

Test Report

ISSUED BY Chirag Patel
DATE OF ISSUE 22/10/2018



ERA
i54, Valliant Way,
Wolverhampton,
West Midlands WV9 5GB

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Approved Signatory

Name Ben Penson

Signature

Client Name: Falcon Panel Products Ltd.

Address: Clock House
Station Approach
Shepperton
TW17 8AN

Test Report Number: 1911

System Tested: Single Door

System Tested By: ERA
i54, Valliant Way
Wolverhampton
West Midlands
WV9 5GB

Test Standard: BS 6375-2:2009 - Performance of Windows and Doors

	Test Method	Classification
Operating Forces for Doorsets	BS EN 12046-2:2000	BS EN 12217:2003
Vertical Loading	BS EN 947:1999	BS EN 1192:2000
Static Torsion	BS EN 948:1999	BS EN 1192:2000
Soft and Heavy Body Impact	BS EN 949:1999	BS EN 1192:2000
Hard Body Impact	BS EN 950:1999	BS EN 1192:2000
Load-bearing Capacity of Safety Devices	BS EN 948:1999	BS EN 14351-1:2006

Testing Conducted By: Adrian Stokes, Jason Taylor & Chirag Patel

(ERA)

Date(s) of Test: 21/03/2018

Test Preliminaries: The ambient temperature and humidity close to the sample was within the range 10° to 30° and 25% to 75% RH

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Test Results Summary

Operating Forces: Class 2

Mechanical Strength: Class 2

The following series of tests were carried out independently but are grouped together to achieve the overall classification for Mechanical Strength.

Vertical Load: 600 N

Static Torsion: 250 N

Soft & Heavy Body Impact: 60 J

Hard Body Impact: 3 J

**Load-bearing Capacity of
Safety Devices:** N/A

Test Conditions: Temperature °C 18.2 - 19.5
 Relative Humidity % 32.5 - 36.2

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Sample Specification

System Manufacturer: Falcon Panel Products Ltd. (Leaf: Deziign Carpentry)

Model: Unknown

System Type: Single Door (Stredor 44 MDF)

System Size: W 1111 mm x H 2444 mm - Leaf W 1047 mm x H 2402 mm x Thickness 44 mm

Method of Jointing: Half Lap, Glued & Screwed

Materials & Surface

Treatment: None

Profile Part Number: Frame - European Redwood Min Density 510kg/m³, 90x44 having 47x15mm rebate. 2 No. 10x4mm grooves in rebate, 10mm apart fitted with STS104FO
Leaf -Stredor 44 MDF (min density 550kg/m³)with 8mm Hardwood (Sapele min density 640kg/m³) applied to hinge, lock and bottom edges, 18mm to top edge, using PU adhesive.

Reinforcing Part Number: None

Glazing Description: ST105-DS Tape. 20x23 HW Beads (Bollection - fixed with 4x50mm screws). 44x6 HW Aperture Liner (fixed with PU adhesive). Screws min 50mm from corners and at minimum 150mm centres. 3mm expansion gaps allowed between the glass perimeter and adjacent aperture liner.

Locking System: ERA Classic Surefire 2 hook, 1 deadbolt, 3 latch Multipoint Lock with 44mm Composite Steel Keeps. STS 1mm Intumescent Hardware protection to central deadbolt and behind keeps.

Hinges: Cooke Bros CB7765/CB7766 Lift Off SZP, 1 No. 150mm from top of leaf to top of hinge, 1 No. 180mm from bottom of leaf to bottom of hinge and 1 No. centrally between hinges. Hinges have 25x1 STS hinge pad behind each blade.

Handle: Fab & Fix Balmoral

Other Hardware Details: Rutland ITS11204 Concealed Overhead Closer with 1mm intumescent protection
STS 422 Mechanical Drop Seal

*Above details are not fully verified ERA.

*See test sample drawings as supplied by Falcon Panel Products Ltd.

This report and the results shown within are based upon the information, drawings, samples and tests referred to in the report. The results are valid only for the conditions under which the test was conducted and for the specific range of doorsets. The results obtained do not necessarily relate to samples from the production line of the above named company.

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Test Descriptions

Test Specimens

Doors which are designed to be glazed were supplied for testing with all glazing carried out in accordance with the door manufacturer's specification. The door specimens were fixed in a timber or aluminium sub-frame of rectangular section (nominal 75 mm x 100 mm), using suitable fixings at centres as specified in the system suppliers instructions. The fixings entered the sub-frame through the door frame. All protective packaging were removed before testing.

