

FIELD OF APPLICATION REPORT

PAR/14658/01 Revision A

February 2022

Falcon Panel Products Ltd

Field of Application Report for FD60 Fibrecore Door Leaves Installed in Timber Door Frames

Fire Resistance Standard: BS476: Part 22: 1987

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Prepared on behalf of: **Falcon Panel Products Ltd**

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1. INTRODUCTION

This report has been prepared by International Fire Consultants Ltd (IFC), on the instruction of Falcon Panel Products Ltd, to define the field of application for door assemblies, comprising Fibrecore 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 Fire Performance of Construction Products Based on Fire Test Evidence, 2021, 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, 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 C of this report.

All 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.

The appropriate performance of fire resisting doorsets is defined in Approved Document B of the Building Regulations (2019 Edition with 2020 Amendments), the Scottish Building Standards Technical Handbook (2013 Edition) or the Building Regulations (Northern Ireland) 2012.

Table C1 in Appendix C of Approved Document B, which applies to England, identifies doorsets by their performance under test to BS EN 1634-1 or BS476: Part 22: 1987, in terms of integrity for a period of minutes, (e.g. E30/E60, if their performance is measured in terms of EN 1634-1, or FD30/FD60 for BS476: Part 22: 1987). It should be noted that a suffix (S) is added for doors where restricted smoke leakage at ambient temperatures is needed. The Scottish and Northern Ireland documents also refer to the British and European Standards in Section 2D and Section B3 respectively of these documents.

These guidance documents thus give parity of performance between the two test methods, and although the EN 1634-1 and the BS476: Part 22: 1987 test procedures are both generally based upon the ISO 834 fire resistance test method, there are differences. The major ones are thus;

- a. The method of measuring the furnace (exposure) temperature in the EN 1634-1 test is by means of plate thermocouples. The 'plates' have a greater thermal inertia than the bead thermocouples used in the BS476: Part 22: 1987 test, and therefore the heat input is higher than that given in BS476 at any given time during approximately the first 15 minutes of a fire resistance test.
- b. The furnace pressure in the EN 1634-1 test is neutral at a position 500mm above the threshold, compared to a nominal 1 metre in the BS476: Part 22: 1987 test. As a consequence, the pressure over the upper part of the doorset is higher and, therefore, is more onerous in the EN test.

There are other minor procedural matters that also increase the severity of the EN method. These, combined with the issues identified in a) and b) above, mean that the EN 1634-1 test is generally accepted as being a more onerous test than BS476: Part 22: 1987. This is borne out by IFC's experience of fire resistance testing already performed since the introduction of the European test standard.

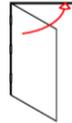
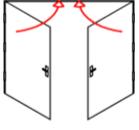
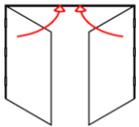
As such, it is the opinion of IFC that any test results on doorsets tested to EN 1634-1 can be utilised in situations requiring a performance defined against the BS476: Part 22 test method, or when making assessments and judgements against the BS476 criteria, but not vice versa.

The test standard BS EN 1634-1 has been revised several times since the original testing, and the current version is BS EN 1634-1: 2014+A1:2018 ; but the revisions to the test standard do not affect the opinions in the Assessment Report.

3. SCOPE OF APPROVAL

3.1 Door Assembly Configuration

The approved leaf sizes and configurations of door assemblies comprising Fibrecore door leaves are outlined below:

CONFIGURATION		ENVELOPE OF APPROVED LEAF SIZES
	<ul style="list-style-type: none"> Latched Single Acting Single Door Without Overpanel 	Figure PAR/14658/01A: A01 in Appendix A
	<ul style="list-style-type: none"> Unlatched Single Acting Single Door Without Overpanel 	Figure PAR/14658/01A: A01 in Appendix A
	<ul style="list-style-type: none"> Latched Single Acting Double Doors ^{Note 1} Without Overpanel 	Figure PAR/14658/01A: A02 in Appendix A
	<ul style="list-style-type: none"> Unlatched Single Acting Double Doors ^{Note 1} Without Overpanel 	Figure PAR/14658/01A: A02 in Appendix A

Note 1 Single and double acting double leaf door assemblies must have square edged (or slightly rounded) meeting stiles.

