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INTERNATIONAL FIRE  
CONSULTANTS LIMITED

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**PRIVATE & CONFIDENTIAL**

## **IFC FIELD OF APPLICATION REPORT**

# **Field of Application of FD30 Solid Core (VT5), FD30 Sandwich Core (SK2) and FD30 Sandwich Core (S3K) Door Leaves Installed in Timber Frames**

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

**IFC Report PAR/13211/02 REVISION A**

Prepared on behalf of:

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

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## ISSUE AND AMENDMENT RECORD

Revision	Date	Author	Review	Section	Amendments
Draft	November 2013	PP	MB	-	-
-	January 2014	PP	MB	-	-
Revision A Draft 1	May 2019	MB	CPH	Various	Review and revalidation. Update to suit current IFC format. Update references to latest standards. Revisions to scope (leaf sizes).
Revision A Draft 2	July 2019	MB	CPH	Various	Update to new IFC format. Minor edits following clients' review of draft 1.
Revision A	July 2019	MB	CPH	3.2, 3.3, Appendix E	Clarification of bonding and staples used to form layers of sandwich core doors.

# CONTENTS

<b>1. INTRODUCTION</b>	<b>4</b>
<b>2. TEST EVIDENCE</b>	<b>5</b>
<b>3. SCOPE OF APPROVAL</b>	<b>5</b>
3.1 DOOR CONFIGURATION	5
3.2 MAXIMUM ASSESSABLE DOOR LEAF SIZES	5
3.3 DOOR LEAF SPECIFICATIONS	6
3.4 FRAMES	9
3.5 INTUMESCENT SEALS	10
3.6 AMBIENT TEMPERATURE SMOKE SEALS	10
3.7 HARDWARE	11
3.8 INSTALLATION, SUPPORTING CONSTRUCTION, AND DOOR EDGE GAPS	11
<b>4. CONCLUSION</b>	<b>12</b>
<b>5. DECLARATION BY THE APPLICANT</b>	<b>13</b>
<b>6. LIMITATIONS</b>	<b>14</b>
<b>7. VALIDITY</b>	<b>16</b>
<b>APPENDIX A</b>	<b>17</b>
ASSESSED INTUMESCENT SEAL SPECIFICATIONS FOR FD30 SOLID CORE AND FD30 SANDWICH CORE DOOR LEAVES INSTALLED IN TIMBER FRAMES	
<b>APPENDIX B</b>	<b>19</b>
ASSESSED LEAF SIZE ENVELOPES FIGURE PAR/13211/02:B01	
<b>APPENDIX C</b>	<b>20</b>
GENERAL GUIDANCE ON INSTALLATION OF HARDWARE	
<b>APPENDIX D</b>	<b>24</b>
SUMMARY OF FIRE TEST EVIDENCE	
<b>APPENDIX E</b>	<b>26</b>
COPY OF SAUERLAND SPECIFICATIONS FOR STAPLES USED TO SECURE CORE LAYERS OF FD30 SANDWICH CORE DOOR LEAVES (S2 AND S3K CORE)	

# 1. INTRODUCTION

This report has been prepared by International Fire Consultants Ltd (IFC), on the instruction of Sauerland Spanplatte GmbH + Co. KG, to define the Field of Application for FD30 Solid Core and FD30 Sandwich Core door leaves installed in timber frames, that are required to provide 30 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 assemblies, without reducing their potential to achieve a 30 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, 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; i.e. with either face exposed to fire conditions.

## 2. TEST EVIDENCE

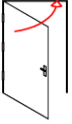
The test evidence used to support this assessment is summarised in Appendix D of this report.

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 Configuration

Only one door configuration is approved within the scope of this report, as shown below:

Configuration	Envelope of Approved Leaf Size
 <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/13211/02A:C01 in Appendix B</p>

This limitation applies equally to the Solid Core door type and to the two variants of the Sandwich Core Door Type.

### 3.2 Maximum Assessable Door Leaf Sizes

The calculated envelopes of assessed leaf dimensions for each door construction in the permitted door configuration covered by this Field of Application Report are given in Appendix B, based upon the use of the intumescent seal specifications outlined in Appendix A.

