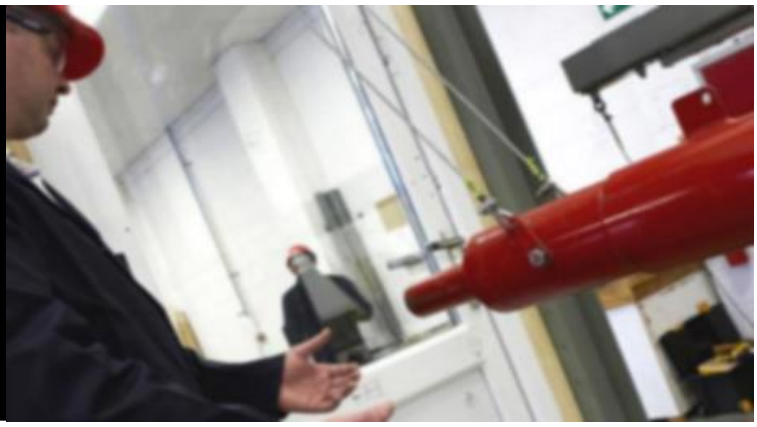
PAS 24:2022

Annex A & B

Product Testing To Exceed Industry Standards



Product Tested:	Alunet horizontal sliding patios fitted with 25mm trim	**Date:**	16/06/2023
		Version:	Original
		Issue Nº:	2
		Test Nº:	T2396
Conducted for:	Alunet Systems	**Report Nº:**	MTCR0200

Enhanced security performance requirements
for Doorsets and Windows in the UK

Contents page

Revision History

Issue No:	2	Re - issue date:	20/11/2023
Revised by:	Dave Vinyard	Approved by:	Strafford Cooke
Reason for revision:	Sample dimension added on page 9.		

Issue No:	n/a	Re - issue date:	n/a
Revised by:	n/a	Approved by:	n/a
Reason for revision:	n/a		

Performance summary

Samples of:	Alunet horizontal sliding patios fitted with 25mm trim
Manufacturer:	Europa / Alunet
Tested in accordance with:	PAS 24:20122 - Annex A & B
By:	Mila Test Centre, A UKAS accredited testing laboratory No. 9868
Located at:	11 Brunel Close, Drayton Fields Ind. Est., Daventry, Northamptonshire, NN11 8RB

Sample	Clause	Description	Compliance
1	ANNEX A	Security Hardware & Cylinder Test - Part 1	PASS
1	ANNEX A	Security Hardware & Cylinder Test - Part 2	PASS
1	B.4.6	Manual Check Test	Resisted Entry
1	B.4.4.3	Mechanical Test on Infill	PASS
2	B.4.3	Manipulation Test A	PASS
2	B.4.5	Mechanical Loading Test	PASS
2	B.4.3	Manipulation Test B	PASS
3	ANNEX A	Security Hardware & Cylinder Test - Part 3	PASS
3	B.4.4.2	Manual Test on Infill	PASS
3	B.4.8	Soft Body Impact Test	PASS
3	B.4.9.2.2	Hard Body Impact Test	PASS

Classification in accordance with Clause 4.4 = **D**

Note: The results presented in this technical report are valid only for the conditions under which the test was conducted and are not intended to be the sole criteria for assessing the potential performance of the element in use, nor do they reflect the actual behaviour in use.

The Doorset assembly range resisted ALL attempts to gain entry during the tests completed as listed above and in accordance with:

PAS 24:2022
Specification for enhanced security performance requirements for Doorsets and Windows in the UK

Authorisation

Test Conducted by:	Dave Vinyard	**Position:**	Test Centre Manager
	Alex Fenemore	**Position:**	Test Engineer
Witnessed by:	Mike Moulds	**Company:**	Alunet

Report prepared by:	Dave Vinyard	**Position:**	Test Centre Manager
Signed:			
Date:	20/11/2023		

For & behalf of the Mila Test Centre

Report authorised by:	Strafford Cooke	**Position:**	Technical Director
Signed:			
Date:	20/11/2023		

