INTERNATIONAL FIRE CONSULTANTS LIMITED

PRIVATE & CONFIDENTIAL

IFC FIELD OF APPLICATION REPORT

Field of Application for 54mm Thick FD60 Three Layer Core Timber Door Leaves (Single Leaf only) Installed in Timber Frames

Fire Resistance Standard: BS476: Part 22: 1987

IFC Report PAR/11439/01 Revision B

Prepared on behalf of:

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

Ref: #19300

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ISSUE AND AMENDMENT RECORD

Rev	Date	Author	Review	Amendments
PAR/11439/01	September 2012	PP	DC	-
Revision A	December 2015	MB	DC	Review and Revalidation. Revise to current IFC format
Revision B	August 2019	CA/MB	CPH	Review and Revalidation. Revise to current IFC format. Update standards. Minor edits to details/scope

CONTENTS

1. INTRODUCTION

This report has been prepared by International Fire Consultants Ltd (IFC), on the instruction of PKF Global Ltd, to define the Field of Application for timber based door assemblies, comprising 54mm thick three layer core door leaves installed in timber 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 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, and 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, 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

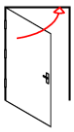
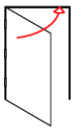
The test evidence used to support this Field of Application Report is summarised in Appendix E of this report.

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 54mm thick three layer core door leaves are outlined below:

Configuration		Envelope of Approved Leaf Size
	• **Latched** • **Single Acting** • **Single Door** • **Without Overpanel**	**Figure PAR/11439/01B:C01 in Appendix A**
	• **Unlatched** • **Single Acting** • **Single Door** • **Without Overpanel**	**Figure PAR/11439/01B:C02 in Appendix A**

3.2 Maximum Assessable Door Leaf Sizes

The calculated envelopes of assessed leaf dimensions for each door assembly configuration covered by this Field of Application report are given in Appendix C based upon use of the intumescent seal specifications shown in Appendix B.

3.3 Door Leaf and Overpanel Specification

A detailed constructional specification of the basic door construction is given below. Detailed drawings of the proposed door leaf construction are given in **Figures PAR/11439/01B:A01** and **A02** in Appendix A.

The leaf construction is based upon the test evidence detailed in Appendix E, and defines variations and tolerances where it is considered that these will not adversely affect overall fire resistance. The construction details are limited to the information available from the test report.

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.

Component		Species/ Material	Dimensions	Minimum Density
Core *Note 5*	Inner	Tropical Hardwood	17mm thick x 40mm wide (lamels) horizontal laminated timber	510kg/m^3 *Note 1*
	Outer	Albasia Falcata	13.9mm thick x 50mm wide (lamels) vertical laminated timber	300kg/m^3 *Note 1*
Closing Stile (Lock edge) *Note 4 and 5*		Tropical hardwood	4no. vertical lamels - totalling 100mm wide x 44.8mm thick	510kg/m^3 *Notes 1 & 2*
Top Rail *Note 4 and 5*		Tropical Hardwood	3no. horizontal lamels - totalling 100mm wide x 44.8mm thick	510kg/m^3 *Notes 1 & 2*
Facings Option A	Sub Facing	Tropical Hardwood (long grain)	2-3mm thick	510kg/m^3 *Note 1*
	Outer Facing	Albasia Falcata (Cross grain)	1-2mm thick	300kg/m^3 *Note 1*
Facings Option B		MDF	4mm thick	730kg/m^3 *Note 1*
Lippings Option A (applied BEFORE facings) *Notes 6 & 7*		Tropical Hardwood	10-18mm thick on all edges	510kg/m^3 *Notes 1 & 2*
Lippings Option B (applied AFTER facings) *Notes 6 & 7*		Hardwood (Not Beech)	10-12mm thick on all edges	620kg/m^3 *Notes 1 & 2*
Adhesives	Core lamels	Urea Formaldehyde	-	-
	Core to stiles and rails	Polyurethane	-	-
	Stile and rail elements	Polyurethane	-	-
	Core to sub facing	Urea Formaldehyde	-	-
	Sub facing to outer facing	Urea Formaldehyde	-	-
	Lippings to core/stile/rail	Urea Formaldehyde or Polyurethane	-	-
Minimum leaf thickness		-	54mm	-
Optional additional decorative facings (to leaf faces only)		Timber veneer, decorative plastic based laminate, PVC	Maximum 2mm thick	-
Optional finishes (to leaf faces and/or edges)		Paint/lacquer	N/A	-

Note 1 *Minimum density, based on density stated in test report.*

Note 2: *Any hardwood (not Beech) may be used subject to suitable density. The density of each specific batch used for production must be checked for compliance.*

Note 3: *Both faces of a door leaf must use an identical material as the facing option.*

Note 4: *The door design includes a laminated stile on the closing/lock stile, and a laminated rail at the head; but these are concealed by the lippings. The door MUST be hung in this orientation, and it is a condition of this approval that the doors must be "marked" at the factory, to ensure that end-users can correctly identify the head and hanging edge during installation.*

