IFC GROUP | INTERNATIONAL FIRE CONSULTANTS

PAR/14377/01 Revision A
IFC FIELD OF APPLICATION REPORT

Prepared For:	Falcon Panel Products Ltd
Product/System:	FD60 Streframe Assemblies
Assessed Performance:	60 minutes fire resistance
Fire Resistance Standard:	BS 476: Part 22: 1987

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Report Reference:	PAR/14377/01 Revision A
Prepared For:	Falcon Panel Products Ltd
Client Address:	Clock House Station Approach Shepperton Middlesex TW17 8AN
Valid From:	February 2021
Valid To:	February 2026

ISSUE AND AMENDMENT RECORD

Revision	Date	Author	Reviewer	Section	Amendments
-	September 2014	PP	DC	-	-
A	February 2021	WL	DC	Various	Review and revalidation including change of format for report

CONTENTS

1. INTRODUCTION

This report has been prepared by International Fire Consultants Ltd (IFC), on the instruction of Falcon Panel Products Ltd, to define the field of application for the FD60 Streframe assemblies, comprising timber door leaves installed in Streframe 60 door frames, that are required to provide 60 minutes fire resistance performance, when adjudged against BS476: Part 22: 1987.

This assessment has been produced using the principles outlined in the Passive Fire Protection Forum (PFPF): 'Guide to undertaking technical assessments of the fire performance of construction products based on fire test evidence, 2019, Industry Standard Procedure'.

When establishing the variations in the construction that can achieve the required fire resistance performance, IFC complies with the principles found in the following documents:

- BS ISO/TR 12470-2: 2017 *'Fire resistance tests - Guidance on the application and extension of results from tests conducted on fire containment assemblies and products. Part 2: Non-load bearing elements'*
- EN 15725: 2010 *'Extended application reports on the fire performance of construction products and building elements'*

It is proposed that variations to the tested specifications, as described in the following sections, may be accommodated into door assemblies, without reducing their potential to achieve a 60 minute integrity rating, if tested in accordance with the method and criteria of BS476: Part 22: 1987.

The omission of information on any components or manufacturing methods does not imply a lack of approval of those details, but these would need to be the subject of a separate analysis. Only variations specifically mentioned are supported by this assessment document, all other aspects must otherwise be as proven in tests summarised herein.

It is more onerous to test timber door assemblies, hinged or pivoted, with the specimen installed with the leaf opening in towards the furnace. Testing in this orientation is therefore incorporated into Field of Application Reports to cover doors opening in the opposite direction. The principle is only applicable when the door construction, and any features within the door leaf, such as glazing, are symmetrical.

Unless stated otherwise, herein, this Field of Application considers the scope of approval for door assemblies that may be installed in either orientation, that being with either face exposed to fire conditions.

2. TEST EVIDENCE

The test evidence used to support this Field of Application Report is summarised in Appendix B of this report.

The test evidence referenced in this Engineering Assessment Report is more than 5 years old. In accordance with industry practice, IFC have reviewed this test evidence, and have concluded that the evidence is still valid, and suitable to form the basis of this approval.

3. SCOPE OF APPROVAL

3.1 Door Assembly Configurations

General Requirements/Notes
• The table below provides an overview of the approved door assembly configurations when using Streframe 60 assemblies. The approved leaf configurations may be further restricted when specific design details, leaf/frame facings and/or hardware items are included. • Figures A01 to A02 in Appendix A outline the full scope of door assembly configurations approved by this report.

Configuration		Frame Material
Description	Code	Streframe 60
Latched, Single Acting, Single Leaf Without Flush Overpanel	LSASD	✓
Unlatched, Single Acting, Single Leaf Without Flush Overpanel	ULSASD	✓
Latched, Single Acting, Double Leaf Without Flush Overpanel	LSADD	✓
Unlatched, Single Acting, Double Leaf Without Flush Overpanel	ULSADD	✓

3.2 Maximum Assessable Door Leaf Sizes

This Field of Application Report is based on fire resistance tests conducted on the FD60 Streframe assemblies, which have been analysed using the empirically derived, non-construction specific methodologies which form the basis of IFC's analysis. These methodologies allow the data obtained from the fire test evidence to be evaluated to determine permissible door leaf sizes, without any additional enhancements.