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 A based upon the use of the intumescent seal specifications shown in Appendix A.

Double door assemblies may each be of the same width, up to the maximum width indicated in Appendix A. For latched/bolted unequal pairs, there is no limit on the ratio of leaf widths, (although the large leaf must still be within the limitations in Appendix A). For unlatched unequal pairs, the width of the small leaf shall not be more than 250mm smaller than that of the large leaf (although the large leaf must still be within the limitations in Appendix A). The total width of the small leaf shall not be less than 300mm, since this will affect its vertical stability relative to that of the larger leaf.

3.3 Door Leaf and Overpanel Specification

The Fibrecore door leaf constructional specifications are given below.

The leaf construction is based upon the test evidence detailed in Appendix C 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 reports.

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		MATERIAL	MINIMUM DENSITY	DIMENSIONS
CORE		Falcon Panel Products Fibrecore solid MDF	600kg/m ³ <i>Note 2</i>	Minimum 54mm thick
LIPPINGS <i>Note 3</i>		Hardwood <i>Note 4</i>	640kg/m ³	6–10mm thick <i>Note 5</i>
ADHESIVE	LIPPING	Polyurethane or PVA	-	-
MINIMUM LEAF THICKNESS		-	-	54mm
OPTIONAL ADDITIONAL DECORATIVE FINISHES		Timber veneer or decorative plastic based laminate (to leaf faces only)	-	Maximum 2mm thick
		Paint or varnish	-	Maximum 0.5mm thick

Note 2 Stated by the client

Note 3 Lippings to be fitted to vertical edges of each leaf or can be fitted to all four edges if required. Lippings to be applied after bonding of faces; unless otherwise tested.

Note 4 Lippings to be straight-grained hardwood, 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).

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

Note 5 The radius formed on the leading edge of single acting double doors, shall not remove more than 2mm thickness of lippings on the door face.

Adjustment of door sizes

- Where doors do not include stiles and rails, and where door edges are not lipped, there is no limit on reduction in door height, after fabrication; subject to compliance with all other parameters herein (e.g. aperture margins).
- Where door edges are lipped and have square edges, they may be trimmed from each edge; but the minimum lipping width (defined in the Table above) must be maintained. If a greater adjustment is required, after fabrication, 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 A, utilising the intumescent seal specification outlined in Appendix A.

MATERIAL	DENSITY	MINIMUM FACE WIDTH	MINIMUM FRAME DEPTH	MINIMUM STOP DEPTH
		SINGLE ACTING		
Hardwood	640kg/m ³ <small>Note 6</small>	32mm, excluding stop <small>Note 7</small>	95mm	12mm <small>Note 8</small>

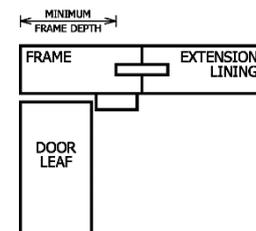
Note 6 Timber must have a minimum measured density at 12% moisture content. The timber must be straight-grained and of appropriate quality in accordance with BS EN 942: 2007. The moisture content shall be 10 ± 2% for the UK market, (or to suit internal joinery moisture content specifications of export countries).

Note 7 These dimensions assume that the rear of the frame is protected by the adjacent wall, (and fire stopping) and that the frame does not project out from the wall. See Section 3.8 regarding projecting frames and shadow gaps.

Note 8 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.

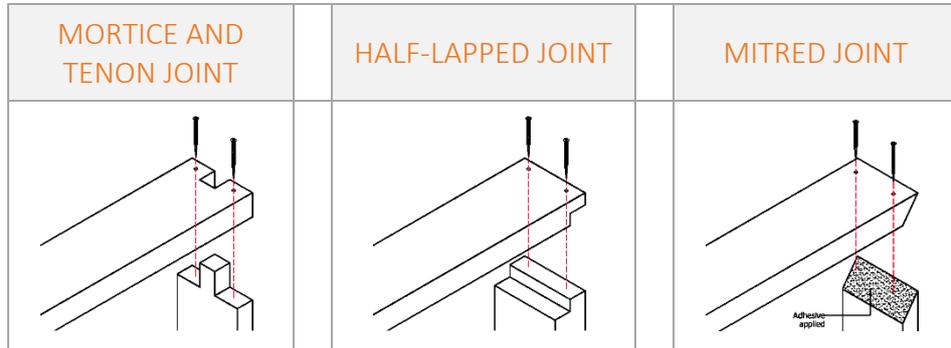
The overall frame depth may be increased by the use of extension linings, but the joint between the main frame and the extension lining must not intrude in the plane of the door thickness.