Note 5: *The laminated core of each leaf shall be manufactured as a single slab, to suit the manufactured leaf size. The laminated stile/rail shall each be manufactured as a single length, to suit the door height and width, respectively.*

Note 6 *The machining of the stiles/rails/core, and bonding process, must be such to ensure that no gaps occur between stiles/rails/core and lipping.*

Note 7 *Lippings to be straight grained hardwood (not Beech), with minimum measured density at 12% moisture content and of appropriate quality in accordance with BS EN 942: 2007. Moisture content to be 11 ± 2% for UK market in heated buildings between 12-21°C (or to suit internal joinery moisture content specification of export countries).*

Adjustment of door sizes –

- Where doors are formed using the Option A construction, a maximum of 8mm may be trimmed from each edge, after fabrication; but only if the minimum lipping thickness (defined in the Table above) can be maintained.
- Where doors are formed using the Option B construction, a maximum of 2mm may be trimmed from each edge, after fabrication; but only if the minimum lipping thickness (defined in the Table above) can be maintained. If a greater adjustment is required with doors constructed using Option B, material must ONLY be removed from the bottom edge and/or from the hanging stile, and new lippings must be applied, complying with details in the Table above.

3.4 Frames

Timber frames, to the specifications given below, may be used across the complete range of approved sizes and configurations outlined in Appendix C, utilising the intumescent seal specification outlined in Appendix B.

Material	Density	Minimum Face Width	Minimum Frame Depth	Minimum Stop Depth
Hardwood (Not Beech)	650kg/m³ *Note 8*	32mm, excluding stop *Note 9*	90mm	12mm *Note 10*

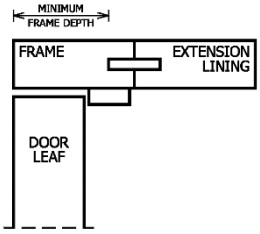
Note 8 *Timber must have a minimum measured density at 12% moisture content. The timber must be straight grained and of appropriate quality in accordance with BS EN 942: 2007. The moisture content shall be 11 ± 2% for UK market, (or to suit internal joinery moisture content specification of export countries).*

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

Note 10 *The door stop 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.*

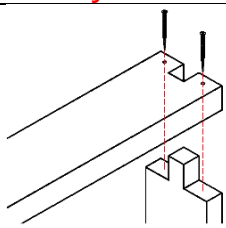
The overall frame depth may be increased by the use of extension linings, but the joint between the main frame and the extension lining must not intrude in the minimum frame depth.

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

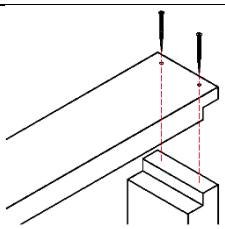


Head/jamb joint : Mortice and tenon, or half-lapped joint, head twice screwed to each jamb **or** mitred joint which is glued with a non-thermally softening adhesive and the head twice screwed to each jamb.

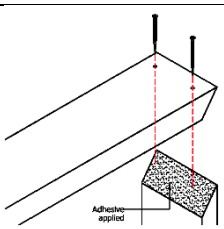
Mortice and tenon joint



Half-lapped joint



Mitred joint



Architraves : Where the face of the frame, and the door, are 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 adequate fire stopping. (See Section 3.7 regarding wall/frame gaps).

3.5 Glazed Apertures

Glazed apertures have not been tested in the proposed door design; and are NOT approved.

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.

General guidance for all items of hardware is outlined in Appendix D, based upon the range of items tested. 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 that proposed.

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 on the vertical edges (minimum 200mm from the top and bottom), and a minimum of one fitted centrally across the width of the frame 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 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 11 *Reference to steel stud partitions is in the context of permanent elements, such as those designed and proven by the plasterboard manufacturers, with plasterboard on both faces of the studs. This report does not approve 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.*

No part of the rear of the frame section shall be exposed once installed, and the leaf 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 with timber frames (such features could, however, be assessed on an individual basis).

This report only applies to scenarios where the frame is fully aligned within the plane of the fire-resisting wall/partition. The approval in this report does not apply where the wall/partition includes decorative 'cladding' on the face of the fire-resisting construction, (e.g. timber panelling on battens, or plasterboard on studs/dabs), such that any part of the frame is aligned within the plane of this decorative cladding. This detail is likely to adversely affect the fire resistance of the door assembly, and IFC should be consulted for specific advice, to determine upgrading measures that will be required in such cases.

The gap sealing between the supporting construction and timber frames should follow the recommendations of Tables 4 and 5 in BS8214: 2016, *'Timber-based fire door assemblies – Code of practice'*, using a product proven in such timber applications. Alternatively, tested, assessed or Third Party Certificated solutions may also be utilised using a product proven in such timber applications, and with reference to the correct depth of seal to suit the width of gap between wall and frame.

The gap between the door and the frame shall be 1.5–4mm. Gaps under the door shall not exceed 6mm for fire performance, although, if smoke control is also required, these gaps shall only be 3mm, or smoke seals shall be included (see also Section 3.8 regarding suitability of smoke seals).

The door assembly design shall be such that, when closed, single acting leaves are fully flush within the frame.