For the sake of clarity, this report only approves doors that are rectilinear; i.e. adjacent door edges shall be straight, and at 90 degrees to each other, when viewed in elevation. In addition, doors shall be "flat"; i.e. not curved, when viewed in plan.

### 3.3 Door Leaf Specifications

A detailed constructional specification for each of the THREE basic door constructions is given below. This is based upon the test evidence detailed in Appendix D, (and is, therefore, limited to the information available from that test evidence), but also defines variations and tolerances, where it is considered that these will not adversely affect overall fire resistance.

Additional notes and limitations apply to all three door options, and these are summarised after the following tables.

#### 3.3.1 Solid core door type (VT5 core)

Component		Species	Dimensions	Minimum Density
Leaf Framing	Stiles	Softwood	35mm wide x 38mm thick	430kg/m <sup>3</sup> <i>Note 1</i>
	Rails			
Core 38 VT5		Extruded Solid board <i>Note 2</i>	38mm thick	450kg/m <sup>3</sup> <i>Note 1</i>
Facings		Hardboard	Minimum 3mm thick	780kg/m <sup>3</sup> <i>Note 1</i>
Lippings (to vertical edges only)		Hardwood	6–10mm thick	660kg/m <sup>3</sup> <i>Note 1</i>
Adhesives	Leaf Framing	Staple fixed at corners	–	–
	Facings (bonded to core and framing)	Urea Formaldehyde	–	–
	Lippings	Urea Formaldehyde	–	–
Optional additional decorative finishes (veneer/laminate/pvc to door faces only)		Timber veneer, decorative plastic-based laminate, PVC or paint	Maximum 2mm thick	–

*Note 1* Density of timber and facings to be minimum stated; or greater. Density of core to be as stated, but with a -5%/+10% variation permissible.

*Note 2* Details held on confidential file by International Fire Consultants Ltd.

### 3.3.2 Sandwich core door type (S3K core)

Component		Species	Dimensions	Minimum Density
Leaf Framing	Stiles	Hardwood	40mm wide x 38mm thick	660kg/m <sup>3</sup> <i>Note 1</i>
	Rails (Twin member at top and bottom of leaf)	Hardwood	2no. 40mm wide x 38mm thick	660kg/m <sup>3</sup> <i>Note 1</i>
Sauerland 38 S3K Core	Central layers	Extruded Solidboard <i>Note 2</i> (Layers stapled together see Sauerland datasheet in Appendix E)	3no. layers of 10.6mm thick	560kg/m <sup>3</sup> <i>Note 1</i>
	Outer layers	Cork <i>Note 2</i> <i>Cork must be the type and specification tested by Sauerland.</i>	3mm thick	220kg/m <sup>3</sup> <i>Note 1</i>
Facings		MDF OR HDF/Hardboard	Minimum 2.5mm thick	780kg/m <sup>3</sup> <i>Note 1</i>
			Minimum 3mm thick	900kg/m <sup>3</sup> <i>Note 1</i>
Lippings (to vertical edges only)		Hardwood	6–10mm thick	660kg/m <sup>3</sup> <i>Note 1</i>
Adhesives	Leaf Framing	Staple fixed at corners	–	–
	Core	PVAc to bond cork to outer layers of Solidboard. No adhesive between other core layers	–	–
	Facings (bonded to cork and framing)	Urea Formaldehyde	–	–
	Lippings	Urea Formaldehyde	–	–
Optional additional decorative finishes (veneer/laminate/pvc to door faces only)		Timber veneer, decorative plastic-based laminate, PVC or paint	Maximum 2mm thick	–

*Note 1* Density of timber and facings to be minimum stated; or greater. Density of core to be as stated, but with a -5%/+10% variation permissible.

*Note 2* Details held on confidential file by International Fire Consultants Ltd.

Additional notes and limitations apply to all three door options, and these are summarised after the following tables.

