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INTERNATIONAL FIRE  
CONSULTANTS LIMITED

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**PRIVATE & CONFIDENTIAL**

## **IFC FIELD OF APPLICATION REPORT**

### **Field of Application for FD120 FireBAN 64mm Composite and FireBAN 64mm Plus Gulf Trade Link FZCO Door Leaves Installed in Timber and Steel Frames**

**Fire Resistance Standard: BS476: Part 22: 1987**

**PAR/13335/01 REVISION B**

Prepared on behalf of:

Gulf Trade Link FZCO  
Jebel Ali Free Zone Area  
P.O. Box 263127  
Dubai  
UAE

*NOTE: This report should not be manipulated, abridged or otherwise presented without the written consent of International Fire Consultants Ltd*

Ref: #20036

Issued – October 2020  
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**International Fire Consultants Ltd**

Head & Registered Office: 20 Park Street, Princes Risborough, Buckinghamshire, England HP27 9AH

Tel: +44(0)1844 275500, Fax: +44(0)1844 274002, E-mail: [info@ifcgroup.com](mailto:info@ifcgroup.com)

Registered No: 2194010 England

An International Fire Consultants Group Company

## ISSUE AND AMENDMENT RECORD

Rev	Date	Author	Review	Amendments
Final	August 2013	PP	DC	-
Revision A	May 2017	WL	DC	Addition of fire resistance test evidence allowing for door constructions B, glazing and additional hardware.
Revision B	October 2020	CPH	DC	Additional test reports added covering the use of steel door frames

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# 1. INTRODUCTION

This report has been prepared by International Fire Consultants Ltd (IFC) to define the Field of Application for timber based door assemblies, comprising FIREBAN 64mm Composite and FIREBAN 64mm Plus Gulf Trade Link FZCO door leaves installed in timber and steel frames, that are required to provide 120 minute fire resistance performance, when adjudged against BS476: Part 22: 1987.

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 assemblies, without reducing their potential to achieve a 120 minute integrity and insulation performance, 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, and all other aspects must otherwise be as tested.

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 E of this report.

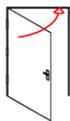
Some of the test evidence referenced in this Engineering Assessment Report is more than 5 years old. In accordance with industry practice, IFC have reviewed this test evidence, and have concluded that the evidence is still valid, and suitable to form the basis of this approval.

## 3. SCOPE OF APPROVAL

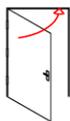
### 3.1 Door Assembly Configuration

The approved leaf sizes and configurations of door assemblies comprising FD120 FireBAN 64mm Composite and FireBAN 64mm Plus Gulf Trade Link FZCO door leaves are outlined below:

#### ***TIMBER door frames***

Configuration	Envelope of Approved Leaf Size	
	Design A FireBAN 64mm Composite	Design B FireBAN 64mm Plus
 <ul style="list-style-type: none"> <li>● Latched</li> <li>● Single Acting</li> <li>● Single Door</li> <li>● Without Overpanel</li> </ul>	<p>Figure PAR/13335/01B:B01 in Appendix B</p>	<p>Figure PAR/13335/01B: B02 in Appendix B</p>

#### ***STEEL door frames***

Configuration	Envelope of Approved Leaf Size	
	Design A FireBAN 64mm Composite	Design B FireBAN 64mm Plus
 <ul style="list-style-type: none"> <li>● Latched</li> <li>● Single Acting</li> <li>● Single Door</li> <li>● Without Overpanel</li> </ul>	<p>Figure PAR/13335/01B:D01 in Appendix D</p>	<p>Not Approved</p>

Field of Application for FD120 FireBAN 64mm Composite and FireBAN 64mm Plus Gulf Trade Link FZCO Door Leaves Installed in Timber and Steel Frames

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### 3.2 Maximum Assessable Door Leaf Sizes

The calculated envelopes of assessed leaf dimensions for each door configuration covered by this Field of Application Report are given in Appendix B (timber frames) and Appendix D (steel frames), based upon use of the intumescent seal specification shown in Appendix C (timber frames) and Appendix E (steel frames).

### 3.3 Door Leaf Specification

Two door leaf constructions are permitted within this Field of Application Report and the detailed constructional specifications of each door leaf construction are given below. These are based upon the test evidence referenced in Appendix G, (and are, therefore, limited to the information available from these test reports), but also defines variations and tolerances, where it is considered that these will not adversely affect the overall fire resistance.

Dimensional tolerances of the door assemblies should comply with the recommendations given in BS4787: 1995. Timber densities must be measured at 12% moisture content and must be free of splits, shakes and checks, and have a slope of grain better than 1:15. Any knots must be sound. Moisture content;  $11 \pm 2\%$  for UK market (or to suit internal joinery moisture content specification of export countries).

#### 3.3.1 Design A – FireBAN 64mm Composite

Component		Material	Minimum Density	Dimensions
Core		FIREBAN particleboard	600kg/m <sup>3</sup> <i>Note 1</i>	40mm thick
Inner facings		Non-combustible board <i>(details held on confidential file by IFC)</i>		8mm thick
Outer facings		Medium Density Fibreboard (MDF)	750kg/m <sup>3</sup> <i>Note 1</i>	4mm thick
Lippings <i>Note 2</i>		Hardwood <i>Note 3</i>	650kg/m <sup>3</sup>	3mm thick
Adhesives	Core/inner facing	Fuan Polyurethane adhesive	–	–
	Inner facing/ outer facing	Fuan Polyurethane adhesive	–	–
	Door leaf/ lipping	Fervicol SH PVA adhesive	–	–
Minimum leaf thickness		–	–	64mm

Component	Material	Minimum Density	Dimensions
Optional additional decorative finishes	Timber veneer or decorative plastic- based laminate (to leaf faces only)	–	Maximum 2mm thick
	Paint or varnish (leaf faces and edges)	–	Maximum 0.5mm thick

*Note 1 Nominal stated density.*

*Note 2 Timber lippings to be bonded to the vertical edges and top edge of the door leaf.*

*Note 3 Any species of hardwood may be used (except Beech) providing it has a minimum density of 650kg/m<sup>3</sup>.*

### **3.3.2 Design B –FireBAN 64mm Plus**

Component	Material	Minimum Density	Dimensions
Core	FIREBAN Plus particleboard	650kg/m <sup>3</sup> <i>Note 4</i>	64mm thick
Lippings <i>Note 5</i>	Square edges Maple <i>Note 6</i>	650kg/m <sup>3</sup>	3mm thick
Adhesive	Lipping Fevicol 1K PUR	-	-
Optional additional decorative finishes	Timber veneer or decorative plastic- based laminate (to leaf faces only)	–	Maximum 2mm thick
	Paint or varnish (leaf faces and edges)	–	Maximum 0.5mm thick

*Note 4 Nominal stated density.*

*Note 5 Timber lippings to be bonded to all edges of the door leaf.*

*Note 6 Any species of hardwood may be used (except Beech) providing it has a minimum density of 650kg/m<sup>3</sup>.*

## 3.4 Door Frames

### 3.4.1 Timber

Door leaves may be fitted into single rebated timber-based door frames providing they comply with the leaf sizes and door configurations outlined in Appendix B and the following material and size specification:

Material	Density	Minimum Face Width	Minimum Frame Depth	Stop Depth
Hardwood <i>Note 7</i>	650kg/m <sup>3</sup> <i>Notes 7 &amp; 8</i>	44mm, excluding stop <i>Note 9</i>	130mm	19mm <i>Note 10</i>

*Note 7* Any species of hardwood may be used (except Beech) providing it has a minimum density of 650kg/m<sup>3</sup>.