3.8 Intumescent Seals

Graphite based, or Lorient 617, pvc encased, seals manufactured by Mann McGowan Fabrications Ltd, Lorient Polyproducts Ltd, Intumescent Seals Ltd, Pyroplex or Sealed Tight Solutions may be employed across the complete range of door sizes and configurations approved herein. 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 intumescent seal specifications, widths, and positions are shown in Appendix B, based upon tested details.

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

3.9 Ambient Temperature Smoke Seals

Smoke seals, or combined intumescent/smoke seals (using the specification approved in Section 3.8), 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 B, in which case, the latter shall take precedence; and smoke sealing may not be effected.

Test evidence to BS476: Part 22: 1987 (or EN1634-1) 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 thickness, when fitted in the proposed arrangements.

4. CONCLUSION

Based upon the available test evidence, and subsequent analysis performed by International Fire Consultants Ltd, if a sample of the proposed 54mm thick three layer core door construction were installed as a single leaf assembly in a timber frame, being manufactured and installed in accordance with the limitations of this Field of Application Report and tested for fire resistance, it would satisfy the integrity criteria of BS476: Part 22: 1987 for 60 minutes.

This Field of Application Report considers that the door assemblies within the scope approval, herein, may be installed in either orientation and so be exposed to fire conditions from either face.

5. DECLARATION BY THE APPLICANT

Reference: IFC Field of Application Report **PAR/11439/01 Revision B**

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: _____

Position: _____

Company: PKF Global Ltd

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 assembly 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.

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 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 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.

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 August 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 6 duly signed by the applicant.

Prepared by:

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Checked by:

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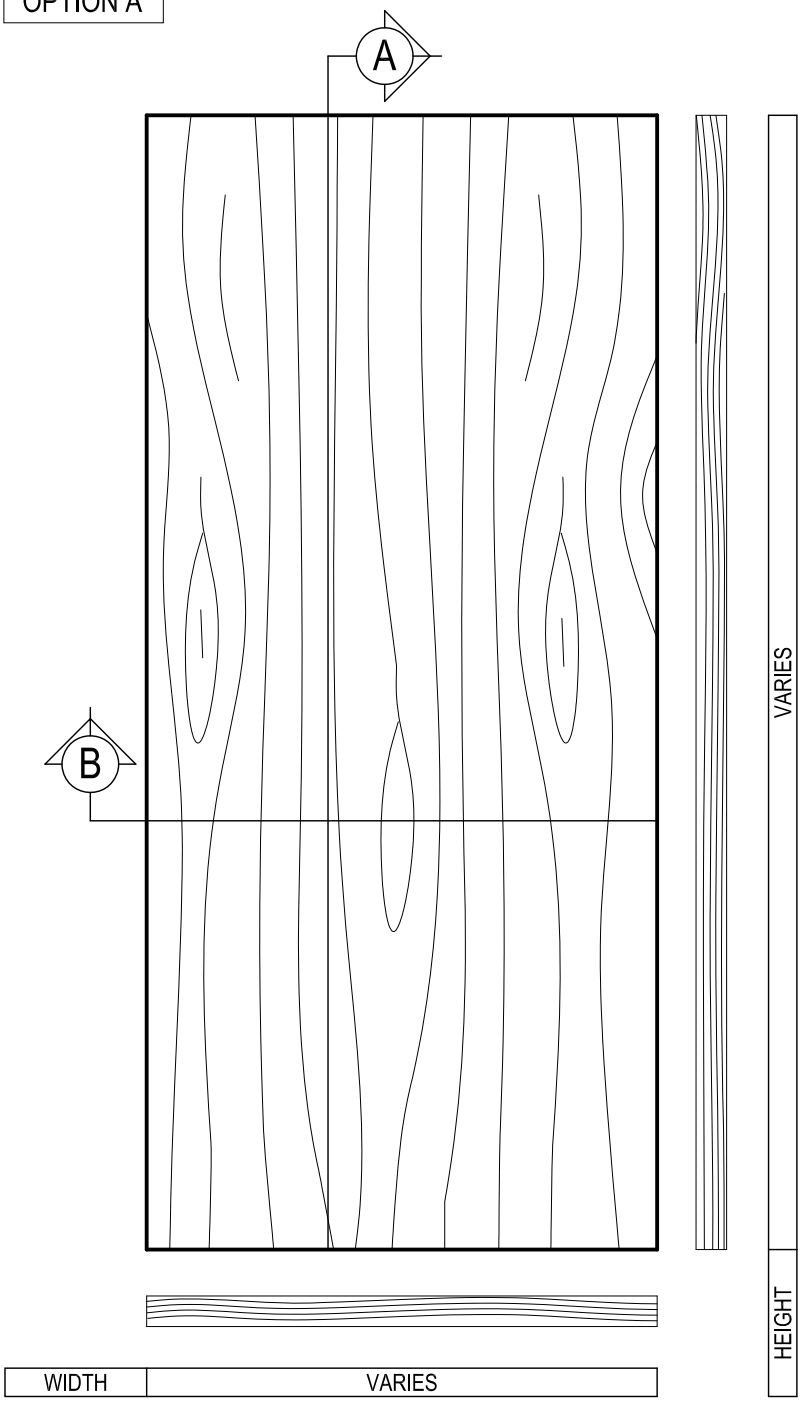
APPENDIX A