### 3.3.3 Sandwich core door type (S2 core)

Component		Species	Dimensions	Minimum Density
Leaf Framing	Stiles	Hardwood	40mm wide x 38mm thick	660kg/m <sup>3</sup> <i>Note 1</i>
	Rails (Twin member at top and bottom of leaf)	Hardwood	2no. 40mm wide x 38mm thick	660kg/m <sup>3</sup> <i>Note 1</i>
Sauerland 38 S2 Core		Extruded Solidboard <i>Note 2</i> (Layers stapled together see Sauerland datasheet in Appendix E)	2no. layers of 19mm thick	520kg/m <sup>3</sup> <i>Note 1</i>
Facings		MDF OR HDF/Hardboard	Minimum 2.5mm thick	780kg/m <sup>3</sup> <i>Note 1</i>
			Minimum 3mm thick	900kg/m <sup>3</sup> <i>Note 1</i>
Lippings (to vertical edges only)		Hardwood	6–10mm thick	660kg/m <sup>3</sup> <i>Note 1</i>
Adhesives	Leaf Framing	Staple fixed at corners	–	–
	Core	No adhesive between core layers	–	–
	Facings (bonded to core and framing)	Urea Formaldehyde	–	–
	Lippings	Urea Formaldehyde	–	–
Optional additional decorative finishes (veneer/laminate/pvc to door faces only)		Timber veneer, decorative plastic based laminate, PVC or paint	Maximum 2mm thick	–

*Note 1* Density of timber and facings to be minimum stated; or greater. Density of core to be as stated, but with a -5%/+10% variation permissible.

*Note 2* Details held on confidential file by International Fire Consultants Ltd.

The following additional notes and limitations apply to all three door types;

- Twin members must be used at the top and bottom rail with the VT5 core, if the door height exceeds 2040mm.
- The core must NOT include any joints to form the leaf height/width.
- The machining of the core/framing members, and the assembly process, must ensure that gaps between core and the stiles/rails are kept to a minimum, and gaps shall not exceed 2mm at any junction.



- Where lippings are used, (see Tables above), they shall be applied after the bonding of facings. The machining of the framing members, and the bonding process, must ensure that no gaps occur between the lipping and stiles/rails.
- The minimum thickness of the door leaf is 44mm; prior to the addition of optional decorative finishes.
- Where options are given for facings, the material on both faces of each door must be of equal thickness/type.

Adjustment of door sizes;

- The minimum width of stiles and rails, stated in the Tables above, is the minimum width after trimming DURING fabrication, and the 'original' section size should be wider than stated, to allow for fabrication tolerances. If it is intended to manufacture a batch of doors to suit a range of finished sizes, (i.e. to allow varying amounts to be trimmed from unlipped edges during or after final fabrication), the original width of stiles/rails may be increased by up to 30mm.
- Where door edges are lipped, a maximum of 4mm may be trimmed from each lipped edge; but the minimum lipping width (defined in the Tables above) must be maintained. If a greater adjustment is required, after fabrication, new lippings must be applied, complying with details for timber and adhesive in the Table above.

**The FD30 door designs in this report have NOT been tested with glazed apertures and apertures are NOT permitted or approved in these doors.**

### 3.4 Frames

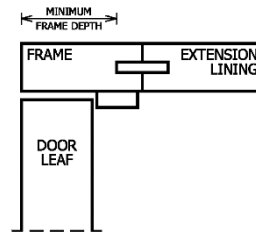
Door frames must be constructed from timber with a minimum measured density of 430kg/m<sup>3</sup> (measured at 12% moisture content). Timber must be straight grained and of appropriate quality in accordance with BS EN 942: 2007, or national equivalent. Moisture content shall be 11 ± 2% for UK market, (or to suit internal joinery moisture content specification of export countries).

Minimum dimensions: 30mm face width (excluding stop) x 80mm deep <sup>Note 3</sup>. Door stops to be a minimum 12mm thick and to comprise the same material as the door frame and may be either planted or pinned using 40mm steel pins, or integral with the main door frame, providing the minimum frame thickness (excluding stop) remains at 30mm.

*Note 3* 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 or include a shadow gap detail between the frame and the wall.

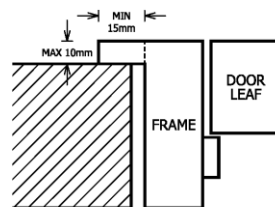
The overall frame depth may be increased by the use of extension linings, as shown below.

