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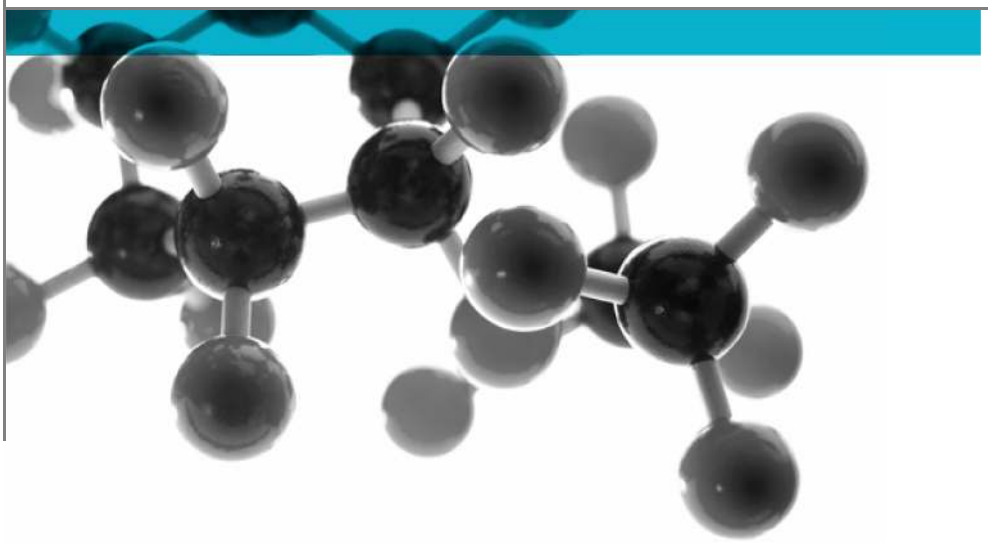
PAS 24:2016

Annex A&B



Test of: Arbor- Fenex 68f Alu Clad Timber Composite Balcony Doorset

Enhanced security performance requirements for doorsets

A Report To:
Selectron Elektrokimya Sanayi ve Ticaret Ltd. Sti
Ataturk Bullvari No 74, Silivri 34570 Istanbul, Turkey

Document Reference:
WIL 394488

Date: 30/03/2018

Copy: 1

Issue No.: 2

Testing
Advising
Assuring

Registered Office: Exova (UK) Ltd, Lochend Industrial Estate, Newbridge, Midlothian EH28 8PL United Kingdom. Reg No.SC 70429

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UKAS TESTING
0621

TEST CONCLUSIONS

Samples of:
Manufacturer Selectron Elektrokimya Sanayi ve Ticaret Ltd. Sti
Product Doorset
Model Arbor- Fenex 68f Alu Clad Timber Composite Balcony Doorset

have been tested in accordance with: PAS24:2016 Annex A & B
By Exova Wednesbury, 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
4	**Enhanced security performance requirements**	**N/T**
4.1.1	Classification of use	N/T
4.1.2	Locking cylinder	N/T
4.2	Infill medium	N/T
4.3	Letterplates	N/A
4.4	Classification	N/C
5	**Marking**	**N/T**
6	**Design and general requirements**	**N/T**
Annex A	**Security hardware and cylinder test and assessment**	**NO**
A.3	Test procedure	YES
A.4	Cylinder vulnerability assessment	NO
Annex B	**Enhanced security performance for doorsets**	**YES**
B.4.3	Manipulation test	YES
B.4.4.2	Infill manual test	YES
B.4.4.3	Infill mechanical test	YES
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: Sam Laxton,Trainee Test Engineer
Brett Devey,Trainee Test Engineer

Report issued by: Chris Bryan, Senior Test Engineer

Signed

Date 30th March 2018

For and on behalf of Exova (UK) Ltd

Report authorised by: Mark West, Door & Window Laboratory Manager

Signed 

Date 30th March 2018

For and on behalf of Exova (UK) Ltd

Report issued: 30 March 2018

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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	Selectron Elektrokimya Sanayi ve Ticaret Ltd. Sti
Address	Ataturk Bullvari No 74, Silivri 34570, Istanbul, Turkey
Contact	Huseyin Caliskan