*Note 8* 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: 1996. The moisture content shall be 11 ± 2% for UK market, (or to suit internal joinery moisture content specification of export countries).

*Note 9* These dimensions assume that the rear of the frame is protected by the adjacent wall, (and firestopping, see Section 3.6), and that the frame does not project out from the wall.

*Note 10* The door stop can be integral with the main door frame or planted, with a tongue, and pinned, providing the minimum frame thickness remains as stated.

The overall frame depth may be increased by the use of extension linings, but the joint between the main frame and the extension lining must not intrude in the plane of the door thickness.

Head/jamb joint: Mitred corner with single finger joint, using Fevicol SH adhesive and 3no 50mm long steel screws per joint.

Architraves: Architraves are optional and have no fire performance requirements (see Section 3.6 regarding wall/frame gaps).

### 3.4.2 Steel

64mm Composite door leaves may be fitted into single rebated steel-based door frames, providing they comply with the leaf sizes and door configurations outlined in Appendix D, drawing A02 in Appendix A and the following material and size specification:

Material	Frame infill	Minimum Face Width	Minimum Frame Depth	Minimum Stop Depth
1.5mm thick G.I steel	Rockwool (minimum density 60kg/m <sup>3</sup> )	32mm (excluding stop)	180mm	23mm <i>Note 11</i>

*Note 11 An 11mm wide x nominally 12-14mm deep channel is incorporated in the face of the door stop (opposing the leaf face) to incorporate a silicone rubber compression 'Q' seal. This seal must have appropriate test evidence to prove that it will not be detrimental to the performance of the overall door assembly.*

Head/jamb Welded mitred corner joints.  
joint:

### **3.5 Glazed Apertures**

This section identifies the approved glass, glazing system, glazing beads and aperture size/locations.

#### **3.5.1 Glass types**

The following glass type is approved for use in door types A and B , considered herein, and is compatible with the identified approved glazing system given in Section 3.5.2.

*The codes used, below, for the glass types, glazing materials, and bead types, e.g. G90/1, S90/1 and B90/1), are not those used by the respective manufacturers, and are attributed solely by IFC for the purpose of identification and cross-referencing within this assessment.*

G120/1 5mm thick Keralite R (Vetrotech)

Expansion allowance for the glass shall be as recommended by the glass manufacturer.

#### **3.5.2 Glazing materials and systems**

The following glazing materials are approved for use in the doors considered herein, which are compatible with the identified approved glass types listed above, although some restrictions on size may be given in subsequent sections.

S120/1 2mm thick Lorient glazing liner to the whole of the aperture edge and between the glass/bead and bead/leaf, 2no 5mm non-combustible spacer on bottom with Pyroplex fire rated silicone sealant at all edges. All as shown in **Figure PAR/13335/01A:A01** in Appendix A.

#### **3.5.3 Bead profiles and installation**

The approved bead sizes and profile, and relevant fixing details, are shown on **Figure PAR/13335/01A:A01** in Appendix A

B120/1 2mm thick Steel 'Z' channel with 22mm overlap of core and 18mm overlap of glass pane

### **3.5.4 Assessed aperture sizes**

Apertures are created by cutting directly into the door slab, with beads fitted directly to the 'core'.

Based upon the size of apertures tested, it is the opinion of IFC that the following limitations apply to glazed apertures in the door leaves considered herein;

#### **Design A**

Maximum area of single aperture	-	0.19m <sup>2</sup>
Maximum vertical length of aperture	-	615mm
Maximum width of aperture	-	315mm
Minimum distance from leaf edge (top)	-	345mm
Minimum distance from leaf edge (sides)	-	350mm
Minimum distance from bottom of leaf	-	1200mm

#### **Design B**

Maximum area of single aperture	-	0.16m <sup>2</sup>
Maximum vertical length of aperture	-	525mm
Maximum width of aperture	-	320mm
Minimum distance from leaf edge (top)	-	410mm
Minimum distance from leaf edge (sides)	-	345mm
Minimum distance from bottom of leaf	-	1400mm

### **3.6 Hardware**

Some of the various items of hardware to be used with the proposed door assemblies will have a positive contribution to the overall performance ('essential hardware') and others are classed as 'non-essential'. However, in all cases it must be ensured that choice of items, or their installation within the assemblies, does not have a detrimental effect upon their achievement of the required period of fire resistance.

Guidance for all items of hardware is outlined in Appendix D, based upon the test. All hardware beyond the scope of the general guidance must have been subjected to fire resistance testing, and/or assessed by a notified body, to support its use in doors of a similar construction to the proposed, or third party certification shall be available to support its use on doors of proposed type.

### **3.7 Installation, Supporting Construction, and Door Edge Gaps**

The frames must be fixed back to the supporting construction with steel fixings at centres not exceeding 600mm; this applies to jambs and head. 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 will necessitate a twin line of screws. Packers shall be used at all fixing positions, although if combustible packers are employed, these must be protected by a layer of firestopping (see below), aligned near to each face of the door frame.

The supporting construction may be blockwork, brickwork or concrete walls, but shall be of a type that has been tested or assessed to provide in excess of 120 minutes fire resistance at the required size when incorporating doorset openings.

No part of the rear of the frame section shall be exposed once installed, (except for integral architraves) and leaves must not project beyond the exposed face of the door frame. There shall be no feature rebates or shadow gaps at the junction of the frame and wall.

The gap between the supporting construction and door frame should not exceed 18mm in width and should be filled with tightly packed mineral wool and capped with acrylic intumescent mastic to a depth of 10–15mm from both sides. The fire-stopping shall be positioned on the plane of the door leaf. For gaps up to 10mm, between the frame and supporting construction, Pyroplex Fire Rated Polyurethane foam can be used to fill the installation gap capped off with acrylic intumescent mastic to a depth of 10–15mm from both sides.

The gap between the door and the frame should be 2–4mm. Gaps under the door should not exceed 6mm for fire performance, although, if smoke control is also required, these gaps should only be 3mm, or smoke seals should be included (see also Section 3.8 regarding suitability of smoke seals).

The doorset design should be such that the leaves are fully flush within the frame when in the closed position. They may however be set back from the exposed face of the frame if required.

### **3.8 Intumescent Seal**

The intumescent seal specifications, widths, and positions are shown in Appendix C, based upon tested details.