*No joints permitted within the minimum frame depth section outlined within this report.*



In scenarios where the face of the frame, and the door, are flush with the face of the wall, architraves may be 'loose' (i.e. pin-fixed), but are optional, subject to adequate fire-stopping; (See Section 3.8 regarding wall/frame gaps).

Where an integral architrave is used, (see sketch below), the face of the door may project beyond the face of the wall, providing the thickness of the architrave is no greater than 10mm and it projects at least 15mm beyond the rear face of the door frame. This assumes that the face of the door leaf does not protrude beyond the face of the architrave.



Head/jamb joint: Mortice and tenon, or half-lapped joint, head twice screwed to each jamb.

### 3.5 Intumescent Seals

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

### 3.6 Ambient Temperature Smoke Seals

Independent smoke seals 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 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 Section 3.5, in which case, the latter shall take precedence; and smoke sealing may not be effected.

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 of similar design and materials to those proposed, when fitted in the proposed arrangements.

### **3.7 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.

General guidance for all items of hardware is outlined in Appendix C, based upon the range of items tested. All hardware beyond the scope of the general guidance given in Appendix C 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 that proposed, or third party certification shall be available to support its use on doorsets of the proposed type.

### **3.8 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 may necessitate a twin line of screws). Packers shall be used at all fixing positions.

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 30 minutes fire resistance at the required size when incorporating doorset openings. The method of forming the door aperture must be as tested by the door manufacturer.

No part of the rear of the frame section shall be exposed once installed, and the frame must be flush with the face of the wall; except when using integral architraves, see section 3.4. There shall be no feature rebates or shadow gaps at the junction of the frame and wall.

The gaps between the supporting construction and timber frames shall be sealed following the recommendations of Tables 2-3 in BS8214: 2016. Alternatively, gaps may be sealed using a product proven in fire resistance tests, in such timber applications, and with reference to the correct depth of material to suit the width of gap between wall and frame.

The gap between the door and the frame should be 2–4mm. Gaps under the door(s) 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 in accordance with BS8214 (see also Section 3.6 regarding suitability of smoke seals).

The door assembly shall be designed 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.

## **4. CONCLUSION**

Based upon an analysis of the available test evidence, it is demonstrated that, if the proposed FD30 Solid Core (VT5) door leaves, FD30 Sandwich Core (S3K) door leaves and FD30 Sandwich Core (S2) door leaves, installed in timber frames, were manufactured and installed within the limitations of this assessment, and tested for fire resistance, they would each satisfy the integrity criteria of BS476: Part 22: 1987 for 30 minutes.

This report only applies to hinged doors, fitted with an effective/engaged latch, and installed in single leaf assemblies.

This Field of Application considers the scope of approval for door assemblies that may be installed in either orientation; i.e. with either face exposed to fire conditions.

## 5. DECLARATION BY THE APPLICANT

Reference: IFC Field of Application Report **PAR/13211/02**

We the undersigned confirm that we have read and complied with the obligations placed on us by 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

We confirm that the component or element of structure, which is the subject of this assessment has not to our knowledge been subjected to a fire test to the standard against which this assessment is being made.

We confirm that the change which is the subject of this assessment has not to our knowledge been tested to the standard against which this assessment has been made.

We agree to withdraw this assessment circulation should the component or element of structure be the subject of a fire 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:

Steffen Donath, PhD

Company:

Sauerland Spanplatte GmbH + Co. KG

Date:

10 July 2019

## 6. LIMITATIONS

This assessment 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 Practise'*, 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 Practise'*.

Where the constructional information in this report is taken from details provided to IFC and/or 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 shall not, therefore, be taken to infer approval of variation in such details from those tested or otherwise approved.

Where the assessed constructions have not been subject to an on-site audit by IFC, 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.

The analysis and conclusions within this report are based upon the likely fire resisting performance of a complete 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 assemblies are installed, to ensure that no parts of the assembly are damaged or faulty. Door leaves must open and close without the use of undue force. The edge gaps/alignment must remain in accordance with the tolerances defined, herein.



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 assembly 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, shall only be carried out following consultation with the manufacturer and IFC.

