

Technical Report

Report No R17088

Product Tested: Ultraline Style 422 Sliding Door

Test Conducted for: Greenways Contemporary Ltd
5a Grammar School Lane
Halesowen
West Midlands
B63 3SW

Standard Specified: PAS 24:2016 – Enhanced security performance requirements for doorsets and windows in the UK

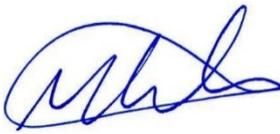
Project No: 17088

Date of Test: 2nd & 3rd March 2017

Test Conducted at: Wintech Engineering Limited
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1. Introduction

This report describes testing of a door sample conducted at the test laboratory of Wintech Engineering Ltd on behalf of Greenways Contemporary Ltd in order to determine compliance with PAS 24:2016.

Wintech Engineering Ltd is accredited by the United Kingdom Accreditation Service as UKAS Testing Laboratory No. 2223

2. Summary of Results

The following summarises the results of testing carried out, in accordance with PAS 24:2016

<i>Test Description</i>	<i>Result</i>
B.4.6 - Manual check test	Pass
B.4.4.3 - Infill – mechanical test	Pass
B.4.3 - Manipulation test (a)	Pass
B.4.5 - Mechanical loading test	Pass
B.4.4.2 - Infill – manual test	Pass
B.4.8 - Soft body impact test	Pass
Overall Classification in accordance with PAS 24:2016	D

More comprehensive details are reported in Section 6.

Note: These results are valid only for the conditions under which the test was conducted

Note: All measurement devices, instruments and other relevant equipment were calibrated and traceable to National Standards.

3. Description of Test Sample

Product range name:	Ultraline Sliding Door
Configuration:	Style 422
Opening direction:	Left – Right (viewed outside)

Outer Frame

Outer frame width:	2980mm	Outer frame material:	Aluminium
Outer frame height:	2765mm	Outer frame gasket	
Outer frame Part Numbers		Gasket type:	GAS-77 (5.5mm Brush)
Top:	GAS-101	Manufacturer:	Schlegal
Bottom:	GAS-101	Product name:	4.8 / 5.5mm Brush
Lock side:	GAS-101	Product code:	GAS-77
Hinge side:	GAS-101	Threshold	
Outer frame section size		Manufacturer:	N/A
Width:	50mm	Product name:	
Depth:	77.5mm	Product code:	
Reinforcing:		Material:	
Manufacturer:	N/A	Outer frame joint method	
Product name:		Head:	45° mitre screwed
Product code:		Foot:	45° mitre screwed
Material:			

Leaf

Leaf width:	1545mm	Leaf material:	Aluminium
Leaf height:	2690mm	Leaf gasket	
Leaf Part Numbers		Gasket type:	Brush
Top:	GAS-103	Manufacturer:	Schlegal
Bottom:	GAS-102	Product name:	4.8/15 Brush & weather vane
Lock side:	GAS-104	Product code:	GAS-73
Hinge side:	GAS-105	Leaf midrail:	
Leaf section size		Manufacturer:	Cortizo
Width:	20mm	Product name:	Interlock
Depth:	58mm	Product code:	GAS-105
Reinforcing:		Material:	Aluminium
Manufacturer:	N/A	Leaf joint method	
Product name:		Head:	45° mitre screwed
Product code:		Foot:	45° mitre screwed
Material:			

Glazing

Glass unit		Glazing gasket	
Manufacturer:	Carey's Glass	Gasket type:	Wedge Gasket

Inner thickness:	6mm	Manufacturer:	Reddiplex
Spacer material:	Warm Edge Thermobar	Product name:	4mm Wedge Gasket
Outer thickness:	6mm	Product code:	GAS-73
Unit sizes:	36mm (6 / 24 / 6)	Glazing clip	
Bead		Manufacturer:	N/A
Manufacturer:	N/A	Product name:	
Product name:		Product code:	
Product code:		Glazing tape details	N/A
Bead size:		Manufacturer:	
Bead material:		Product name:	
		Product code:	