Intumescent protection is required for specific items of building hardware and this has already been detailed in Appendix C based upon details tested.

### **3.9 Ambient Temperature Smoke Seals**

Smoke seals, or combined intumescent/smoke seals (using the specification approved in Appendix C), 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<sup>3</sup>/m/hr at 25Pa may be used in conjunction with the proposed doorsets to provide smoke control.

The orientation of the seals, door edge gaps, degree of ironmongery 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 shown in Appendix C, 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 doorsets, when fitted in the proposed arrangements.

## **4. CONCLUSION**

Based upon the available test evidence, and subsequent analysis performed by International Fire Consultants Ltd, if the proposed FireBAN 64mm Composite and FireBAN 64mm Plus door leaves installed in timber or steel frames, as applicable, were manufactured and installed within the limitations of this Field of Application Report, and tested for fire resistance, they would satisfy the integrity criteria of BS476: Part 22: 1987 for 120 minutes.

## 5. DECLARATION BY THE APPLICANT

<b>IFC Engineering Assessment Report</b>	PAR/13335/01 Revision B
<b>Client</b>	Gulf Trade Link FZCO

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;

<b>Passive Fire Protection Forum (PFPF) - Industry Standard Procedure 2019</b>
<b><i>'Guide to undertaking technical assessment of the fire performance of construction products based on fire test evidence'</i></b>

- We agree to withdraw this assessment from circulation should the proposed door design, or any of its component parts (e.g. hardware, 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.

<b>Signature</b>		
<b>Name</b>	Abdul Raouf Habra	
<b>Position</b>	General Manager	
<b>Company</b>	Gulf Trade Link FZCO	
<b>Date</b>	October 15, 2020	

Field of Application for FD120 FireBAN 64mm Composite and FireBAN 64mm Plus Gulf Trade Link FZCO Door Leaves Installed in Timber and Steel Frames

IFC Field of Application Report  
PAR/13335/01 Revision B

## 5. 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 assessment is issued on the basis of test data and information to hand at the time of issue. If contradictory evidence becomes available to International Fire Consultants Ltd (IFC) the assessment will be unconditionally withdrawn and the applicant will be notified in writing. Similarly, the assessment evaluation is invalidated if the assessed construction is subsequently tested since actual test data is deemed to take precedence.

As per the guidance 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'*, appropriate action has been taken to mitigate the risk of a conflict of interest arising during the preparation of this report. All individuals involved in the production, or subsequent review, of this assessment have declared any perceived conflicts of interest, with regards to the sponsor or subject(s) of this report, prior to working on this project.

The assessor and reviewer have been deemed suitable for involvement in the production of this assessment in accordance with the guidance 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'*.

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.

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 evaluation 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 evaluation 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.

## 6. 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 May 2022 should confirm its ongoing validity.

This Field of Application Report is not valid unless it incorporates the declaration by the applicant given in Section 5 duly signed by the applicant.

Prepared by:



**Chris Houchen**  
BSc AIFireE  
Associate Director  
International Fire Consultants Ltd. (IFC)

Reviewed by:



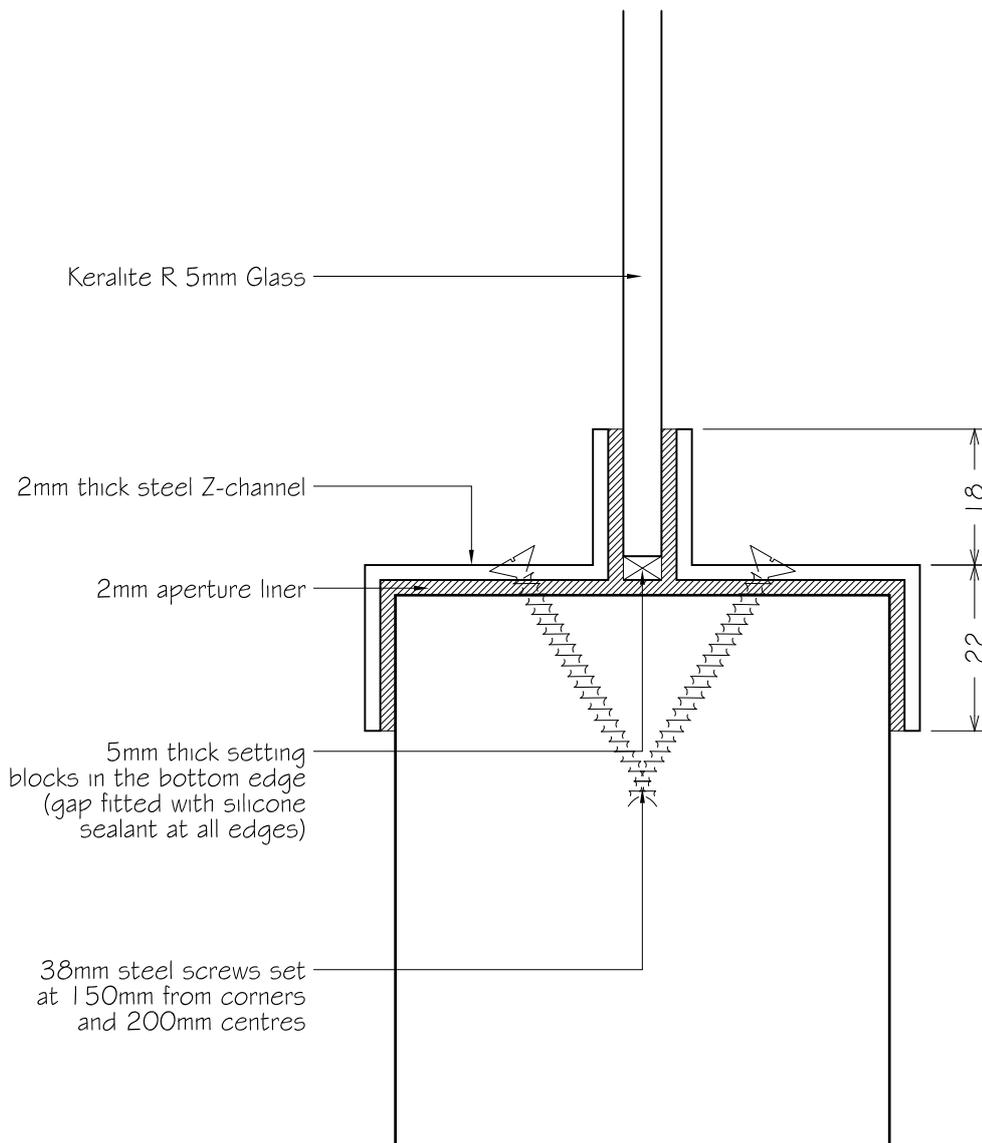
**David Cooper**  
BEng (Hons) AIMMM AIFireE  
Associate Director  
International Fire Consultants Ltd. (IFC)

## **APPENDIX A**

**Figure PAR/13335/01B:A01 and A02**

**Glazing and Steel Door Frame Details**

***The figure in this Appendix is not included  
in the sequential page numbering of this report***



This drawing is Copyright©  
 Contractors must check all dimensions.  
 Any discrepancies must be reported before  
 work proceeds.  
 Only work to dimensions stated on drawing.