The calculated envelopes of assessed leaf dimensions for each door assembly configuration covered by this Field of Application report are given in Appendix A.

Double door assemblies may each be of the same width, up to the maximum width indicated in Appendix A. For unequal pairs there is no limit on the ratio of leaf widths, (although the large leaf must still be within the limitations in Appendix A). The width of the small leaf shall not be less than 300mm, since this will affect its vertical stability relative to that of the larger leaf.

4. FD60 DOOR LEAF CONSTRUCTIONAL DETAILS

The door leaf specifications for the assemblies within the scope of this report permit the following minimum 54mm thick FD60 flush door leaf constructions that have otherwise been included in an Engineering Assessment Report by IFC or tested to BS 476: Part 22 / BS EN 1634-1, within a hardwood frame of alternative species/density, and proven to achieve 60 minutes fire resistance performance.

Flush door constructions with MDF/ply/chipboard facings –

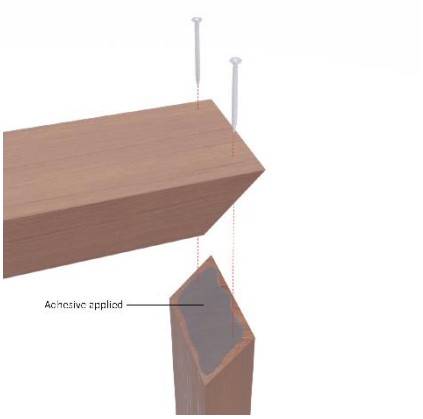
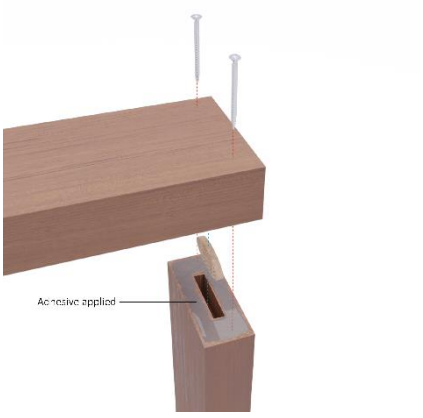
- Doors formed from a 'solid slab' of particleboard or Fibrecore (by Falcon Panel Products)
- Timber framed doors with a timber lamel core
- Doors with a 'solid slab' core of bonded timber lamels

Flush door constructions without MDF/ply/chipboard facings –

- Doors formed from a 'solid slab' of particleboard or Fibrecore (by Falcon Panel Products)

4.1 Door Frames

4.1.1 Timber Door Frames – Head Joints

Frame Assembly	Mortice and Tenon Joint
• The frame head must be secured to each jamb using 2no. 5mm x 80mm screws • In addition to screw fixings, mitred joints and butt joints must also be glued with non-thermally softening adhesive	
OMEC Joint	**Mitred Joint**
	
Housed Joint	**Butt Joint with Biscuit**
	

4.1.2 *Streframe 60 – Specifications and Profiles*

Frame Profile F30/1		
	Frame Material	Angouma Hardwood
	Minimum Density	450kg/m³
	Minimum Thickness	32mm
	Minimum Frame Depth	70mm
	Minimum Stop Depth	12mm
	Additional Requirements/Notes	
	• *Timber must have a minimum measured density at 12% moisture content. The timber must be straight-grained and of appropriate quality in accordance with BS EN 942: 2007. The moisture content shall be 10± 2% for the UK market (or to suit internal joinery moisture content specification of export countries).* • *These dimensions assume that the rear of the frame is protected by the adjacent wall, (and firestopping) and that the frame does not project out from the wall.* • *The doorstop is to comprise the same material as the door frame and may be either planted and pinned using 40mm steel pins, or integral with the main door frame, providing the minimum frame thickness remains as stated.*	

4.2 Glazed Apertures

4.2.1 *General*

General Requirements/Notes
• Glazed apertures can be included in door assemblies in accordance with the relevant test evidence, or IFC Engineering Assessment Report as permitted therein.