Figures PAR/11439/01B:A01 to A02

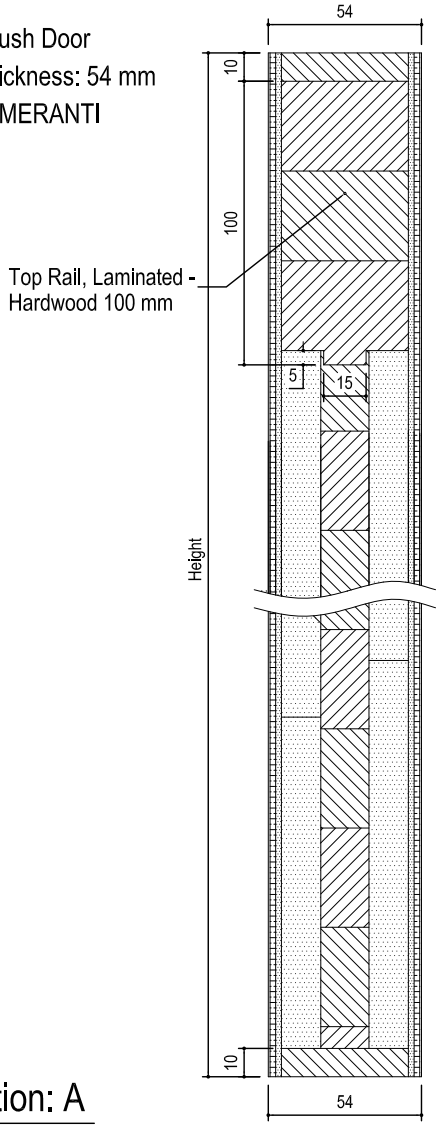
Construction Details

The figures in this Appendix are not included in the sequential page numbering of this report

