

# PAS 24:2016

## Annex A&B



**Test of: Flamebreak FD60 – Inward-opening Single Timber Doorset**

**Enhanced security performance requirements for doorsets**

A Report To:  
Pacific Rim Wood Ltd  
Ground Floor Suite, Block B, Old Kelways, Somerton Road, Langport,  
Somerset, TA10 9SJ

Document Reference:  
WIL 418725

**Date:** 27/11/2019

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## TEST CONCLUSIONS

Samples of:  
 Manufacturer Pacific Rim Wood Ltd  
 Product Doorset  
 Model Flamebreak FD60 – Inward-opening Single Timber Doorset

have been tested in accordance with: PAS24:2016 Annex A & B  
 By Element Materials Technology, a UKAS accredited Testing Laboratory (No. 0621)

At Unit 3 Wednesbury One, Black Country New Road, Wednesbury, WS10 7NZ.  
 Results and comments as detailed below:

Clause No.	Description	Compliance
<b>4</b>	<b>Enhanced security performance requirements</b>	<b>N/T</b>
4.1.1	Classification of use	N/T
4.1.2	Locking cylinder	Yes
4.2	Infill medium	N/T
4.3	Letterplates	N/A
4.4	Classification	D
<b>5</b>	<b>Marking</b>	<b>N/T</b>
<b>6</b>	<b>Design and general requirements</b>	<b>N/T</b>
<b>Annex A</b>	<b>Security hardware and cylinder test and assessment</b>	<b>Yes</b>
A.3	Test procedure	Yes
A.4	Cylinder vulnerability assessment	Yes
<b>Annex B</b>	<b>Enhanced security performance for doorsets</b>	<b>Yes</b>
B.4.3	Manipulation test	Yes
B.4.4.2	Infill manual test	Yes
B.4.4.3	Infill mechanical test	N/A
B.4.4.4	Manual cutting test	Yes
B.4.5	Mechanical loading test	Yes
B.4.6	Manual check test	Yes
B.4.7	Additional mechanical loading test	N/A
B.4.8	Soft body impact test	Yes
B.4.9	Hard body impact test	Yes

No inferences can be made regarding performance against other requirements of this standard

Tests marked N/A are not applicable to the sample under test.  
 Tests marked N/T were not applied to the sample under test

## AUTHORISATION

Tests performed by: Brett Devey, Test Engineer  
Macauley Buchan, Trainee Test Engineer

Report issued by: Brett Devey, Test Engineer

Signed 

Date 25<sup>th</sup> November 2019

For and on behalf of Element Materials Technology

Report authorised by: Christopher Bryan, Senior Test Engineer

Signed 

Date 27<sup>th</sup> November 2019

For and on behalf of Element Materials Technology

Report issued: 27 November 2019



0621

### NOTE.

Tests marked "Not UKAS Accredited" are not covered by the Laboratory UKAS accreditation schedule.

The laboratory has tested the product supplied by the client as sampled in accordance with their own requirements

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## TEST DETAILS

### CLIENT DETAILS

Company name Pacific Rim Wood Ltd  
Address Ground Floor Suite,  
Block B,  
Old Kelways,  
Somerton Road,  
Langport, Somerset,  
TA10 9SJ

Contact Lisa McGee

### ORDER DETAILS

Order number PWR/Flamebreak/Pas24/Sep19  
Dated 29/08/2019

### SAMPLE DETAILS

Outer frame 1000 x 2115 x 90mm  
Opening leaves 928 x 2033 x 54mm  
Configuration Inward-Opening Single Doorset  
Material Timber  
Details of Hardware  
Hinges 3No. Eurospec Butt Hinges. Ref: HIn 1433  
Lock Winkhaus AV2-F 3-point lock. Ref: 2559895  
Cylinder Euro Profile Euro Cylinder. Ref: KIN 30/30 NAS  
Handles Era Fab & Fix Windsor Lever Handle. Ref: 1F302

### TEST DETAILS

Test specification PAS 24:2016  
Full test Yes  
Test to clauses Annex A&B

Sample received 06/09/2019  
Test started 10/09/2019  
Test completed 10/09/2019

Special Test requirements  
Other reports to be used in conjunction with this report