For & behalf of the Mila Test Centre

Report issued: 20/11/2023

Heywood Williams Components Ltd.
Trading as
Mila Hardware
Operating as
Mila Test Centre

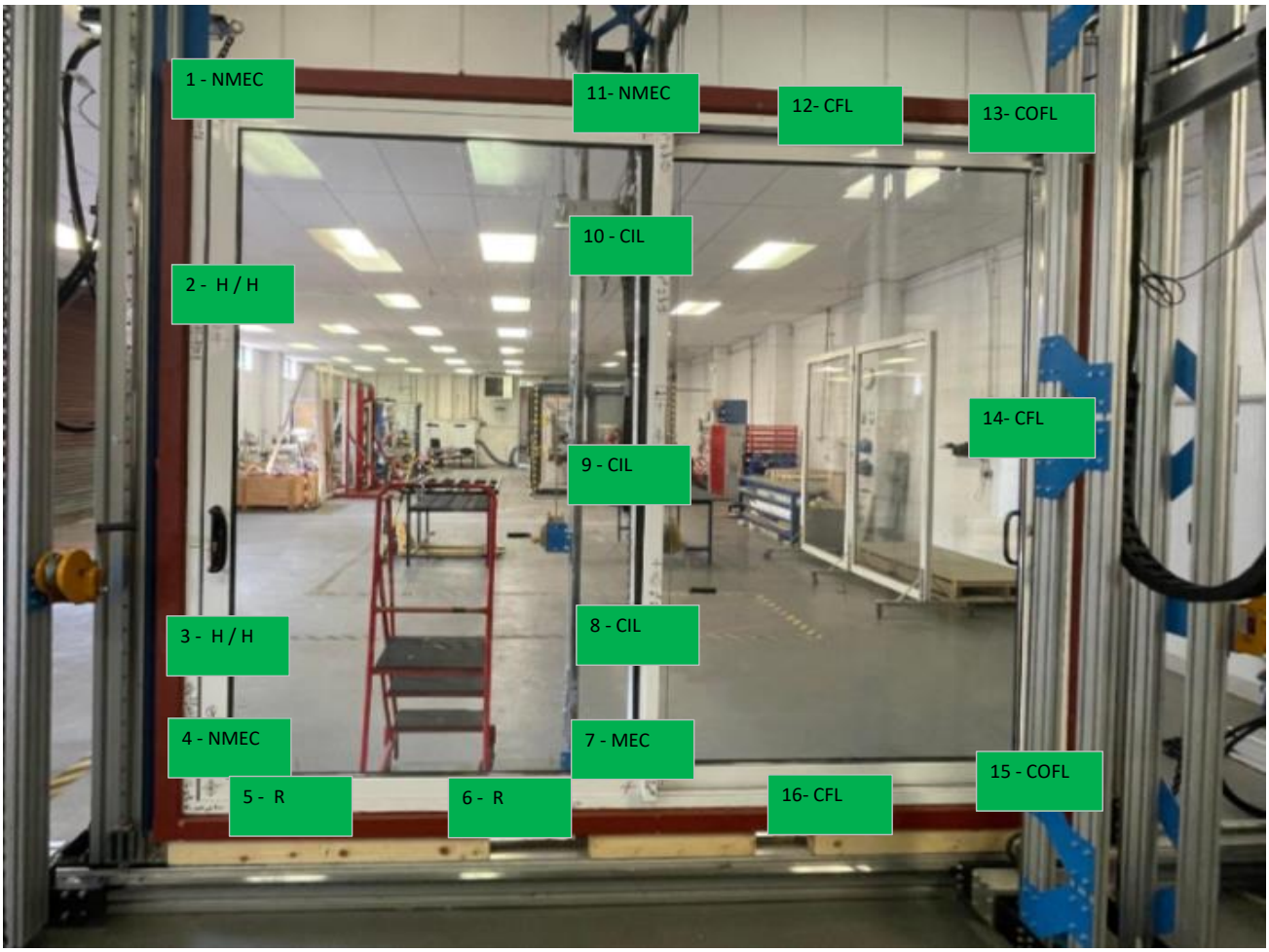
C/o Mila UK
1 Brunel Close
Drayton Fields Industrial Estate
Daventry
Northamptonshire
NN11 8RB