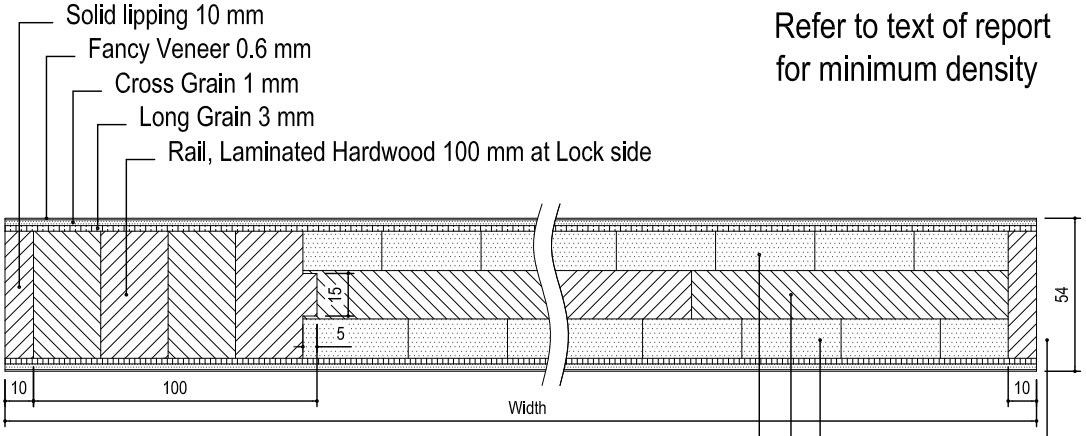
OPTION A



Type: Flush Door
Door Thickness: 54 mm
Specie: MERANTI



Section: A



Refer to text of report for minimum density

Section: B

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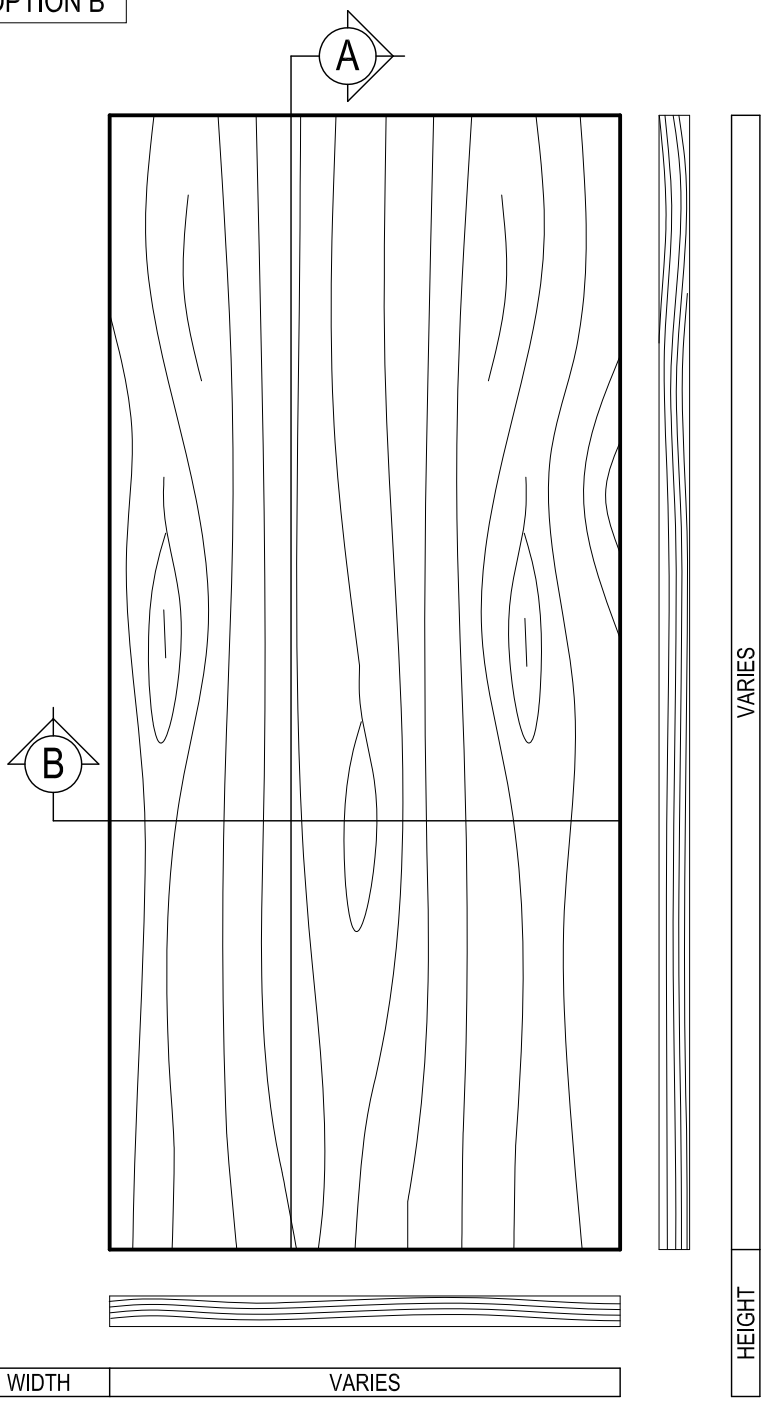
Field of Application Report
PAR/11439/01 Revision B
PKF Global Ltd
Minimum 54mm Thick FD60
Three Layer Core Door Leaves
Installed in Timber Frames

Door Leaf Elevation
& Sections
Option A

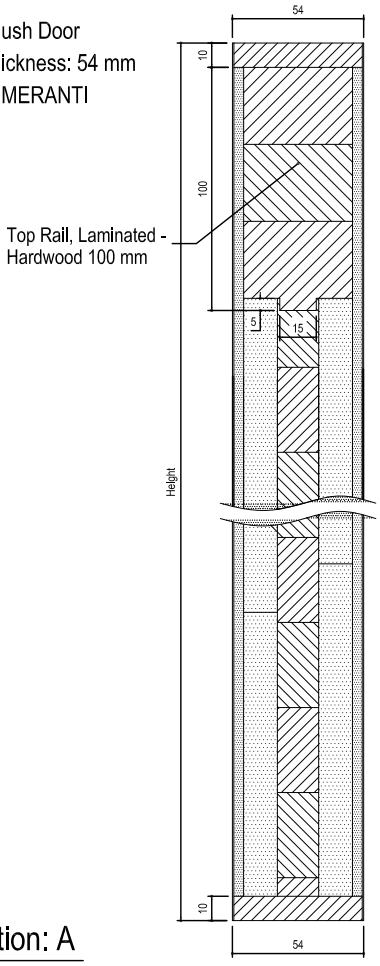
Job number: 19300	
Drawn by: CSP	Checked by: MB
Not To Scale	Drawn: Aug 2019