ORDER DETAILS

Order number	180117
Dated	17/01/2018

SAMPLE DETAILS

Outer frame	1100 x 2400 x 80mm
Opening leaves	1012 x 2347 x 70mm
Configuration	Single doorset, Open-in
Material	Timber with aluminium cladding
Details of Hardware	
Hinges	3No. Simonswerk Butt Hinges 4030 3D FD
Hinge protection	2No. MACO Dog Bolts 97528 & 94089
Lock	MACO 2017 2 3No. Hook bolts 238352
Cylinder	ASSA 1* CYL 6M22 3 KEYS SCH
Handles	Yale Level Handle Y2G-SSLL-PC
Seals	Uniform EPDM seal DE 126 Schlegel Q Lon 3053 -3054

TEST DETAILS

Test specification	PAS 24:2016
Full test	Yes
Test to clauses	Annex A&B
Sample received	24/01/2018
Test started	25/01/2018
Test completed	25/01/2018
Special Test requirements	
Other reports to be used in conjunction with this report	

TEST PROCEDURE

Introduction	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. The specimens were judged on their ability to comply with the performance criteria as required in PAS24:2016 Annex A & B.
Instruction To Test	Initial requirement was for a classification of D for doorsets..
Test Specimen Construction	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.
Installation	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. Mr Huseyin Caliskan, a representative of Selectron Ltd Sti witnessed the test.
Sampling	The samples were not independently witnessed or selected and were provided direct from the test sponsor.
Test Climate	The sample was conditioned in the laboratory in the range 15-30 °C and 25-75% humidity for at least 12 hours. The temperature and humidity in the lab was maintained in the range 17.9-18.2°C and 61.2-76.7% humidity for the duration of the test.