4.3 Hardware

General Requirements/Notes
• Items of hardware must be installed in accordance with the relevant test evidence or IFC assessment report for the proposed door type as permitted herein. • Where items of hardware are included between the Streframe 60 frame and the door leaf, e.g. hinges and lock/latch forends and strike plates, then these items must be bedded on minimum 2mm thick non-pressure forming intumescent material (e.g. Monoammonium Phosphate or Graphite based).

4.4 Installation and Supporting Construction

Supporting Construction
The supporting construction may be timber or steel stud plasterboard partition, blockwork, brickwork or concrete walls, but shall be of a type that has been tested or assessed to provide in excess of 60 minutes fire resistance, at the required size, when incorporating door openings. If fitted into timber or steel stud partitions, the method of forming the door assembly aperture must be as tested by the partition and/or door assembly manufacturer. *Note* *Any reference to steel stud partitions is in the context of permanent elements, such as those designed and proven by the plasterboard manufacturers – this report does not approve the use of the proposed door assemblies in proprietary 'demountable' partitions, which must be subject to a full and independent appraisal of the particular system and door assemblies therein.*

Door Frame Fixing Requirements
Timber door frames must be fixed back to the supporting construction with steel fixings at centres not exceeding 600mm at the head and jambs (minimum 200mm from the top and bottom), and a minimum of one fitted centrally across the width of the frame head of double doors. Screws shall be of sufficient length to penetrate the wall by at least 40mm and shall be positioned such that they are not exploited by charring of the frame, irrespective of the direction of test exposure; (this may necessitate a twin line of screws).

Door Frame Packers
Packers shall be used at all fixing positions, although if combustible packers are employed, they must be cut short and be capped with a layer of firestopping, aligned near to each face of the door frame.

Projecting Door Frames/ Door Leaves
No part of the rear of the frame section shall be exposed once installed. There shall be no feature rebates or shadow gaps at the junction of the frame and wall. The overall frame depth may be increased by the use of extension linings.

Architraves
Where the face of the frame is flush with the face of the wall, loose architraves are optional and have no fire performance requirements, and so can be freely specified, subject to suitable gap sealing fire stopping as detailed herein

Door Edge Gaps				
	Between Leaf and Frame	Leaf Meeting Stiles	Bottom of Door (Fire)	Bottom of Door (Fire & Smoke)
Gap Width	1.5mm to 4mm	1.5mm to 4mm	6mm	3mm*
**Gaps in excess of 3mm are permissible provided a suitable smoke seal is included*				

Door Leaf Alignment
The door assembly design shall be such that when closed single-acting leaves are fully flush within the frame and double acting doors should be centred on the frame depth. The face of leaves in double door assemblies shall be flush with each other at meeting stiles when closed.

4.5 Gap Sealing

General Requirements/Notes
• The fire stopping between the supporting construction and timber frames should follow the recommendations of Table 3 in BS8214: 2016, *"Timber-based fire door assemblies - Code of practice"*, using a product proven in such timber applications, and with reference to the correct depth of seal to suit the width of the gap between wall and frame. The firestopping shall be positioned on the plane of the solid panel or glazing; (unless combustible packers are employed).

4.6 Intumescent Seals

Additional Requirements/Notes
• It is recommended that the intumescent seals are manufactured or supplied by members of the Intumescent Fire Seals Association (IFSA) or that the product is included in a Third-Party Certification scheme, such as that provided by IFC Certification, to ensure product quality and consistency • The minimum intumescent seal specifications, widths and positions are outlined in Appendix A. These specifications are the minimum required and if larger seals are required by the relevant test evidence, or IFC assessment report, as permitted herein, for the proposed door type, then the latter should take precedence. • Intumescent protection is also required for specific items of building hardware – refer to Section 4.3.

4.7 Ambient Temperature Smoke Seals

Smoke seals or combined intumescent/smoke seals (using the specification approved in Section 4.6), that have been tested in accordance with BS EN 1634-3: 2004 (ambient temperature) or BS476: Part 31: Section 31.1: 1983 and shown not to leak by more than $3m^3/m/hr$ at 25Pa may be used in conjunction with the proposed door assemblies to provide smoke control.

The orientation of the seals, door edge gaps, degree of hardware interruption, and leaf configuration, will need to be as tested in accordance with BS EN 1634-3: 2004 (ambient temperature) or BS476: Part 31: Section 31.1: 1983 to achieve the desired level of smoke control, unless these conflict with the intumescent seal widths and positions as described in Appendix A, in which case, the latter shall take precedence.