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



HEAD/JAMB
JOINT:

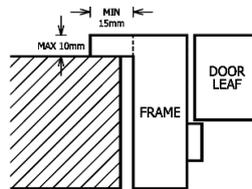
Mortice and tenon, or half-lapped joint, head twice screwed to each jamb or mitred joint which is glued with a non-thermally softening adhesive and the head twice screwed to each jamb.



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).

Where an integral architrave is used, 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 15mm projection shall NOT be formed by machining into the minimum width of frame section, as defined in the Table, above, and the frame width shall be increased accordingly). This assumes that the face of the door leaf is flush with the face of the architrave.



3.5 Glazed Apertures

3.5.1 Glass types

The following glass types are approved for use in the doors considered, herein, which are compatible with the identified approved glazing systems given in Section 3.5.2, although some restrictions on size may be given in subsequent sections.

The codes used, below, for the glass types, glazing materials, and bead types, (e.g. G60/1, S60/1 and B60/1), 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.

G60/1	11mm thick Pyroguard Clear (Pyroguard)
G60/2	12mm thick Pyrobelite (AGC)
G60/3	15mm thick Pyrostop (Pilkington)
G60/4	16mm thick Pyrobel (AGC)
G60/5	23mm thick Pyroguard (Pyroguard)
G60/6	25mm thick Pyrobel (AGC)

Expansion allowances for all glass types 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. (See also [Figure 1](#) for limitations).

S60/1	10 x 5mm Sealed Tight Solutions ST105GT and 30 x 2mm Sealed Tight Solutions glazing liner
S60/2	25 x 4mm Intumescent Seals Ltd Therm-A-Bead and 54 x 2mm Therm-A-Line glazing liner
S60/3	25 x 4mm Mann McGowan Pyroglaze 500PSA and 54 x 2mm Pyroglaze 300 liner

3.5.3 Bead profiles and installation

The approved bead sizes and profiles, and relevant fixing details, are shown in [Figure 1](#) herein, which also define any limitations upon options of interchangeability with glass types, glazing systems and bead profiles.