PAR/11439/01B:A01

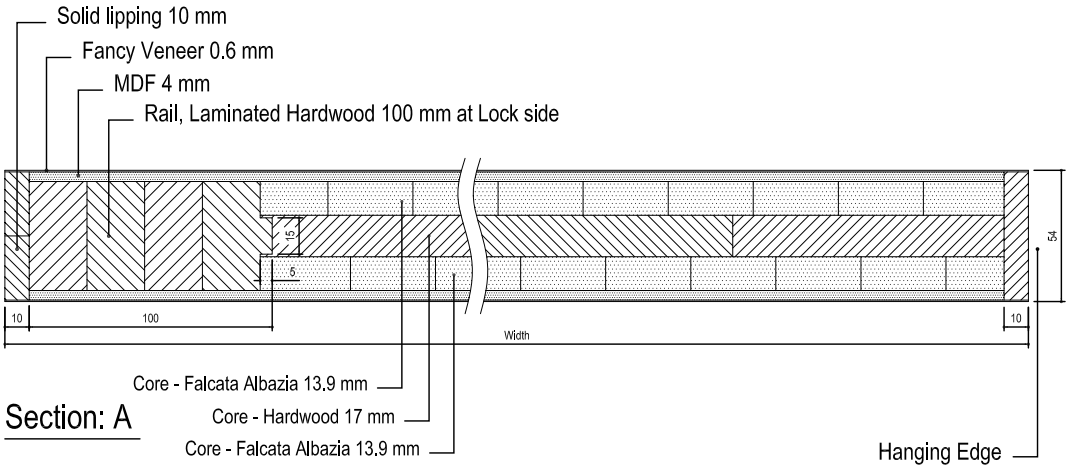
OPTION B



Type: Flush Door
Door Thickness: 54 mm
Specie: MERANTI



Section: A



Section: A

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Field of Application Report
PAR/11439/01 Revision B
PKF Global Ltd
Minimum 54mm Thick FD60
Three Layer Core Door Leaves
Installed in Timber Frames

Door Leaf Elevation
& Sections
Option B

Job number: 19300	
Drawn by: CSP	Checked by: MB
Not To Scale	Drawn: Aug 2019

PAR/11439/01B:A02

APPENDIX B

Assessed Intumescent Seal Specifications for 54mm thick three layer core Door Leaves Installed in Timber Frames

Location	Using Facing Option A	Using Facing Option B
Jambs	2no 15 x 4mm intumescent seals, centrally fitted, spaced 10mm apart in the frame reveal	2no 15 x 4mm intumescent seals, centrally fitted, spaced 10mm apart in the frame reveal
Head	2no 15 x 4mm intumescent seals, centrally fitted, spaced 10mm apart in the frame reveal AND 1no 15 x 4mm intumescent seal, centrally fitted in the leaf edge	2no 15 x 4mm intumescent seals, centrally fitted, spaced 10mm apart in the frame reveal AND 1no 20 x 4mm intumescent seal, centrally fitted in the leaf edge

Notes:

i) The 4mm thick seals are graphite based, or Lorient 617 type in a pvc case (see Note ii). Seals should be obtained from Mann McGowan Fabrications Ltd, Lorient Polyproducts Ltd, Intumescent Seals Ltd, Pyroplex or Sealed Tight Solutions. Combined intumescent/smoke seals may be used, maintaining the widths specified above (and subject to the conditions outlined in Section 3.8).

APPENDIX C

Figures PAR/11439/01B:C01 to C02

Assessed Leaf Size Envelopes for 54mm thick three layer core Door Leaves Installed in Timber Frames

The figures in this Appendix are not included in the sequential page numbering of this report