INITIAL OBSERVATIONS

The internal face of the sample

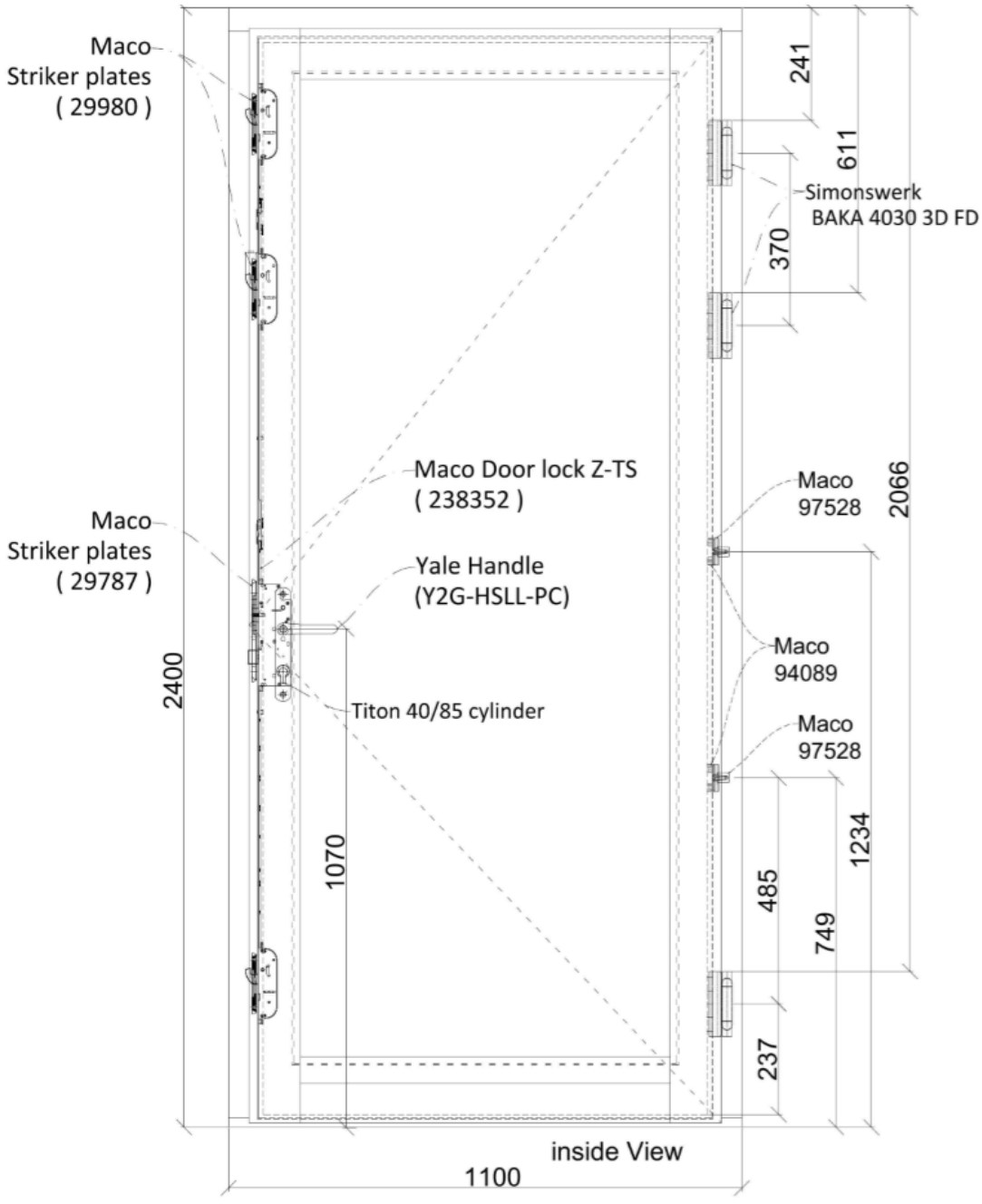
Sample locking mechanism

Sample Keeps

Sample Hinge / Hinge Protection

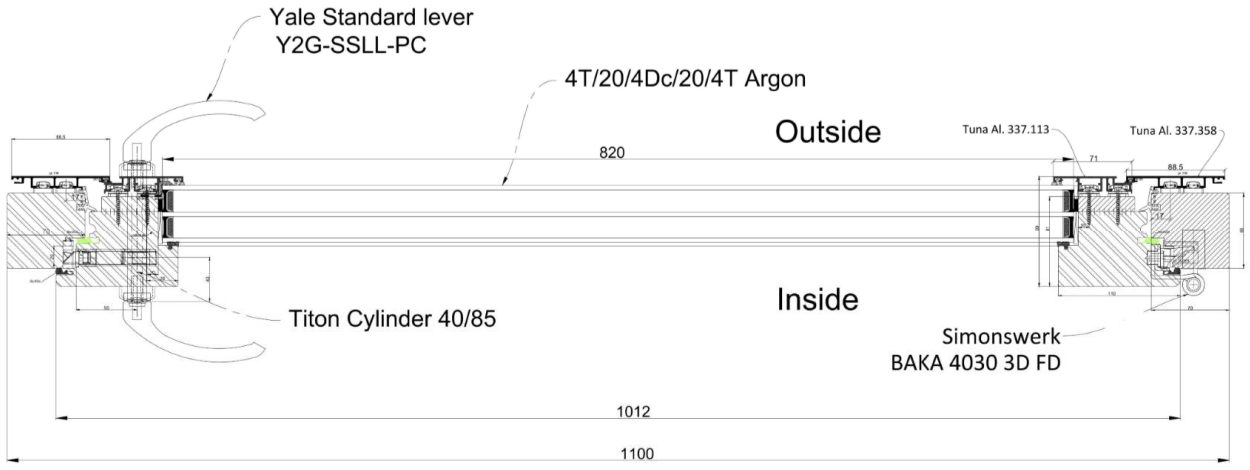
TEST SPECIMEN

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



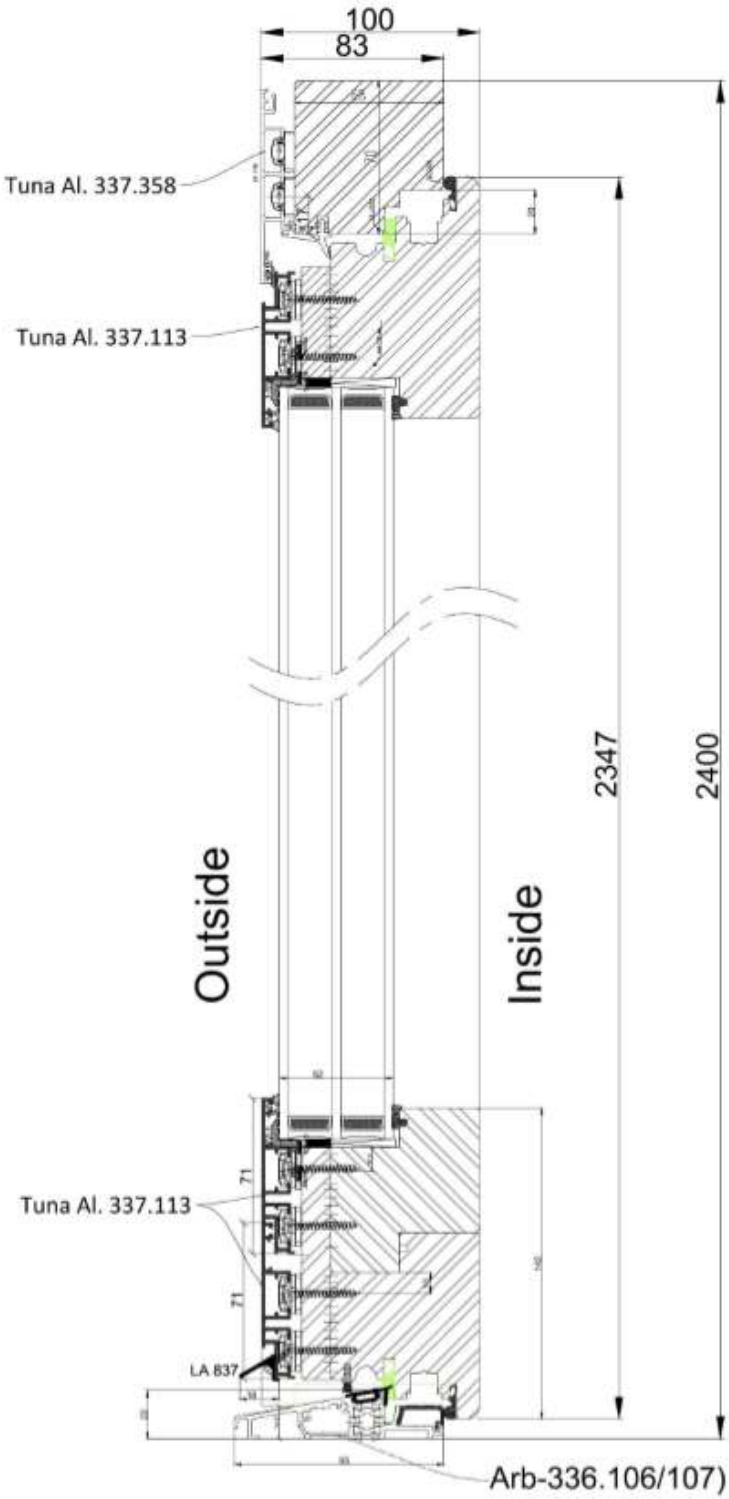
Do not scale. All dimensions are in mm

Figure 2 – Horizontal section



Do not scale. All dimensions are in mm

Figure 3 – Vertical section



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

Item		Description
1. Door frame head		
Material	:	Wood / Pine (Hecht & Kloth)
Density	:	450 kg/m^3 (stated)
Overall section size	:	68 x 70 mm
Rebate	:	27 x 20 mm
Fixing jamb to head joints	:	Finger Joint / Conduit
Details of adhesive		
i. supplier	:	SOUDAL (Belgium)
ii. reference	:	D4 105333
2. Door frame jamb		
Material	:	Wood / Pine (Hecht & Kloth)
Density	:	450 kg/m^3 (stated)
Overall section size	:	68 x 70 mm
Rebate	:	27 x 20 mm
Fixing jamb to sill joints	:	Finger Joint / Conduit
Details of adhesive		
i. supplier	:	SOUDAL (Belgium)
ii. reference	:	D4105333
3. Door frame weather seals		
Description	:	EPDM Seal
Manufacturer	:	Uniform (Italy)
Reference	:	DE 126
Fixing method	:	Put into the seal grove.
Position	:	Side frames and Top rail