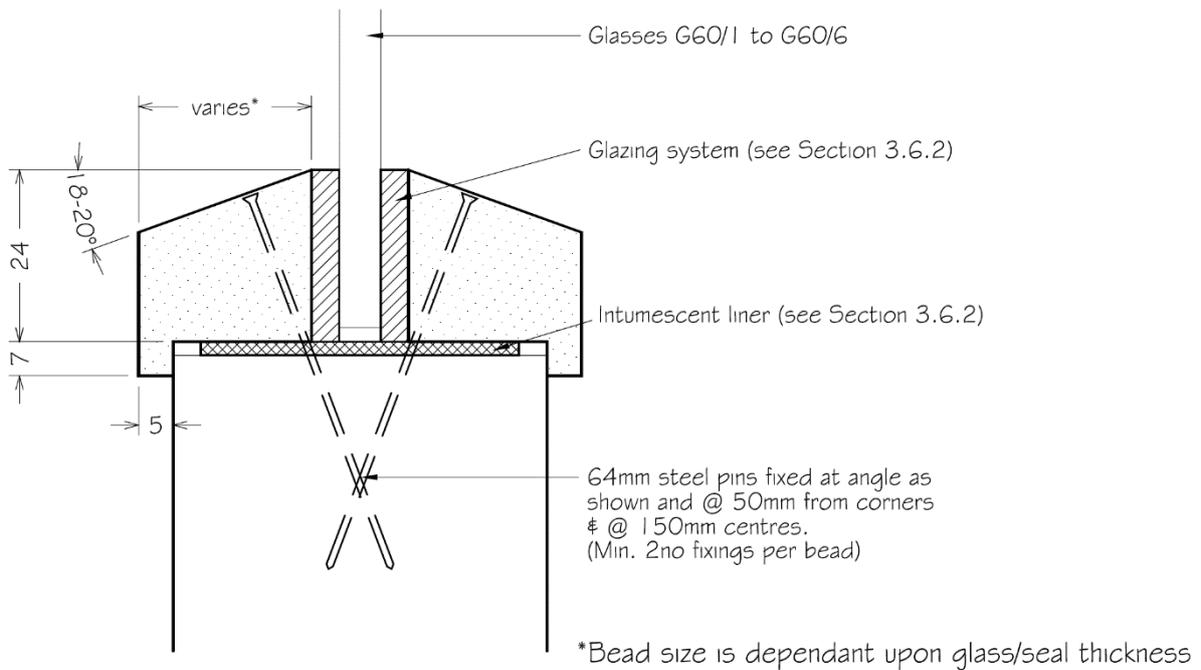


Figure 1 - Bead Detail

Glazing beads formed from timber with a minimum measured density at 12% moisture content. The timber must be straight-grained and of appropriate quality in accordance with BS EN 942: 2007. The moisture content shall be $10 \pm 2\%$ for the UK market, (or to suit internal joinery moisture content specifications of export countries).

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, and subsequent analysis, the following limitations apply to glazed apertures in the door leaves considered herein;

	OPTION 1	OPTION 2
MAXIMUM TOTAL AREA OF APERTURES	0.62m ² <i>Note 9</i>	0.36 m ² <i>Note 9</i>
MAXIMUM VERTICAL LENGTH OF APERTURE	920mm	1420mm
MAXIMUM HORIZONTAL LENGTH OF APERTURE	775mm	250mm
MINIMUM DISTANCE FROM LEAF EDGE (TOP)	100mm	100mm
MINIMUM DISTANCE FROM LEAF EDGE (SIDES)	100mm	100mm
MINIMUM DISTANCE BETWEEN APERTURES	100mm	100mm
MINIMUM DISTANCE FROM BOTTOM OF LEAF	200mm	200mm

Use of certain hardware items may impose further limits upon margins; refer to Appendix F.

Note 9 Any aperture(s) for intumescent air transfer grilles, (see Section B.5.4), must also be included in the total area permitted for apertures given above. Margins between apertures apply whether for glazing or grilles.

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 the 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.

The 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 must have been subjected to fire resistance testing, and/or assessed by a notified body to support its use in door assemblies where the leaf construction and thickness, and all details at the frame interface, are similar to those proposed herein.

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 of double doors. Screws shall be of sufficient length to penetrate the wall by at least 40mm and shall be positioned such that they are not exploited by charring of the frame, irrespective of the direction of test exposure; (this may necessitate a twin line of screws). 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 10 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 the use of the proposed door assemblies in proprietary 'demountable' partitions, which must be subject to a full and independent appraisal of the particular system and door assemblies therein.

No part of the rear of the frame section shall be exposed once installed, (except for integral architraves, see Section 3.4) 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 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 given in Section 9.4 of [BS8214: 2016, 'Timber-based fire door assemblies – Code of practice'](#), using a product proven in such timber applications.

The gap between the door and the frame or between meeting stiles (and between any door and overpanel, where applicable) shall be 1.5–4mm. Gaps under the door(s) 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 3.9 regarding the suitability of smoke seals).

The door assembly design shall be such that, when closed, single acting leaves are fully flush within the frame. The face of leaves in double door assemblies shall be flush with each other at meeting stiles when closed.

3.8 Intumescent Seals

Graphite based, PVC encased, seals manufactured by Pyroplex or Sealed Tight Solutions may be employed across the complete range of door sizes and configurations approved herein. (Although options of product/manufacturer are approved, all seals in each door assembly must be the same brand.) It is recommended that the intumescent seals are manufactured or supplied by members of the Intumescent 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 A, based upon tested details.

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

3.9 Ambient Temperature Smoke Seals

Smoke seals, or combined intumescent/smoke seals (using the specification approved in Section 3.9), 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 3m³/m/hr at 25Pa may be used in conjunction with the proposed door assemblies to provide smoke control.