Hardware

	Manufacturer:	Product description:	Product code:	Quantity:
Rollers:	J Banks Hardware	Greenways sliding door runner	GAS 180 'C'	-
Hinge fixing:	N/A			
Hinge protectors:	N/A			
Hinge protector fixings:	N/A			
Door lock:	Gianni Industries Inc	Electric Deadbolt	EB-260	1
Door lock fixings:				2
Cylinder:	N/A			
Cylinder fixing:	N/A			
Handle:	N/A			
Handle fixings:	N/A			
Touch Bar	N/A			
Cylinder Support	N/A			
Cylinder Escutcheon	N/A			
Keeps:	Newbrel	5mm Lock Keep	GAS-191	1
Keep fixings:				6

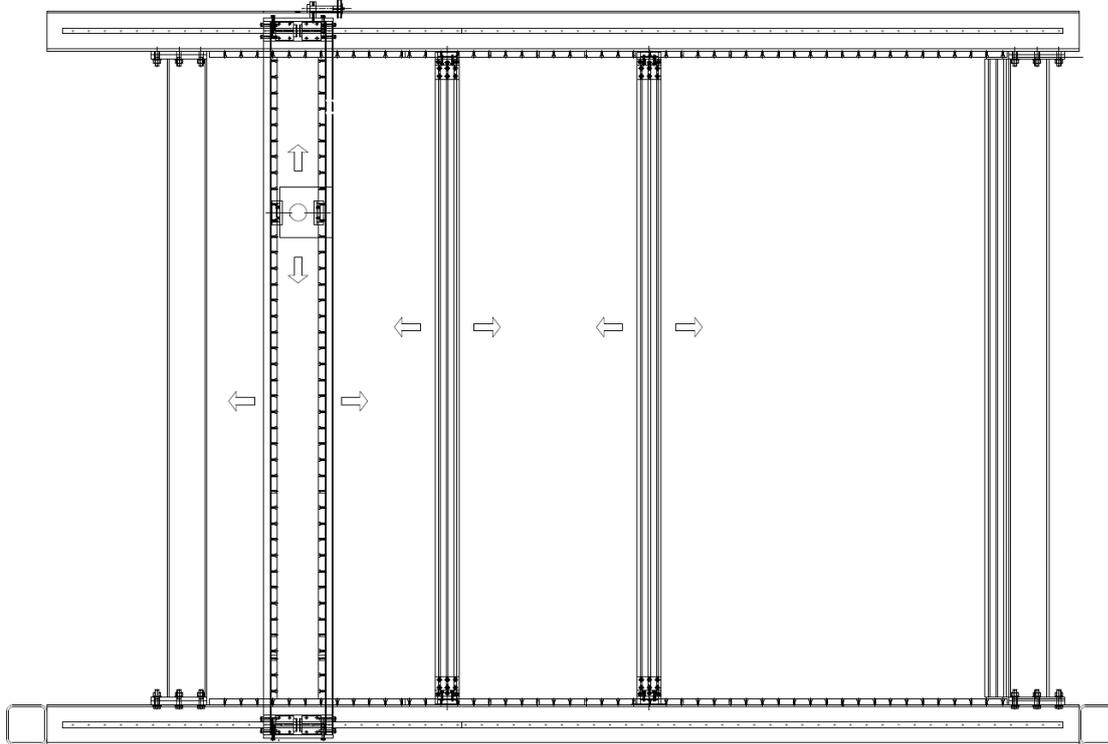
The details shown in Section 3 and drawings shown in Section 7 have been supplied by and confirmed as typical of normal production by Greenways Contemporary Ltd and have not been verified by Wintech Engineering Limited.

4. Test Arrangement

4.1 Test Rig

The test sample was supplied mounted in 100 x 75 mm sub-frame in accordance with manufacturer's installation requirements. It was fitted into the test rig, shown below which was constructed to meet the requirements of the test specification and was fitted plumb, square and without twist or bends.