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 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 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.

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 Report is provided to the sponsor on the basis that it is a professional independent engineering judgement as to what the fire performance of the construction/system would be should it be tested to the named standard. It is IFC's experience that such a report 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 assessment 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 July 2024 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:



**Mark Billingham**  
Technical Manager  
International Fire Consultants Ltd. (IFC)

Checked by:



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



## **APPENDIX A**

### **Assessed Intumescent Seal Specifications for FD30 Solid Core and FD30 Sandwich Core Door Leaves Installed in Timber Frames**

## Intumescent Seal Specifications for FD30 Solid Core and FD30 Sandwich Core Door Leaves Installed in Timber Frames

Location	Size and Position
Jambs	1no 15 x 2mm Palusol T seal fitted centrally in a groove, within the frame reveal
Head	1no 15 x 2mm Palusol T seal fitted centrally in a groove, within the frame reveal

Note: The Palusol T intumescent seal is not contained within a pvc 'casing'. Alternative Palusol seals, in pvc casings, must not be used.

## **APPENDIX B**

**Assessed Leaf Size Envelopes  
Figure PAR/13211/02:B01**

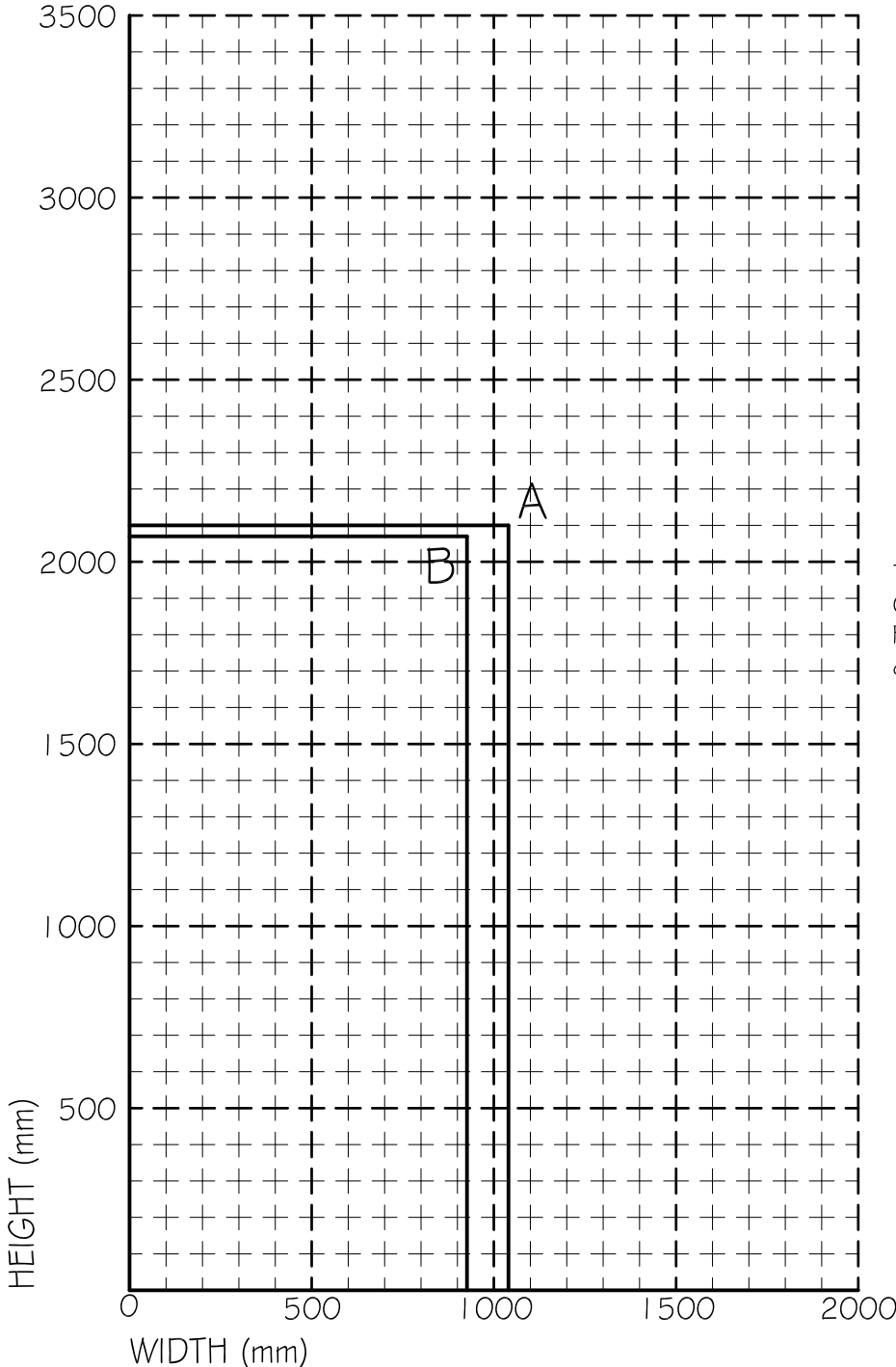
***The figure in this Appendix is not included  
in the sequential page numbering of this report***