Test evidence to BS476: Part 22: 1987 shall be available to demonstrate that the smoke seals will not adversely affect the overall fire resistance of timber door assemblies when fitted in the proposed arrangements.

5. CONCLUSION

It is the opinion of International Fire Consultants Ltd that if the FD60 cellulosic door leaf constructions (as listed below) were installed in Streframe 60 door frames, as manufactured and installed within the limitations of this Field of Application Report, and tested for fire resistance, the frame details would not adversely affect the ability of the door assemblies to satisfy the integrity criteria of BS 476: Part 22: 1987 for 60 minutes. All other aspects of the door assemblies must be as tested or detailed in an IFC Engineering Assessment Report.

The scope of this Field of Application Report permits the following minimum 54mm thick FD60 flush door leaf constructions that have otherwise been included in an Engineering Assessment Report by IFC or tested to BS 476: Part 22 / BS EN 1634-1, within a hardwood frame of alternative species/density, and proven to achieve 60 minutes fire resistance performance.

Flush door constructions with MDF/ply/chipboard facings –

- Doors formed from a 'solid slab' of particleboard or Fibrecore (by Falcon Panel Products)
- Timber framed doors with a timber lamel core
- Doors with a 'solid slab' core of bonded timber lamels

Flush door constructions without MDF/ply/chipboard facings –

- Doors formed from a 'solid slab' of particleboard or Fibrecore (by Falcon Panel Products)

6. LIMITATIONS

This report addresses itself solely to the ability of the proposed assemblies described to satisfy the criteria of the fire resistance test and does not imply any suitability for use with respect to other unspecified criteria.

This document only considers the door assemblies described, herein, and assumes that the surrounding construction will provide no less restraint than the tested assembly and that it will remain in place and be substantially intact for the full fire resistance period.

This report is issued on the basis of test data and information to hand at the time of issue. If contradictory evidence becomes available, IFC reserves the right to withdraw the report unconditionally but not retrospectively.

Where the constructional information in this report is taken from details provided to International Fire Consultants Ltd (IFC) and/or from fire resistance test reports referenced herein, it is, therefore, limited to the information given in those documents. It is necessarily dependent upon the accuracy and completeness of that information. Where constructional or manufacturing details are not specified, or discussed, herein, it should not, therefore, be taken to infer approval of variation in such details from those tested or otherwise approved.

The analysis and conclusions within this report are based upon the likely fire resisting performance of a complete door assembly that is manufactured and installed in accordance with this document and offered for fire resistance testing in 'perfect' condition. In practice, management procedures must be in place in any building where the door assemblies are installed, to ensure that no parts of the assembly are damaged or faulty. Further, the doors must open and close without the use of undue force. The edge gaps/alignment of door leaves must be in accordance with the tolerances defined, herein, when the doors are closed. Any such shortfalls in respect to the condition of the assemblies will invalidate the approval by IFC, and may seriously affect the ability of the assemblies to provide the required level of fire resistance performance. Determination of what constitutes wear or damage, and any corrective actions in order to return assemblies to the required condition, should only be carried out following consultation with the manufacturer and IFC.

This report applies to fire door assemblies that are evaluated to BS476: Part 22: 1987; which is an applicable test method currently referenced within guidance to Building Regulations in the United Kingdom, and in building codes in some other countries. However, IFC have a duty of care to advise that introduction of CE Marking may become compulsory for fire resisting doorsets marketed in the EU, during the validity period of this report; in which case, users should contact IFC for further details/advice.

Where the assessed constructions have not been subject to an on-site audit by International Fire Consultants Ltd, it is the responsibility of anyone using this report to confirm that all aspects of the assemblies fully comply with the descriptions and limitations, herein.

Any materials specified in this report have been selected and judged primarily on their fire performance. IFC do not claim expertise in areas other than fire safety. Whilst observing all possible care in the specification of solutions, we would draw the reader's attention to the fact that during the construction and procurement process, the materials used should be subjected to more general examination regarding the wider Health and Safety, and CoSHH Regulations. Designers, manufacturers and installers are reminded of their responsibilities under the CDM Regulations; but particularly with regard to installation and maintenance of heavy or inaccessible items.