Figure 1 – Test rig used for testing



5. Test Procedures

5.1 Manual check test – determine additional mechanical loading

The objective of the manual check test is to explore the possibility that there might be weaknesses and vulnerabilities in the product that are not covered in the standard cases.

The objective of this test was to assess any vulnerabilities of the sample that are not covered by the standard loading cases assessed in the mechanical loading test B.4.5. The tools described in Section B.4.6.2 of PAS 24:2016 were used for a maximum period of 15 minutes in an attempt to gain entry through the sample. No single location was tested for more than 6 minutes with no single attack technique being used for more than 3 minutes.

5.2 Infill – Mechanical test

The objective of this test was to assess the ability of the infill to withstand a specified sequence of loading without gaining entry through the sample. The loads and loading sequence were in accordance with Section B.4.4.3 of PAS 24:2016.

5.3 Manipulation test (a)

The objective of this test was to highlight any inherent vulnerability in the design of the door which, from the outside, would permit entry by the hardware being operated, released or disengaged when tested using all of Tools group A from Section A.2.1 of PAS 24:2016 and, where applicable, tools specified in A.2.2.3, A.2.2.5 and A.2.2.6 in Tools group B from Section A.2.2 of PAS 24:2016. The overall attack time was limited to 15 minutes with no single test technique being used for more than 3 minutes.

5.4 Mechanical loading test

The objective of this test was to assess the ability of the sample to withstand a specified sequence of loading without gaining entry through the sample. The loads and loading sequence were in accordance with Section B.4.5 of PAS 24:2016.

5.5 Infill – Manual test

The objective of this test was to attempt to remove gaskets, beads, security devices (if applicable) and the infill, using Tools group A and Tools group B described in section A.2.1 & A.2.2 of PAS 24:2016 for a maximum period of 3 minutes.

5.6 Soft body impact test

The objective of this test was to assess the ability of the sample to resist impacts using a soft body impactor as shown in Figure B.11 of PAS 24:2016 and at various impact locations specified in Section B.4.8.2 of PAS 24:2016.

6. Test Results

6.1 Laboratory Conditions

Prior to the start of the test, the laboratory conditions were measured as follows:

	02.03.17	03.03.17
Temperature (°C)	22	25.5
Humidity (% RH)	30	28

Note The test samples were stored in a non-destructive environment at a temperature of 15 – 30°C and a r.h. of 25 – 75 % for a minimum of 12 hours, testing was also conducted at those conditions. Prior to testing, the door was closed and locked from the outside and any keys were removed.

6.2 Manual check test

Attempts were made from the external face to gain entry through the sample by applying load combinations not covered by the standard loading cases for the mechanical loading test. The overall attack time was limited to 15 minutes with no single attack technique being used for more than 3 minutes and no single location being attacked for more than 6 minutes.

No entry was be gained during this test.

6.3 Infill – Mechanical test

A series of loads were applied to the external face of the infill as defined in Section B.4.4.3 of PAS 24:2016. A perpendicular-to-plane load of 2.0kN was applied and held for 8-12 seconds at each corner of the infill.

No entry was be gained during this test.

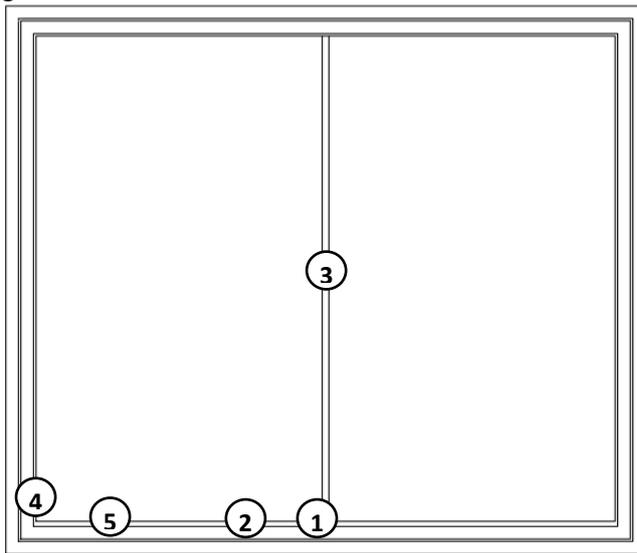
6.4 Manipulation test (a)