Test rig used Testing carried out in PAS24 test rig reference OLD

## TEST PROCEDURE

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<b>Introduction</b>	<p>This test report should be read in conjunction with the Standard PAS 24:2016 Enhanced security performance requirements for doorsets and windows in the UK.</p> <p>The specimens were judged on their ability to comply with the performance criteria as required in PAS24:2016 Annex A &amp; B.</p>
<b>Instruction To Test</b>	<p>Initial requirement was for a classification of D for doorsets..</p>
<b>Test Specimen Construction</b>	<p>A description of the test construction is given in the Schedule of Components. The description is based on a detailed survey of the specimens and information supplied by the sponsor of the test.</p>
<b>Installation</b>	<p>The doorset was supplied mounted within a timber sub-frame of nominal section 75 x 100mm fitted flush with the exterior face, in accordance with the clients fitting instructions.</p>
<b>Sampling</b>	<p>The samples were not independently witnessed or selected and were provided direct from the test sponsor.</p>
<b>Test Climate</b>	<p>The sample was conditioned in the laboratory in the range 15-30 °C and 25-75% humidity for at least 12 hours.</p> <p>The temperature and humidity in the lab was maintained in the range 22.3-23.9°C and 44.9-52.9% humidity for the duration of the test.</p>

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## INITIAL OBSERVATIONS

**The internal face  
of the sample**



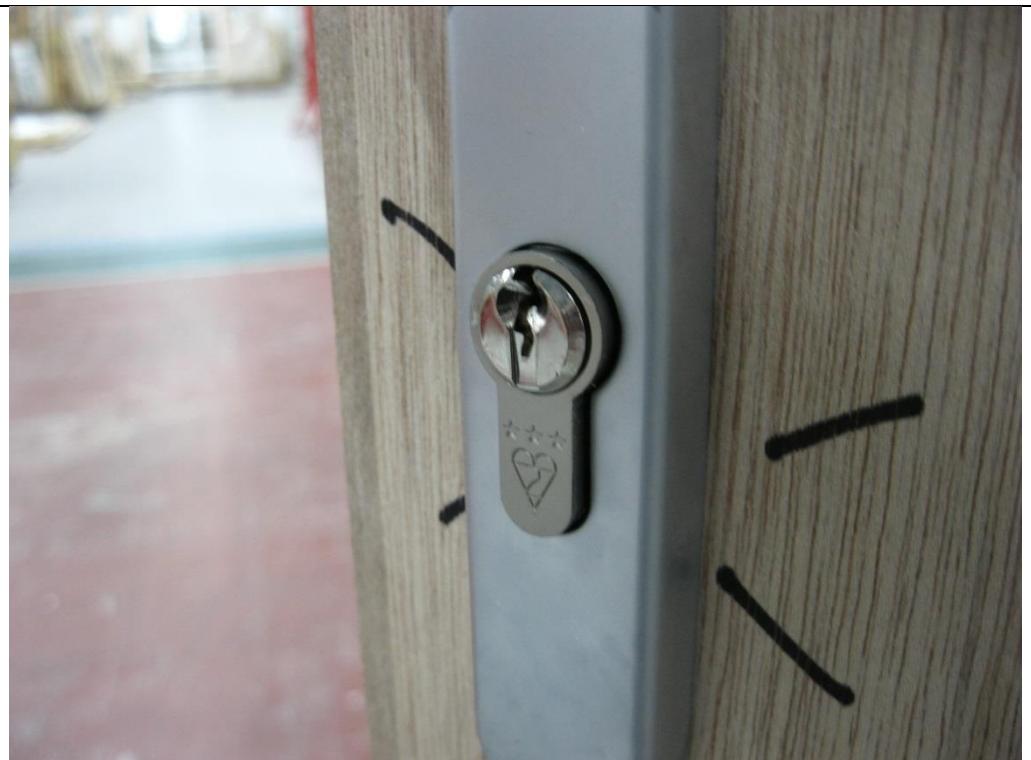
**The external face  
of the sample**



**Sample hinge**



**Sample cylinder**





**Sample central  
lock**



**Sample central  
lock keep**



Sample top lock

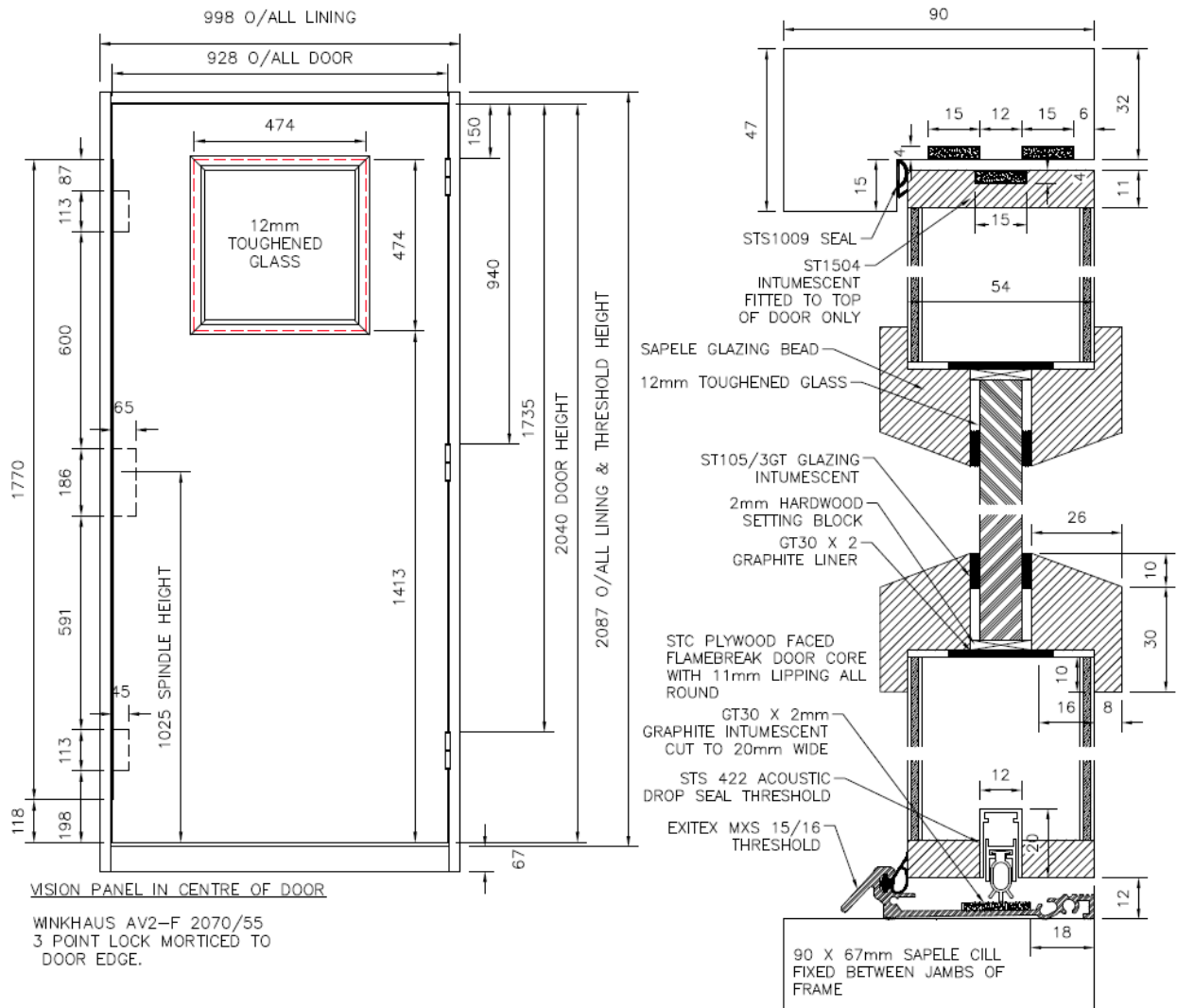


Sample top lock keep



## TEST SPECIMEN

Figure 1- General Elevation of Test Specimen (External Face)