	A
Width	1040
Height	2100

	B
Width	926
Height	2070

LEAF SIZE ENVELOPE POINTS

Configuration  
 Timber Frames  
 LATCHED  
 SINGLE ACTING  
 SINGLE LEAF  
 WITHOUT  
 OVERPANEL  
 REQUIRED INTEGRITY : 30 Minutes



This figure forms part of International Fire Consultants Ltd's Field of Application Report PAR/13211/02 Revision A, which contains full details of the assessed door constructions.

ENVELOPE OF APPROVED LEAF SIZES

The above graph represents the envelope of approved leaf sizes for the proposed 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 maximum width for doors with S3K or VT5 Construction

POINT B represents the maximum leaf height and maximum width for doors with S2 Construction

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

**INTERNATIONAL FIRE CONSULTANTS LIMITED**

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Field of Application Report  
 PAR/13211/02 Revision A  
 Sauerland Spanplatte GmbH & Co KG  
 FD30 Solid Core and FD30 Sandwich Core  
 Door Leaves Installed in Timber Frames

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

Job number: 19293

Drawn by: CSP	Checked by: MB
Not To Scale	Drawn: Jul 2019

**PAR/13211/02A:BO1**

## **APPENDIX C**

### **General Guidance on Installation of Hardware in Sauerland FD30 Solid Core and Sandwich Core Doors**

## General Guidance on Installation of Hardware

### C.1 Hinges

The doors have been tested utilising steel butt hinges, and these are thus proven to make a positive contribution to the required 30 minutes integrity performance. Other types of hinge may be used as alternatives, but ALL hinges must comply with the following specification:

Hinge types : Fixed pin, washered butt, ball bearing butt or journal supported hinges may be used.

Minimum number : 3no per leaf

Positions : The top hinge must be positioned 150mm down from the head of the leaf to the top of the hinge and the bottom hinge positioned 225mm up from the foot of the leaf to the bottom of the hinge. The middle hinge may be equi-spaced between the top and bottom hinges; or 200mm below the top hinge. (All positions  $\pm 25$ mm).

Fixings : Steel screws, as recommended by the hinge manufacturers, but in no case smaller than No 8 (3.8mm diameter) x 30mm long and having thread for the full length. Position of screws (in relation to the door face) in blades of alternative hinge types shall be similar to hinges tested with the proposed door type.

Hinge blade sizes : 1.5–3.5mm thick x 89–110mm high x 30–38mm wide. (These dimensions refer to the blade size, i.e. the part of the hinges that are recessed into the edge of the leaves/frame).

Hinge materials : Brass, Phosphor Bronze, Steel or Stainless Steel. (Aluminium, Nylon or 'Mazac' are not permitted.) No combustible or thermally softening materials to be included.

Additional protection : Hinge blades to be bedded on 1mm thick Interdens intumescent sheet.

Rising butt, cranked butts, concealed hinges and spring hinges (single or double action) are not suitable for use on doors approved within the scope of this generic assessment, although may be suitable to form the subject of an individual and specific evaluation.