The test specimens were stored and tested in a non-destructive environment within the ranges of 15 °C to 30 °C and 25 % to 75 % relative humidity.

The test specimens were mounted into a test rig which is sufficiently rigid to withstand the test loads without the deflection which could influence the test result.

Apparatus

The following **calibrated** test instruments were used;

- Mecmesin Digital Force Gauge 500 N
- Iron Newton Slotted Weights 1 - 20 N
- Digital Protractor 360°
- Soft and Heavy Body Impactor 350mm 30.1 kg
- Hard Body Impactor 50 mm, 0.515 kg
- Torque Wrench 0 - 4 Nm
- Digital Depth Gauge 0 - 12"
- Load Cell and Digital Indicator 25 kN
- Digimatic Indicator 12.7 mm
- Steel Ruler 300 mm

Test Procedures

Operating Forces

Dynamic Closing Force

Tests were performed on the specimen as received and was immediately preceded by manual operation of all moving parts 5 time.

A cord was fasten to the attachment point, positioned over the pulley and fasten at the other end with weight. The weight was allowed to hang freely when the movable parts of the test specimen was closed.

For hinged and pivoted specimens the movable part was opened through at the distance that raises the weight 200 mm. For sliding specimens the movable part was opened through a distance that raises the weight 100 mm plus the distance required to engage any personal safety device. The movable part was released from this position and the minimum weight to engage the latch or personal safety device was determined. The procedure of opening and closing the specimen was repeated three times and averaged to obtain the final value.

Operating the Hardware

A minimum force or torque was applied to release the latch, lock and unlock the hardware. The procedure was repeated three times and averaged to obtain the final value.

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Commence and Maintain the Motion

A linear actuator or a weight and pulley system was attached to the test specimen and the minimum force to commence and maintain the motion was measured. The procedure was repeated three times and averaged to obtain the final value.

Vertical Load

Without any vertical restraint, the door leaf was positioned at an angle of $(90 \pm 5)^\circ$ to the plane of the frame. The diagonal of the door leaf to the nearest 1 mm was measured.

A preload of (200 ± 4) N, vertically to the top of the lock-side corner of the door leaf was applied, (50 ± 5) mm from the opening edge, and this load was maintained for (60 ± 5) s. The load was removed after (60 ± 5) s and the location of the lower corner of the door leaf to the nearest 0,1 mm was measured.

To the same loading point a static load (see EN 1192:1999 - Table 1) was applied and maintained for (300 ± 5) s. The maximum deformation under load to the nearest 0,1 mm was measured. The load was removed after (180 ± 5) s and the measurement at the lower corner of the door leaf was repeated, and measurement of the diagonal was taken.

All loads were carefully applied and removed in increments of maximum 100 N, and over a minimum of 1 s for each increment.

Static Torsion

Without any vertical restraint, the door leaf was positioned at an angle of $(90 \pm 5)^\circ$ to the plane of the frame, and the top lockside corner was fixed at a point (50 ± 5) mm from each edge of the door leaf.

A preload of (200 ± 4) N, horizontally and normal to the plane of the leaf at the lower lockside corner was applied, at a point (50 ± 5) mm from each edge of the door leaf. This load was maintained for (60 ± 5) s. The load was removed after (60 ± 5) s and the location of the lower corner of the door leaf at the loading position was measured to the nearest 0,1 mm.

To the same loading point a static load (see EN 1192:1999 - Table 1) was applied and maintained for (300 ± 5) s. The maximum deformation under load to the nearest 0,1 mm was measured. The load was removed after (180 ± 5) s and the measurement at the lower corner of the door leaf was repeated.

All loads were carefully applied and removed in increments of maximum 100 N, and over a minimum of 1 s for each increment.

Soft and Heavy Body Impact

The door leaf to be tested was closed and where applicable secured in accordance with its normal operating mode. The impact point was identified at the centre of the door leaf. Where the impact point coincides with the handle, the handle was removed.

With the reference bar, any deviation in flatness across the width of the door leaf at the height of the impact point was measured to the nearest 0,1 mm before and after impact.

The impact body was suspended so that at rest it makes light contact with the surface of the door leaf. The impact body was raised so that the drop height, with a tolerance of ± 10 mm, corresponds to the required impact energy.

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Hard Body Impact

The door leaf was mounted horizontally, with rigid supports under the long edges resting on a solid base. One of the 4 aiming patterns such that the theoretically weakest point is included was selected. Any glazed area was omitted

Impact points in the topmost row or rows of the aiming pattern was omitted where the height of the door leaf is less than 2 000 mm. The test area was not extended where the height is more than 2 000 mm.

