INTERNATIONAL FIRE CONSULTANTS LIMITED

PRIVATE & CONFIDENTIAL

IFC FIELD OF APPLICATION REPORT

Field of Application of Moralt OutDoor FERRO FireSafe KlimaSoft/Akustik/Passiv FD30 Door Leaf Range Installed in Timber Door Frames with Optional Glazed Side Panels or Overpanels

Fire Resistance Standard: BS476: Part 22: 1987

IFC Report PAR/13145/01 Revision A

Prepared on behalf of:

Moralt AG
Obere Tiefenbachstr.1
83734 Hausham
Germany

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

Ref: #18099

Issue Date – April 2019
Valid Until – April 2024

International Fire Consultants Ltd
Head & Registered Office: 20 Park Street, Princes Risborough, Buckinghamshire, England HP27 9AH
Tel: +44(0)1844 275500, Fax: +44(0)1844 274002, E-mail: info@ifcgroup.com
Registered No: 2194010 England
An International Fire Consultants Group Company

ISSUE AND AMENDMENT RECORD

Rev	Date	Author	Review	Section	Amendments
-	August 2013	PP	DC	-	-
A Draft	April 2019	CPH	DC	All	Additional test evidence added for Klima Soft, Acoustic and Passiv
A	April 2019	CPH	DC	All	Additional test evidence added for Klima Soft, Acoustic and Passiv

CONTENTS

1. INTRODUCTION 4

2. TEST EVIDENCE 4

3. SCOPE OF APPROVAL 5

3.1 Door Assembly Configuration 5
3.2 Maximum Assessable Door Leaf Sizes 5
3.3 Door Leaf Specification 5
3.4 Overpanels 7
3.5 Frames 8
3.6 Glazed Apertures 9
3.7 Intumescent Seals 11
3.8 Ambient Temperature Smoke Seals 11
3.9 Weather Seals 11
3.10 Hardware 11
3.11 Glazed Side Panel or Fanlight 12
3.12 Installation, Supporting Construction, and Door Edge Gaps 13

4. CONCLUSION 14

5. LIMITATIONS 17

6. VALIDITY 18

APPENDIX A 19

Leaf Edges and Glazing Details
Figures PAR/13145/01A:A01 to A04

APPENDIX B 20

Assessed Intumescent Seal Specifications

APPENDIX C 22

Assessed Leaf Size Envelope
Figures PAR/13145/01A:C01 to C03

APPENDIX D 23

General Guidance on Installation of Hardware

APPENDIX E 31

Summary of Fire Test Evidence

1. INTRODUCTION

This report has been prepared by International Fire Consultants Ltd (IFC) to define the Field of Application for Moralt OutDoor FERRO FireSafe KlimaSoft/Akustik/Passiv door leaf range installed in timber door frames, with optional glazed side panels or overpanels, that are required to provide 30 minutes fire resistance performance, when adjudged against BS476: Part 22: 1987.

When establishing the variations in the construction that can achieve the required fire resistance performance, IFC follow the guidance in 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'.*

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.

When testing timber, hinged or pivoted, door assemblies, it is the opinion of IFC that the weakest direction is that where specimens are 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.

It is the opinion of IFC that the proposed hinged, timber door assemblies, installed in timber frames, tested with the leaf opening into the furnace, the result can also be applied to door assemblies, of the same design, with the leaf opening away from the furnace. The principle is only applicable when any features within the door leaf, such as glazing, if asymmetrical, also have test evidence with both sides on the exposed face of a fire resistance test specimen. (See restrictions on orientation of glazing in door leaves, sidelights and fanlights in Sections 3.6 and 3.11).

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.

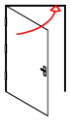
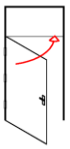
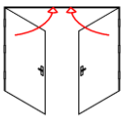
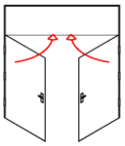
2. TEST EVIDENCE

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

3. SCOPE OF APPROVAL

3.1 Door Assembly Configuration

The following door assembly configurations are approved within the scope of this report:

Configuration	Envelope of Approved Leaf Size		
	KlimaSoft	Akustik	Passiv
 • Latched • Single Acting • Single Door • With Optional Transomed Overpanel	Figure PAR/13145/ 01A:C01 in Appendix C	Figure PAR/13145/ 01A:C01 in Appendix C	Figure PAR/13145/ 01A:C01 in Appendix C
 • Latched • Single Acting • Single Door • With Flush Overpanel	Figure PAR/13145/ 01A:C02 in Appendix C	Figure PAR/13145/ 01A:C02 in Appendix C	Figure PAR/13145/ 01A:C02 in Appendix C
 • Latched • Single Acting • Double Doors • With Optional Transomed Overpanel	Figure PAR/13145/ 01A:C03 in Appendix C	Figure PAR/13145/ 01A:C03 in Appendix C	Figure PAR/13145/ 01A:C03 in Appendix C
 • Latched • Single Acting • Double Doors • With Flush Overpanel	Figure PAR/13145/ 01A:C03 in Appendix C	Figure PAR/13145/ 01A:C03 in Appendix C	Figure PAR/13145/ 01A:C03 in Appendix C

3.2 Maximum Assessable Door Leaf Sizes

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

3.3 Door Leaf Specification

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

3.3.1 FERRO FireSafe KlimaSoft/Passiv Leaves – 68-98mm thick

Component	Species	Dimensions	Minimum Density
Core	**(Details held on confidential file by IFC Ltd)**		
Outer stiles/rails *Notes 1 & 2*			
Optional lippings *Notes 1 & 2* – top and vertical edges	Softwood or hardwood	20 - 32mm thick	420kg/m^3
Facings	**(Details held on confidential file by IFC Ltd)**		
Adhesives			
Optional additional decorative finishes	Timber veneer, decorative plastic based laminate, PVC or paint	Maximum 2mm thick to leaf faces only (leaf edges may be painted)	–

Note 1 *The tested leaf edge detail included double rebates to the hanging, closing and top edges. The door leaf may be installed with the double rebate (as tested, including the over rebated edge), with a single rebate (either as a flush interface with an over rebated edge, or as a rebated edge within the frame reveal) or as a flush leaf frame interface with the leaf installed within the frame reveal. Single and double rebated edges meeting edges are permitted for meeting edges of double doors. (See drawings* ***PAR/13145/01A:A01 and A02*** *in Appendix A).*

Note 2 *The bottom leaf edge detail may include double rebates to the base to accommodate a threshold strip. The door leaf may be installed with the double rebate (as tested) with the threshold strip (see Section 3.4), or as a flush leaf frame, without a threshold strip.*

3.3.2 FERRO Firesafe Akustik leaves – 68-98mm thick

Component		Species	Dimensions	Minimum Density
Core		**(Details held on confidential file by IFC Ltd)**		
Flat steel stabiliser (nominally 60-130mm in from closing leaf edge)				
Outer stiles/rails *Notes 1 & 2*				
Optional lippings *Notes 1 & 2* – top and vertical edges		Softwood or hardwood	20 - 32mm thick	420kg/m^3
Facings		**(Details held on confidential file by IFC Ltd)**		
Adhesives	Lippings	PVAc D4 or PUR		
Optional additional decorative finishes		Timber veneer, decorative plastic based laminate, PVC or paint	Maximum 2mm thick to leaf faces only (leaf edges may be painted)	–

Note 1 *The tested leaf edge detail included double rebates to the hanging, closing and top edges. The door leaf may be installed with the double rebate (as tested, including the over rebated edge), with a single rebate (either as a flush interface with an over rebated edge, or as a rebated edge within the frame reveal) or as a flush leaf frame interface with the leaf installed within the frame reveal. (See drawings* ***PAR/13145/01A:A01 and A02*** *in Appendix A).*

Note 2 *The leaf edge detail may include a single rebate to the base to accommodate a threshold strip. The door leaf may be installed with the double rebate (as tested) with the threshold strip (see Section 3.4), or as a flush leaf frame, without a threshold strip.*

3.3.3 Additional leaf facings

Door leaves may be clad on their exposed faces only with aluminium profiles affixed using a PVC based clip system, (e.g. the system manufactured by Gutman GmbH, as tested). Alternative aluminium cladding systems may be used from other manufacturers, providing they are affixed to the leaf faces in a similar manner to the tested design using pvc clips. The cladding must not extend into the frame reveal or onto the leaf edges.

3.3.4 Feature grooves

Maximum 4no. 10mm wide x 3mm deep feature grooves may be machined into the leaf face, on both sides of the leaf, providing they extend no closer than 125mm from any leaf edge. Grooves may be either horizontal or vertical or a mixture of both.

3.4 Overpanels

A solid overpanel may be fitted above the door leaves, either flush with the face of the door leaves below, or, separated from the leaves with a transom (See Section 3.5 for transom specification).