Attempts were made from the external face to operate, release and disengage the system hardware in order to gain entry through the sample in accordance with Section B.4.3 of PAS 24:2016. The results are as follows:

Table 1 – Manipulation test (a)

Location	Tools Used	Method	Time
1 – Bottom right hand corner of sliding sash,	Scrapers x2	Attempted to lever between the sash and the frame in an attempt to gain entry but could not.	03:00
2 – Right hand roller assembly.	Scrapers x2	Levered between the lower frame and the bottom of the sliding sash in an attempt to gain entry but could not.	03:00
3 – In between the 2 sashes.	Scrapers x2	Attempted to lever between the 2 sashes to gain entry but could not.	03:00
4 – Bottom left hand corner, opening edge of the door.	Scrapers x2	Attempted to lever between the sash and the frame in an attempt to gain entry but could not.	03:00
5 – Between the bottom left hand corner and the L/H roller assembly.	Scrapers x2	Levered between the lower frame and the bottom of the sliding sash in an attempt to gain entry but could not.	03:00

Figure 2 – Attack locations



6.5 B.4.5 – Mechanical loading test

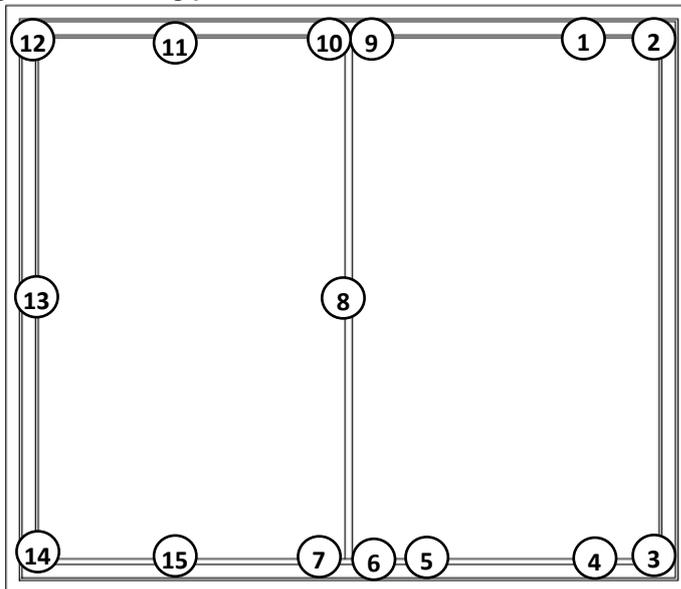
A series of loads were applied to the internal face of the sample as defined in Section B.4.5 of PAS 24:2016. The loading combinations used were as defined in Table B.1 to Table B.6 of PAS 24:2016 for the applicable door type and as shown in Table 2. The results are as follows:

Table 2 – Mechanical Loading

Loading Point	Parallel-to-plane Load		Perpendicular-to-plane Load		Result
	Load	Direction	Load	Direction	
All perpendicular loads were carried out on the glazing using the mechanical infill block, not all parallel loads were carried out due to inability to attach brackets to the sample.					
1 – Shoot bolt			4.5 kN	-	Pass
2 – Top non meeting corner	1.5 kN	↓	4.5 kN	-	Pass
3 – Lower non meeting corner	4.5 kN	←	1.5 kN	-	Pass
3 – Lower non meeting corner	1.5 kN	↑	4.5 kN	-	Pass
4 – Roller Assembly	4.5 kN	↑	1.5 kN	-	Pass
5 – Roller Assembly	4.5 kN	↑	1.5 kN	-	Pass
6 – Lower meeting corner		↔	4.5 kN	-	Pass
6 – Lower meeting corner	1.5 kN	↑	4.5 kN	-	Pass
7 – Lower corner of fixed sash			4.5 kN	-	Pass
8 – Centre of fixed sash			4.5 kN	-	Pass
9 – Upper meeting corner		↔	4.5 kN	-	Pass
9 – Upper meeting corner	1.5 kN	↓	4.5 kN	-	Pass
10 – Upper corner of fixed sash			4.5 kN	-	Pass
11 – Centre of edge of fixed sash			4.5 kN	-	Pass
12 – Top corner			4.5 kN	-	Pass