Test details

Test Number:	T2396
Test Subject:	Alunet horizontal sliding patios fitted with 25mm trim
Test Specification:	PAS 24:2022 Enhanced security performance requirements for Doorsets and Windows in the UK
Report Dated:	20/11/2023
Customer Details:	Alunet Systems
Manufacturer Details:	Europa / Alunet
Date of Receipt:	03/10/2023
Date Tested:	06/10/2023

Test sample

Figure 1. Photograph of test sample which indicates loading points and sequence



Key

NMEC - Non Meeting Edge Corner

H / H = Hook Bolt / Hook Bolt

R = Roller

MEC - Meeting Edge Corner

CIL = Continuous Interlock

CFL = Centre Fixed Light

COFL = Corner Fixed Light

Test procedure

Introduction

This test report should be read in conjunction with the Standard PAS 24:2022 Specification for enhanced security performance requirements for Doorsets and windows in the UK.

The specimens were judged on their ability to comply with the performance criteria as required in PAS 24:2022 Annex B.

Instruction to test

n/a

Test equipment

Mila Test Rigs are purpose designed and built for the application of tests as described within PAS 24:2016.

All equipment used for the measurement of time, force or distance is calibrated, with traceability to National Standards, using UKAS Accredited Testing Laboratories. At the time of this test all equipment was within its calibration period and all recorded results within the tolerances permitted by the Test Standard.

Mounting of test specimen

In keeping with the requirements detailed within PAS 24:2016 Annex B clause B.4.2 the test sample was delivered mounted into a sub-frame made from 100mm x 75mm (Nominal) timber sections. Mounting screws being driven from opening cavity of outer frame, through the frame section and into timber sub-frame, so as to simulate normal installation work practice.

Installation

The complete assemblies were installed plumb and square in the test rigs and checked for overlap (cover) at the frame over-rebate flanges, perimeter gap / clearances and correct operation prior to the commencement of the test.

Sample Conditioning

Upon receipt of the test specimens, all protective packaging was removed and the sample was placed into storage for a minimum of 12 hours prior to testing, in a non-destructive environment within the temperature ranges of 15°c - 30°c and the humidity ranges of 25% RH - 75% RH.

Test climate

The temperature & humidity of the laboratory was maintained in the ranges below for the duration of the test.

Temperature range	Minimum:	19.3	°C	Maximum:	19.8	°C
Humidity range	Minimum:	45.8	%Rh	Maximum:	46.1	%Rh

Schedule of components

Disclaimer

Where more than one sample of a single style is supplied for assessment, in keeping with the requirements of PAS 24:2022, all samples were as identical as production methods permit and selection to nominate sample number for the purpose of assigning test sequences was at the discretion of the Test Centre personnel.

The test samples submitted for evaluation are accompanied by a full declaration of components which is completed and supplied by the client. Although efforts are made by representatives of Mila Test Centre to check customer samples prior to testing, Mila Test Centre do not check every last component that makes up the test samples and therefore will not be held liable for any potential false submissions. The responsibility to ensure the test samples submitted for evaluation are a true likeness to the declaration of components lies solely with the client.