Continuity	:	Uninterrupted by hardware
4. Door frame threshold		
Supplier	:	Tuna Aluminum
Reference	:	336 - (106 & 107)
Material	:	Aluminium
Overall section size	:	96 x 22 mm
Fixing to sill	:	
i. type	:	Screw
ii. size	:	5 x 60 mm
iii. quantity	:	6 No

Item		Description
5. Door frame cladding		
Supplier	:	Tuna Aluminium
Profile code	:	337.358
Material	:	Aluminium
Grade	:	6063 T6
Gauge / wall thickness	:	1,4 mm
Overall section size	:	89 x 12 mm
Fixing cladding to casement		
i. type	:	Clips ”KSC-1“ (Clip fitted onto face of timber)
ii. size	:	18x18x10
iii. quantity	:	1 No in per 100 mm
6. Door leaf framing		
Overall Size	:	1100 x 2347 mm
Material	:	Wood / Pine (Hecht & Kloth)
Density	:	450 kg/m3
Doorleaf framing section sizes		
i. stile	:	81 x 110 mm
ii. top rail	:	81 x 110 mm
iii. bottom rail	:	81 x 142 mm
Glazing rebate	:	18 mm
Corner fixing method	:	Finger Joint / Conduit
Details of adhesive		D4
i. supplier	:	SOUDAL (Belgium)
ii. reference	:	105333
7. Door leaf weather seals		
Description	:	Schlegel (Germany)
Manufacturer	:	Schlegel
Reference	:	Q Lon 3053 -3054
Fixing method	:	Put into the seal groove
Position	:	All four edges
Continuity	:	Uninterrupted by hardware
8. Door leaf glass (IGU)		
Supplier	:	YILDIZ CAM