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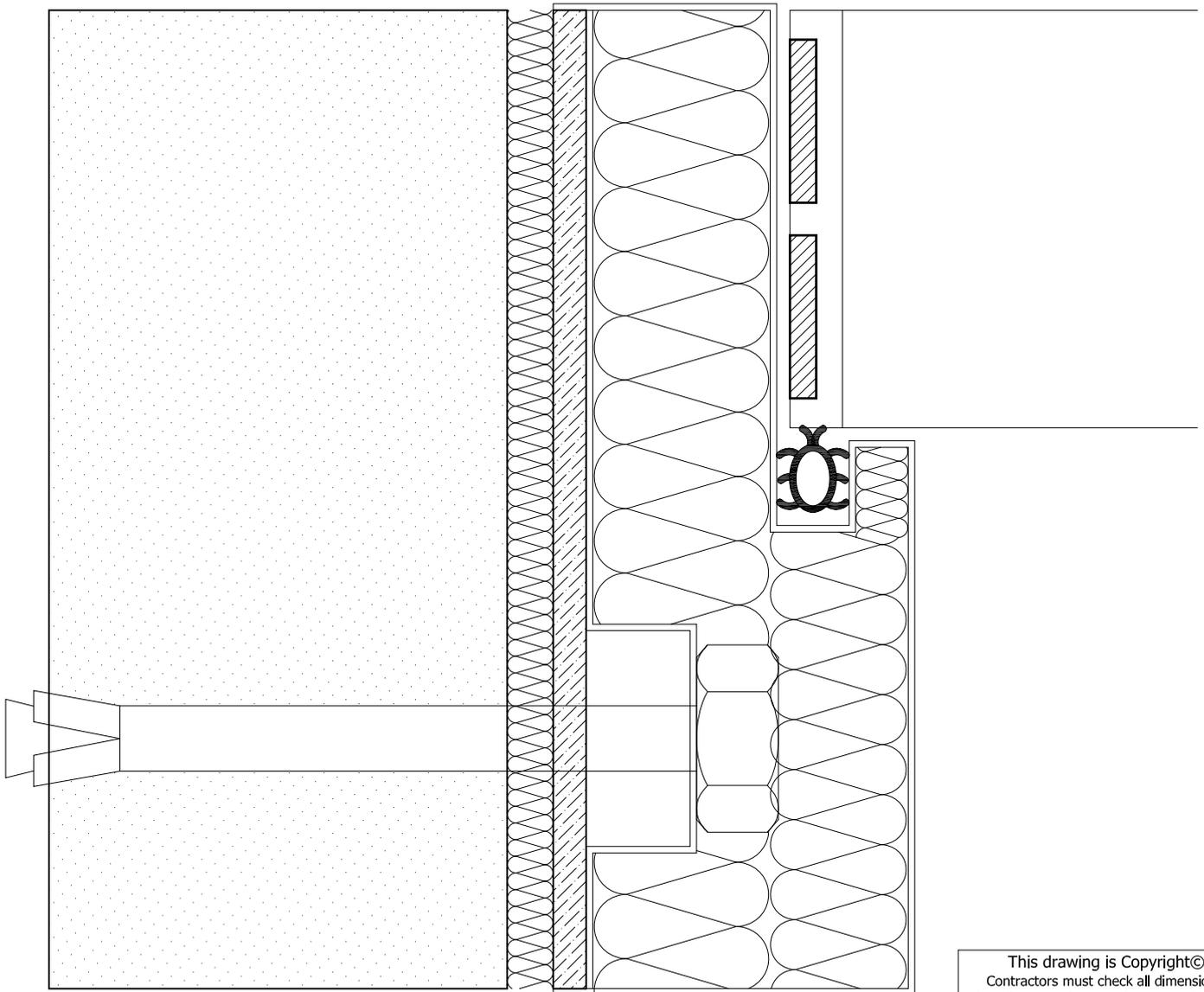
20 Park Street  
 PRINCES RISBOROUGH  
 Buckinghamshire  
 HP27 9AH  
 United Kingdom  
 Tel: +44 (0)1844 275500  
 Fax: +44 (0)1844 274002  
 Email: ifc@ifcgroup.com  
 Web: www.ifcgroup.com

Field of Application Report  
 PAR/13335/01 Revision B  
 Gulf Trade Link FZCO  
 FIREBAN 64mm Thick & FIREBAN Plus 64mm  
 Thick FD120 Gulf Trade Link FZCO Door  
 Leaves Installed in Timber & Steel Frames

Glazing Detail

Job number: 16757  
 Drawn by: CSP      Checked by: CH  
 Not To Scale      Drawn: Aug 2020

PAR/13335/01B:A01



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 PRINCES RISBOROUGH  
 Buckinghamshire  
 HP27 9AH  
 United Kingdom  
 Tel: +44 (0)1844 275500  
 Fax: +44 (0)1844 274002  
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Field of Application Report  
 PAR/13335/01 Revision B  
 Gulf Trade Link FZCO  
 FIREBAN 64mm Thick & FIREBAN Plus 64mm  
 Thick FD120 Gulf Trade Link FZCO Door  
 Leaves Installed in Timber & Steel Frames