Doorset Style	Customer Reference
Sliding door set	Successive sliding system

Overall Width:	3000 mm	**Overall Height:**	2505 mm	**Nº of samples:**	2
Profile material:	Aluminium	**System:**	ESS47	**Colour:**	White

Profile & Reinforcement Codes

Outerframe Codes:	TH80113 / TH80110	**Reinforcement Code:**	TV12603 & TV120503
Sash Codes:	TH8040/ TV8006	**Reinforcement Code:**	
Mullion Codes:		**Reinforcement Code:**	
Transom Codes:		**Reinforcement Code:**	
Transom Mullion Codes:		**Reinforcement Code:**	
Midrail Codes:		**Reinforcement Code:**	

Weatherseal Codes

Outerframe:	TV8003	**Sash:**	SR009040

Fabrication Methods

Frame Corners:	CJ-006014	**Frame Transoms:**	
Sash Corners:	CC007036/CA008001	**Frame Mullions:**	
Sash to Midrail:		**Transom Mullions:**	

Glazing Bead Codes

Internal:		**Co Extruded?:**	
External:	TV80503	**Co Extruded?:**	

Glazing Gasket Codes

Internal:	GA004005	**External:**	GA12411
Security tape?:			

Glazing/Infill Panel Specification

Glass type:	Laminated glass	**DGU Makeup:**	
Glass thickness:	26.28mm	**Overall Thickness:**	
Clear/OBS:		**Infill panel style:**	

Schedule of components continued

Item		Description
3, Multipoint lock		
Supplier	:	MILA
Description	:	DUPLEX PATIO LOCK 4 HOOKS
Part Number (s)	:	432700
Material	:	STAINLESS STEEL
Quantity	:	1
Fixing to sash		
i. supplier	:	TSAMOURIS SA
ii. type	:	SELF TAPPING SQUARE HD
iii. size	:	4.2X50
iiii. quantity	:	8
V. code	:	Din 7982
4, One piece keep		
Supplier	:	MILA
Description	:	DUPLEX PATIO LOCK KEEP WITH PACKERS
Part Number	:	432722
Material	:	STAINLESS STEEL
Quantity	:	1
Fixing to frame		
i. supplier	:	TSAMOURIS SA
ii. type	:	SELF TAPPING SQUARE HD
iii. size	:	4.2X75
iiii. quantity	:	9 per piece
V. code	:	Din 7982
5, Handles		
Supplier	:	MILA
Description	:	PROLINEA PATIO HANDLESET
Part Number	:	108807
Material	:	ZINC ALLOY
Quantity	:	1
Fixing to Sash		
i. supplier	:	MILA
ii. type	:	Machine thread handle screw
iii. size	:	m5 x 60
iiii. quantity	:	2
V. code	:	Suppied with handle
6, Cylinder		
Supplier	:	MILA
Description	:	PLATINUM 3 DOUBLE CYLINDER 35/35 NIKEL WITH 3 KEYS
Part Number	:	YS33535
Material	:	
Quantity	:	1

Schedule of components continued

Please list any additional hardware parts not listed including their fixings

Hardware	Qty	Supplier	Part Number	Description
ROLLERS	2/SASH	TSIOTIS	RO80701	Quadrable Roller for Glass Sash

Testing results

4.3 Letterplate Test Sample 1	This test method wasn't applicable	N/A
B.4.5 Mechanical Loading Test Sample 2	The sample was installed into the test rig square and true in accordance with B.3.1 and was tested in accordance with clause B.4.5 with parallel-to-plane loads of 1.5kN and perpendicular to plane loads of 4.5kN applied progressively, without shock to all loading cases established in clause B.6. The Doorset resisted all attempts to gain entry during this test.	PASS
B.4.7 Additional Mechanical Loading Test	This test was omitted as their were no vunerabilities highlighted during the manual check test.	N/A

ANNEX A - Security hardware test part 1

Date Tested: 06/10/2023

Security Hardware & Cylinder Test Part 1	The sample was tested in accordance with A.3.2 with the objective of the test to assess the hardware, lock & cylinders resistance to manual attack when using the tools as described in section A.2 of PAS 24:2022. The hardware was attacked for 3 minutes which consisted of the following methods: i) attempt to remove, dislodge or otherwise gain access to the cylinder and/or lock by attacking any protective item; ii) attempt to break and defeat any cylinder by applying a twisting and/or bend force; iii) if access to the internal workings of the hardware, cylinder or lock is gained then attempt to defeat the lock and gain entry by operating any accessible mechanism.	PASS
Sample 1	The sample remained secure during this part of the test.	