## C.2 Mortice Latches/Locks

The doorsets have only been tested with a mortice latch fitted. All doors within the scope of this report MUST be fitted with a latch, or deadlock, which shall be centred at 1000mm ( $\pm$  200mm), above the bottom of the door leaf, and shall comply with the following specifications:

Latch/lock types : Mortice latches, tubular mortice latches, sashlocks, deadlocks

Maximum dimensions : Forend plate: 60mm long x 25mm wide  
Latch body: 18mm thick x 60mm wide  
Strikeplate: 60mm long x 25mm wide

Materials : Latches must have no essential part of their structure made from polymeric or other low melting point ( $<800^{\circ}\text{C}$ ) materials and should not contain any flammable materials.

Additional protection : The lock body should be encased in 1mm thick low pressure intumescent material, e.g. Interdens.

Over-morticing is to be avoided; mortices shall be as tight as possible to the latch. If gaps occur on either side of the case (but not exceeding 2mm), then these must be made good with intumescent mastic or sheet (rounding to the top and bottom of the mortice is permitted). Holes for spindles or cylinders shall be kept as small as is compatible with the operation of the hardware. Latches must be central in door thickness.

## C.3 Door Closers

Where required by regulatory guidance, each hinged door leaf must be fitted with a self-closing device unless they are normally kept locked shut and labelled as such with an appropriate sign which complies with the BS5499 series of standards.

Face-fixed overhead door closer (and accessories such as soffit brackets) that have been tested, assessed or otherwise approved for use on unlatched FD30 cellulosic door leaves may be used. Any accessory that is located within the door reveal must have appropriate test or assessment evidence.

Transom mounted, jamb mounted or concealed overhead closers must not be incorporated into any of the doors within the scope of this generic scope of this report.

It is essential that all closers fulfil the requirements of BSEN 1154:1997 and are of the correct power rating for the width and weight of the doorsets; minimum power size 3. They must be fitted according to the manufacturer's instructions and 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.

#### **C.4 Push plates, kick plates, etc**

Plastic, pvc or metal plates may be surface-mounted to the doors, 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, glazing beads or handle escutcheons etc.

#### **C.5 Lever Handles**

Material	Metal/alloy – should not contain any flammable materials
Specific Installation Requirements	Holes through the leaf shall be as close fitting as possible to the spindles and/or fixing screws; which must be steel.
Intumescent protection	None required
Additional Notes	This generic approval only applies to traditional 'mechanical' lever handles and does not apply to electro-mechanical handle-sets (with security access functions); which must be the subject of independent fire testing, and further analysis by IFC



## **APPENDIX D**

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

## Summary of Fire Test Evidence

Test Report	Configuration Tested	Leaf Size	Test Standard	Integrity
164432 Doorset A	LSASD (S3K core)	2040 x 926 x 44mm	BS476: Part 22: 1987	Integrity – 40 minutes Insulation – 39 minutes
164432 Doorset B	LSASD (S2 core)	2040 x 926 x 44mm	BS476: Part 22: 1987	Integrity – 31 minutes Insulation – 31 minutes
159842 Doorset A	LSASD (VT5 core)	2040 x 926 x 44mm	BS476: Part 22: 1987	Integrity – 40 minutes Insulation – 40 minutes