This assessment considers the fire resistance performance of the door assemblies when tested with the leaves in the closed position, within the frame reveal; either retained by the latch, or self-closing device or locked shut, as applicable. The door assemblies will only provide the assessed fire performance when in a similar configuration, and it is the responsibility of the building occupants/owner to ensure that this is the case.

This report is provided to the sponsor on the basis that it is a professional independent engineering opinion as to what the fire performance of the construction/system would be should it to be tested to the named standard. It is IFC's experience that such an opinion is normally acceptable in support of an application for building approvals, certainly throughout the UK and in many parts of Europe and the rest of the world.

However, unless IFC have been commissioned to liaise with the Authorities that have jurisdiction for the building in question for the purpose of obtaining the necessary approvals, IFC cannot assure that the document will satisfy the requirements of the particular building regulations for any building being constructed.

It is, therefore, the responsibility of the sponsor to establish whether this evidence is appropriate for the application for which it is being supplied and IFC cannot take responsibility for any costs incurred as a result of any rejection of the document for reasons outside of our control. Early submittal of the Report to the Authorities will minimise any risks in this respect.

7. VALIDITY

This Field of Application Report has been prepared based on International Fire Consultants Ltd's present knowledge of the products described, the stated testing regime and the submitted test evidence. For this reason, anyone using this document after February 2026 should confirm its ongoing validity.

This Field of Application Report is not valid unless it incorporates the declaration by the applicant given in Appendix A duly signed by the applicant.

Prepared by:

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Reviewed by:

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Associate Director
International Fire Consultants Ltd. (IFC)

8. DECLARATION BY THE APPLICANT

IFC Engineering Assessment Report	PAR/14377/01 Revision A
Client	Falcon Panel Products

We, the undersigned, confirm that we have read and complied with the obligations placed on us by the Passive Fire Protection Forum (PFPF), details of which are outlined in the following document;

Passive Fire Protection Forum (PFPF) - Industry Standard Procedure 2019
'Guide to undertaking technical assessments of the fire performance of construction products based on fire test evidence'

- We confirm that, to our knowledge, timber door assemblies of the same design as that proposed, have not been subjected to a fire resistance test to the standard against which this assessment is being made.
- We agree to withdraw this assessment from circulation should the proposed door design, or any of its component parts (e.g. hardware, glazing, intumescent seals etc) be the subject of a failed fire resistance test to the standard against which this assessment is being made.
- We understand that this assessment is based on test evidence and will be withdrawn should evidence become available that causes the conclusion to be questioned. In that case, we accept that new test evidence may be required.
- We are not aware of any information that could affect the conclusions of this assessment. If we subsequently become aware of any such information, we agree to ask International Fire Consultants Ltd (IFC) to withdraw the assessment.

Signature	
Name	Neil Harrison
Position	Door Technical Manager
Company name	Falcon Panel Products Ltd
Date	05 February 2021