of fixed sash					
13 – Centre of edge of fixed sash			4.5 kN	-	Pass
14 – Lower corner of fixed sash			4.5 kN	-	Pass
15 – Centre of edge of fixed sash			4.5 kN	-	Pass

Figure 3 – Loading points



6.6 B.4.4.2 – Infill manual test

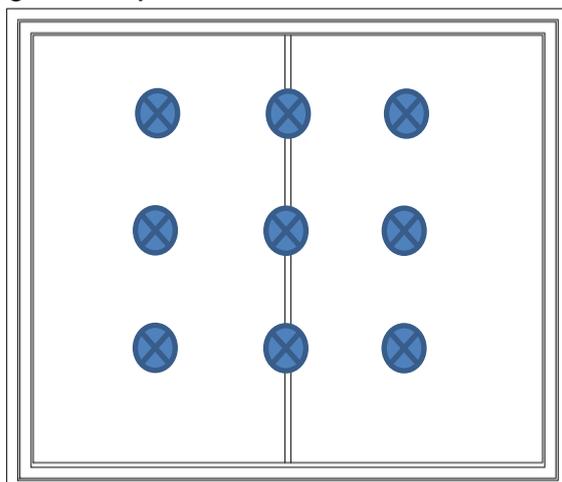
Attempts were made from the external face to remove gaskets and beading in order to gain access to and remove the infill using tools A.2.1 & A.2.2 in accordance with Section B.4.4.2 of PAS 24:2016.

No entry was gained during this test.