Tool ID	Description	Attack Method Utilised	Total	
			Mins	Secs
29	Curved Jaw Self Gripping Pilar's	Mole grips used to try and remove handle from sample to access cylinder	2	
29	Curved Jaw Self Gripping Pilar's	Mole grips used to attempt to remove cylinder	1	

ANNEX A - Security hardware test part 2

Date Tested: 06/10/2023

Security Hardware & Cylinder Test Part 2

Sample 1

The sample was tested in accordance with A.3.3 with the objective of the test to assess the hardware, lock & cylinders resistance to manual attack when using the tools as described in section A.2 of PAS 24:2022.
The a rest period of not more than 7 minutes was permitted before the hardware was attacked for further 3 minutes which consisted of the following methods:
iv) attempt to remove, dislodge or otherwise gain access to the cylinder by attacking any item protecting the cylinder;
v) attempt to screw the self-cutting traction screw into any exposed part of the cylinder so that it provides suitable fixing force for activity
vi) attempt to break and defeat the cylinder by applying a nominally axial force to the screw using the hooked head attachment and torque gauge;
vii) if access to the internal workings of the hardware, cylinder or lock is gained, then attempt to defeat the lock and gain entry by operating any accessible mechanism.

PASS

The sample remained secure during this part of the test.

Tool ID	Description	Attack Method Utilised	Total	
			Mins	Secs
19	6mm Cross Head Screwdriver	screwdriver used to insert traction screw	1	
27	Torque gauge with hook attachment	Torque gauge used to attempt to break cylinder	2	

B.4.6 - Manual Check Test

Date Tested: 06/10/2023

B.4.6
Manual Check Test

The sample was installed into the test rig square and true and allowing free, unrestricted access to the exterior face of the door in accordance with B.3.1 and was tested in accordance with clause B.4.6 using the tools specified in B.4.6.2.1 & B.4.6.2.2. The overall attack time was one continuous period of 15 minutes, with no single test technique used for more than 3 minutes, and no location attacked for more than 6 minutes. The objective of this test is to explore the possibility that there might be weaknesses & vulnerabilities in the product that are not covered in the standard loading cases specified in B.6.

Sample 1

Resisted Entry

The Doorset resisted all attempts to gain entry during this test.

Tool ID	Description	Position on Doorset	Method	Total	
				Mins	Secs
9 & 10	2 x Crowbar	Between rollers at threshold	Crowbars used to attempt to lift rollers from track	3	
			No other tools or method effective		

B.4.4.3 - Mechanical test on infill

Date Tested: 06/10/2023

B.4.4.3
Mechanical Test on Infill

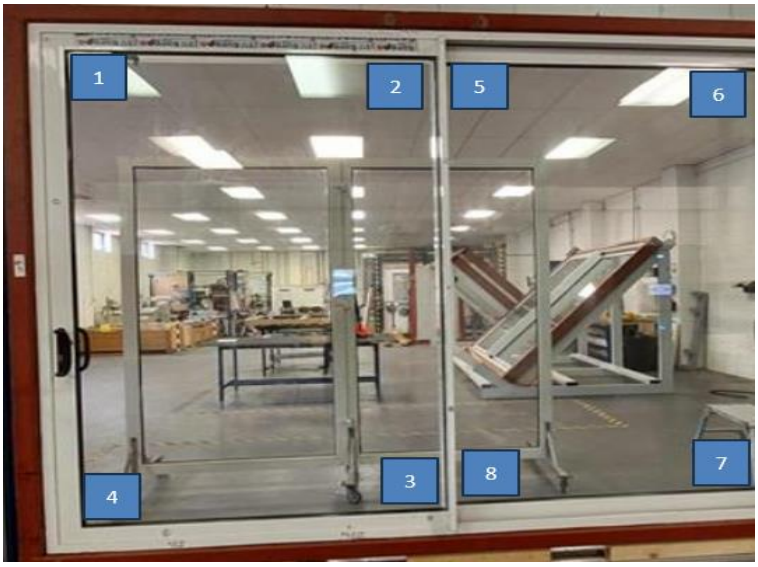
The sample was installed into the test rig square and true in accordance with B.3.1 and was tested in accordance with clause B.4.4.3 with loads of 2.0kN applied progressively, without shock to every corner of the glazing retention system. The objective of this test is to establish the strength and resistance to forces applied to the glazing with the view to pushing the glass out from the exterior face of the sample to gain entry.