Thickness	:	52 mm - Configuration 4mm Toughened / 20 /4mm
Overall size	:	Clear / 20 /4 mm Toughened Argon, Aluminium Spacer 820 x 2123 mm
Nominal edge clearance	:	4 mm
9. Glazing setting blocks		
Supplier	:	Hecht & Kloth
Material	:	Wood / Pine 450 kg/m3
Thickness	:	4 mm
Overall size	:	52 x 100 mm

Item		Description
10. Glazing tape (internal face)		
Supplier	:	Uniform
Reference	:	DE 133
Material	:	EPDM
Thickness	:	3 mm
Overall size	:	11 x 7 mm
Fixing method	:	Put into the seal groove
11. Glazing tape (external face)		
Supplier	:	Uniform
Reference	:	DE 34
Material	:	EPDM
Thickness	:	3 mm
Overall size	:	6 x 10 mm
Fixing method	:	Put into the seal groove
12. Glazing beads		
Material	:	Aluminium 337.113
Density	:	
Overall size	:	71 x 15 mm
Fixing method	:	Clips (Clip fitted onto face of timber)
i. type	:	KNC-1
ii. size	:	18 x 18 x 10 mm
iii. quantity	:	1 No
iv. centres	:	100
13. Door leaf cladding		
Supplier	:	Tuna Aluminium
Profile code	:	337.113
Material	:	Aluminium
Grade	:	6063 T6
Gauge / wall thickness	:	1,4 mm
Overall section size	:	71 x 15 mm
Fixing cladding to casement		
i. type	:	Clips “KNC-1” (Clip fitted onto face of timber)
ii. size	:	18 x 18 x 10
iii. quantity	:	2 No in every 200 mm
Details of adhesive		
i. supplier	:	1 No
ii. reference	:	100 mm