The overpanel is to consist of the same specification as the door leaf. The size of overpanels is limited to the full width of the leaf/leaves contained within the door assembly and the following maximum height:

Single leaves:	1500mm high
Double leaves:	1000mm high (minimum leaf thickness 88mm)

In all cases, the overpanel must be a single piece panel across the frame width; i.e. a "double door" overpanel shall not be used above double door leaves. Approval of an overpanel size by IFC does not indicate that such a size can be fabricated, this should be checked with the manufacturer, and will be subject to the ability of the supporting construction providing adequate restraint/support. The overpanel must always be on the same plane as the door(s) below.

See Section 3.12 for installation details for overpanels.

3.5 Frames

Door frames must be constructed from timber with a minimum measured density of 420kg/m³ (measured at 12% moisture content). Timber must be straight grained and of appropriate quality in accordance with BS EN 942: 2007, or national equivalent. The timber may be laminated and finger-jointed. Moisture content shall be 11 ± 2% for UK market, (or to suit internal joinery moisture content specification of export countries).

Minimum dimensions	:	42mm face width (excluding stop) x 68 – 98mm deep *Notes 3 & 4*. Door stops to be 15mm deep and to comprise the same material as the door frame and may be either planted and pinned using 40mm steel pins at 200mm centres, or integral with the main door frame, providing the minimum frame thickness is not reduced. *(See drawing **PAR/13145/01A:A01** in Appendix A).*
Mullion/transom members	:	When a mullion is used between a door and a glazed side panel, or a transom is included between a door and a glazed/solid overpanel, the member shall consist of two members, a door frame 35mm wide (excluding the stop) x 68 – 98mm deep *Note 3*, and a glazing frame 35mm wide (excluding beads) x 68 – 98mm deep *Note 3*.
Glazing frame members	:	35mm wide (excluding beads) x 68 – 98mm deep *Notes 3 & 4*.
Frame member jointing	:	Mortice and tenon, or half-lapped joint, with one member twice screwed to the other, or with 2no. 10mm diameter x 80mm long hardwood dowels and glued using PVAc or PU adhesive.
Mullion/transom member jointing	:	2no biscuit joints; each set 10mm in from each face of the joint, bonded with PVAc or PU adhesive.
Threshold	:	Between the jambs a minimum 72mm wide x 20mm high Gretsch Unitas GmbH – SBS Schwelle Holtz, KBE, ALU 216V aluminium threshold can be installed. Alternative manufacturer's aluminium thresholds are also approved, providing their installation does not require the bottom leaf edge to threshold gap to be any greater than that required using the tested aluminium threshold (See Section D.8).
Architraves	:	Architraves are optional and have no fire performance requirements. (See Section 3.10 regarding wall/frame gaps).

Cladding	:	Door frames may be clad on their exposed faces only with aluminium profiles affixed using a PVC based clip system, (e.g. the Mira Contour design, as tested). Alternative aluminium cladding systems may be used from other manufacturers, providing they are affixed to the door frame faces in a similar manner to the tested design using pvc clips. The cladding must not extend into the frame reveal.

Note 3 *The minimum depth will vary depending on the thickness of the leaf, i.e. from 68mm for a 68mm thick leaf to 98mm for a 98mm thick leaf.*

Note 4 *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.

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 assumes that the face of the door leaf is flush with the face of the architrave.

3.6 Glazed Apertures

3.6.1 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.

- Pyrodur 30-373, 48mm thick triple-glazed unit by Pilkington **(Pyrodur glass may be fitted to either the risk or the non-risk side)**
- Pyrostop 30-17, 32mm thick double-glazed unit by Pilkington **(Pyrostop glass may be fitted to either the risk or the non-risk side)**
- Pyrostop 30-18, 32mm thick double-glazed unit by Pilkington **(Pyrostop glass may be fitted to either the risk or the non-risk side)**
- Pyranova ISO 2.0 glass, 28 – 40mm thick double-glazed unit by Schott AG **(Pyranova fitted to the risk side)**
- Pyranova ISO 2.1 glass, 32 – 40mm thick double-glazed unit by Schott AG **(Pyranova fitted to the risk side)**
- Pyranova ISO 2.2 glass, 36 – 40mm thick double-glazed unit by Schott AG **(Pyranova fitted to the risk side)**

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

3.6.2 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.

- 9-10mm x 3mm Polyethylene glazing tape with neutral silicone capping.

3.6.3 Bead profiles and installation

At the perimeter of apertures, unless the base is coincidental with the bottom rail, a timber insert is required to 'cap' the core. The inset is a 58mm wide x 15mm deep section of softwood/hardwood (minimum density 420kg/m^3), glued in position using polyurethane adhesive.

The approved bead size and profile, and relevant fixing details, are shown on **Figure PAR/13145/01A:A03** in Appendix A, which also defines any limitations upon options of interchangeability with glass types and glazing systems.

The planted bead profile must extend so that it projects over the edge of the aperture and is fitted towards the fire exposed face. Towards the non-fire exposed side of the door leaf the glazed unit is retained in position by a 20mm high section of the 5mm thick outer facing with no pin fixings. For this reason, this detail may only be used on the non-fire risk exposed side of the door leaf.

Steel angle brackets measuring 40-190mm long x 30-40mm deep x 2mm thick with a 15mm high upstand can be fitted around the perimeter of the glazed aperture with the upstand abutting the 5mm thick leaf facing/glazing bead fitted towards the non-fire exposed side. The steel angles are secured in position within the aperture using steel screws as shown on **Figure PAR/13145/01A:A03** in Appendix A.

The timber insert and planted glazing bead shall be formed from straight grained softwood or hardwood with 420kg/m³ minimum density (measured at 12% moisture content). Timber must be of appropriate quality in accordance with BS EN 942: 2007. Moisture content shall be 11 ± 2% for UK market, (or to suit internal joinery moisture content specification of export countries).

3.6.4 Assessed aperture sizes

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

Maximum area of aperture	-	1.27m²
Maximum aperture height	-	1468mm
Maximum aperture width	-	1177mm
Minimum margin from leaf head	-	145mm
Minimum margin from leaf edge	-	180mm
Minimum margin from leaf base	-	145mm
Minimum distance between apertures	-	40mm

More than one aperture may be included in each leaf subject to the individual limitations above.

3.7 Intumescent Seals

The intumescent seal specifications, widths, and positions are shown in Figure 4 in Appendix A and outlined in Appendix B, based upon details tested.

3.8 Ambient Temperature Smoke Seals

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 3m³/m/hr at 25Pa may be used in conjunction with the proposed doorsets to provide smoke control.

The orientation of the seals, door edge gaps, degree of building 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 shown in Section 3.6, in which case, the latter shall take precedence.

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

3.9 Weather Seals

Weather seals may be fitted abutting the upstand of either the leaf edge or the door frame to form a compression seal between the two elements, these maybe either surface fixed or friction fitted using an integral kerf into a suitably sized groove. Relevant fire resistance test evidence must be available to support the use of a particular weather seal in order to establish that it will not have a detrimental effect on the intended performance of the door assembly. Seals which have been successfully tested with the door types covered by this Field of Application Report are as follows:

- Helmut Goll GmbH weather seal ref: SF1017;
- Deventer Profile GmbH weather seal ref: DS 6955a and ref: DS 155a.

3.10 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 IFC to support its use in the proposed door assemblies.

3.11 Glazed Side Panel or Fanlight

A glazed side panel or fanlight may be incorporated adjacent to the door assembly, subject to the following specifications.

3.11.1 Glass types

The following glass types are approved for use in fanlights/side screens considered herein, which are compatible with the identified approved glazing systems given in Section 3.7.2, although some restrictions on orientation are given in subsequent sections.

Side screens

- Pilkington Pyrostop 30-18, 32mm thick double-glazed unit **(the Pyrostop glass may be fitted to either the risk or the non-risk side)**
  Max aperture size – 2.2m^2
- Pilkington Pyrostop 30-17, 32mm thick double-glazed unit **(the Pyrostop glass may be fitted to either the risk or the non-risk side)**
  Max aperture size – 1.4m^2

Fanlights

- Pilkington Pyrostop 30-18, 32mm thick double-glazed unit **(the Pyrostop glass may be fitted to either the risk or the non-risk side)**
  Max aperture size – 3m^2
- Pilkington Pyrostop 30-17, 32mm thick double-glazed unit **(the Pyrostop glass may be fitted to either the risk or the non-risk side)**
  Max aperture size – 1.4m^2

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

3.11.2 Glazing materials and systems

The following glazing materials are approved for use in the glazed fanlights/side screens considered herein, which are compatible with the identified approved glass types listed above:

- 9-10mm x 3mm Polyethylene glazing tape with neutral silicone capping.

3.11.3 Bead profiles and installation

On one face of the glazed unit, the bead can be integral to the frame and if a risk side can be identified and the integral bead is on the non-risk side then fixings are not required. If a risk side cannot be identified, then pin/screw fixings must be included through all beads.