The orientation of the seals, door edge gaps, degree of hardware interruption, and leaf configuration, will need to be as tested in accordance with BS EN 1634-3: 2004 (ambient temperature) or BS476: Part 31: Section 31.1: 1983 to achieve the desired level of smoke control, unless these conflict with the intumescent seal widths and positions as described in Appendix A, in which case, the latter shall take precedence; and smoke sealing may not be affected.

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 the proposed door assemblies utilising Fibrecore door leaves installed in timber frames were manufactured and installed in accordance with 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 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

IFC Engineering Assessment Report	PAR/14658/01 Revision A
Client	Falcon Panel Products Ltd
Project Address	Clock House Station Approach Shepperton Middlesex TW17 8AN

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

Passive Fire Protection Forum (PFPF) - Industry Standard Procedure 2021

‘Guide to Undertaking Technical Assessments of Fire Performance of Construction Products Based on Fire Test Evidence’

- We confirm that any changes which are subject of this assessment have not to our knowledge been tested to the standard against which this assessment has been made.
- We agree to withdraw this assessment from circulation should the component or element of structure, or any of its component parts 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 the assessing authority to withdraw the assessment.

Signature	<input type="text"/>
Name	<input type="text"/>
Position	<input type="text"/>
Company name	<input type="text"/>
Date	<input type="text"/>

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.

It is the responsibility of others to establish whether the proposed product meets any other relevant requirements, including any other requirements for fire performance and life safety, as defined in documents such as the Building Regulations, and the Fire Strategy/Risk Assessment for the project.

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 Fire Performance of Construction Products Based on Fire Test Evidence, 2021, 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 Fire Performance of Construction Products Based on Fire Test Evidence, 2021, 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 is not intended to be a complete specification for the proposed assemblies and it is the responsibility of others to ensure that the assemblies are suitable for the intended purpose; whilst incorporating the requirements of this report. Further, the assemblies must be manufactured/installed by experienced/trained personnel using appropriate and established working practices/techniques.

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 February 2027 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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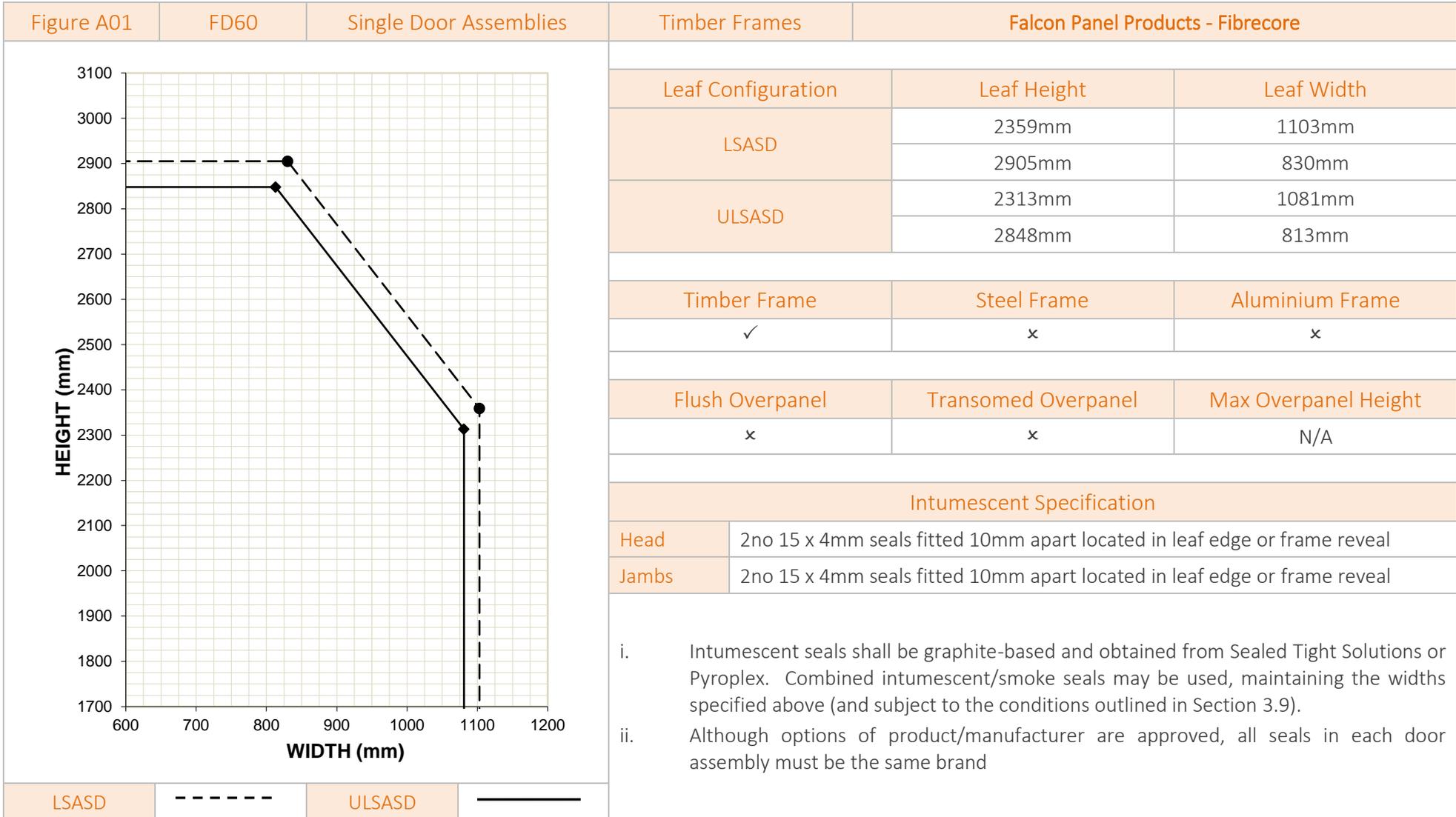
David Cooper