PASS

Sample 2

The Doorset resisted all attempts to gain entry during this test.

Test Ref Point	Load Applied	Result
1	2kN	Pass
2	2kN	Pass
3	2kN	Pass
4	2kN	Pass
5	2kN	Pass
6	2kN	Pass
7	2kN	Pass
8	2kN	Pass



B.4.3 - Manipulation test A

Date Tested: 06/10/2023

B.4.3 Manipulation Test A	The sample was installed into the test rig square and true and allowing free, unrestricted access to the exterior face of the door in accordance with B.3.1 and was tested in accordance with clause B.4.3 using tool groups A & B where applicable. The overall attack time was 15 minutes, with no single test technique used for more than 3 minutes. The objective of this test is to establish that there is no inherent vulnerability in the design which , from the outside , would permit entry by the hardware being operated, released or disengaged.	PASS
Sample 2	The Doorset resisted all attempts to gain entry during this test.	

Tool ID	Description	Position on Doorset	Method	Total	
				Mins	Secs
			No tools or tecniques effective		

B.4.5 - Mechanical loading test

Date Tested: 06/10/2023

Table 5. Clause B.4.5 Mechanical Loading results - ***Direction of loads applied are as viewed from outside face.***

Test ref point	Parallel-to-plane		Equal & opposite		Perpendicular loads		Loading case used	Component failure	Result
	Direction	Load applied	Direction	Load applied	Perpendicular	Opposite			
1	⇨	4.5kN					1		Pass
1.1	⇩	1.5kN			4.5Kn		1		Pass
2	⇧	1.5kN			4.5Kn		7		Pass
2.1	⇩	1.5kN			4.5Kn		7		Pass
2.2	⇨	1.5kN			4.5Kn		7		Pass
2.3	⇨	4.5kN					7		Pass
3	⇧	1.5kN			4.5Kn		7		Pass
3.1	⇩	1.5kN			4.5Kn		7		Pass
3.2	⇨	1.5kN			4.5Kn		7		Pass
3.3	⇨	4.5kN			4.5Kn		7		Pass
4	⇨	4.5kN					1		Pass
4.1	⇧	1.5kN			4.5Kn		1		Pass
5	⇧	4.5kN			1.5KN		10		Pass
6	⇧	4.5kN			1.5KN		10		Pass
7					4.5Kn	4.5Kn	5		Pass
8					4.5Kn	4.5Kn	5		Pass
9					4.5Kn	4.5Kn	5		Pass
10					4.5Kn	4.5Kn	5		Pass
11					4.5Kn	4.5Kn	5		Pass
12	⇩	1.5kN			4.5Kn		11		Pass
13	⇦	1.5kN			4.5Kn		12		Pass
13.1	⇩	1.5kN			4.5Kn		12		Pass
14	⇦	1.5kN			4.5Kn		11		Pass
15	⇦	1.5kN			4.5Kn		12		Pass
15.1	⇧	1.5kN			4.5Kn		12		Pass
16	⇧	1.5kN			4.5Kn		11		Pass

B.4.3 - Manipulation B

Date Tested: 06/10/2023

B.4.3 Manipulation Test B	The sample was installed into the test rig square and true and allowing free, unrestricted access to the exterior face of the door in accordance with B.3.1 and was tested in accordance with clause B.4.3 using tool groups A & B where applicable. The overall attack time was 3 minutes with the primary intention of releasing threaded fasteners exposed as a result of the mechanical loading test.	PASS
Sample 2	The Doorset resisted all attempts to gain entry during this test.	