Do not scale. All dimensions are in mm

## SCHEDULE OF COMPONENTS

(Refer to Figures 1 to 3)  
(All values are nominal unless stated otherwise)  
(All other details are as stated by the sponsor)

### Variants

None

<u>Item</u>	<u>Description</u>
<b>1. Door frame head</b>	
Material	: Sapele
Density	: >640kg/m <sup>3</sup> (stated)
Section size	: 90 x 47mm
Rebate	: 15mm
Fixing jamb to head joints	: Mortice & Tenon
Details of adhesive	: PVA
<b>2. Door frame jamb</b>	
Reference	: Sapele
Material	: >640 kg/m <sup>3</sup> (stated)
Density	: 90 x 47mm
Section size	: 15mm
<b>3. Door frame sill</b>	
Reference	:
Material	: Sapele
Density	: >640 kg/m <sup>3</sup> (stated)
Section size	: 67 x 90mm
Rebate	:
Fixing jamb to sill joints	: Screwed through jambs
Details of adhesive	: PVA
<b>4. Door frame weather seals</b>	
Description	: MXS 15/16
Manufacturer	: Exitex
Reference	: MXS 15/16
Fixing method	: Screw fixing to floor level
Position	: Threshold – in between jambs
Continuity	: Uninterrupted by hardware
<b>5. Door frame intumescent seals</b>	
Description	: 2x ST1504
Manufacturer	: Sealed Tight solutions
Reference	: ST1504
Fixing method	: Connection bonded with instant adhesive
Position	: Three edges – jambs and head
Continuity	: Uninterrupted by hardware

**Item**

**Description**

**6. Door frame smoke/acoustic seals**

Description : STS Perimeter Seal  
 Manufacturer : Sealed Tight Solutions  
 Reference : STS1009  
 Fixing method : Self-Adhesive  
 Position : Three edges (head & jambs)  
 Continuity : Uninterrupted by hardware

**7. Door leaf**

Supplier/manufacturer : Flamebreak Type 660 – Plywood faced  
 Overall leaf size : 928 x 2040 x 54mm

**8. Door leaf core**

Supplier/manufacturer : Flamebreak Type 660  
 Thickness : 54mm

**9. Door leaf lippings**

Position : Fitted to four edges  
 Material : Sapele  
 Density : >640kg/m3 (stated)  
 Section size : 11mm  
 Details of adhesive : PUR glue, Tehcnomelt PUR Henkel

**10. Door leaf weather seals**

Description : MXS 15/16  
 Manufacturer : Exitex  
 Reference : MXS 15/16  
 Fixing method : Screw fixing to floor level  
 Position : Threshold – in between jambs  
 Continuity : Uninterrupted by hardware

**11. Door leaf intumescent seals**

Description : ST1504 x 2  
 Manufacturer : Sealed Tight solutions  
 Reference : ST1504  
 Fixing method : Connection bonded with instant adhesive  
 Position : 1 Centrally along head of door leaf only  
 Continuity : Uninterrupted by hardware

**12. Door leaf glazed panel**

Supplier : AGC Pyrobelite  
 Thickness/configuration : 12mm toughened glass  
 Overall size : 474 x 474mm  
 Nominal edge clearance : 12No. overall

**Item**

**Description**

**13. Glazing setting blocks**

Supplier : Blumsons Timber  
Material : Sapele  
Thickness : 2mm  
Overall size : 2 x 20 x 25mm

**14. Glazing tape – Internal face**

Supplier : Sealed Tight Solutions  
Reference : ST105 3GT  
Material : Silicone  
Thickness : 3mm  
Overall size : 10 x 3mm  
Fixing method : Self adhesive – then sealed with silicone on top

**11a Glazing Liner**

Supplier : Sealed Tight Solutions  
Reference : ST30 Graphite Graphite Liner x 2  
Material : Graphite  
Thickness : 2mm  
Overall size : 30 x 2mm  
Fixing method : Self adhesive