Alternatively, steel 'L-shaped' brackets should be fitted to the inner edge of the glazed aperture with the upstand positioned towards the risk side abutting the perimeter face of the glazed unit, or, the glazed unit can be glued in position as outlined below.

Steel brackets
The steel brackets measure 190mm long with a 30mm deep base and a 15mm high upstand comprising steel or stainless steel, 2mm in thickness. The brackets are to be installed 80mm from each corner and at nominally 600mm centres thereafter. The brackets to be secured in position using 4no. 25mm long steel screws per bracket.

Glazed unit glued in position
As an alternative to the steel brackets, the gap (3±2mm) between the glazed unit perimeter and the aperture cut-out can be completely filled with Ramsauer GmbH & Co.KG '670 2-component adhesive'.

Planted bead sizes and profiles, and relevant fixing details, are shown on **Figure PAR/13154/01A:A03** in Appendix A.

Glazing beads formed from good quality, straight grained softwood or hardwood with 450kg/m³ minimum density (measured at 12% moisture content), may be used across the range of bead types, glazing systems and glasses outlined in this report.

Timber should be of appropriate quality in accordance with BS EN 942: 2007 with a moisture content of 11 ±2% for UK market (or to suit internal joinery moisture content specification of export countries).

3.12 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).

Overpanels shall be secured into the frame using steel screws fixed through the rear of the frame members, passing at least 40mm into the centre line of the overpanel thickness. (Screws must not be fixed through the overpanel into the stops, or vice versa). Screws must be no more than 150mm from each corner of the overpanel, and at maximum 400mm centres, with a minimum of 2no screws per overpanel edge.

Alternatively, 112mm long x 7.5mm diameter screws can be screwed through the rear of the door frame head which protrude into the frame reveal by a minimum of 45mm and locate into pre-drilled holes in the head of the overpanel. The bottom corners of the overpanel need to be fitted with Bartels Systembeschläge GmbH veneering brackets artikel Nr: 036396 whose 10mm pins extend into the frame reveal. Fixing centres as outlined above.

This specification applies to overpanels used with or without a transom. The gap between overpanel and frame should not exceed 3mm.

Packers shall be used at all fixing positions, although if combustible packers are employed, these must be protected by a layer of firestopping (see below), aligned near to each face of the door frame.

The supporting construction may be either timber or steel stud plasterboard clad partition, 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. If fitted into timber or steel stud partitions, the method of forming the doorset aperture must be as tested by the partition and/or doorset manufacturer.

Note 5 *Reference to steel stud partitions is in the context of permanent elements, such as those designed and proven by the plasterboard manufacturers – this report does not approve use of the proposed doorsets in proprietary 'demountable' partitions, which must be subject to a full and independent appraisal of the particular system and doorsets therein.*

No part of the rear of the frame section shall be exposed once installed, (except for integral architraves) and the leaf must be flush with the face of the wall. There shall be no feature rebates or shadow gaps at the junction of the frame and wall.

The fire stopping between the supporting construction and timber frames should follow the recommendations of Tables 2 and 3 in BS8214: 2016, *"Code of practice for fire door assemblies"*, 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 firestopping shall be positioned on the plane of the door leaf; (unless combustible packers are employed).

Polyurethane expanding foam may be used for firestopping between the rear of the door/panel/sidelight/fanlight frame and the supporting construction, providing that appropriate fire resistance test evidence exists in order to justify the performance in similar applications in which it is to be used.

The gap between the door and the frame should be 4mm (±2mm). 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 (see also Section 3.7 regarding suitability of smoke seals).

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

4. CONCLUSION

It is the opinion of International Fire Consultants Ltd that, if the proposed FD30 Moralt OutDoor FERRO FireSafe KlimaSoft/Akustik/Passiv door leaf range installed in timber door frames, with optional glazed side panel or overpanel, were manufactured and installed within the limitations of this assessment, and tested for fire resistance, they would satisfy the integrity criteria of BS476: Part 22: 1987 for 30 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. (See restrictions on orientation of glazing in door leaves, sidelights and fanlights in Sections 3.6 and 3.11).

5. DECLARATION BY THE APPLICANT

We the undersigned, confirm that, except for that information declared to International Fire Consultants Ltd previously during the original engineering evaluation process, the components, products, and/or assemblies evaluated within IFC Field of Application Report PAR/13145/01 Revision A have not been altered in any way; and have not subsequently, to our knowledge, been included in a fire test [to BS476: Part 22: 1987 or EN 1634-1: 2014] in the form and/or configurations proposed.

We also confirm that we have supplied all information and assurances requested of us, for the purpose of writing this Field of Application Report, and are not aware of any other information that would adversely influence or affect the conclusions of this report.

We agree that if fire test evidence or other information subsequently becomes available, to supply this to IFC in full and seek immediate review of the continuing validity of the original report from IFC. If after review IFC conclude that the original evaluation and report is no longer appropriate, we agree to withdraw it and any references to it from circulation and advise clients and agents accordingly.

Signature:

_____

Position: _____

Company: **Moralt AG**

5. LIMITATIONS

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

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

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

Where the constructional information in this report is taken from details provided to 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 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 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. If the assemblies include door leaves, they 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, should only be carried out following consultation with the manufacturer and IFC.

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

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

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

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

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

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

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

6. 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 April 2024 should confirm its ongoing validity.

Prepared by:

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

Checked by:

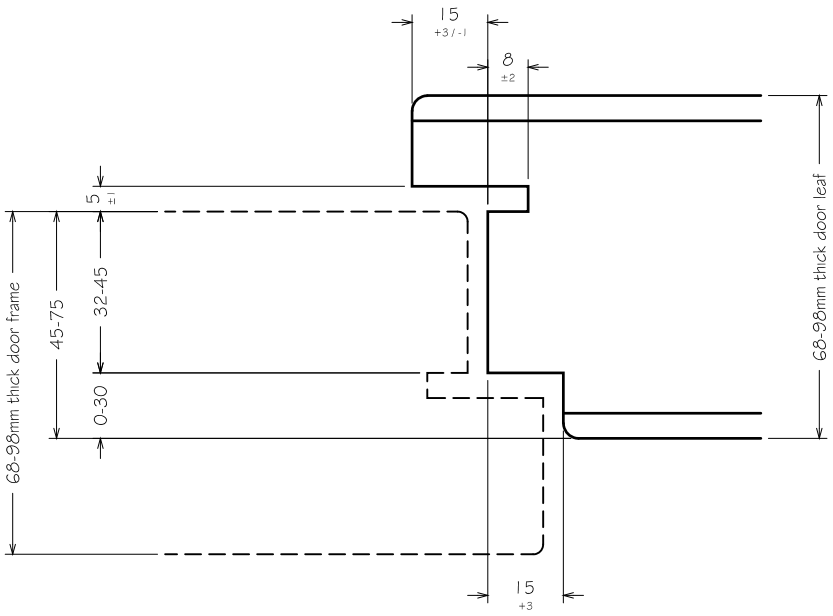
David Cooper
BEng (Hons) AIMMM AIFireE
Associate Director
International Fire Consultants Ltd. (IFC)

APPENDIX A

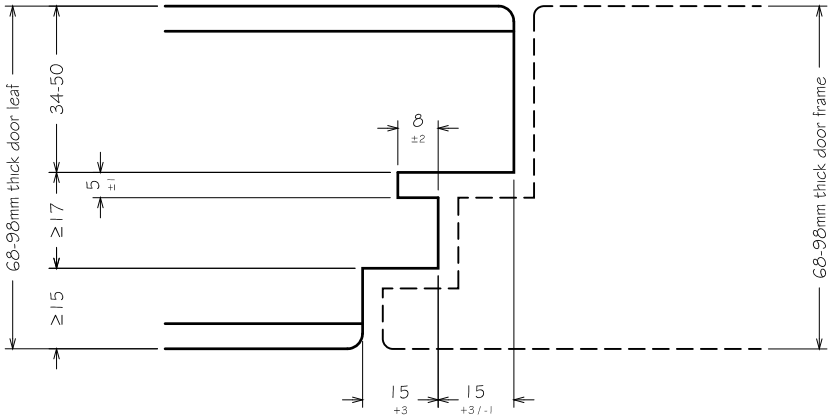
Leaf Edges and Glazing Details

Figures PAR/13145/01A:A01 to A04

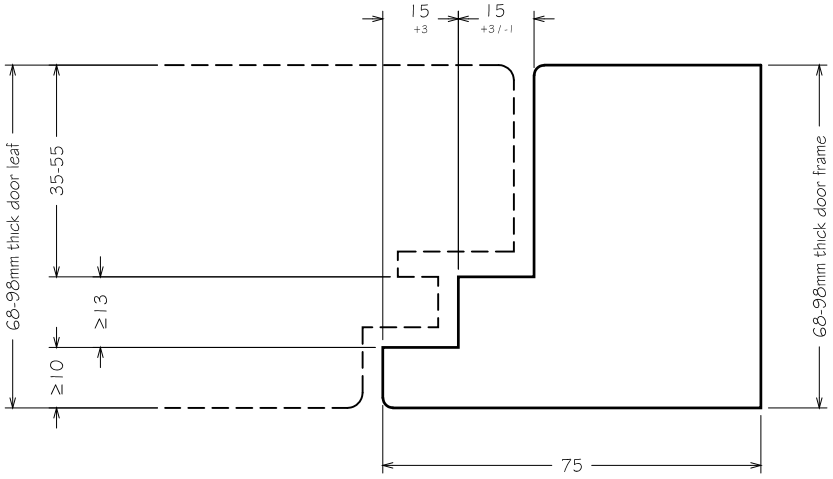
The figures in this Appendix are not included in the sequential page numbering of this report