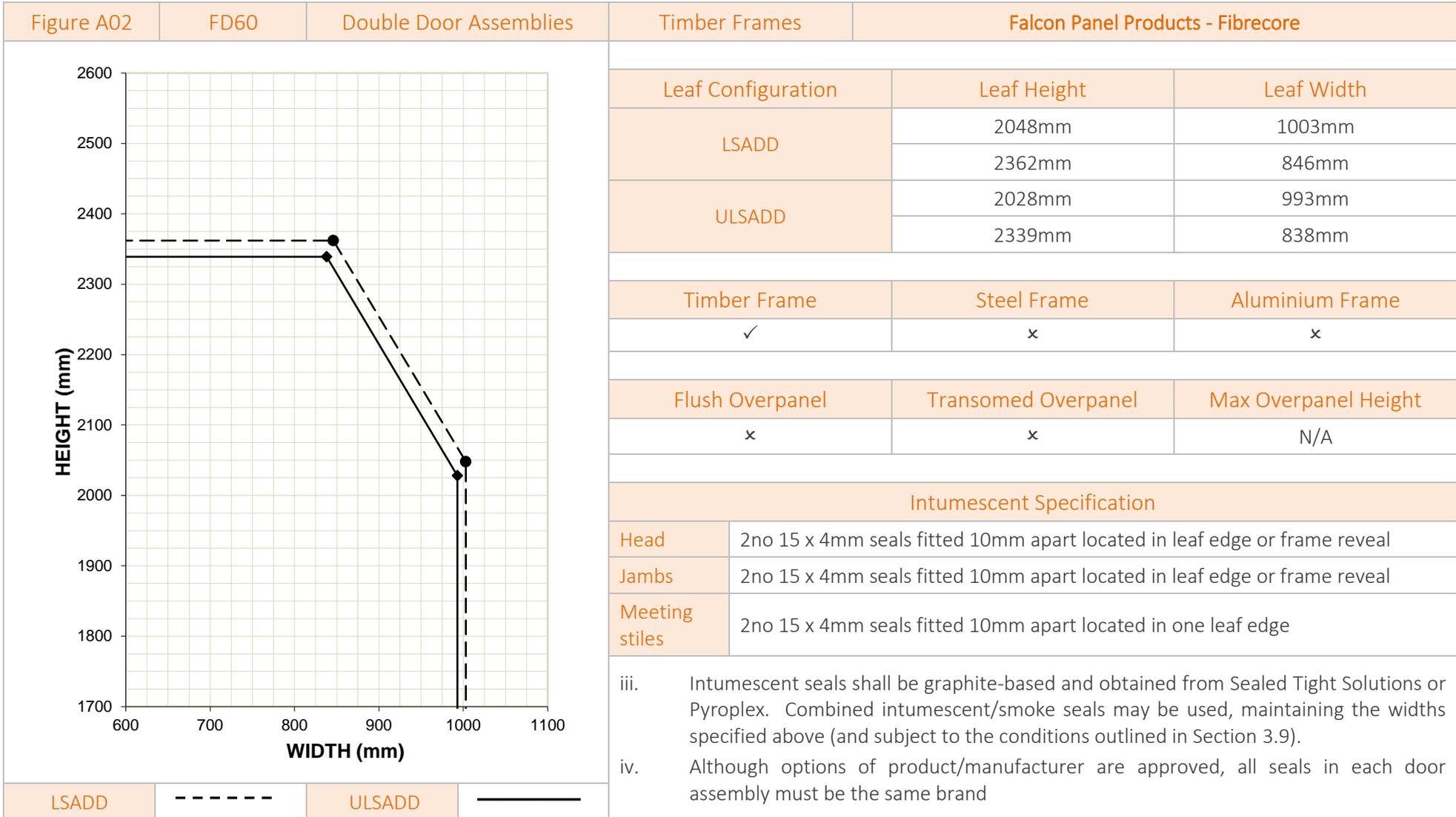
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APPENDIX A