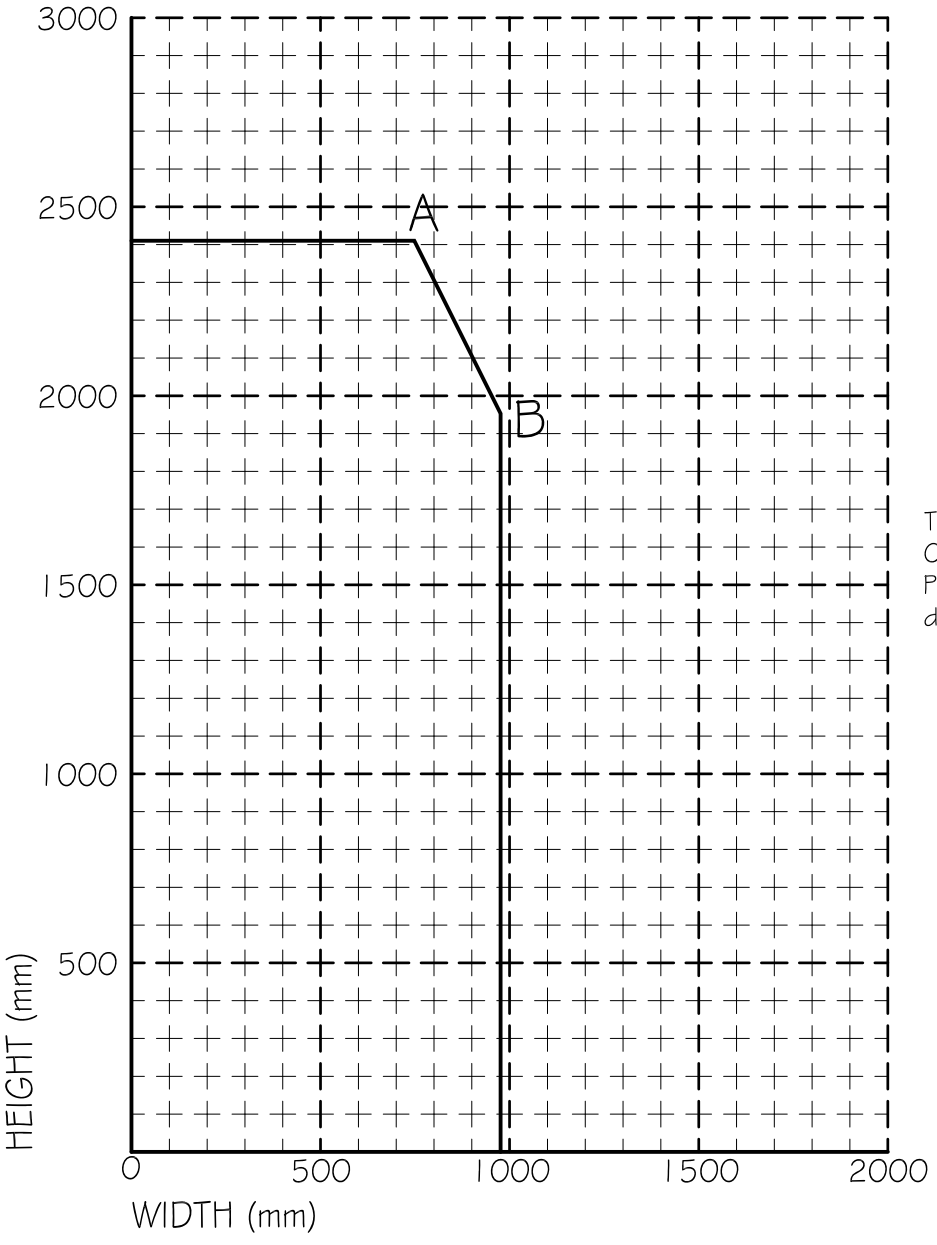
PROPOSED CONFIGURATION

LATCHED
SINGLE ACTING
SINGLE LEAF
WITHOUT OVERPANEL

REQUIRED INTEGRITY: 60 minutes

	A	B
Width	748	976
Height	2410	1953

LEAF SIZE ENVELOPE POINTS



This figure forms part of International Fire Consultants Ltd's Field of Application Report PAR/11439/01 Revision B, which contains full details of the assessed door construction.

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.

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Field of Application Report
PAR/11439/01 Revision B
PKF Global Ltd
Minimum 54mm Thick FD60
Three Layer Core Door Leaves
Installed in Timber Frames