Tool ID	Description	Position on Doorset	Method	Total	
				Mins	Secs
			No fixings exposed from mechanical load sequence		

ANNEX A - Security hardware test part 3

Date Tested: 06/10/2023

Security Hardware & Cylinder Test Part 3 Sample	The sample was tested in accordance with A.3.3 with the objective of the test to assess the hardware, lock & cylinders resistance to manual attack when using the tools as described in section A.2 of PAS 24:2022. The a rest period of not more than 7 minutes was permitted before the hardware was attacked for further 3 minutes which consisted of the following methods: iv) attempt to remove, dislodge or otherwise gain access to the cylinder by attacking any item protecting the cylinder; v) attempt to screw the self-cutting traction screw into any exposed part of the cylinder so that it provides suitable fixing force for activity vi) attempt to break and defeat the cylinder by applying a nominally axial force to the screw using the hooked head attachment and torque gauge; vii) if access to the internal workings of the hardware, cylinder or lock is gained, then attempt to defeat the lock and gain entry by operating any accessible mechanism. The sample remained secure during this part of the test.	PASS

Tool ID	Description	Attack Method Utilised	Total	
			Mins	Secs
		Unable to cut around the handle due to the product being made of aluminium		

B.4.4.2 - Manual test on infill

Date Tested: 06/10/2023

B.4.4.2
Manual Test on Infill

The sample was installed into the test rig square and true and allowing free, unrestricted access to the exterior face of the door in accordance with B.3.1 and was tested in accordance with clause B.4.4.2 using Tool groups A & B where applicable. The objective of this test is to remove gaskets, beads, any security devices within the glazing system and the infill medium from the exterior face of the sample within a period of 3 minutes.

PASS

Sample 3

The Doorset resisted all attempts to gain entry during this test.

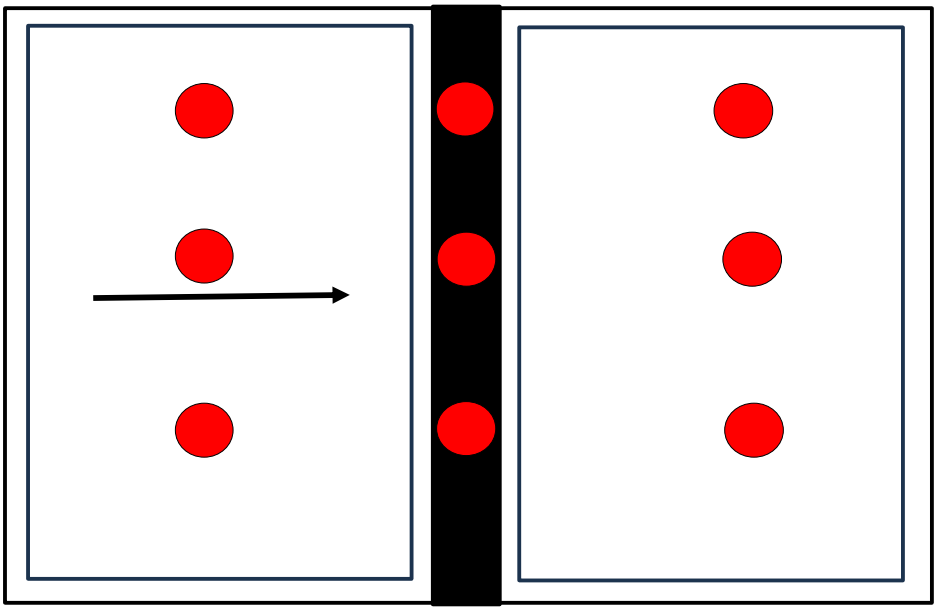
Tool ID	Description	Position on Doorset	Method	Total	
				Mins	Secs
3	Craft Knife	Fixed light gasket	Craft knife used to attempt to remove glazing gasket	3	