APPENDIX A - LEAF SIZE ENVELOPES AND INTUMESCENT SPECIFICATIONS

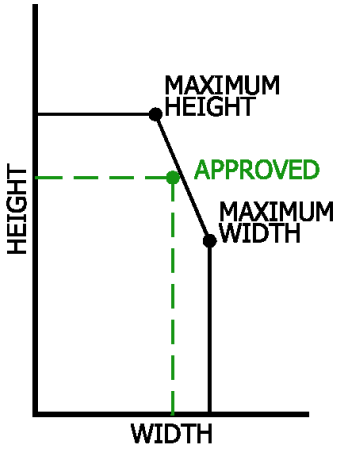
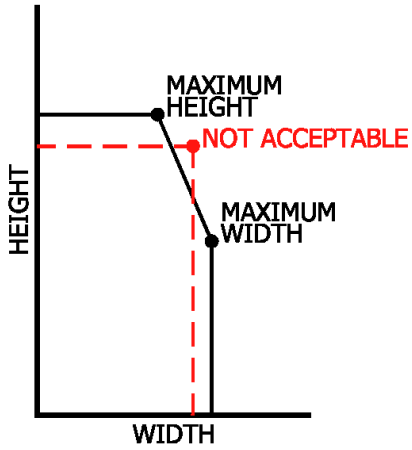
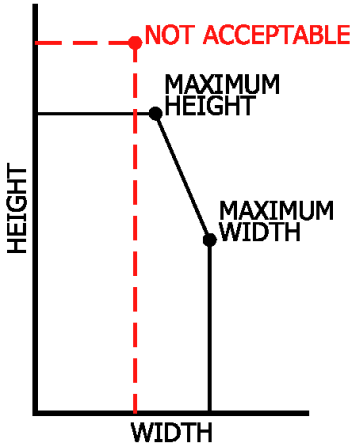
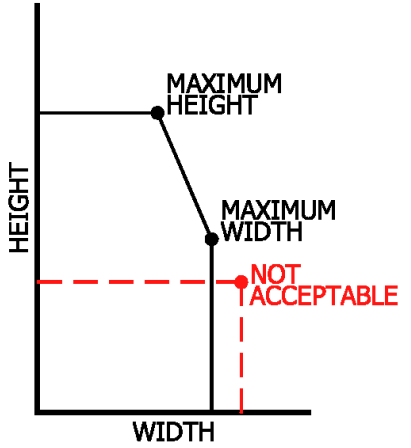
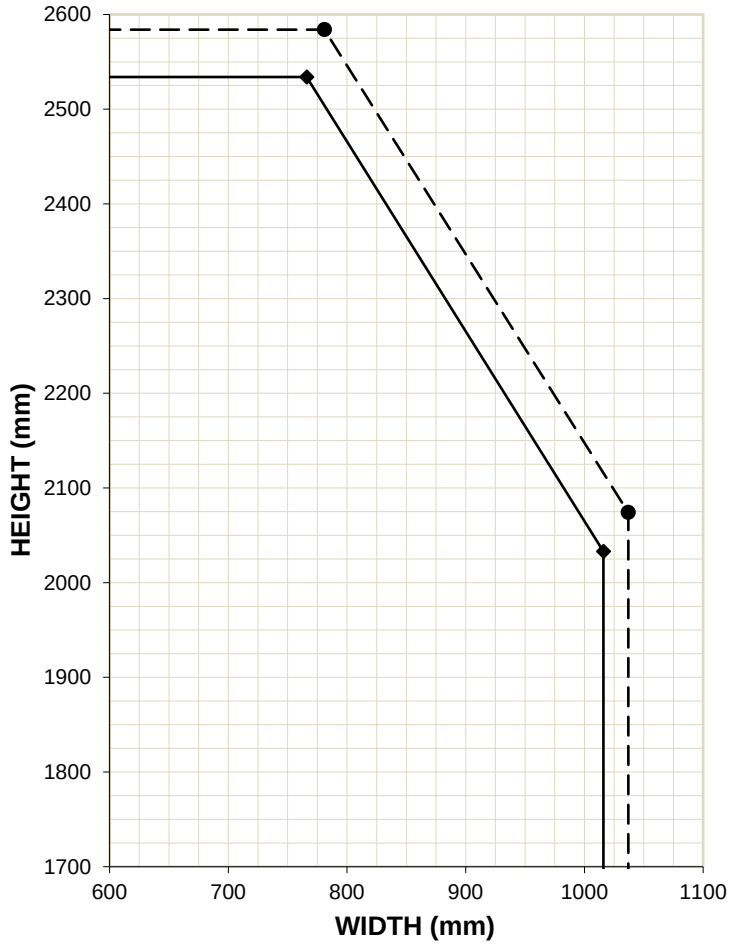
Description	Code		
Latched, Single Acting, Single Leaf Without Flush Overpanel	LSASD		
Unlatched, Single Acting, Single Leaf Without Flush Overpanel	ULSASD		
Latched, Single Acting, Double Leaf Without Flush Overpanel	LSADD		
Unlatched, Single Acting, Double Leaf Without Flush Overpanel	ULSADD		