Over-rebated, double rebated door to frame junction



Flush, double rebated door to frame junction



Flush, double rebated door to frame junction

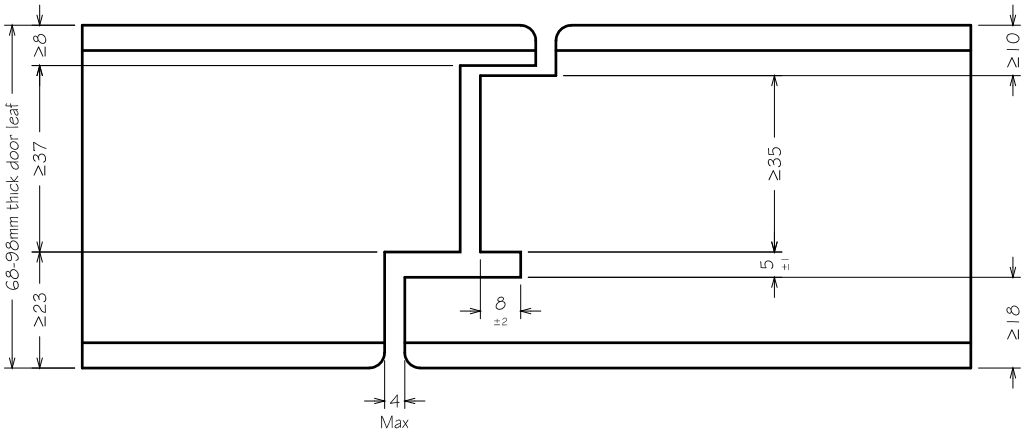
INTERNATIONAL FIRE CONSULTANTS LIMITED
20 Park Street
PRINCES RISBOROUGH
Buckinghamshire
HP27 9AH
United Kingdom
Tel: +44 (0)1844 275500
Fax: +44 (0)1844 274002
Email: info@ifcgroup.com
Web: www.ifcgroup.com

Field of Application Report
PAR/13145/01 Revision A
Moralt AG
Moralt OutDoor FERRO FireSafe KlimaSoft/Akustik/Passiv, 68 - 98mm Thick FD30 Door Leaf Range
Installed in Timber Door Frames
with Optional Glazed Side Panels or Overpanels

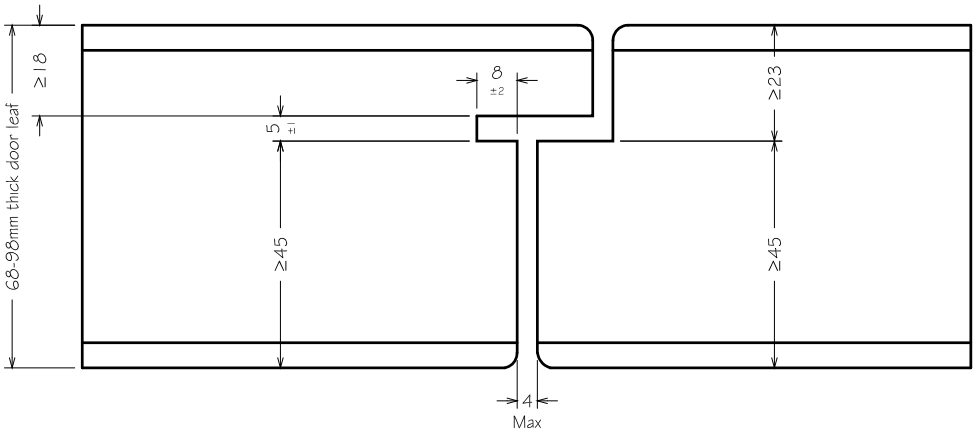
Frame Junction Details

Job number: 18099	
Drawn by: CSP	Checked by: CH
Not To Scale	Drawn: Feb 2018

PAR/13145/01A:A01



Double rebated meeting edges (double doors only)



Single rebated meeting edges (double doors only)

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

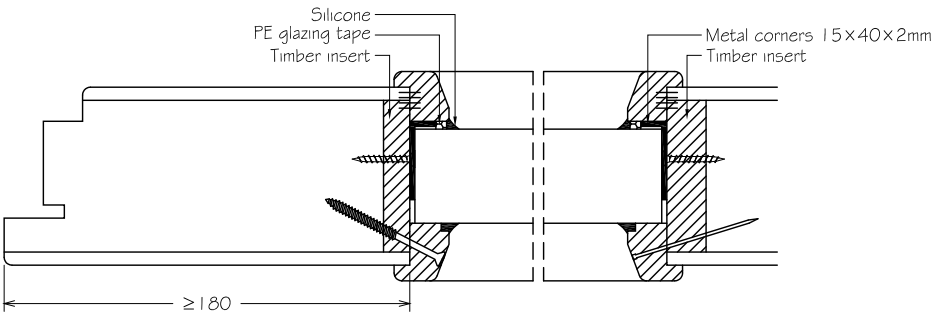
Field of Application Report
PAR/13145/01 Revision A
Moralt AG
Moralt OutDoor FERRO FireSafe KlimaSoft/Akustik/Passiv, 68 - 98mm Thick FD30 Door Leaf Range Installed in Timber Door Frames with Optional Glazed Side Panels or Overpanels

Meeting Edge Details

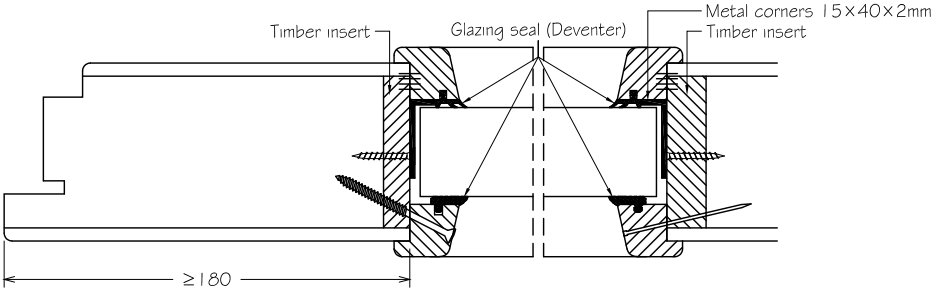
Job number: 18099	
Drawn by: CSP	Checked by: CH
Not To Scale	Drawn: Feb 2018