Envelope of Approved
Door Leaf Sizes
LSASD

Job number: 19300	
Drawn by: CSP	Checked by: MB
Not To Scale	Drawn: Aug 2019

PAR/11439/01A:C01

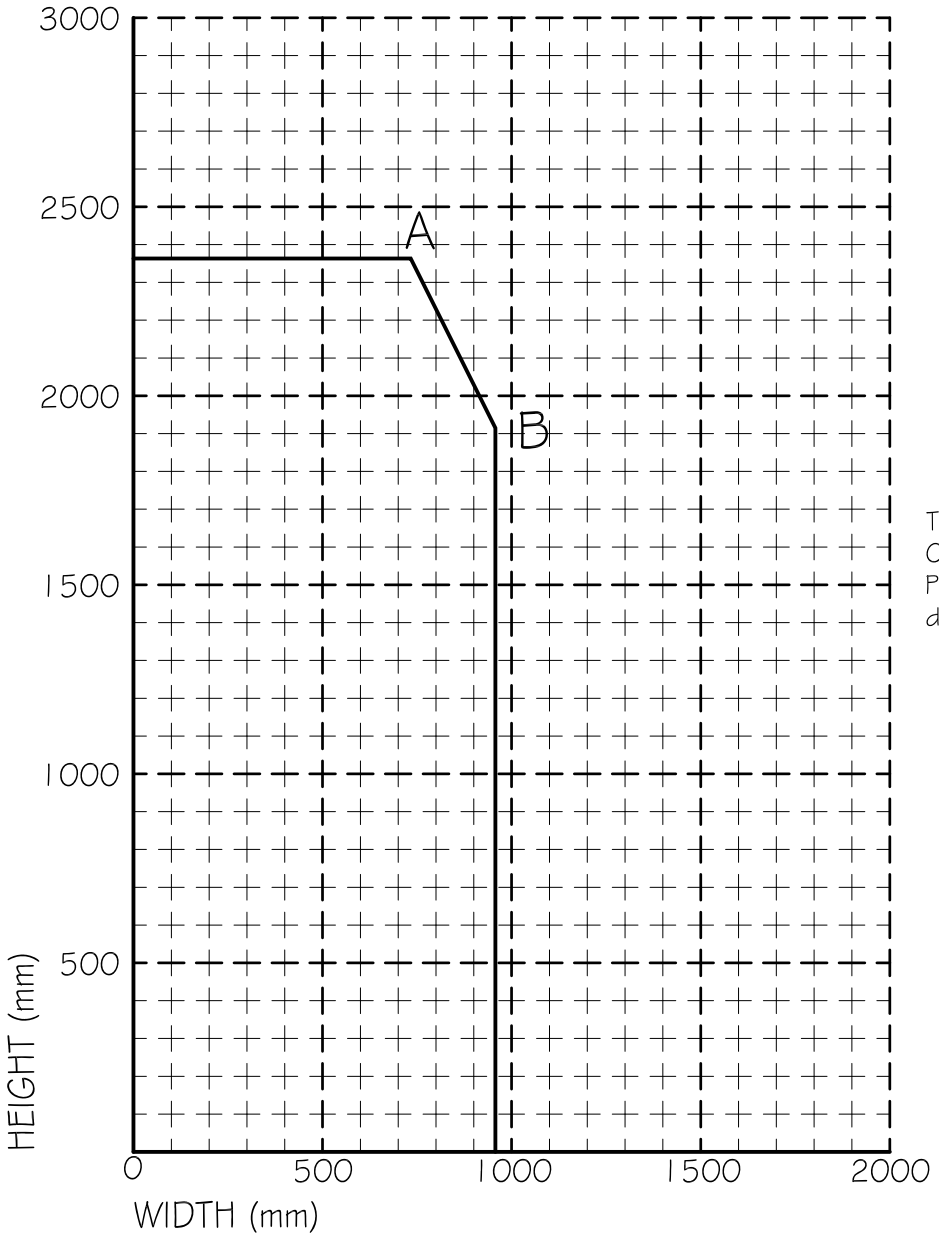
PROPOSED CONFIGURATION

UNLATCHED
SINGLE ACTING
SINGLE LEAF
WITHOUT OVERPANEL

REQUIRED INTEGRITY: 60 minutes

	A	B
Width	733	957
Height	2363	1915

LEAF SIZE ENVELOPE POINTS



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ENVELOPE OF APPROVED LEAF SIZES

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Field of Application Report
PAR/11439/01 Revision B
PKF Global Ltd
Minimum 54mm Thick FD60
Three Layer Core Door Leaves
Installed in Timber Frames

Envelope of Approved
Door Leaf Sizes
ULSASD

Job number: 19300	
Drawn by: CSP	Checked by: MB
Not To Scale	Drawn: Aug 2019

PAR/11439/01A:C02

APPENDIX D

General Guidance on Installation of Hardware

D.1 Hinges

Element	Specification	
Approved Hinge types	Fixed pin, washered butt, ball bearing butt, lift-off type or journal supported	
Description	Butt hinges are constructed from two matching leaves (blades) of metal connected by a central pin and barrel system. One blade of the butt hinge is morticed into the edge of the door leaf, while the other is morticed into the frame jamb	
Blade height	100 – 110mm	
Blade width	30 - 36mm	
Blade thickness	2.5 - 3.5mm	
Material	Phosphor Bronze, 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 number	3no. hinges per leaf	
Positions	Top	120 - 200mm down from the leaf head to the top of the hinge
	Middle	Either equi-spaced between the top and bottom hinges or positioned 200 – 250mm below the top hinge
	Bottom	150 - 225mm up from the bottom of the leaf to the bottom of the hinge blade
Intumescent protection	The hinge blades must be bedded on low-pressure forming intumescent material at least 1mm thick.	
Additional notes	Concealed hinges, rising butts, cranked butts and spring hinges (single or double action) are not suitable for use on doors approved within the scope of this Assessment	

D.2 Mortice Latches/Locks

Element	Specification
Latch/lock type	Mortice latches, tubular mortice latches, sashlocks and deadlocks
Maximum forend height	100mm x 22mm wide
Maximum strike plate height	100mm x 20mm wide (excluding tongue)
Maximum latch/lock body dimensions	50mm high x 65mm wide x 18mm 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	1mm thick low-pressure forming intumescent material (e.g. Interdens or Therm-A-Strip) encasing the latch/lock body and fitted to the underside of the forend and strike plates.
Additional notes	Over-morticing is to be avoided; mortices shall be as tight as possible to the latch. If there are gaps around the case (not exceeding 2mm) then these must be made good with intumescent mastic or sheet material. Holes for spindles or cylinders shall be kept as small as is compatible with the operation of the hardware

D.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.

This report only approves face-fixed overhead door closers (and accessories such as soffit brackets) of a type that have been tested, assessed or otherwise approved for use on FD60 cellulosic door leaves. Any accessory that is located within the door reveal must have appropriate test or assessment evidence.

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

It is essential that all closers are of the correct power rating for the width and weight of the doors. 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.

D.4 Non-Essential Hardware Items

D.4.1 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, e.g. handle escutcheons etc.

D.4.2 Pull handles

These may be fixed to the face of doors, provided that the fixing points are no greater than 800mm apart. Pull handles that are fixed through the leaf should use clearance holes as close fitting as possible to the bolt; and fixings passing through the leaf shall be steel. Handles/fixings shall be at least 40mm away from the door edge.

D.4.3 Lever Handles

Element	Specification
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 functions); which must be the subject of independent fire testing, and further analysis by IFC

APPENDIX E

Summary of Primary Fire Test Evidence

Test Laboratory and Report No	Test Date	Configuration Tested	Leaf Size Tested	Test Standard	Integrity
CFR1204191 Cambridge Fire Research	**19th April 2012**	**ULSASD**	**2000mm high x 900mm wide x 54mm thick**	**BS476: Part 22: 1987**	**62 Minutes**

LSASD = Latched Single Acting Single leaf Door assembly
ULSASD = Unlatched, Single Acting. Single leaf Door assembly

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.

Note: *Where appropriate, fire test evidence from hardware and intumescent seal manufacturers has also been considered when preparing this Field of Application Report.*