


**Test Report 8563970.**  
Smart Systems Limited  
Incorporating Smart Extrusions

## Introduction.

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

Job/Registration Details	Client Details
<b>Job number:</b> 8563970 Job type: Testing Samples Submitted Start Date: 23/07/2016 Test type: Direct Sample ID: 10164479 <b>Registration:</b> NA Protocol: NA Quality system: NA <b>Registration:</b> 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: 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.

<b>Manufacturer</b>	Smart systems
<b>Product Range Name</b>	Smart wall
<b>Configuration</b>	Double door set
<b>Orientation</b>	Open out

<b>Outer Frame width</b>	2400	<b>Outer Frame Material</b>	ALUMINIUM
<b>Outer Frame height</b>	2500	<b>Outer Frame Gasket</b>	
<b>Outer Frame Part Numbers</b>		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	<b>Threshold</b>	
<b>Outer Frame section dimensions</b>		Manufacturer	SMART SYSTEMS
Width	53MM	Product name	SMART WALL
Depth	100MM	Product Code	IMP263,261
<b>Reinforcing:</b>		Materials	ALUMINIUM
Manufacturer	NA	<b>Outer Frame Joint Method</b>	
Product Name	NA	Head	SCREWPORT, BRACKET
Product code	NA	Foot	SCREWPORT
Material	NA		

<b>Leaf</b>		<b>Leaf Material:</b>	ALUMINIUM
Leaf Width:	1121MM	<b>Leaf Gasket</b>	
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	<b>Leaf Midrail:</b>	
Hinge Side	IMP036	Manufacturer:	SMART SYSTEMS
<b>Leaf section size</b>		Product name:	SMART WALL
Width:	64MM	Product code:	IMP034
Depth:	67MM	Material:	ALUMINIUM
<b>Reinforcing</b>		<b>Leaf joint method</b>	
Manufacturer:	NA	Head:	CLEAT AND SCREW, GLUE
Product Name:	NA	Foot:	CLEAT AND SCREW, GLUE
Product Code:	NA		
Material:	NA		
<b>Bead</b>			
Manufacturer:	<b>SMART SYSYEMS</b>		
Product Name:			
Product Code:	<b>VG12,GL526</b>		
Material:	<b>ALUMINIUM</b>		
Bead Size:	<b>22MM X 26MM</b>		

## Description of Test Sample. (Continued)

<b>Glazing Unit</b>		<b>Glazing Gasket</b>	
Manufacturer:	ASHTON GLASS	Gasket Type:	EDPM
Inner Thickness:	6MM	Manufacturer:	SEMPERIT
Spacer Material:	16MM	Product Name:	
Outer Thickness:	6MM	Product Code	ACVG31, ACGV34
Unit Sizes:	980X737, 980X1323	<b>Glazing Clip</b>	
<b>Glazing Tape Details</b>		Manufacturer:	NA
Manufacturer:	NA	Product Name:	NA
Product Name:	NA	Product Code	NA
Product Code	NA		

<b>Hardware</b>	<b>Manufacturer</b>	<b>Product Code/Description</b>	<b>Fixings</b>	<b>Quantity</b>
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.