PAR/13145/01A:A02

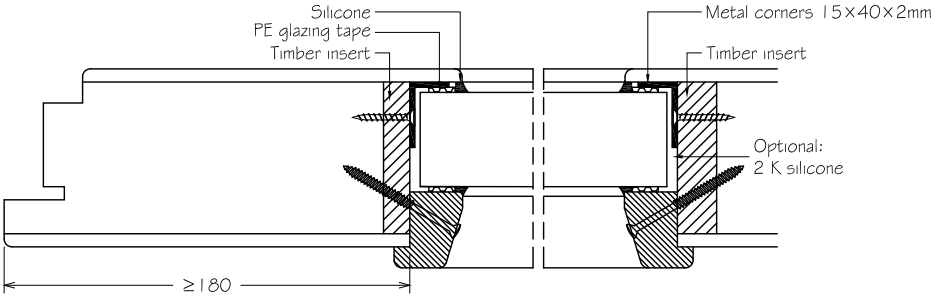
Title



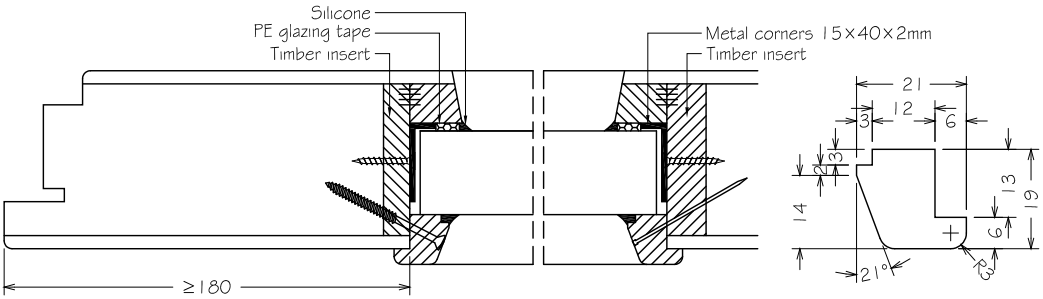
Title



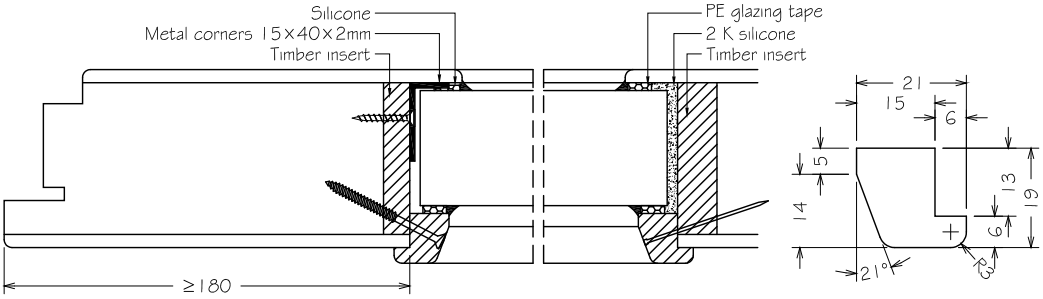
Title



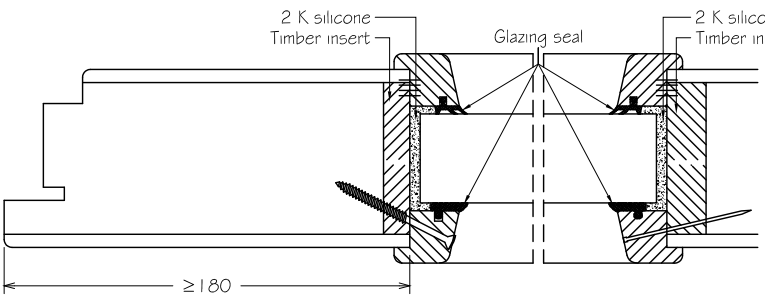
Title



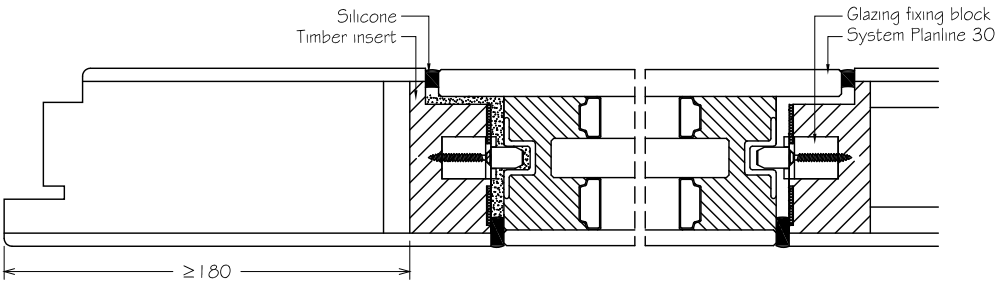
Title



Title



Title



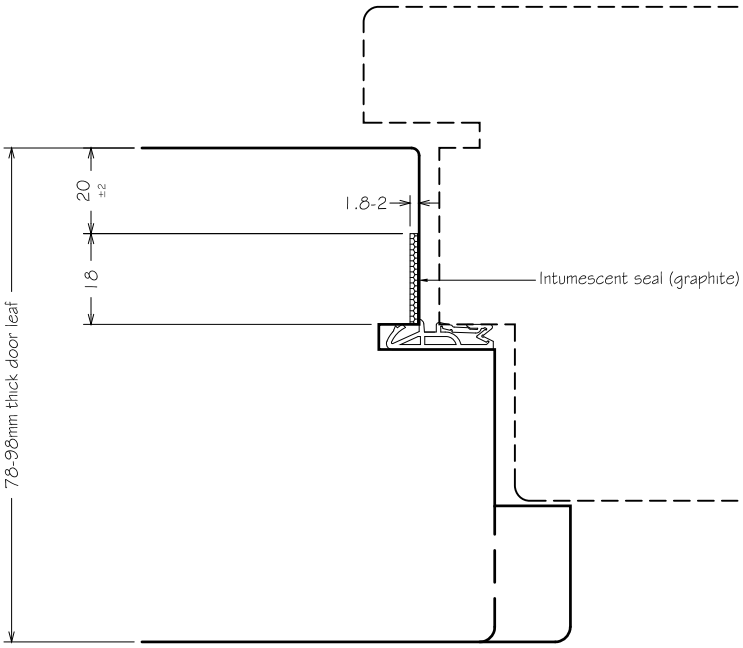
INTERNATIONAL FIRE CONSULTANTS LIMITED
20 Park Street
PRINCES RISBOROUGH
Buckinghamshire
HP27 9AH
United Kingdom
Tel: +44 (0)1844 275500
Fax: +44 (0)1844 274002
Email: info@ifcgroup.com
Web: www.ifcgroup.com

Field of Application Report
PAR/13145/01 Revision A
Moralt AG
Moralt OutDoor FERRO FireSafe KlimaSoft/Akustik/Passiv,
68 - 98mm Thick FD30 Door Leaf Range
Installed in Timber Door Frames
with Optional Glazed Side Panels or Overpanels

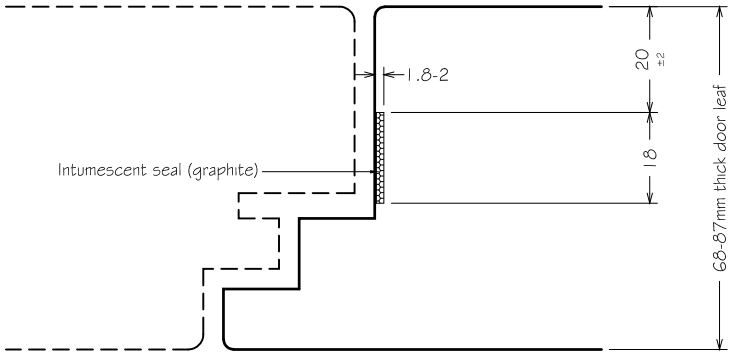
Leaf Aperture Details

Job number: 18099	
Drawn by: CSP	Checked by: CH
Not To Scale	Drawn: Feb 2018

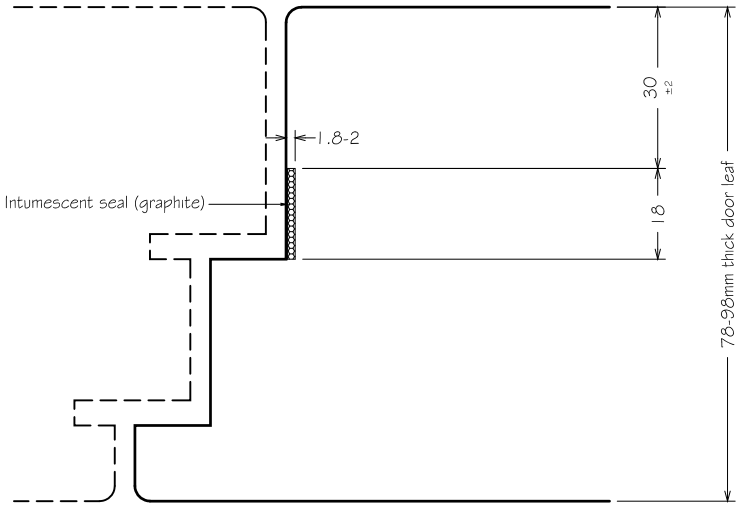
PAR/13145/01A:A03



Double rebated door to frame junction



Flush door to frame junction



Flush door to frame junction

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

Field of Application Report
PAR/13145/01 Revision A
Moralt AG
Moralt OutDoor FERRO FireSafe KlimaSoft/Akustik/Passiv,
68 - 98mm Thick FD30 Door Leaf Range
Installed in Timber Door Frames
with Optional Glazed Side Panels or Overpanels

Intumescent Seal Positioning

Job number: 18099	
Drawn by: CSP	Checked by: CH
Not To Scale	Drawn: Feb 2018

PAR/13145/01A:A04

APPENDIX B

Assessed Intumescent Seal Specifications

Intumescent Seal Specifications

Location	Size and Position
Head	1no 18 x 1.8-2.9mm Promat Promaseal PL-SK seal set 20±2mm (32mm on 78-98mm thick flush leaves) from the pull face of the frame, recessed into the frame reveal. **OR** 1no. 18 x 2mm Flexilodice (Odice) seal set 20±2mm in from the pull face of the frame, recessed into the frame reveal. **OR** 1no. 18 x 2mm Kerafix Flexpan 200 NG-A (Rolf Kuhn GmbH) seal set 20±2mm in from the pull face of the frame, recessed into the frame reveal.
Stiles/jambs	1no 18 x 1.8-2.9mm Promat Promaseal PL-SK seal set 20±2mm (32mm on 78-98mm thick leaves) from the pull face of the frame, recessed into the frame reveal. **OR** 1no. 18 x 2mm Flexilodice (Odice) seal set 20±2mm in from the pull face of the frame, recessed into the frame reveal. **OR** 1no. 18 x 2mm Kerafix Flexpan 200 NG-A (Rolf Kuhn GmbH) seal set 20±2mm in from the pull face of the frame, recessed into the frame reveal.
Meeting stiles	3no. 10 x 1.8mm Promat Promaseal PL-SK seals, one seal abutting the upstand in each rebate with the third seal positioned 3mm in from the pull face of the door leaf in the main rebate. All seals fitted in the inactive leaf. **OR** 3no. 10 x 2mm Kerafix Flexpan 200 NG-A (Rolf Kuhn GmbH), one seal abutting the upstand in the main rebate, one seal positioned 8mm in from the pull face of the door leaf in the main rebate, and one seal flush to the inner edge of the upstand. All seals fitted in the inactive leaf.