Steel Door Frame Detail

Job number: 20036

Drawn by: CSP	Checked by: CH
Not To Scale	Drawn: Aug 2020

PAR/13335/01B:A02

## **APPENDIX B**

**Figure PAR/13335/01B:B01 and B02**

**Assessed Leaf Size Envelope for FD120  
Door Leaves Installed in Timber Frames**

***The figure in this Appendix is not included  
in the sequential page numbering of this report***

	A	B
Width	853	1127
Height	2803	2254

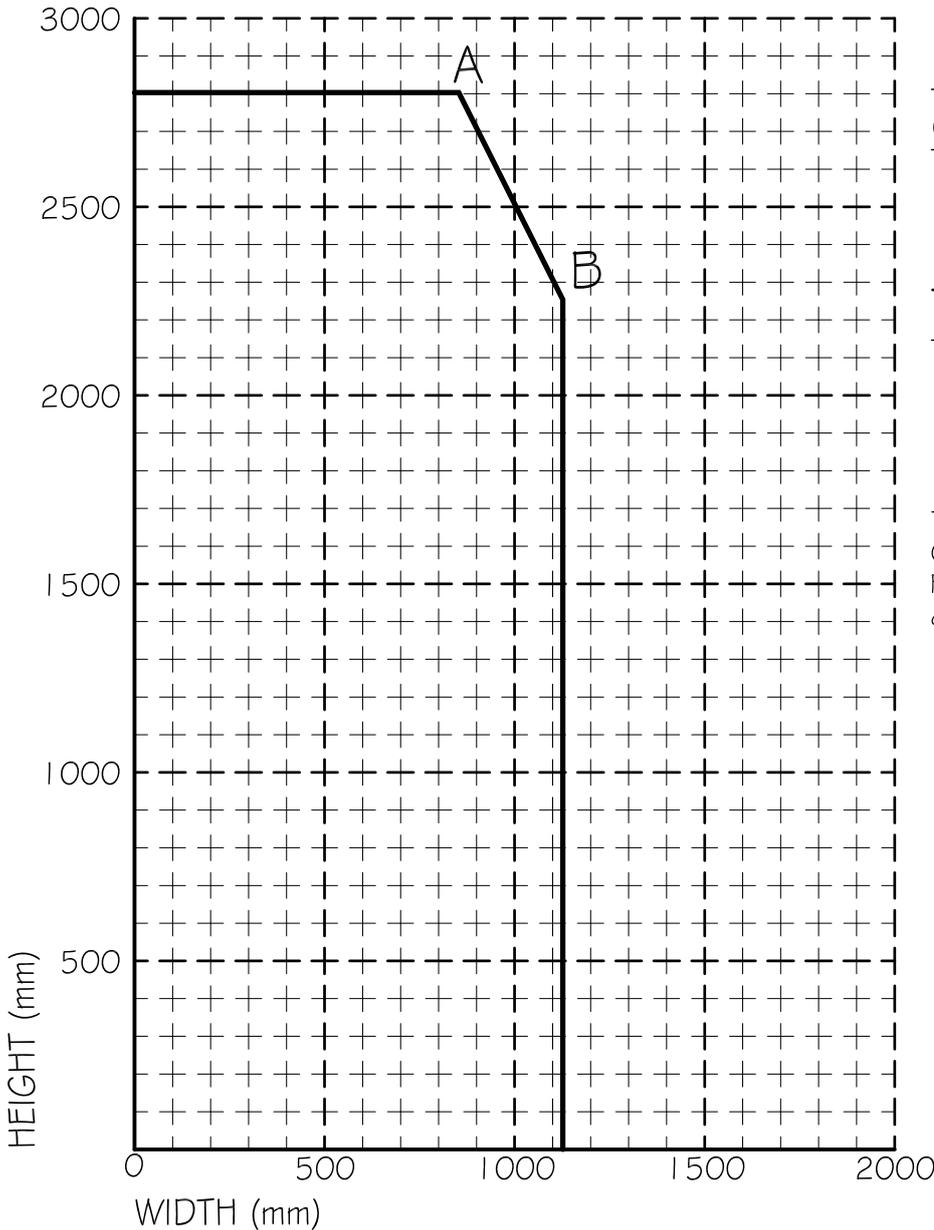
LEAF SIZE ENVELOPE POINTS

Configuration

Timber Frames

LATCHED  
SINGLE ACTING  
SINGLE LEAF  
WITHOUT OVERPANEL

REQUIRED INTEGRITY : 120 Minutes



DESIGN A (FireBAN Composite CONSTRUCTION)

TIMBER DOOR FRAME

This figure forms part of International Fire Consultants Ltd's Field of Application Report PAR/13335/01 Revision B, which contains full details of the assessed door construction.

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Contractors must check all dimensions.  
Any discrepancies must be reported before  
work proceeds.  
Only work to dimensions stated on drawing.

**INTERNATIONAL FIRE  
CONSULTANTS LIMITED**

20 Park Street  
PRINCES RISBOROUGH  
Buckinghamshire  
HP27 9AH  
United Kingdom  
Tel: +44 (0)1844 275500  
Fax: +44 (0)1844 274002  
Email: info@ifcgroup.com  
Web: www.ifcgroup.com

Field of Application Report  
PAR/13335/01 Revision B  
Gulf Trade Link FZCO  
FIREBAN 64mm Thick & FIREBAN Plus 64mm  
Thick FD 120 Gulf Trade Link FZCO Door  
Leaves Installed in Timber & Steel Frames