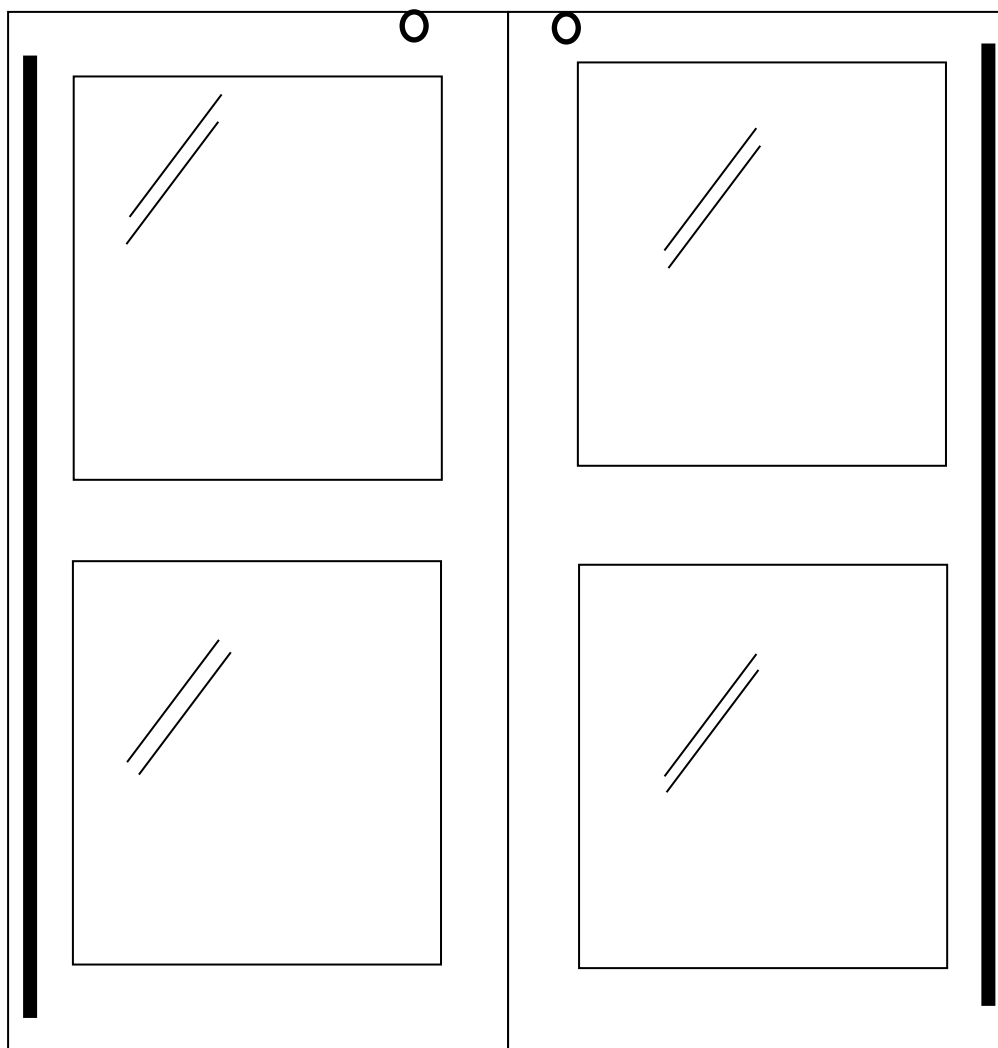
## B.3 Requirements for Test Apparatus.

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

## Description of Sample.

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

### Elevation Drawing of Door Assembly.



- ▬ - Hinge
- - 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).