APPENDIX C

Assessed Leaf Size Envelope

Figures PAR/13145/01A:C01 to C03

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

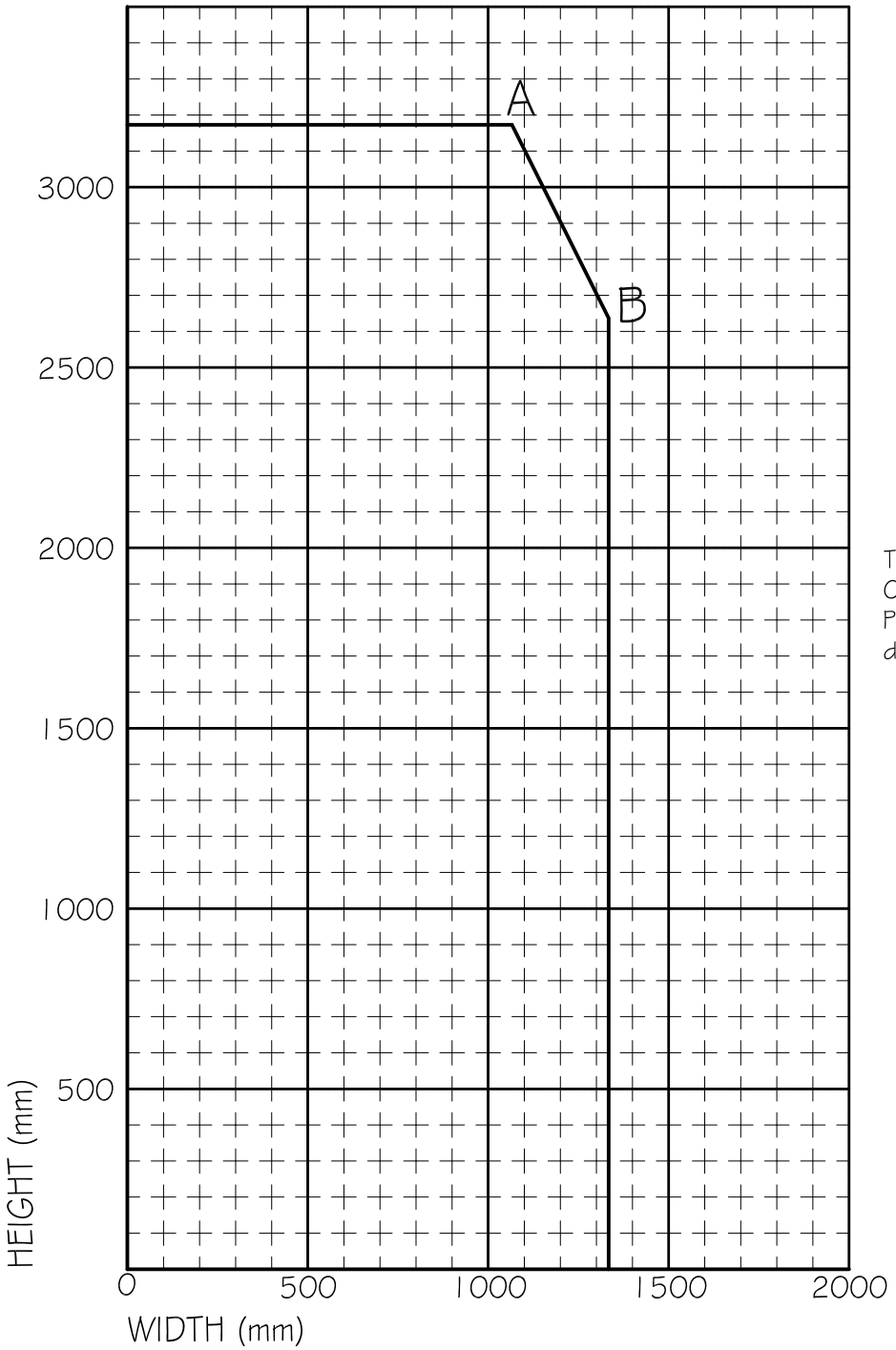
Configuration

LATCHED
SINGLE ACTING
SINGLE LEAF with
OPTIONAL SIDE PANEL or
TRANSOMMED OVERPANEL

REQUIRED INTEGRITY : 30 Minutes

	A	B
Width	1066	1334
Height	3173	2637

LEAF SIZE ENVELOPE POINTS



This figure forms part of International Fire Consultants Ltd's Field of Application Report PAR/13145/01 Revision A, 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 associated width.
POINT B represents the maximum leaf width and associated height.

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

Field of Application Report
PAR/13145/01 Revision A
Moralt AG
Moralt OutDoor FERRO FireSafe KlimaSoft/Akustik/Passiv, 68 - 98mm Thick FD30 Door Leaf Range
Installed in Timber Door Frames
with Optional Glazed Side Panels or Overpanels