Item		Description
14. Hinges		
Supplier	:	Simonswerk
Description	:	BAKA 3D Hinge
Reference	:	4030 3D FD
Primary material	:	Steel
Quantity	:	3
Size of knuckle	:	20 mm (Diameter)
Size of blades	:	3,5 x 39 x 110 mm
Fixing hinge to doorleaf		
i. type	:	Wood screws into doorleaf
ii. size	:	5 x 40 mm
iii. quantity	:	5No
Fixing hinge to frame		
i. type	:	Pins
ii. size	:	5 x 35mm
iii. quantity	:	5No
Position of hinge		
i. top hinge	:	241 mm from top of door to top of hinge
ii. middle hinge	:	541 mm from top of door to top of hinge
iii. bottom hinge	:	1996 mm from top of door to top of hinge
15. Dog bolts		
Supplier	:	MACO
Description	:	Dog bolts (Lock & Lock Keeps)
Reference	:	97528 & 94089
Material		Steel
Quantity & position	:	2No 749mm from bottom of door to centre of bottom bolt 1234mm from bottom of door to centre of top bolt
Overall size		
i. dog bolt	:	58 x 42 x 21 mm
ii. retaining ring / keeper	:	58 x 32 x 24 mm
16. Lock		
Supplier	:	MACO (Austria)
Description	:	Door lock Z-TS
Reference	:	238352
Position	:	1070 mm from bottom of door to centre of spindle/lock
Fixings		
i. type	:	Screws
ii. size	:	3.5 x 35mm
iii. quantity	:	15

Item		Description
17. Lock Keeps		
Supplier	:	Maco
Description	:	Striker plates
Material	:	Stainless Steel
Reference		
i. top & bottom keeps	:	29980
ii. centre keep	:	29787
Overall size		Metal in
i. top & bottom keeps	:	8 x 20 x 120 mm
ii. centre keep	:	8 x 20 x 208 mm
Fixing keeps to frame		
i. type	:	Screws
ii. size	:	4 x 30 mm
iii. quantity	:	2
18. Cylinder		
Supplier	:	ASSA
Description	:	CYL 6M22 3 KEYS SCH
Reference	:	6M22 3
Fixings		
i. type	:	machine screws
ii. size	:	M5 x 65mm
iii. quantity	:	1 No
19. Lever handles		
Supplier	:	Securistyle
Description	:	Yale - Y2G-SSLL-PC
Reference	:	Y2G-SSLL-PC
Material	:	Stainless steel
Fixings		
i. type	:	Machine screws
ii. size	:	M5 x 90mm
iii. quantity	:	2
20. Drip plate		
Supplier	:	Tuna Aluminium
Description	:	837
Reference	:	18 x12 mm
Material	:	Aluminium 6063 T6
Fixings		
i. type	:	screws
ii. size	:	3,5x15mm
iii. quantity	:	4 No

PERFORMANCE CRITERIA & TEST RESULTS

Clause	Result		Compliance
4.1.1 Classification of use	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 No evidence supplied by client.	**N/T**
4.1.2 Doorsets	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 does not meet the requirements of Annex A of PAS24. Doorset meets the requirements of Annex B of PAS24.	**NO**
	Cylinders falling within the scope of EN1303:2015 used in the tested door assembly shall meet the requirements TS007 3* or of key related security to grade 5 and Resistance to drilling grade 2.	No evidence supplied by client. Performance not assessed	**NO**
4.2 Infill medium requirements	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 No evidence supplied by client	**N/T**
4.3 Letterplates	Letter plates shall have a maximum aperture size of 260 x 40mm	Doorset not fitted with a letterplate, not applicable.	**N/A**
	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.	**N/A**
	Letterplate shall meet the requirements of TS008:2015 enhanced security grade 2	Doorset not fitted with a letterplate, not applicable.	**N/A**