**15. Glazing tape – External face**

Supplier : Sealed Tight Solutions  
Reference : ST105 GT  
Material : Silicone  
Thickness : 5mm  
Overall size : 10 x 5mm  
Fixing method : Self adhesive – then sealed with silicone on top

**16. Glazing beads**

Glazing method : Cassette beaded - cloak  
Material : Sapele  
Density : >640kg/m<sup>3</sup> (stated)  
Section size : 40 x 26mm  
Fixing method :  
i. type : Glazing pins  
ii. size : 60mm  
iii. quantity : 16No.  
iv. centres : 150mm

## Item

## Description

### 17. Hinges

Supplier/manufacture	:	<b>Eurospec</b>
Description	:	Butt Hinges
Reference	:	HIn 1433
Primary material	:	Stainless Steel
Size of knuckle	:	14mm
Size of blades	:	100 x 29mm
Quantity	:	3No.
Position of hinges		
i. top hinge	:	150mm from top of door to top of hinge
ii. middle hinges	:	940mm from top of door to top of hinge
iii. bottom hinge	:	1735mm from top of door to top of hinge
Fixing hinge to doorleaf		
i. type	:	Screws
ii. size	:	4.8 x 30mm
iii. quantity	:	4No.
Fixing hinge to frame		
i. type	:	Screws
ii. size	:	4.8 x 30mm
iii. quantity	:	4No.

### 18. Lock

Supplier/manufacture	:	Winkhaus
Description	:	AV2-F 3-point lock
Reference	:	2070-45
Face plate size	:	20 x 1770 x 5mm
Intumescent protection (if applicable)	:	ST30 Graphite Lock Kit & ST10 x 2 along back of plate/strip
Position	:	1070mm to centre of spindle/lock
Fixings		
i. type	:	Woodscrews
ii. size	:	7 x 38mm
iii. quantity	:	12No.

### 19. Lock Keeps

Supplier/manufacture	:	Winkhaus
Description	:	Keeps
Reference		
i. top & bottom keeps	:	F24-908 – single pocket keep
ii. centre keep	:	F24-908 Centre-keep
Material	:	Heavy duty steel keeps
Intumescent protection (if applicable)	:	STS Graphite FS567 AV2 Kit
Overall size		
i. top & bottom keeps	:	24 x 235 x 2.5mm
Fixing keeps to frame		
i. type	:	Wood screws
ii. size	:	2 x 25mm
iii. quantity	:	7No.

**Item**

**Description**

**20. Cylinder**

Supplier/manufacture : UAP  
 Description : Kinetica Cylinder  
 TS007 certification ref (if applicable) : KM 561977  
 Reference : KIN35T/35NAS  
 Overall size : 82mm  
 Intumescent protection (if applicable) :  
 Fixings  
 i. type : Screw  
 ii. size : M5 x 55mm  
 iii. quantity : 1No.

**21. Lever handles**

Supplier/manufacture : Era Fab & Fix  
 Description : Windsor Lever Handle  
 Reference : 1F302  
 TS007 certification ref (if applicable) :  
 Material : Solid die cast zinc  
 Overall size : 243 x 32mm  
 Lever length : 17 x 120mm  
 Fixings  
 i. type : Screws  
 ii. size : M5 x 55mm  
 iii. quantity : 2No.

**22. Door closer**

Supplier/manufacture : Rutland  
 Description : Face fixed door closer  
 Reference : TS 3204  
 Overall size : 220 x 59mm  
 Fixing device to doorleaf  
 i. type : Screws  
 ii. size : 10 x 30mm  
 iii. quantity : 4No.  
 Fixing device to frame  
 i. type : Screws  
 ii. size : 10 x 38mm  
 iii. quantity : 2No.