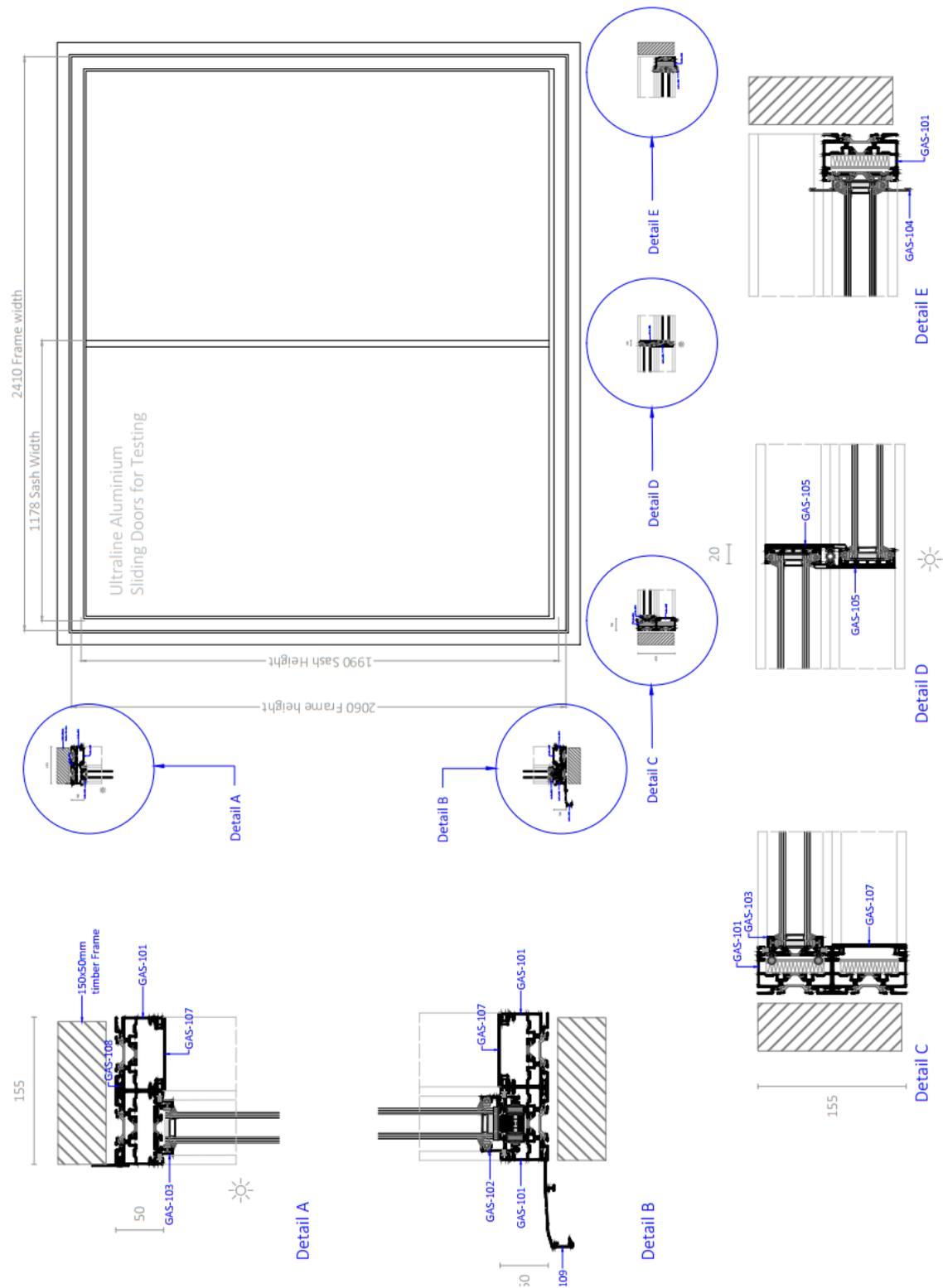
6.7 B.4.8 – Soft body impact test

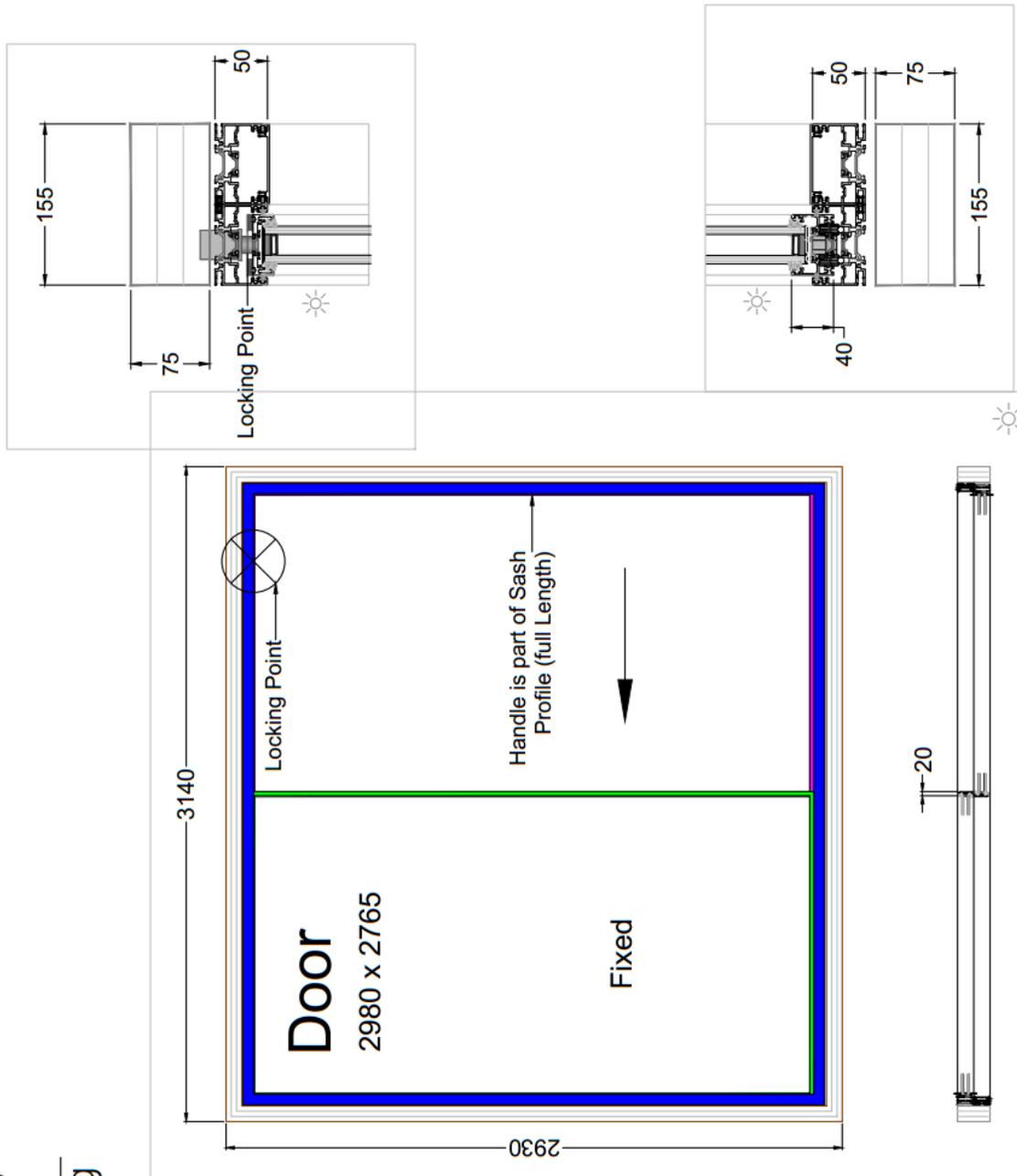
The test sample was subject to soft body impacts on the external face as shown in Figure 4. Each of the locations was subject to 3 impacts from a drop height of 800mm, following which no damage was observed.