Envelope of Approved  
Door Leaf Sizes  
**LSASD**  
In Timber Frames

Job number: 20036

Drawn by: CSP	Checked by: CH
Not To Scale	Drawn: Aug 2020

PAR/13335/01B:BO1

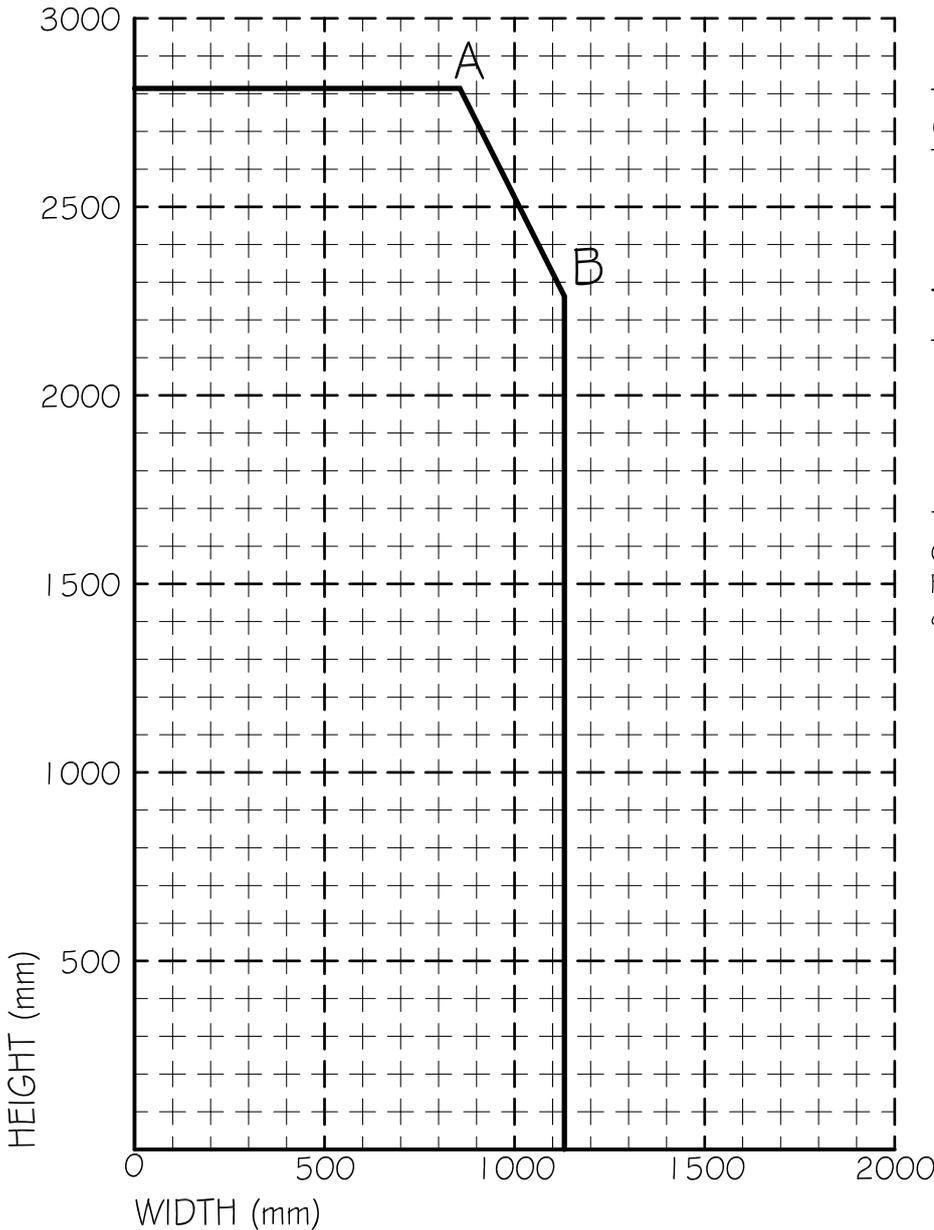
ENVELOPE OF APPROVED LEAF SIZES

The above graph represents the envelope of approved leaf sizes for the proposed door leaf configuration.  
Any combination of leaf width and height that falls within the graph axes and the connecting line on the graph above are approved.  
POINT A represents the maximum leaf height and its associated width.  
POINT B represents the maximum leaf width and its associated height.

	A	B
Width	856	1131
Height	2814	2263

LEAF SIZE ENVELOPE POINTS

Configuration  
Timber Frames  
 LATCHED  
 SINGLE ACTING  
 SINGLE LEAF  
 WITHOUT OVERPANEL  
 REQUIRED INTEGRITY : 120 Minutes



DESIGN B (FireBAN Plus)

CONSTRUCTION

TIMBER DOOR FRAME

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 CONSULTANTS LIMITED**

20 Park Street  
 PRINCES RISBOROUGH  
 Buckinghamshire  
 HP27 9AH  
 United Kingdom  
 Tel: +44 (0)1844 275500  
 Fax: +44 (0)1844 274002  
 Email: info@ifcgroup.com  
 Web: www.ifcgroup.com

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 Thick FD 120 Gulf Trade Link FZCO Door  
 Leaves Installed in Timber & Steel Frames

Envelope of Approved  
 Door Leaf Sizes  
**LSASD**  
 In Timber Frames

Job number: 20036

Drawn by: CSP	Checked by: CH
Not To Scale	Drawn: Aug 2020

PAR/13335/01B:B02

ENVELOPE OF APPROVED LEAF SIZES

The above graph represents the envelope of approved leaf sizes for the proposed door leaf configuration.  
 Any combination of leaf width and height that falls within the graph axes and the connecting line on the graph above are approved.  
 POINT A represents the maximum leaf height and its associated width.  
 POINT B represents the maximum leaf width and its associated height.

## **APPENDIX C**

### **Assessed Intumescent Seal Specifications for FD120 Door Leaves Installed in Timber Frames**

## Intumescent Seal Specifications for FD120 Door Leaves Installed in Timber Frames

The following intumescent seal specification shall be used for the doorset configurations covered by this report.

Positions		Seal Specification
Head	Door Frame reveal	2no 25 x 6mm seals, including PVC carrier, fixed 5mm apart into grooves centrally located in the frame reveal
	Door Leaf edge	1no 25 x 6mm seal, including PVC carrier, fixed into a groove centrally located in the leaf edge
Jambs	Door Frame reveal	2no 25 x 6mm seals, including PVC carrier, fixed 5mm apart into grooves centrally located in the frame reveal
	Door Leaf edge	1no 25 x 6mm seal, including PVC carrier, fixed into a groove centrally located in the leaf edge
Base of door leaf		1no 40 x 2mm seal, non-PVC encased, fixed into a groove centrally located in the leaf edge

**Notes:**

*All intumescent seals are to be from Lorient Polyproducts.*

## **APPENDIX D**

**Figure PAR/13335/01B:D01**

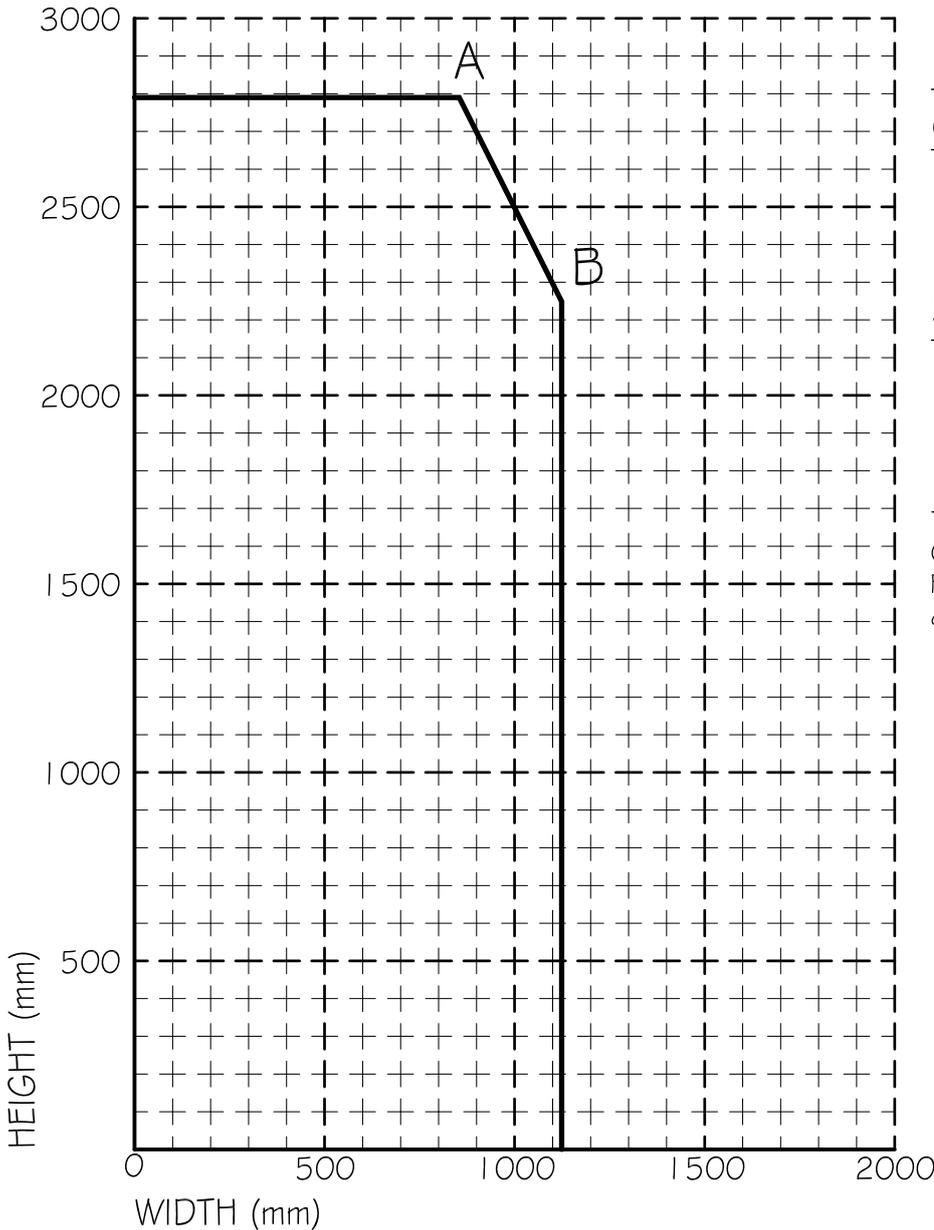
**Assessed Leaf Size Envelope For FD120 FireBAN 64mm  
Composite Door Leaves Installed in Steel Frames**