## PERFORMANCE CRITERIA & TEST RESULTS

Clause	Requirement	Results & Observations	Compliance
<b>4.1.1 Classification of use</b>	Doorsets shall be classified according to their intended use for all relevant characteristics in accordance with BS 6375 and the relevant material specific standard.	Performance not assessed. Further test evidence required.	<b>N/T</b>
<b>4.1.2 Doorsets</b>	Doorsets must meet the requirements of Annex A of PAS24:2016 and either Annex B of PAS24:2016 or RC3 of BS EN 1627	Doorset meets the requirements of Annex A of PAS24.  Doorset meets the requirements of Annex B of PAS24	<b>Yes</b>
	Cylinders falling within the scope of EN1303:2015 used in the tested door assembly shall meet the requirements of TS007 (3* cylinder or a cylinder and security hardware combined rating of 3*) or of key related security to grade 5 and resistance to drilling grade 2.	Evidence provided.  KM 561977	<b>N/T</b>
<b>4.2 Infill medium requirements</b>	Each glazed area shall include at least one pane of laminated glass meeting the requirements of BS EN 356:2000 Class P1A.	Performance not assessed. Further test evidence required.	<b>N/T</b>
<b>4.3 Letterplates</b>	Letter plates shall have a maximum aperture size of 260 x 40mm	Doorset not fitted with a letterplate, not applicable.	<b>N/A</b>
	Letter plates shall meet the installation height requirements of BS EN 13724:2013 clause 5.3.1 (between 700 and 1700mm from the floor)	Doorset not fitted with a letterplate, not applicable.	<b>N/A</b>
	Letterplate shall meet the requirements of TS008:2015 enhanced security grade 2	Doorset not fitted with a letterplate, not applicable.	<b>N/A</b>


Clause	Requirement	Results & Observations	Compliance
<b>4.4 Classification</b>	Following testing to Annex A & Annex B the final classification shall be determined as D for a doorset.	Doorset classified as D for Doorsets.	<b>CLASSIFIED</b>
<b>5 Marking</b>	<p>Door assembly shall be permanently marked, in a position that is visible and accessible when the door is open, with the following information:</p> <ul style="list-style-type: none"> <li>The number and date of the specification and the classification, i.e. PAS24:2016 D</li> <li>The date of manufacture (at least year and quarter)</li> <li>The name or trade mark or other means of identifying the manufacturer</li> </ul>	<p>Performance not assessed. Further evidence required.</p> <p>Pre certification prototype only. No labels supplied as yet. Customer advised of labelling requirements for production doorsets.</p>	<b>N/T</b>
<b>6.1 Doorsets</b>	Where a doorset includes dummy vents, fixed lights, fixed panels and/or opening lights these shall meet the requirements for a doorset	Performance not assessed. Further evidence required.	<b>N/T</b>
<b>6.2 Installation instructions</b>	The manufacturer shall supply full instructions for assembly, installation and maintenance	Performance not assessed. Further evidence required.	<b>N/T</b>

Clause	Requirement	Results & Observations	Pass / Fail
<b>A.3 Security hardware and cylinder test</b>	Attacks were made to the handle using a 6mm chisel to try and create space between the handle and leaf. Once a space had been created, a NorBar was used to lever the handle from the leaf. The cylinder was then snapped using curved jaw mole grips. Attacks were then made using a 6 and 25mm chisel to lever away some of the material surround the cylinder, in an attempt to get behind the lock casement. A small screwdriver was used to try and disengage the internal lock but with no success. Total attack time was 3 minutes. Entry not achieved.		<b>Pass</b>
	Attacks were made to the cylinder using 2No. 4 x 35mm traction screws and a cross point screwdriver to screw through the centre of the cylinder, in an attempt to create a leverage point. The screws could not be fully inserted and time expired before further attacks could be considered. Total attack time was 3 minutes. Entry not achieved.		<b>Pass</b>