Figure A01	FD60	Single Door Assemblies	Streframe 60 Frames	



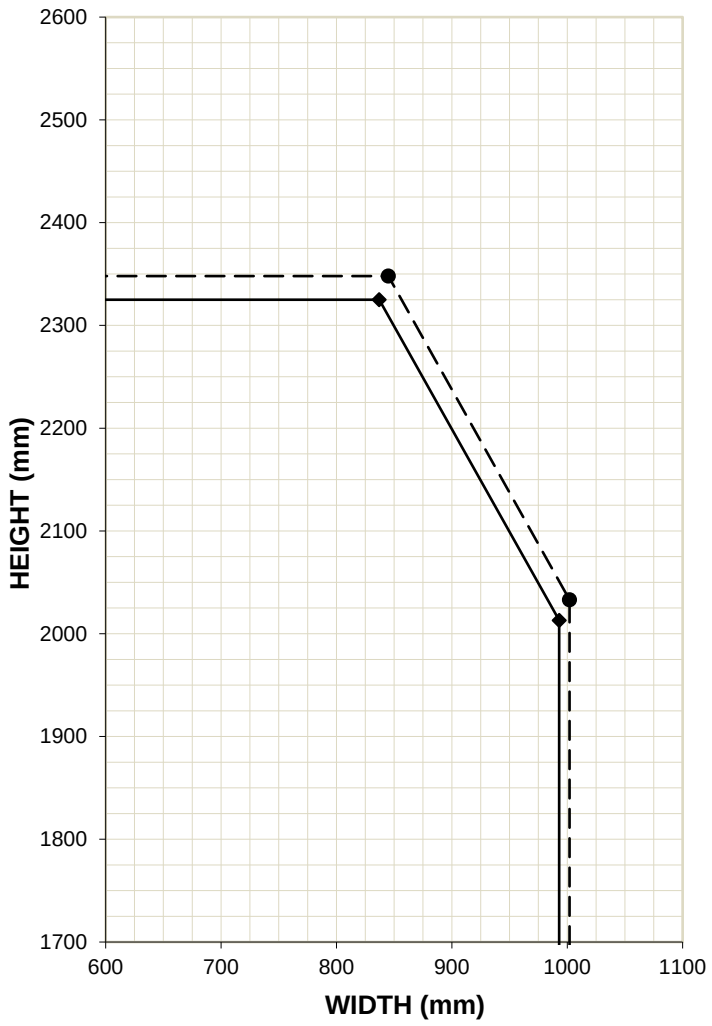
LSASD	----------	ULSASD	————

Leaf Configuration	Leaf Height	Leaf Width
LSASD	2074mm	1037mm
	2584mm	781mm
ULSASD	2033mm	1016mm
	2534mm	766mm

Streframe 60
✓

Intumescent Specification	
Head	2no 15 x 4mm intumescent seal, fitted 10mm apart, 7mm from exposed face and located in the frame reveal
Jambs	2no 15 x 4mm intumescent seal, fitted 10mm apart, 7mm from exposed face and located in the frame reveal

Figure A02	FD60	Double Door Assemblies	Streframe 60 Frames



LSADD	- - - - - -	ULSADD	———

Leaf Configuration	Leaf Height	Leaf Width
LSADD	2033mm	1002mm
	2348mm	845mm
ULSADD	2013mm	993mm
	2325mm	837mm

Streframe 60
✓

Intumescent Specification	
Head	2no 15 x 4mm intumescent seal, fitted 10mm apart, 7mm from exposed face and located in the frame reveal
Jambs	2no 15 x 4mm intumescent seal, fitted 10mm apart, 7mm from exposed face and located in the frame reveal
Meeting Stiles	2no 15 x 4mm intumescent seal, fitted 10mm apart, 7mm from exposed face and located in one leaf edge only

APPENDIX B - SUMMARY OF FIRE TEST EVIDENCE

Test Report	Test Sponsor	Test Lab	Test Date	Config	Leaf Size	Test Standard	Result	Items/Details Supported by Test Evidence
RF 13056 (Door A)	Falcon Panel Products Ltd	Chiltern International Fire	12.03.2013	ULSASD	2135mm x 926mm x 54mm	BS476: Part 22: 1987	65 Mins	• Leaf size envelopes, leaf configurations and intumescent specifications detailed in Figures B01 • Streframe 60
RF 13082	Falcon Panel Products Ltd	BM TRADA	01.05.2013	ULSADD	2130mm x 935/935mm x 54mm	BS476: Part 22: 1987	60 Mins	• Leaf size envelopes, leaf configurations and intumescent specifications detailed in Figures B02 • Streframe 60