*The figure in this Appendix is not included  
in the sequential page numbering of this report*

	A	B
Width	854	1124
Height	2790	2249

LEAF SIZE ENVELOPE POINTS

Configuration  
Steel Frames  
 LATCHED  
 SINGLE ACTING  
 SINGLE LEAF  
 WITHOUT OVERPANEL  
 REQUIRED INTEGRITY : 120 Minutes



DESIGN A (FireBAN Composite)

CONSTRUCTION

STEEL DOOR FRAME

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20 Park Street  
 PRINCES RISBOROUGH  
 Buckinghamshire  
 HP27 9AH  
 United Kingdom  
 Tel: +44 (0)1844 275500  
 Fax: +44 (0)1844 274002  
 Email: info@ifcgroup.com  
 Web: www.ifcgroup.com

Field of Application Report  
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 Gulf Trade Link FZCO  
 FIREBAN 64mm Thick & FIREBAN Plus 64mm Thick FD 120 Gulf Trade Link FZCO Door Leaves Installed in Timber & Steel Frames

Envelope of Approved  
 Door Leaf Sizes  
**LSASD**  
 In Steel Frames

Job number: 20036  
 Drawn by: CSP      Checked by: CH  
 Not To Scale      Drawn: Aug 2020

**PAR/13335/01B:DOI**

ENVELOPE OF APPROVED LEAF SIZES

The above graph represents the envelope of approved leaf sizes for the proposed door leaf configuration.  
 Any combination of leaf width and height that falls within the graph axes and the connecting line on the graph above are approved.  
 POINT A represents the maximum leaf height and its associated width.  
 POINT B represents the maximum leaf width and its associated height.

## **APPENDIX E**

### **Assessed Intumescent Seal Specifications for FD120 FireBAN 64mm Composite Door Leaves Installed in Steel Frames**

## **Intumescent Seal Specifications for FD120 FireBAN 64mm Composite Door Leaves Installed in STEEL Frames**

The following intumescent seal specification shall be used for the doorset configurations covered by this report.

<b>Positions</b>	<b>Seal Specification</b>
Door Leaf Head	2no 25 x 6mm seals, centrally fitted, spaced 5mm apart including PVC carrier, fixed into a groove centrally located in the leaf edge
Vertical Door Leaf Edges	2no 25 x 6mm seals, centrally fitted, spaced 5mm apart including PVC carrier, fixed into a groove centrally located in the leaf edge
Base of Door LRev Beaf	1no 50 x 2mm seal, non-PVC encased, fixed into a groove centrally located in the bottom leaf edge

***Notes:***

*All intumescent seals are to be graphite based from Pyroplex.*

## **APPENDIX F**

### **General Guidance on Installation of Hardware for FD120 Door Leaves Installed in Timber or Steel Frames**

## General Guidance on Installation of Hardware

### F.1 Hinges

Door assemblies have been tested using Dorma satin stainless steel butt hinges (ref: HIN 1433/13 SSS 2BB), Simplex (HSSBS-SIM-FR) butt hinges and Eurospec Architectural Hardware (ref: HIN1433P/13) stainless steel butt hinges. These hinge types are proven to make a positive contribution to the required 120 minutes integrity performance and are, therefore, approved for use with door assembly design Types A and B. Other steel butt hinges may be utilised subject to the following specifications:

Element	Specification	
Blade Height	89 - 110mm	
Blade Width	30mm	
Blade Thickness	2.5 - 3.5mm	
Material	Steel or Stainless Steel. (No combustible or low melting point (<800°C) materials to be included)	
Fixings	Steel screws, as recommended by the hinge manufacturer, but no smaller than 32mm long x 3.8mm diameter (No.8)	
Minimum Quantity	4no. hinges	
Positions	Top	150 - 200mm down from the leaf head to the top of the hinge
	2 <sup>nd</sup> & 3 <sup>rd</sup>	Either equi-spaced between the top and bottom hinges or 2 <sup>nd</sup> hinge positioned 175 – 225mm below the top hinge and the 3 <sup>rd</sup> hinge equi-spaced between the 2 <sup>nd</sup> and bottom hinge
	Bottom	175 - 200mm up from the bottom of the leaf to the bottom of the hinge blade
Intumescent Protection	All hinge blades to be bedded on 1.8mm thick Interdens	

### F.2 Mortice Latches/Locks

The door assemblies have been tested with a Dorma 771 latch, a Simplex (885572-SSS) mortise lock and a Eurospec Architectural Hardware sashlock (ref: DLE 7255 EPSSS). Other latches may be utilised subject to the following specifications:

Element	Specification
Latch/Lock Type	Mortice latches, tubular mortice latches, sashlocks and deadlocks
Maximum Forend Dimensions	235mm x 24mm wide
Maximum Strike Plate Dimensions	175mm x 24mm wide excluding tongue

Element	Specification
Maximum Body Dimensions	165mm high x 85mm wide x 16mm thick
Material	Steel based with no essential part of the lock/latch to comprise polymeric or other low melting point (<800°C) materials and should not contain any flammable materials
Position	Centred at 1000mm (± 200mm) above the bottom of the door leaf
Intumescent Protection	1.8mm thick Interdens, fitted to all edges and faces of lock case, and also behind forend plate and strike plate.
Additional Requirements/Notes	<ul style="list-style-type: none"> <li>• Where glazed apertures are also incorporated and are positioned such that locks/latches are included in the margin between the aperture and door edge, care must be taken to ensure that the effective door 'stile' is not weakened by the mortice</li> <li>• Over-morticing is to be avoided; mortices shall be as tight as possible to the latch</li> <li>• If there are gaps around the case (not exceeding 2mm) then these must be made good with intumescent mastic or sheet material</li> <li>• Holes for spindles or cylinders shall be kept as small as is compatible with the operation of the hardware</li> </ul>

### F.3 Door Closers

General Requirements/Notes
<ul style="list-style-type: none"> <li>• Where required by regulatory guidance or specific fire strategy, each hinged door leaf must be fitted with a self-closing device unless it is normally kept locked shut and labelled with an appropriate sign with complies with BS5499: Part 1: 1990</li> <li>• Closers must be adjusted so that they are capable of fully closing the door leaf, against any friction imposed by the latch (and smoke seals, if fitted), from any position of opening</li> <li>• Closers must have been fire tested or assessed by IFC for use on FD120 timber door leaves hung within timber or steel frames</li> <li>• If a surface mounted closer is to be fitted within 100mm (in the vertical plane) of apertures containing uninsulated glass, the selected closer model must have been tested on the unexposed face of an uninsulated steel door, or a fully glazed door fitted with uninsulating glass</li> </ul>

Concealed overhead or jamb mounted closers are not approved for use into any of the doorsets within the scope of this generic scope of this report.