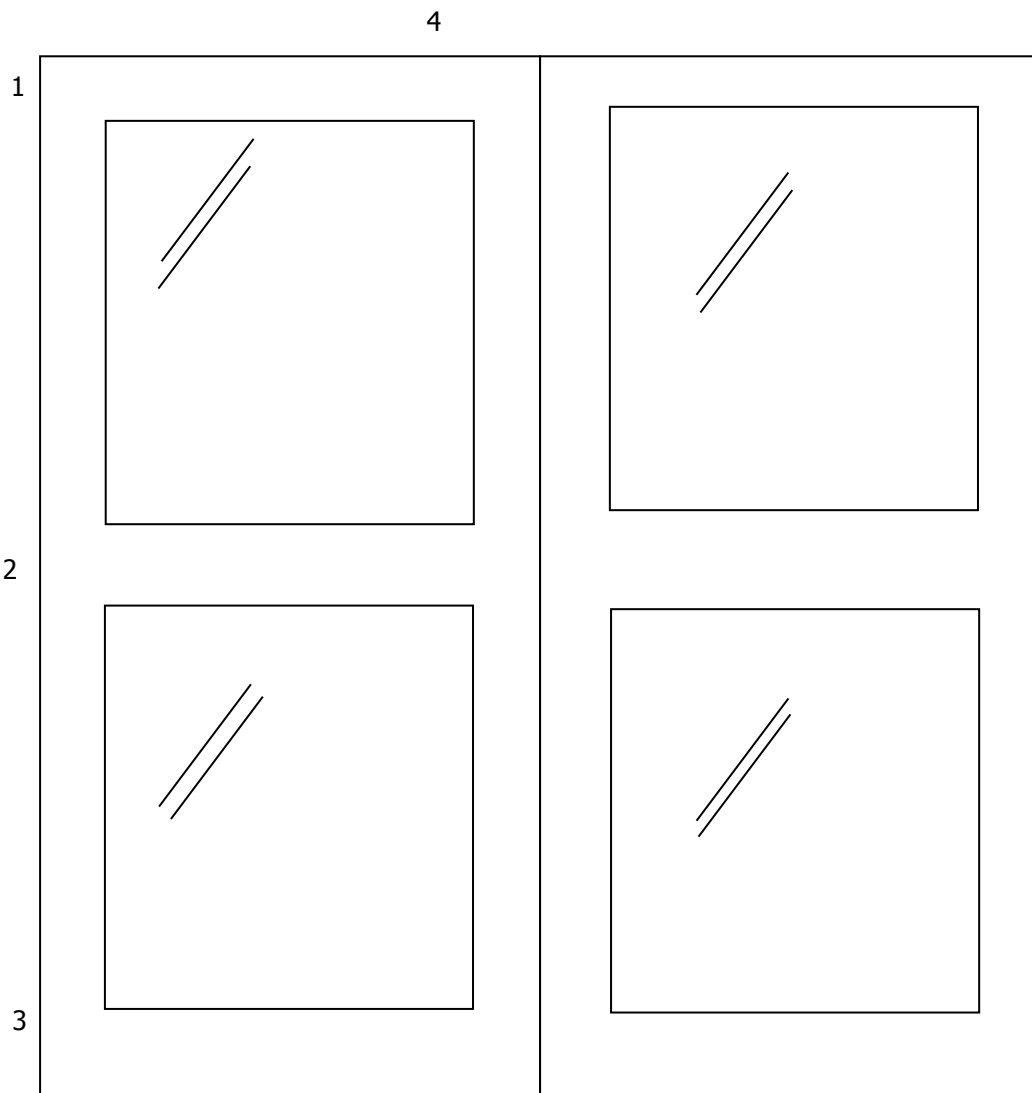
## PERFORMANCE REQUIREMENTS

### 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

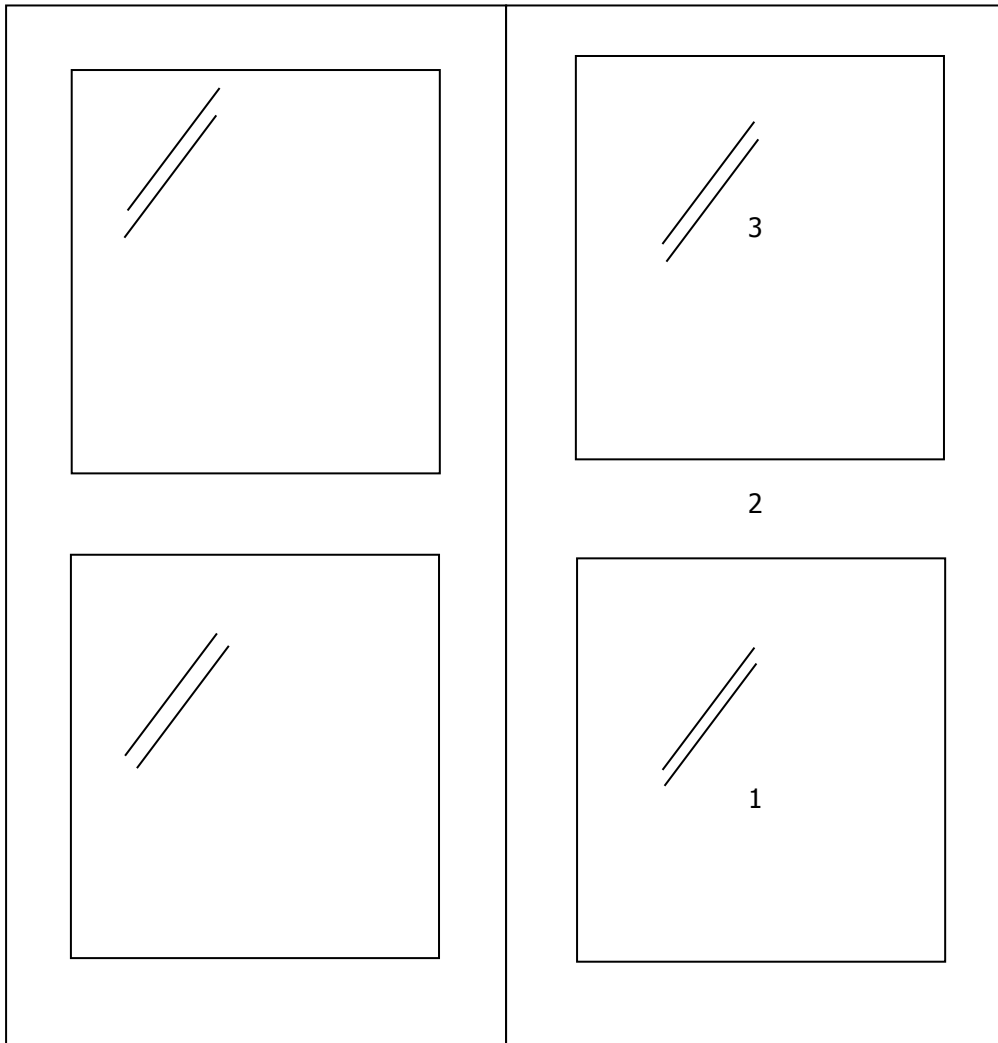
### B.4.8 Soft Body Impact Test

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

## ASSESSMENT



## Test Results (Continued).

### PERFORMANCE REQUIREMENTS

#### B.4.8 Soft Body Impact Test

#### ASSESSMENT

<b>Impact point</b>	<b>Position from floor level</b>	<b>Effect</b>
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).