The release tube was positioned vertically over each of the impact points in turn, and the steel ball was dropped from a height, which corresponds to the required impact energy.

Where a permanent imprint is left by any impact, after 30 min the maximum depth of the indentation to the nearest 0,1 mm and the maximum diameter of the indentation to the nearest 1,0 mm was measured.

The procedure for the other face of the door leaf was repeated only if the door construction is not symmetrical.

Test Results

Operating Forces

Active Leaf of the door specimen

Sash	Test	Test 1	Test 2	Test 3	Average	Classification
Active	Dynamic Closing Force (N)	40.5	39.5	38	39.33	Class 2
	Lock Hardware (Nm)	0.3	0.3	0.2	0.27	Class 4
	Un-lock Hardware (Nm)	0.4	0.4	0.4	0.40	Class 4
	Disengage Hardware (N)	42.5	43	46	43.83	Class 2
	Commence Opening (N)	11	14.5	12	12.50	Class 3

Vertical Load

Active Leaf of the door specimen

Sash	Test	(mm)
Active	The deformation under load	0.29
	Residual deformation of the doorset in the vertical plane	0.10
	Residual deformation of the door leaf (difference of the diagonal before and after)	0.00
Classification		Class 2

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Static Torsion

Active Leaf of the door specimen

Sash	Test	(mm)
Active	The deformation under load	2.02
	Residual deformation of the door (before application of load - 180 s after the removal of load)	0.07
Classification		Class 2

Soft and Heavy Body Impact

Face of Impact

Internal & External

Impact Location*	Deviation in Flatness Before Impact across width of door leaf (mm)	Deviation in Flatness After Impact across width of door leaf (mm)	Classification
SH1	104.8	104.8	Class 2
SH2	105.3	105.3	Class 2

* See Drawing of Test Sample

Hard Body Impact

Face of Impact	External (Customer Requested)	Aiming Pattern	2
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Impact Location*	Maximum Depth of the Indentation (mm)	Maximum Diameter of the Indentation (mm)	Maximum Diameter of the Cracking Area (mm)	Nature of Any Damage
H1	0.0	0.0	0.0	No Damage
H2	0.0	0.0	0.0	No Damage
H3	0.1	0.0	0.0	No Damage
H4	0.1	0.0	0.0	No Damage
H5	0.0	0.0	0.0	No Damage
H6	0.1	0.0	0.0	No Damage
H7	0.1	0.0	0.0	No Damage
H8	0.1	0.0	0.0	No Damage
H9	0.1	0.0	0.0	No Damage
H10	0.0	0.0	0.0	No Damage
H11	0.0	0.0	0.0	No Damage
H12	0.0	0.0	0.0	No Damage
H13	0.0	0.0	0.0	No Damage
H14	0.0	0.0	0.0	No Damage
H15	0.1	0.0	0.0	No Damage
	0.05	0.00	0.00	Average
	0.05	0.00	0.00	Standard Deviation
	1.11	0.00	0.00	Coefficient of Variation
Classification				Class 2