#### F.3.1 Face-fixed closers

The doorset was tested with a. Other self-closing devices can be used providing that they comply with the following specification:

Field of Application for FD120 FireBAN 64mm Composite and FireBAN 64mm Plus Gulf Trade Link FZCO Door Leaves Installed in Timber and Steel Frames

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Face-fixed overhead door closers (and accessories such as soffit brackets), such as the Dorma TS72 overhead door closer, that have been tested, assessed or otherwise approved for use on unlatched FD120 cellulosic door leaves may be used. Any accessory that is located within the door reveal must have appropriate test or assessment evidence.

### ***F.3.2 Concealed overhead closers***

Some of the tests referenced in Appendix E included concealed door closers. The concealed overhead closer model tested was;

- SIMPLEX (ref: SCC24385), extruded aluminium body

This concealed closer may be installed in FireBAN Composite (Design A) and FireBAN Plus (Design B) doors, subject to the limitations below:

- Minimum stop depth 20mm
- Closer body to be wrapped in 2mm Interdens when installed in the FireBAN Composite (Design A) design
- Inclusion of 6mm calcium silicate 'U' channel protection around the concealed door closer body when installed in the FireBAN Plus (Design B) design
- Top edge of door must include a minimum 3mm lipping.
- A minimum total of 20mm width of intumescent must be residual alongside the arm recess in the head of the frame.

This opinion does not support the substitution of other concealed closers, including door jamb types, no matter how similar, nor does it support the use of the closer body fitted in the frame head.

## **F.4 Non-Essential Hardware Items**

### ***F.4.1 Push plates, kick plates, etc.***

Metal plates may be surface-mounted to the doorsets, but, if more than 800mm in length by nominally 200mm wide, they must be attached in a way that would prevent them distorting the door leaf, e.g. glued with thermally softening adhesive or screwed with short aluminium screws and fitted in such a way so they will not be prevented from falling away by being trapped under door stops or handle escutcheons etc.

### ***F.4.2 Pull handles***

Surface mounted pull handles, only, may be fixed to the doorsets, provided that the fixing points are no greater than 950mm apart.

## **APPENDIX G**

### **Summary of Fire Test Evidence**

## Summary of Fire Test Evidence

Test Report	Configuration Tested	Leaf Size	Test Standard	Integrity	Details
<b>AU13014005-1</b> <i>FireBAN Composite</i> <i>Intertek</i> <i>02/04/2013</i>	LSASD	2245mm x 904mm x 65mm	<b>BS476: Part 22: 1987</b>	122 minutes (opening in)	650kg hardwood 44x130 frame +19 stop Dorma 771 lock and TS72 closer 2no.25x6 Lorient seals in frame reveal (5 apart) and 1no.25x6 Lorient seal in leaf edge 40x2 Lorient seal in bottom edge of leaf 235x24 lock forend (165x85x16 body)
	LSASD	2245mm x 904mm x 65mm		122 minutes (opening out)	
<b>161114376</b> <i>FireBAN Composite</i> <i>Material Lab</i> <i>14/11/2016</i>	LSASD	2400mm x 1050mm x 64mm	<b>BS476: Part 22: 1987</b>	123 minutes	3mm Maple 650kg lips to all edges 650kg Maple 45x150 frame +20 stop Simplex HSSBS-SIM-FR 102x76 hinges+2mm Interdens Simplex 885572-SSS lock 235x24 body+185x24 keep +1mm Interdens Simplex SCC24385 concealed closer+2mm Interdens 2no.25x6 Lorient graphite seals in frame reveal (5 apart) and 1no.25x6 Lorient graphite seal in leaf edge 40x2 Lorient graphite seal in bottom edge of leaf Keralite R 614x314+steel beads+2mm into under beads
<b>160906338</b> <i>FireBAN Plus</i> <i>Material Lab</i> <i>06/09/2016</i>	LSASD	2400mm x 1050mm x 65mm	<b>BS476: Part 22: 1987</b>	123 minutes	3mm Maple 650kg lips to all edges 650kg Maple 45x150 frame +20 stop Simplex HSSBS-SIM-FR 102x76 hinges+2mm Interdens Simplex 885572-SSS lock 235x24 body+185x24 keep +1mm Interdens Simplex SCC24385 concealed closer+6mm Calcium Silicate 2no.25x6 Lorient graphite seals in frame reveal (5 apart) and 1no.25x6 Lorient graphite seal in leaf edge 40x2 Lorient graphite seal in bottom edge of leaf Offset(45fire/15unex) - Keralite R 514x314+steel beads+2mm into under beads
<b>161124386</b> <i>FireBAN Composite</i> <i>Material Lab</i> <i>24/11/2016</i>	LSASD	2400mm x 1050mm x 64mm	<b>BS476: Part 22: 1987</b>	121 minutes	3mm Maple 650kg lips to all edges 650kg Maple 45x150 frame +20 stop Simplex HSSBS-SIM-FR 102x76 hinges+2mm Interdens Simplex 885572-SSS lock 235x24 body+185x24 keep +1mm Interdens Simplex SCC24385 concealed closer+2mm Interdens 2no.25x6 Lorient graphite seals in frame reveal (5 apart) and 1no.25x6 Lorient graphite seal in leaf edge 40x2 Lorient graphite seal in bottom edge of leaf Keralite R 614x314+steel beads+2mm into under beads
<b>180918538</b> <i>FireBAN Composite</i> <i>Material Lab</i> <i>18/09/2018</i>	LSASD	2380mm x 1050mm x 66mm	<b>BS476: Part 22: 1987</b>	122 minutes	3mm Oak 650kg lips to all edges 32x180mm STEEL frame+23 stop Rockwool infil Eurospec 102x102mm HIN1433P/13 hinges+1.8mm Interdens <u>to leaf blade only</u> Eurospec235x24 lock forend +1.8mm Interdens body Eurospec DCT2024 surface closer 2no.25x6 Pyroplex graphite seals in door edge (5 apart) 50x2 Pyroplex graphite seal in bottom edge of leaf Offset(44fire/18unex Keralite R 614x414+steel beads+5mm H90VP mastic under beads

**LSASD** = Latched, Single Acting, Single leaf Doorset

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