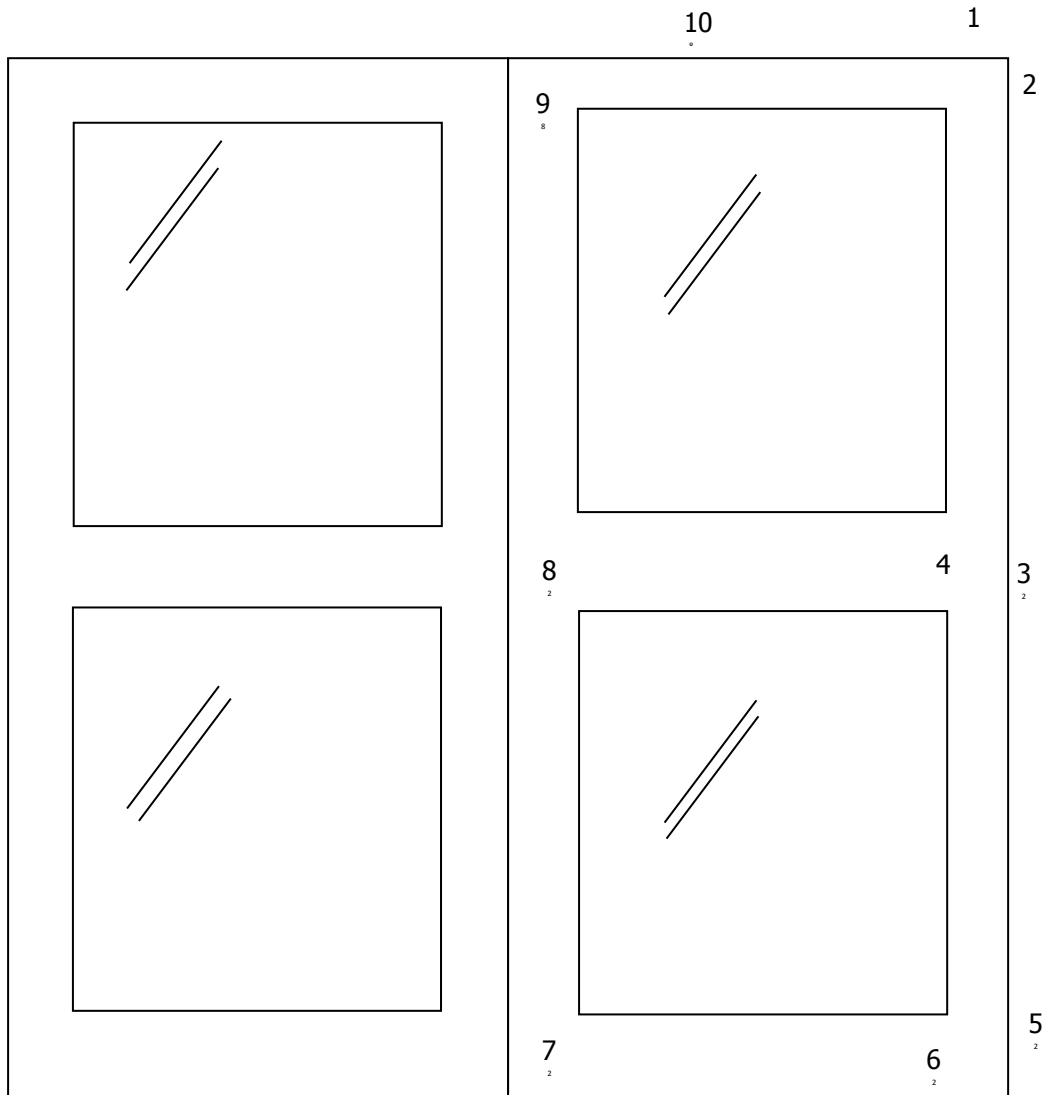
### PERFORMANCE REQUIREMENTS

#### 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



## 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
<b>As required</b>	<p><b>Test and Assessment</b></p> <p>Please see results table for testing and assessment of samples as detailed.</p> <p><i>See Table A - PAS24 Direct Test</i></p>

## 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.

This Test Report is issued subject to the conditions stated in current issue of 'BSI Terms of Service'. The results contained herein apply only to the particular sample(s) tested and to the specific tests carried out, as detailed in this Test Report. The issuing of this Test Report does not indicate any measure of Approval, Certification, Supervision, Control or Surveillance by BSI of any product. No extract, abridgement or abstraction from a Test Report may be published or used to advertise a product without the written consent of BSI, who reserve the absolute right to agree or reject all or any of the details of any items or publicity for which consent may be sought.

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\*\*\* End of Report \*\*\*