B.4.8 - Soft body impact test

Date Tested: 06/10/2023

B.4.8 Soft Body Impact Test	The sample was installed into the test rig square and true in accordance with B.3.1 and was tested in accordance with clause B.4.8 with all impact positions defined by the style of sample submitted. The objective of this test is to assess the doorset's resistance to impacts using a soft body by striking each impact point 3 times from the exterior face of the door leaf at 0.8m, and 1.7m above floor level.		PASS
Sample 3	The Doorset resisted all attempts to gain entry during this test.		

Viewed from outside



● = Impact locations

1 = 0.8M

2 = 1.25M

3 = 1.7M

4 = 0.8M

5 = 1.25M

6 = 1.7M

7 = 0.8M

8 = 1.25M

9 = 1.7M

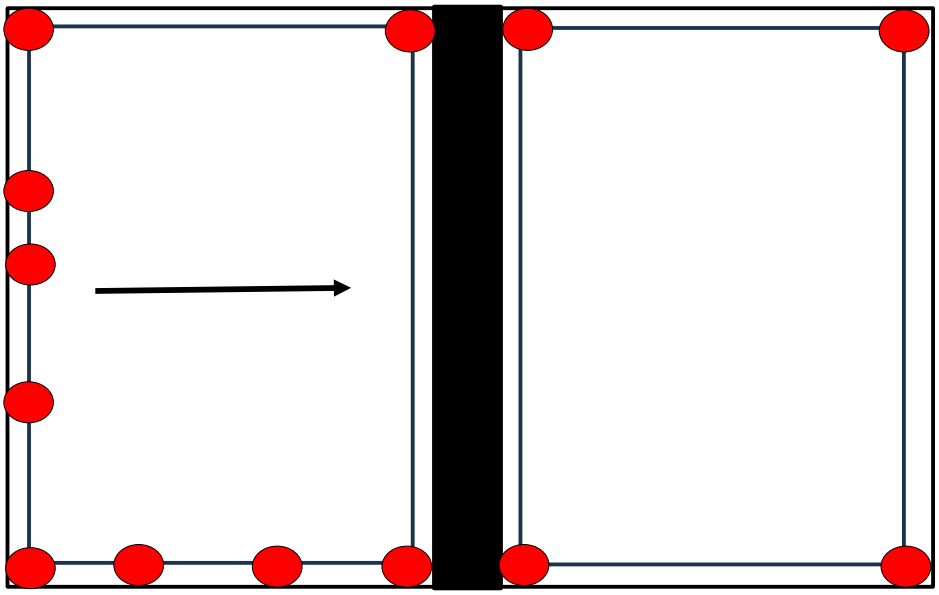
B.4.9.2.2 - Hard body impact test

Date Tested: 06/10/2023

B.4.9.2.2 Hard Body Impact Test Door Leaf	The sample was installed into the test rig square and true in accordance with B.3.1 and was tested in accordance with clause B.4.9.2.2 with all impact positions defined within this clause. The objective of this test is to assess the doorset's resistance to impacts using a hard body by striking each impact point 3 times from the exterior face of the door leaf. The Doorset resisted all attempts to gain entry during this test.	PASS
Sample 3		

Viewed from outside - Impact sequence starts from top corner on the hinge side.

= Impact locations



1 - top left corner
2 - top hooks
3 - cylinder
4 - lower hooks
5 - bottom left corner
6 - left roller
7 - right roller
8 - bottom right corner of moving leaf
9 - bottom left corner of fixed light
10 - bottom right corner of fixed light
11 - top right corner of fixed light
12 - top left corner of fixed light
13 - top right corner of moving leaf

Drawing 1

No drawings supplied by client

Drawing 2

No drawings supplied by client

Drawing 3

No drawings supplied by client

Drawing 4

No drawings supplied by client

Photograph of sample

*** END OF REPORT ***