Figure 4 – Impact locations



7. System Drawings





ultraline[®]
sliding
Security Test Doors (Mar 17)
Style 422 Viewed
Outside

REV.	DESCRIPTION	DATE	APPROVED
A	NOTES REFERING TO CENTRALISE AXLES ADDED	02/07/2015	CN354 / G. D. COLE
B	NYLON WASHERS ADDED TO CENTRALISE AXLES. GRUB SCREWS REMOVED. RIVETING NOTE ADDED.	21/07/2015	CN365 / G. D. COLE
C	NYLON WASHERS (ITEM 6) REMOVED.	02/09/2015	CN378 / G. D. COLE

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	JBC61044	AXLE	2
2	JBC61043	TYRE	4
3	JBC5568	M4 WASHER	4
4	JBC8221	BODY	1
5	JBC5208	NEEDLE BEARING	4

(A) (B) (C)

NOTE:
IT IS MOST IMPORTANT THAT THE ENDS OF THE AXLES ARE RIVETED SUFFICIENT TO HOLD THE M4 WASHERS FIRMLY IN PLACE AND TO PREVENT THEM TURNING.

Approved. 7/1/15.
S. Gibbs

REF DIMENSIONS SHOWN ONLY

SECTION C-C
SCALE 2:1

J. BANKS & CO. LIMITED
HARDWARE SOLUTIONS

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Cottonwood Way, Halesfield,
Staffordshire, WV10 7HW

T: +44 (0)1902 864883
F: +44 (0)1902 864826
E: sales@jbanks.co.uk

Material: _____
Treatment: _____
Finish: _____

All dimension in millimetres

General Tolerance
Linear ± 0.10 Angular $\pm 1^\circ$ Size A3

Drawn MLC
Date 23/02/2015
Scale 1:1

Title: GREENWAYS SLIDING DOOR RUNNER

Drwg. No. GAS-180
Rev C

USE WITH ORDER No. _____ ONLY

+++ - - End of Report - - +++