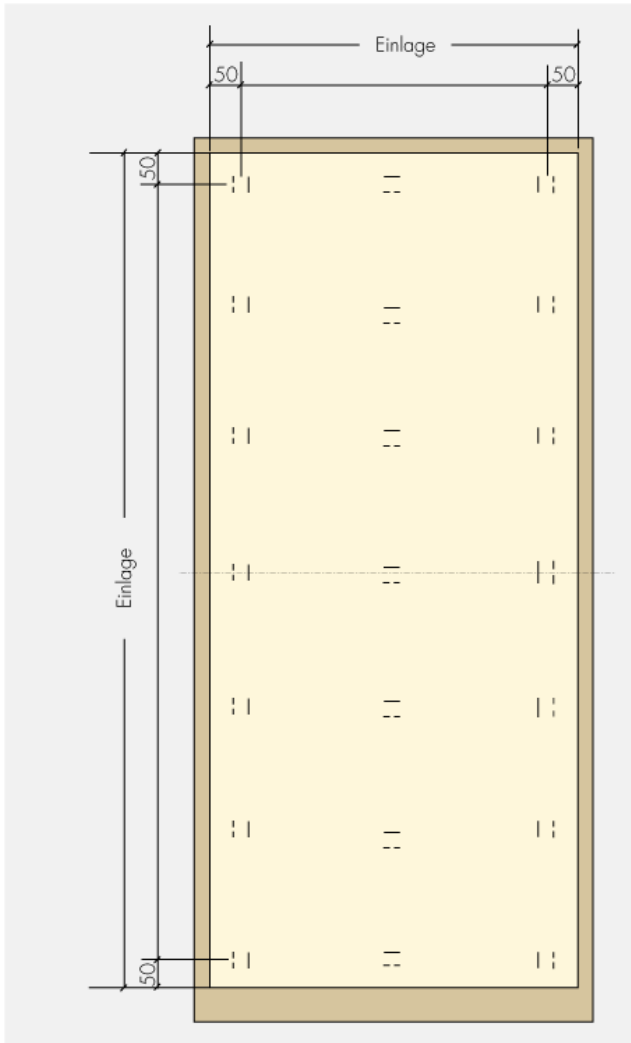
**LSASD** = Latched, Single Acting, Single leaf Doorset

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.

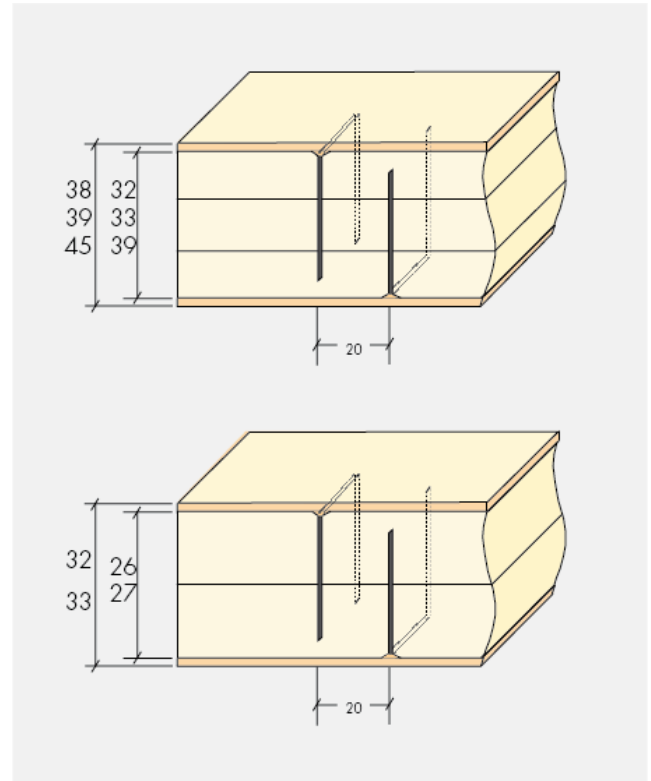
## **APPENDIX E**

**Copy of Sauerland Specifications for staples  
used to secure core layers of  
FD30 Sandwich Core Door Leaves (S2 and S3K core)**

## Sizes and stapling scheme



## Form and position of staples



## Possible dimensions

Thickness of core: 32/ 33 /38 / 39/ 45 mm  
 Width of core: 600 - 1200 mm Tol.: +/- 2 mm  
 Height of core: 1750 - 2020 mm Tol.: +/- 1 mm

## Sound insulation level

Preliminary sound tests of sample door sets sealed into the test stand led to the following results:

- 2-layer core : 38 dB / 30 min.
- 3-layer core : 40 dB / 30 min.  
42 dB (without middle clamps)

Apart from the core a multitude of other factors influence the sound insulation of door sets. Therefore SAUERLAND is not able to guarantee the result.

Please take advantage of the possibilities in the SAUERLAND Service Center.

## Designation / Order

The complete sandwich core is named :  
for example :

39	S	3	K
Thickness	Sandwich	3-layer	Corc

⇒ A sandwich core consisting of three boards Type 11 mm VL and 2 layers 3mm corc is supplied.