Figures PAR/14658/01A:A01 to A02

Assessed Leaf Size Envelopes for Fibrecore Door Leaves Installed in
Timber Frames





APPENDIX B

General Guidance on Installation of Hardware

B.1 Hinges

All hinges shall comply with the following specifications:

ELEMENT	SPECIFICATION
HINGE TYPE	Fixed pin, washered butt, ball bearing butt or journal supported hinges may be used.
NUMBER OF HINGES	3no (1½ pairs) per leaf. (4no per leaf should be used on leaves greater than 2200mm high).
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 must be either equispaced between the top and bottom hinge, or 150–250mm below the top hinge. (All positions ±25mm).
FIXINGS	Steel screws, as recommended by the hinge manufacturers, but in no case smaller than No 8 (3.8mm diameter) x 32mm 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	1.6–3.5mm thick x 89–110mm high x 30–35mm width. (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 are to be included.
ADDITIONAL PROTECTION	The hinge blades must be bedded on 1mm thick Sealed Tight Solutions ST60 graphite or Interdens

Rising butt, cranked butts and spring hinges (single or double action) are not suitable for use on doors approved within the scope of this Field of Application Report.

B.2 Mortice latches/locks

Where mortice latches or locks are fitted, they shall be centred at 1000mm (± 200mm), above the bottom of the door leaf, and should comply with the following specifications:

ELEMENT	SPECIFICATION	
LATCH/LOCK TYPE	Mortice latches, tubular mortice latches, sashlocks and deadlocks	
MAXIMUM DIMENSIONS	FOREND PLATE:	235mm long x 25mm wide
	LATCH BODY:	18mm thick x 165mm high x 100mm wide
	STRIKEPLATE:	235mm long x 20mm wide, or, 200mm long x 25mm wide
MATERIALS	Latches must have no essential part of their structure made from polymeric or other low melting point (<800°C) materials, and should not contain any flammable materials.	
ADDITIONAL PROTECTION	The latch body must be encased in 1mm thick Sealed tight Solutions ST60 graphite or Interdens and the Strikeplate and forend must be bedded on 1mm thick Interdens or Sealed Tight Solutions ST60	

Over-morticing is to be avoided; mortices shall be as tight as possible to the latch. If gaps around the case exceed 2mm, then these must be made good with intumescent mastic or sheet material. Holes for spindles or cylinders should be kept as small as is compatible with the operation of the hardware.

Where glazing 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. It is a condition of this assessment that, except where tubular latches are employed, the margin must be at least 75mm wider than the lock/latch mortice. If the mortice latch/lock is fitted in line with a 'rail' between two apertures, no part of the lock mortice shall be closer than 50mm to the edge of any aperture.

B.3 Door closers

Where required by regulatory guidance or specific fire strategy, 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 BS 5499 series of standards.

Overhead surface mounted closers are recommended. Concealed overhead and concealed jamb mounted closers are not approved by this Report.

