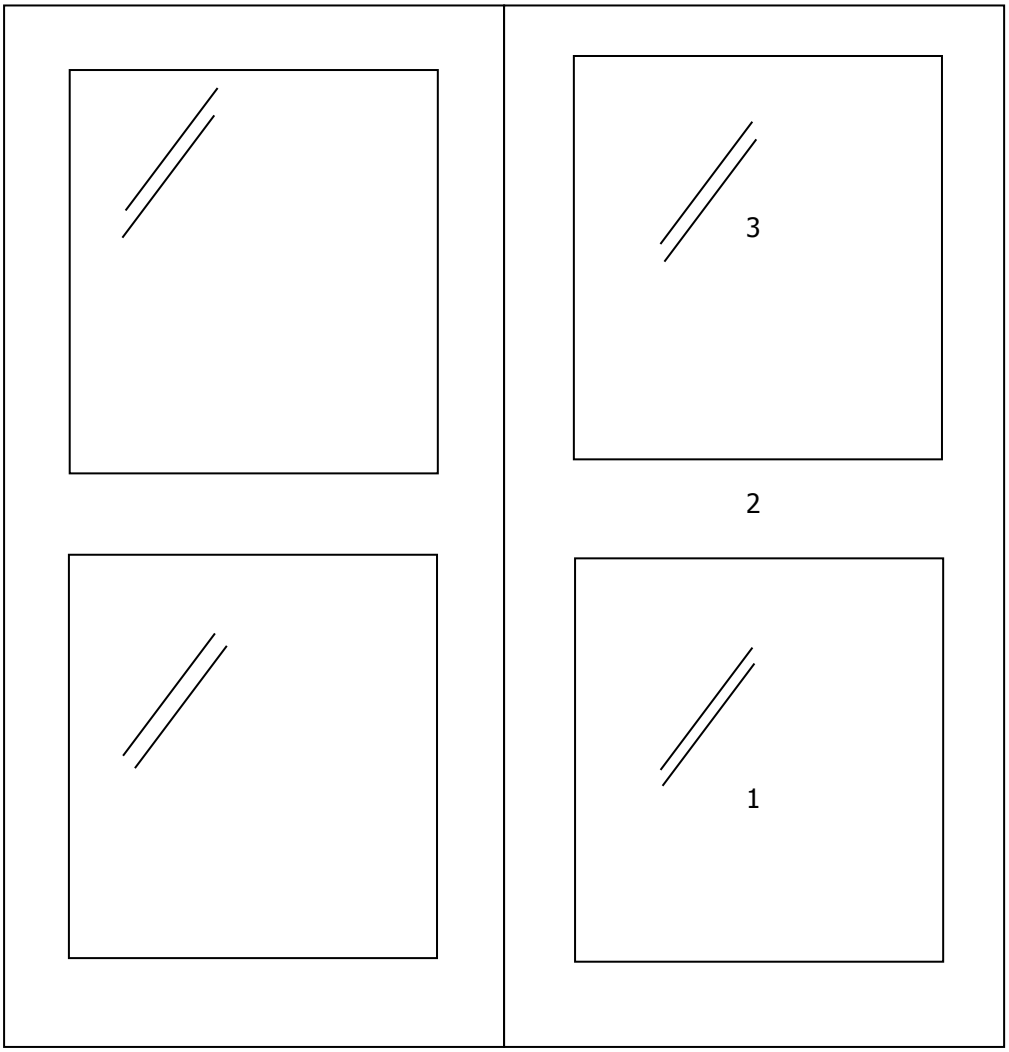
PERFORMANCE REQUIREMENTS

B.4.8 Soft Body Impact Test **ASSESSMENT**

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, objectives and procedures detailed in B.4.8.1 using the impact point and procedure described in B.4.8.2 and B.4.8.3 and Figure B.10

Diagram of points of application of loads



Test Results (Continued).

PERFORMANCE REQUIREMENTS

B.4.8 Soft Body Impact Test **ASSESSMENT**

Impact point	Position from floor level	Effect
1	0.80m Lower Infill	None
2	1.25m Centre of Midrail	None
3	Centre of Upper Infill	None

No entry effected Pass

Test Results (Continued).