**Damage to the sample following A.3 security hardware and cylinder test**




<b>A.4 Cylinder vulnerability assessment</b>	Additionally cylinders shall have been successfully assessed in accordance with the requirements of Annex A.4 of PAS24:2016 cylinder vulnerability assessment.	Evidence provided.  KM 561977	<b>Pass</b>
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Clause	Requirement	Results & Observations	Pass / Fail
<b>Annex B: Enhanced security performance requirements for doorsets</b>			
<b>B.4.3 Manipulation test</b>	<p>Attacks were made to the centre hinge using a craft knife to cut away some of the surrounding material, in an attempt to expose the hinge and allow it to be manipulated but with no success. Total attack time was 3 minutes. Entry not achieved.</p> <p>Attacks were made to the centre hinge using 2 paint scrapers to lever between the leaf and frame, in an attempt to lever out the hinge, but with no success. Total attack time was 3 minutes. Entry not achieved.</p> <p>Attacks were made to the bottom hook bolt using a craft knife to cut away some of the surrounding material, in an attempt to expose the lock and allow it to be manipulated but with no success. Total attack time was 3 minutes. Entry not achieved.</p> <p>Attacks were made to the bottom hook bolt using 2 paint scrapers to lever between the leaf and frame, in an attempt to lever out the locks but with no success. Total attack time was 3 minutes. Entry not achieved.</p> <p>Attacks were made to the bottom hook bolt using a small screwdriver to try and disengage the lock and allow entry but with no success. Total attack time was 3 minutes. Entry not achieved.</p>		<b>Pass</b>
<b>B.4.4.2 Manual test on infill</b>	<p>Attacks were made to the glazed infill beading using a 6 and 25mm chisel to try and remove the bead, in an attempt to free up the glass but with no success. Total attack time was 3 minutes. Entry not achieved.</p>		<b>Pass</b>
<b>Damage to sample following B.4.4.2 Manual test on infill</b>			

Clause	Requirement	Results & Observations	Pass / Fail
<b>B.4.4.3 Mechanical test on infill</b>	2.0kN loads were applied to the top left, top right, bottom right and bottom left corners of the glazing vision panel on the door leaf.  All loads were held and no entry was achieved.		<b>Pass</b>
<b>B.4.4.4 Manual cutting test</b>	<b>Zone 1</b>  Attacks were made within 400mm of the centre of rotation of the door leaf using a craft knife to score into the material. Attacks were then made using a 6 and 25mm chisel to try and create a hole big enough for the failure criteria but with no success. Total attack time was 3 minutes. Entry not achieved.		<b>Pass</b>
	<b>Zone 2</b>  Attacks were made below 400mm of the centre of rotation of the door leaf using a craft knife to score into the material. Attacks were then made using a 6 and 25mm chisel to try and create a hole big enough for the failure criteria but with no success. Total attack time was 3 minutes. Entry not achieved.		<b>Pass</b>

**Damage to the sample following B.4.4.4 Manual cutting test**



Clause	Requirement	Results & Observations	Pass / Fail
<b>Defined mechanical loading points</b>			
<b>B.4.5 Mechanical loading test</b>	<p>Attempts to apply Mechanical loads to all the hinge points and locking points were made with the following results obtained.</p> <p><b>Point 1: Top hinge</b> 1.5kN parallel (up) and 4.5kN perpendicular load held for 10s. 1.5kN parallel (horizontal) and 4.5kN perpendicular load held for 10s.</p> <p><b>Point 2: Centre hinge</b> 1.5kN parallel (up) and 4.5kN perpendicular load held for 10s. 1.5kN parallel (horizontal) and 4.5kN perpendicular load held for 10s.</p> <p><b>Point 3: Bottom hinge</b> 1.5kN parallel (horizontal) and 4.5kN perpendicular load held for 10s</p> <p><b>Point 4: Bottom hook bolt</b> 1.5kN parallel (up) and 4.5kN perpendicular load held for 10s. 1.5kN parallel (horizontal) and 4.5kN perpendicular load held for 10s.</p> <p><b>Point 5: Centre dead bolt</b> 1.5kN parallel (horizontal) and 4.5kN perpendicular load held for 10s.</p> <p><b>Point 6: Top hook bolt</b> 1.5kN parallel (up) and 4.5kN perpendicular load held for 10s. 1.5kN parallel (horizontal) and 4.5kN perpendicular load held for 10s.</p> <p>All loads were held and no entry was achieved.</p>		<b>Pass</b>