Surface mounted overhead door closers (and accessories such as soffit brackets) may be used if they have been tested, assessed or otherwise approved for use on unlatched FD60 cellulosic door leaves in timber frames. Any accessory that is located within the door reveal must have appropriate test or assessment evidence. In addition, where areas of uninsulated glazing are adjacent to the closer, the selected closer type must have been tested on the unexposed face of an uninsulated steel door, or a fully glazed door fitted with uninsulating glass, to demonstrate that the closer does not emit flammable fluids onto the glass face that would otherwise cause integrity failure before the required period of fire resistance.

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

B.4 Bolts

Some of the tests referenced in this report include double leaf doors with flush bolts fitted, but disengaged; bolts are not, therefore, necessary for the doors to achieve 60 minutes fire resistance (subject to an appropriate self-closing device being fitted). The extra restraint provided by flush bolts, in association with latches, does, however, have a beneficial effect on leaf size envelopes; see Appendix A.

Unless specific fire test evidence is available, all bolts shall be steel. The following limitations and protection apply;

- The maximum size of the flush bolt is 205mm long x 20mm wide and 19mm deep;
- The head of the leaf and/or frame should contain a minimum of 20mm width of intumescent material local to the bolt/keep plate, as tested with the proposed door type;
- The body of the bolt should be bedded on 1mm thick Sealed Tight Solutions ST60 graphite or Interdens
- Edge fixed bolts shall be positioned centrally in the leaf thickness (the intumescent seals defined in Appendix A shall be fitted in the active leaf).
- Face fixed flush bolts shall be fixed so that there is a minimum of 50mm between the bolt and the door edge, and any aperture.
- Surface mounted barrel bolts shall not exceed 400mm in length, but there is no limitation on their width. Screws for fixing bolts must be at least 25mm long and have a thread for the full screw length.

B.5 Non-Essential Hardware Items

B.5.1 Letter plates

These must be tested, assessed or otherwise approved for use in 54mm thick (or less) cellulosic FD60 doors. They must be fitted in accordance with the manufacturer's instructions, including all intumescent liners and flaps. Plates must not be less than 100mm away from the leaf edge or any other aperture. The positioning above floor level will depend upon the test evidence for the letter plate.

Note B1 The installation of such items in a door leaf may compromise its performance as a smoke control door assembly.

B.5.2 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.

B.5.3 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 and from any aperture.

B.5.4 Intumescent air transfer grilles

These must be tested, assessed or otherwise approved for use with 54mm thick (or less) cellulosic FD60 doors. They must be fitted fully in accordance with the manufacturer's instructions, including all intumescent liners and cloaking grilles/beads. They must be no larger than that for which test or assessment evidence exists. See Section 3.5.4, for restrictions on maximum size and placement of any apertures; these apply to those for grilles, which must also be included in the total area permitted for apertures given in Section 3.5.4. The positioning above floor level will depend upon the test evidence for the intumescent grille

Note B2 The installation of such items in a door leaf may compromise its performance as a smoke control door assembly.

APPENDIX C

Summary of Fire Test Evidence

TEST LABORATORY AND REPORT NO	TEST DATE	CONFIGURATION TESTED	LEAF SIZE TEST	TEST STANDARD	INTEGRITY
BM TRADA BMT/FEP/F14227	11.12.2014	ULSADD	2135mm high x 932mm + 932mm wide x 54mm thick	BS 476: Part 22: 1987	61 minutes
Chiltern International Fire RF12069	18.06.2012	ULSASD	2459mm high x 932mm wide x 54mm thick	BS EN 1634-1: 2008	69 minutes

Summary of Primary Fire Test Evidence

TEST LABORATORY AND REPORT NO	TEST DATE	CONFIGURATION TESTED	LEAF SIZE TEST	TEST STANDARD	INTEGRITY
Chiltern International Fire RF12013	20.03.2012	ULSADD	2135mm high x 927mm + 927mm wide x 54mm thick	BS 476: Part 22: 1987	53 minutes

Summary of Secondary Fire Test Evidence

- ULSASD = Unlatched, Single Acting. Single leaf Door assembly
 ULSADD = Unlatched, Single Acting, Double leaf Door assembly

All 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.

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