Clause	Result		Compliance
4.4 Classification	Following testing to Annex A & Annex B the final classification shall be determined as D for a doorset.	Doorset not classified.	**NOT CLASSIFIED**
5 Marking	Door assembly shall be permanently marked, in a position that is visible and accessible when the door is open, with the following information: • The number and date of the specification and the classification, i.e. PAS24:2016 D • The date of manufacture (at least year and quarter) • The name or trade mark or other means of identifying the manufacturer	Performance not assessed Pre certification prototype only. No labels supplied as yet. Customer advised of labelling requirements for production doorsets.	**N/T**
6.1 Doorsets	Where a doorset includes dummy vents, fixed lights, fixed panels and/or opening lights these shall meet the requirements for a doorset	No dummy vents, fixed panels or opening lights included in doorset.	**N/A**
6.2 Installation instructions	The manufacturer shall supply full instructions for assembly, installation and maintenance	Performance not assessed Pre-certification prototype only. No installation instructions supplied as yet. Customer advised of installation instruction requirements for production doorsets.	**N/T**

Clause	Requirement	Result	Pass / Fail
A.3 Security hardware and cylinder test	Attacks were made with the curved jaw mole grips to try and remove the handle to reveal the cylinder, doing this created space behind the handle to allow the nor bar to be placed behind it to try and pry off the handle but the pivot point was located on the glass so this could not be used. Further attacks were made with the brick bolster to try and take off the handle but the time ran out and entry was not gained. Total attack time 3 minutes.		**PASS**
	Attacks were made with the traction screws and the cross point screw driver to try and pull the cylinder out of the handle to reveal the inside but the screws snapped in the cylinder before a good grip could be made, Further attacks were made with the brick bolster to try and take off the handle but the time ran out and entry was not gained. Total attack time 3 minutes.		**PASS**
A.4 Cylinder vulnerability assessment	Additionally cylinders shall have been successfully assessed in accordance with the requirements of Annex A.4 of PAS24:2016 cylinder vulnerability assessment.	No evidence supplied by client. Performance not assessed.	**N/T**
Annex B: Enhanced security performance requirements for doorsets			
B.4.3 Manipulation test	Attacks were made with the craft knife for 3 minutes to try and remove material from the door leaf to try and expose the hinge but the time ran out before any real damage was done so entry was not gained. Attacks were made with the paint scraper for 3 minutes to try and disengage the locking point but the time ran out before any real damage was done so entry was not gained. Attacks were made with the small flat headed screwdriver for 3 minutes to try and disengage the locking point but the time ran out before any real damage was done so entry was not gained.		**PASS**
B.4.4.2 Manual test on infill	Attacks were made with the craft knife to try and cut away as much gasket as possible to try and get a grip of the loose ends to then pull out but not enough gasket could be gripped. Attack lasted 3 minutes, entry was not gained.		**PASS**
B.4.4.3 Mechanical test on infill	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		**PASS**
B.4.4.4 Manual cutting test	Attacks were made with the 6mm chisel to try and remove as much of the door leaf as possible, due to it being aluminium entry was not gained. Attack time was a total of 3 minutes.		**PASS**

Clause	Requirement	Result	Pass / Fail
B.4.5 Mechanical loading test	Attempts to apply Mechanical loads to all the hinge points and locking points were made with the following results obtained. **Point 1: Top Hinge** 1.5kN parallel (horizontal) and 4.5kN perpendicular load held for 10s. **Point 2: Middle Hinge** 1.5kN parallel (horizontal) and 4.5kN perpendicular load held for 10s **Point 3: Dog Bolt 1** 1.5kN parallel (horizontal) and 4.5kN perpendicular load held for 10s **Point 4: Dog Bolt 2** 1.5kN parallel (horizontal) and 4.5kN perpendicular load held for 10s. **Point 5: Bottom Hinge** 1.5kN parallel (horizontal) and 4.5kN perpendicular load held for 10s. **Point 6: Bottom hook bolt** 1.5kN parallel (Down) and 4.5kN perpendicular load held for 10s. 1.5kN parallel (horizontal) and 4.5kN perpendicular load held for 10s. **Point 7: Dead Bolt** 1.5kN parallel (horizontal) and 4.5kN perpendicular load held for 10s. **Point 8: Hook bolt 2** 1.5kN parallel (Down) and 4.5kN perpendicular load held for 10s. 1.5kN parallel (horizontal) and 4.5kN perpendicular load held for 10s. **Point 9: Top Hook Bolt** 1.5kN parallel (Down) and 4.5kN perpendicular load held for 10s. 1.5kN parallel (horizontal) and 4.5kN perpendicular load held for 10s. All loads were held and no entry was achieved.		**PASS**