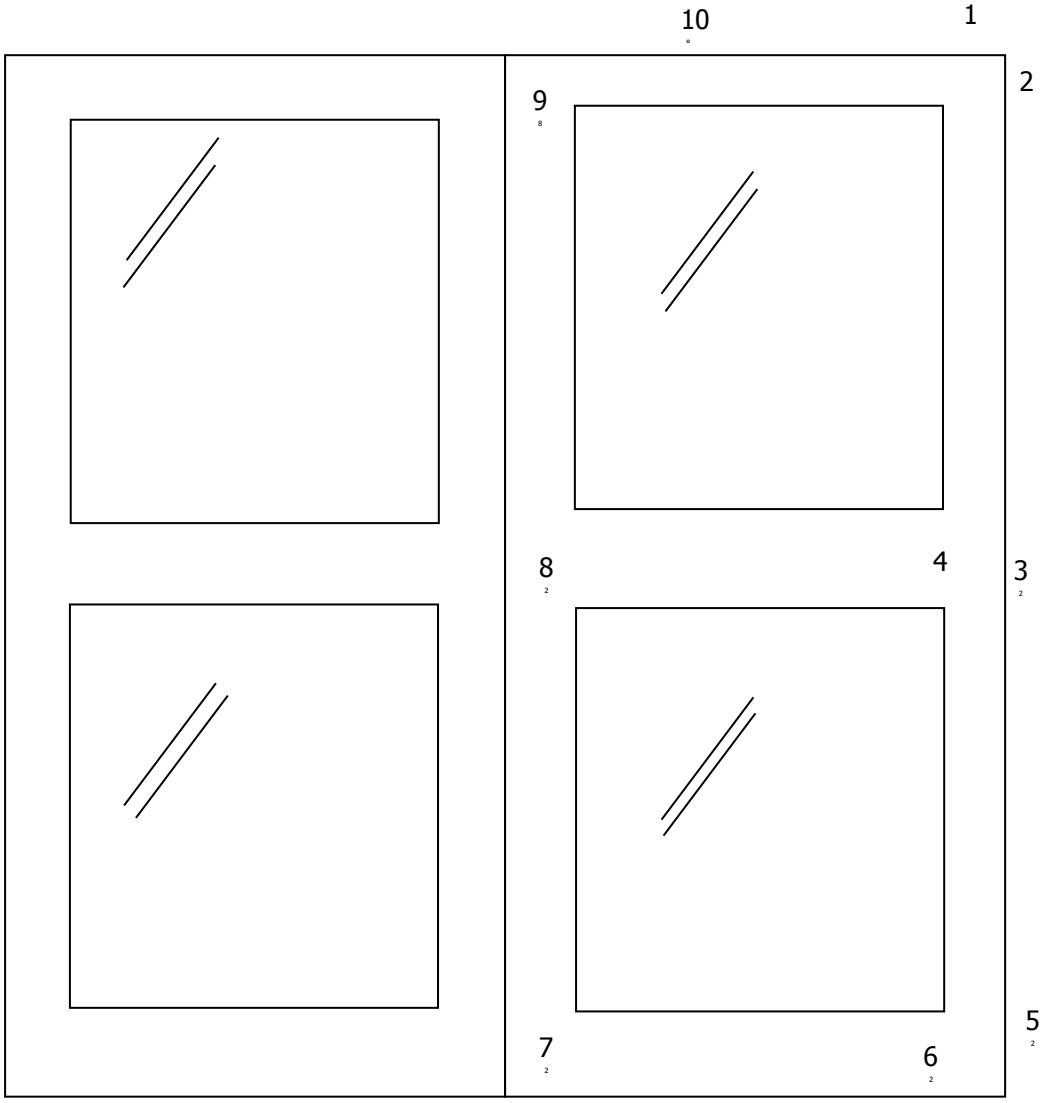
PERFORMANCE REQUIREMENTS

B.4.9 Hard body impact 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, objectives and procedures detailed in B.4.9.1, B.4.9.2.1, B.4.9.2.2, B.4.9.2.3 using procedure B.4.9.3, using the test apparatus detailed in B.11 using the impact sequence in figure B.14.

Diagram of points of application of loads



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Test Results (Continued).

ASSESSMENT

PERFORMANCE REQUIREMENTS

B.4.9 Hard body impact test (continued)

Impact point	Position	Effect
1	Corner	None
2	Hinge	None
3	Hinge	None
4	Midrail	None
5	Hinge	None
6	Corner	None
7	Corner	None
8	Midrail	None
9	Corner	None
10	Mag Lock	None

No entry effected — Pass

Photograph of Sample.

Test Sample.

Sample Id	ER Number	Description
1	10164479	Aluminium Double Door

Description of Test Sample.

Sample Description
1 off double leaf open out glaze in hinged door assembly with glass above and below midrail and low threshold

Test Requirements.

PAS24 Direct Test

Clause	Requirements
As required	**Test and Assessment** Please see results table for testing and assessment of samples as detailed. *See Table A - PAS24 Direct Test*

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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BSI
Kitemark House
Maylands Avenue
Hemel Hempstead
Hertfordshire
HP2 4SQ

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*** End of Report ***