Clause	Requirement	Results & Observations	Pass / Fail
<b>B.4.6 Manual check test</b>	<p>Attacks were made between the centre and bottom hinges using a nail bar and screwdriver to lever between the leaf and frame, in an attempt to lever out the hinges but with no success. Total attack time was 3 minutes. Entry not achieved.</p> <p>Attacks were made between the bottom hinge and bottom hook bolt using a nail bar and screwdriver to lever between the leaf and frame, in an attempt to lever out the lock but with no success. Total attack time was 3 minutes. Entry not achieved.</p> <p>Attacks were made between the bottom hook bolt and central dead bolt using a nail bar and screwdriver to lever between the leaf and frame, in an attempt to lever out the locks but with no success. Total attack time was 3 minutes. Entry not achieved.</p> <p>Attacks were made between central dead bolt and top hook bolt using a nail bar and screwdriver to lever between the leaf and frame, in an attempt to lever out the lock but with no success. Total attack time was 3 minutes. Entry not achieved.</p>		<b>NO VULNER- ABILITY IDENTIFIED</b>
<b>B.4.7 Additional mechanical loading test</b>	Testing was not required as no vulnerabilities were identified in the manual check test.		<b>NOT REQUIRED</b>

**Defined soft &  
hard body  
impact pnts**



Clause	Requirement	Results & Observations	Pass / Fail
<b>B.4.8 Soft body impact test</b>	The sample withstood 3 soft body impacts to points 800mm above floor level, 1250mm above floor level, and 1700mm above floor level in the centre of the door leaf.		<b>Pass</b>
	No visible damage was caused by these impacts and no entry was gained.		
<b>B.4.9 Hard body impact test</b>	Attempts to apply hard body impacts to all the corners of the door leaf, hinge points and locking points were made with the following results obtained.		<b>Pass</b>
	<b>Point 1: Top hinged edge corner</b> 3 impacts applied, entry not achieved.		
	<b>Point 2: Top hinge</b> 3 impacts applied, entry not achieved.		
	<b>Point 3: Centre hinge</b> 3 impacts applied, entry not achieved.		
	<b>Point 4: Bottom hinge</b> 3 impacts applied, entry not achieved.		
	<b>Point 5: Bottom hinged edge corner</b> 3 impacts applied, entry not achieved.		
	<b>Point 6: Bottom locking edge corner</b> 3 impacts applied, entry not achieved.		
	<b>Point 7: Bottom hook bolt</b> 3 impacts applied, entry not achieved.		
	<b>Point 8: Locking cylinder</b> 3 impacts applied, entry not achieved.		
	<b>Point 9: Centre dead bolt</b> 3 impacts applied, entry not achieved.		
	<b>Point 10: Top hook bolt</b> 3 impacts applied, entry not achieved.		
	<b>Point 11: Top locking edge corner</b> 3 impacts applied, entry not achieved.		
	No visible damage was caused by these impacts and no entry was gained.		



## CONCLUSIONS

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<b>Evaluation against objective</b>	The doorsets as provided by the client were subjected to enhanced security testing in accordance with PAS24:2016 Annex A&B and achieved the requirements for a classification D for Doorsets.
<b>Observations &amp; comments</b>	The self-gripping pliers used during the security hardware test were Irwin Vise Grip 10R (straight jaw) and 10WR (curved jaw)

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## LIMITATIONS

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<b>Limitations</b>	The results relate only to the behaviour of the specimens of the element of construction under the particular conditions of test. They 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.
<b>Range of assemblies covered by this report</b>	It is our opinion that the range of assemblies covered by this report are limited to the following <ul style="list-style-type: none"><li>▪ Assemblies with identical hardware fitted no further apart than in the tested assembly</li><li>▪ Assemblies of the same or smaller overall dimensions to the tested assembly</li></ul>
<b>Uncertainty of Measurement</b>	The uncertainties of measurements calculated for a confidence level of 95% throughout these tests are within the limits of these tolerances.

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## REVISION HISTORY

This issue of the report replaces all previous issues that are now withdrawn.

<b>Issue No :</b>	<b>Re - Issue Date :</b>
<b>Revised By:</b>	<b>Approved By:</b>
<b>Reason for Revision:</b>	

<b>Issue No :</b>	<b>Re - Issue Date :</b>
<b>Revised By:</b>	<b>Approved By:</b>
<b>Reason for Revision:</b>	

**END OF REPORT**