Envelope of Approved Door Leaf Sizes
LSASD
In Timber Frames

Job number: 18099	
Drawn by: CSP	Checked by: CH
Not To Scale	Drawn: Feb 2018

PAR/13145/01A:C01

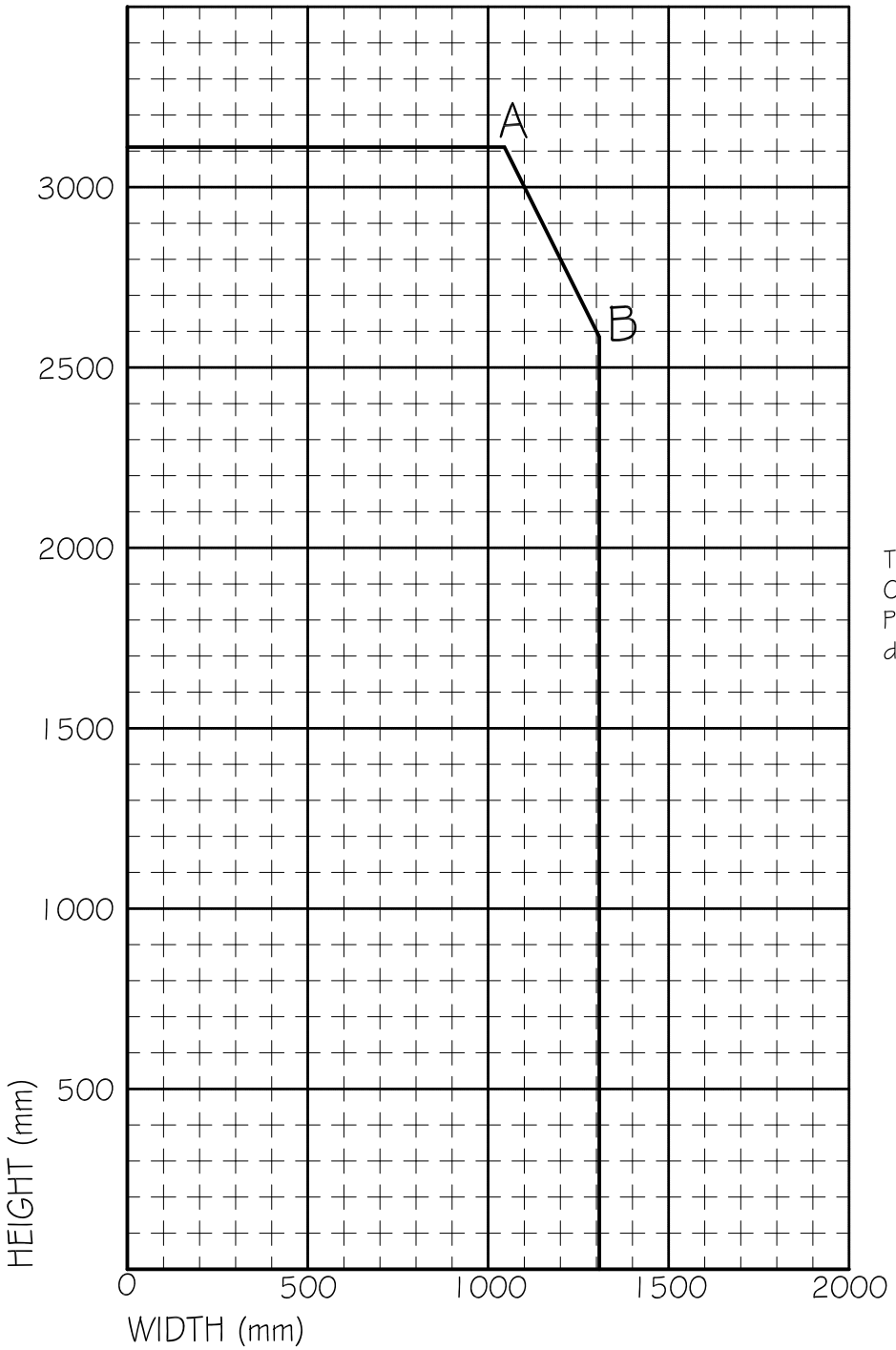
Configuration

LATCHED
SINGLE ACTING
SINGLE LEAF with
OPTIONAL SIDE PANEL or
FLUSH OVERPANEL

REQUIRED INTEGRITY : 30 Minutes

	A	B
Width	1045	1308
Height	3111	2585

LEAF SIZE ENVELOPE POINTS



This figure forms part of International Fire Consultants Ltd's Field of Application Report PAR/13145/01 Revision A, 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 associated width.
POINT B represents the maximum leaf width and associated height.

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

Field of Application Report
PAR/13145/01 Revision A
Moralt AG
Moralt OutDoor FERRO FireSafe KlimaSoft/Akustik/Passiv, 68 - 98mm Thick FD30 Door Leaf Range
Installed in Timber Door Frames
with Optional Glazed Side Panels or Overpanels

Envelope of Approved Door Leaf Sizes
LSASD
In Timber Frames

Job number: 18099	
Drawn by: CSP	Checked by: CH
Not To Scale	Drawn: Feb 2018

PAR/13145/01A:C02

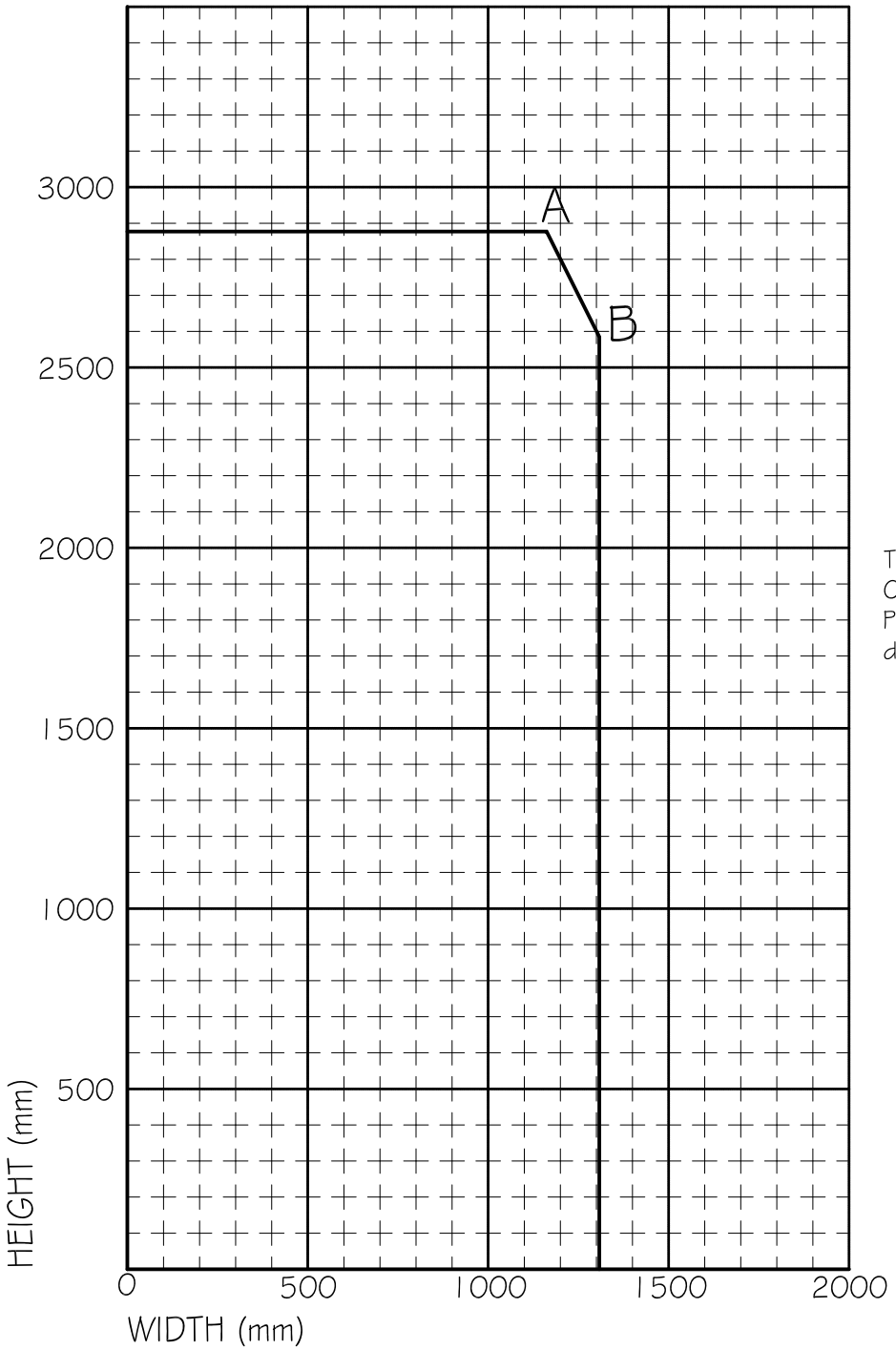
Configuration

LATCHED
SINGLE ACTING
DOUBLE LEAF with
OPTIONAL SIDE PANEL or
FLUSH/TRANSOMMED OVERPANEL

REQUIRED INTEGRITY : 30 Minutes

	A	B
Width	1162	1308
Height	2877	2585

LEAF SIZE ENVELOPE POINTS



This figure forms part of International Fire Consultants Ltd's Field of Application Report PAR/13145/01 Revision A, 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 associated width.
POINT B represents the maximum leaf width and associated height.

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

Field of Application Report
PAR/13145/01 Revision A
Moralt AG
Moralt OutDoor FERRO FireSafe KlimaSoft/Akustik/Passiv, 68 - 98mm Thick FD30 Door Leaf Range
Installed in Timber Door Frames
with Optional Glazed Side Panels or Overpanels

Envelope of Approved Door Leaf Sizes
LSADD
In Timber Frames

Job number: 18099	
Drawn by: CSP	Checked by: CH
Not To Scale	Drawn: Feb 2018

PAR/13145/01A:C03

APPENDIX D

General Guidance on Installation of Hardware

General Guidance on Installation of Hardware

D.1 Hinges

The door assemblies have been tested utilising a number of hinge types (outlined below) which were proven to make a positive contribution to the required 30 minutes integrity performance.

- Simonswerk GmbH - BAKA Protect 4010 3D FD hinge (3no.), 250mm, 1200mm, 2150mm from leaf head to centre of hinge;
- Anuba AG - DU 320 DL-3R-TL-WV-S15-D3-SIG hinge (3no.); 194mm, 1200, 2205mm from leaf head to centre of hinge;
- Glutz AG - STX 16.157 – 15 FD ST hinge (3no.) with 9075.01 KK hinge pockets; 249mm, 1693, 2150mm from leaf head to centre of hinge;
- Simonswerk GmbH - VX 7939/160-4 FD hinge (3no.) with VX 2501 3D N / VX 2560 KR N hinge pockets and cover angle by;
- Simonswerk GmbH - Tectus TE640 3D concealed hinges (3no.); 240mm, 1235mm, 2230mm from the leaf head to centre of hinge.

Other makes of hinge may be used as alternatives providing they 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 250mm down from the head of the leaf to the centre of the hinge and the bottom hinge positioned 300mm up from the foot of the leaf to the middle of the hinge. Centre hinge to be equi-spaced between the top and bottom hinges. (All positions ±25mm).
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	:	2.0–3.5mm thick x 89–110mm high x 30–38mm 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.
Additional protection	:	Not required

Rising butt, cranked butts 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.

D.2 Wedge Locks

Wedge locks may be fitted to the hanging edges of the door leaves in order to enhance the security performance but are not required for fire resistance. The following wedge locks are approved:

- Up to 3no. 8042/3119308/BSS 8042/31 Karl Fliether GmbH & Co.KG wedge locks fitted below each supporting hinge;
- Up to 3no. Gretsch Unitas GmbH K-14748-00-0-1 securing hinges fitted above the top and middle hinges and below the bottom hinge;
- Up to 3no. Simonswerk GmbH wedge locks ref: 205 fitted above the bottom and middle hinge and below the top hinge.