Clause	Requirement	Result	Pass / Fail
Defined mechanical loading points			
B.4.6 Manual check test	Attacks were made with the Big Flat headed Screwdriver & Nail Bar to try and disengage the hook bolt to allow the 50mm bar through according to standard, the face plate on the frame of the door came free but entry was no gained. Attacks were made with the Big Flat headed Screwdriver & Nail Bar to try and great space behind the hinges to allow the 50mm bar through according to standard, there was little flexing in the door leaf when attacking, but after 3 minutes of attacking entry was not gained. Attacks were made with the Big Flat headed Screwdriver & Nail Bar to try and great space behind the hinges to allow the 50mm bar through according to standard, the face plate on the frame of the door came free but entry was no gained.		**PASS NO VULNER-ABILITY IDENTIFIED**
B.4.7 Additional mechanical loading test	Testing was not required as no vulnerabilities were identified in the manual check test.		**NOT REQUIRED**

Clause	Requirement	Result	Pass / Fail
B.4.8 Soft body impact test	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. No visible damage was caused by these impacts and no entry was gained.		**PASS**
B.4.9 Hard body impact test	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. **Point 1: Top Hinge Side Corner** 3 impacts applied, entry not achieved **Point 2: Top Hinge** 3 impacts applied, entry not achieved **Point 3: Middle Hinge** 3 impacts applied, entry not achieved **Point 4: Dog Bolt 1** 3 impacts applied, entry not achieved **Point 5: Dog Bolt 2** 3 impacts applied, entry not achieved **Point 6: Bottom Hinge** 3 impacts applied, entry not achieved **Point 7: Bottom Hinge Side Corner** 3 impacts applied, entry not achieved **Point 8: Bottom Locking Side Corner** 3 impacts applied, entry not achieved **Point 9: Bottom Hook Bolt** 3 impacts applied, entry not achieved **Point 10: Cylinder** 3 impacts applied, entry not achieved **Point 11: Dead Bolt** 3 impacts applied, entry not achieved **Point 12: Middle Hook Bolt** 3 impacts applied, entry not achieved **Point 13: Top Hook Bolt** 3 impacts applied, entry not achieved **Point 14: Top locking Side Corner** 3 impacts applied, entry not achieved		**PASS**

CONCLUSIONS

Evaluation against objective	The doorsets as provided by the client were subjected to enhanced security testing in accordance with PAS24:2016 and failed to achieve the requirements for a classification of D for doorsets.
Observations & comments	The self-gripping pliers used during the security hardware test were Irwin Vise Grip 10R (straight jaw) and 10WR (curved jaw)

LIMITATIONS

Limitations	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.
Range of assemblies covered by this report	It is our opinion that the range of assemblies covered by this report are limited to the following ▪ Assemblies with identical hardware fitted no further apart than in the tested assembly ▪ Assemblies of the same or smaller overall dimensions to the tested assembly
Uncertainty of Measurement	The uncertainties of measurements calculated for a confidence level of 95% throughout these tests are within the limits of these tolerances.

REVISION HISTORY

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

Issue No : 2	**Re - Issue Date : 30th March 2018**
Revised By: MW	**Approved By: CB**
Reason for Revision: Modified title to Arbor- Fenex 68f Alu Clad Timber Composite Balcony Doorset to correct missing 'f'	

END OF REPORT