* See Drawing of Test Sample

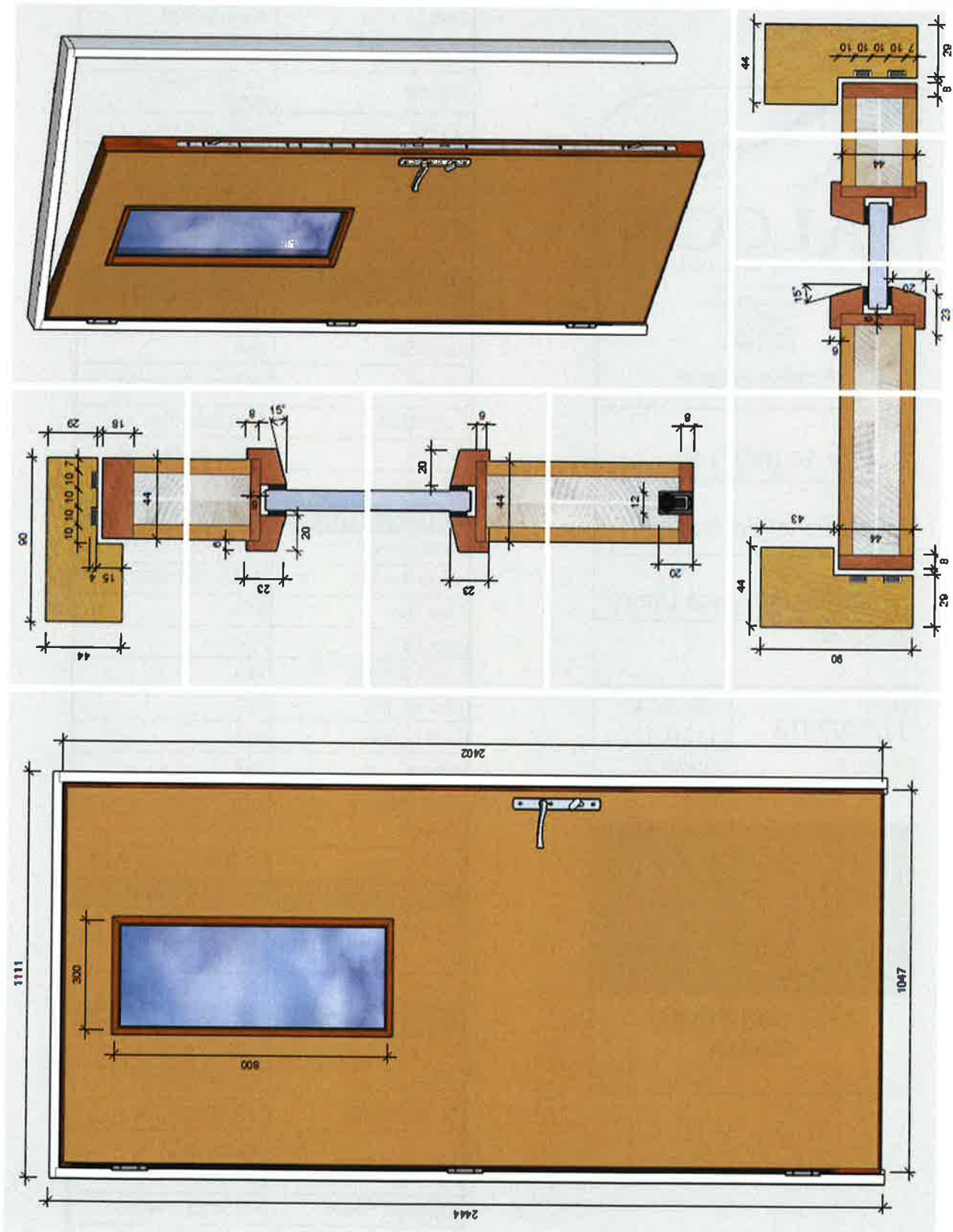
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Drawing of Test Sample



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 <p>FALCON PANEL PRODUCTS LTD Clock House Station Approach Shepperton Middlesex TW17 3AW sales@falconpp.co.uk 01932 298580</p>	
TITLE Stredor 44 (MDF) 01	
CLIENT Falcon Panel Products	
PROJECT 30 Minute Entrance Doors	
PROJECT NO.	
ISSUE 12/10/2018	SCALE @ A3 1:10 1:2
RE-ISSUE	DRAWN BY NH
DRAWING NUMBER FPP/GA/SAV44-SDM01	
REV	
SAV44-SB-SD001-FINALA	

SPECIFICATION	
Core	Stredor 44 MDF
Lips	8/18mm Sapele 640kg/m ³
G/Bead	23x20mm Sapele 640kg/m ³
Glass	P1A FD30 Glass
Glazing System	ST105-DS
Frame	Redwood 510kg/m ³
Stop	15mm Integral
Frame Join	Trench
HARDWARE	
Hinge	CB7765 or CB7766
Flush Bolt	N/A
Closer	Rutland ITS11204
Latch/Lock	ERA Sure Fire
Handle	Fab & Fix Balmoral
Cylinder	ERA Fortress 3* 35/35
INTUMESCENT	
Jamb Reveal	2 No. 10x4 STFO
Head Reveal	2 No. 10x4 STFO
Leaf Top	N/A
Leaf Btm	N/A
Leaf HS Edge	N/A
Leaf ML MS	N/A
Leaf SL MS	N/A
Hinges	N/A
Flush Bolt	N/A
Closer	1mm STS
Latch/Lock	STS Multi Point Pack
SPECIMENS	
Manufacturer	CONFIDENTIAL
Sampled?	YES
SO Ref	CONFIDENTIAL
TEST INFORMATION	
Test Lab	CONFIDENTIAL
Contract No.	CONFIDENTIAL
Co Sponsors	CONFIDENTIAL
Test Standard	BS476 Pt 22 PAS24:2016
Expected Result	FD30/30 - PASS