Wedge locks to be positioned nominally 100mm from the adjacent hinge as outlined above.

D.3 Multi-Point Locks

The door assemblies have been tested utilising a number of different multi-point lock types (outlined below) which were proven to make a positive contribution to the required 30 minutes integrity performance.

- Glutz AG - Mint SV 18945 (self-closing), Panik E multi-point lock with Kappenschliessblech V1130 and B1134 strike plates/keeps;
- Aug. Winkhaus GmbH & Co. KG - STV-AV3-F2060 multi-point lock with STV-SB Frau F2401 AVU FAB SKG 13,6 R12 RS and SV-SB-F2402 UMV R12 strike plates;
- Karl Fliether GmbH & Co. KG - AS 2750 multi-point lock with 15-530ER and 3615-530Q strike plates;
- Gretsch Unitas GmbH – SECURY 2116, shift function E multi-point lock with SECURY Automatik strike plates;
- MSL Schloss und Beschlägefabrik AG-Assa Abloy AG – mFlip lock e-drive Ba-SV-ZF multi-point lock with VariFlex strike plate types: 24413-H-STL-V.3243 and 200.3817.

All of the tested multi-point locks provided a minimum of 3-points of restraint of the active leaf against either a door frame, or an adjacent door leaf in the case of double door assemblies. Therefore, it is a requirement that all door assemblies covered by this Field of Application Report is fitted with one of the above referenced locks, or, a similar lock of similar specification that has suitable fire resistance test evidence in a similar door design.

Over-morticing is to be avoided; mortices should be as tight as possible to the latch. If gaps either side of the case exceed 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 should be kept as small as is compatible with the operation of the hardware.

D.4 Flush Bolts

In some circumstances, it may be necessary to install a flush bolt(s) in the meeting edge of the inactive leaf of double door assemblies. The extra restraint provided by flush bolts, in association with latches, will have a beneficial effect on limiting the distortion of the door leaves, however, they could also cause a localised weakness due to interruptions in the intumescent seals or by virtue that they will require removal of part of the leaf edge to facilitate their installation.

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

- Maximum size of flush bolt is 250mm long x 20mm wide and 19mm deep;
- The head of the leaf and/or frame should contain a minimum 5mm width of intumescent material local to the bolt/keep plate;
- Edge fixed bolts shall be positioned in line with the lock strike plates fitted in the inactive leaf so that there is a continuous 10mm wide intumescent strip running either side of the flush bolt;
- Face fixed flush bolts shall be fixed so that there is a minimum of 50mm between the bolt and the door edge;
- 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 thread for the full screw length.

As an alternative solution, it would be acceptable to fit an espagnolette mFlipLock by Assa Abloy ref: 14501044 or an espagnolette lock by BKS GmbH ref: 1899 0267 which is concealed either within or behind the meeting edge stile of the inactive leaf in a double door assembly. This may be used with the associated espagnolette bolt, tube with glide pins, switching lock, rag strike plate and base/floor plates/sleeves. They must be fitted within the central core section of the door leaf but no further intumescent protection is required.

D.5 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 BS5499 series of standards.

It is essential that all closers fulfil the requirements of BS EN 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.

A variety of closers have been successfully tested with the Moralt OutDoor FERRO FireSafe KlimaSoft/Akustik door assemblies but other closers may be used, subject to compliance with the specifications below.

a) Face-fixed overhead door closers (and accessories such as soffit brackets) that have been tested, assessed or otherwise approved for use on unlatched FD30 cellulosic door leaves in timber frames may be used.
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.

b) Three types of concealed overhead closers have been considered for inclusion in Moralt OutDoor FERRO FireSafe KlimaSoft/Akustik door assemblies. These are 'slide-arm' type closers, with the closer morticed into the head of the leaf and a single arm and roller acting in a slide channel morticed into the frame head. The closer is installed in a relatively deep mortice in the door head, with the slide channel in a mortice in the frame head. They are;

- Dorma GmbH & Co. KG - ITS96 (2-4 & 3-6 models) with G 96 N20 slide channel;
- Geze GmbH Boxer (3-6 & 4-6 models) EFS with 95141 slide channel;
- Gretsch Unitas GmbH VTS 735 with GU VYS 735 slide rail.

These closers have been tested and, subject to the limitations below, may be used on latched, single acting, single and double leaves with or without overpanels.

The limitations are summarised thus;

- Minimum stop/rebate depth as stipulated by manufacturer's instructions and/or test evidence;
- Inclusion of intumescent gasket kit as tested and supplied by manufacturer.
- When using concealed closers in doors with glass openings, the top margin between the door head and the aperture must be at least 175mm;
- A minimum of 10mm width of intumescent must be residual alongside the arm recess in the head of the frame or an additional 10 x 2mm strip of graphite intumescent strip must be included in the slide arm channel in the head of the frame.

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

D.6 Electrically Operated Devices and Cable Transitions

Electrically operated devices included surface mounted/recessed locks including finger print readers, tested items included:

- Ekey biometric systems Deutschland GmbH TOCA Home 2 integra SE20r finger scanner recessed into the leaf face bedded on 1mm Interdens and associated Ekey biometric systems Deutschland GmbH cable transition ref: CP35/8 fitted central to the leaf thickness;
- Karl Fliether GmbH & Co. KG Keylessmodul - ArtikelNR: ZEM FZ-BT-0A-1.50 recessed into the leaf face bedded on 1mm Interdens with associated Karl Fliether GmbH & Co. KG cable transition with protective box and spiral spring ref: M 1188 fitted central to the leaf thickness.

Other similar locking/security devices may be used providing they have appropriate fire resistance test evidence to the same test standard to justify their use in similar door designs for 30minutes fire resistance. Surface mounted items should be installed with the methods utilised in relevant fire resistance testing.

D.7 Cableways

- The hole drilled in the door leaf, to create the concealed cableway, shall not exceed 14mm in diameter or 10 x 10mm, and it shall be closely and carefully cut in the centre of the leaf thickness.
- If the mortice for the lock needs to be over-sized to allow for connection of the cable, then 2mm thick Therm-A-Strip or Interdens low-pressure forming intumescent sheet shall be included on the sides of the mortice for its full depth, to protect the void between the lock body and the end of the mortice.
- Where the cable enters the door leaf from the frame an escape terminal is required. The tested terminal was the ekey biometic systems GmbH cable transition loop.
- When installed at the leaf edge, a maximum 17mm deep x 24mm wide recess can be formed with minimum 1mm thick graphite/Interdens based intumescent seal installed at the base of the recess.

D.8 Non-Essential Hardware Items

Push plates, kick plates, etc.

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

Pull handles

These may be fixed to the door leaf, provided that the fixing points are no greater than 500mm apart. Pull handles that are fixed through the leaf should use clearance holes as close fitting as possible to the bolt.

Dropseals

Dropseals may be fitted into the bottom edge of the door leaves providing they have test evidence to justify their performance in similar door constructions for the required period of fire resistance. Examples of dropseals that have been successfully tested are:

- Planet GDZ AG 'HS' threshold dropseal (30mm high x 13mm thick);
- Planet GDZ AG 'X3' ref:900137 dropseal (30mm high x 13mm thick);
- Athmer oHG 'Schallex L-15' (30mm high x 15mm thick);
- Athmer oHG Stadi-FA 24/20 WS dropseal (20mm high x 24mm thick).

Dropseals may be either centrally fitted within the leaf thickness or a minimum 15mm from either leaf face.

Thresholds

Both raised and flush mounted aluminium thresholds are approved for inclusion in the door assemblies. These can be either recessed within the floor substrate with an aluminium cover plate, or, surface mounted and an appropriate rebate machined into the bottom edge of the door leaf. The approved thresholds are;

- Gutmann AG 'Weser Zero 88' in conjunction with a Planet GDZ AG 'X3' ref:900137 or Athmer oHG Stadi-FA 24/20 WS dropseal;
- Gretsch Unitas GmbH – SBS Schwelle, KBE, Alu, 216 V;
- Roto Frank BKV Eifel 80T – Roto Frank AG (Gluske – BKV)

These should be installed to maintain the threshold gaps of 6mm (+2mm/-5mm), maximum threshold gap of 9mm for door assemblies with raised thresholds.

Door limiter and/or co-ordinator

These may be fitted to the doorsets providing they are surface fixed and their installation does not intrude onto the leaf edge or frame reveal.

APPENDIX E

Summary of Fire Test Evidence

Summary of Fire Test Evidence

Test Report	Configuration Tested	Leaf Size (h x w x t)	Test Standard	Integrity
12041711-a	LSASD	2285 x 1100 x 68mm	EN 1634-1: 2008	38 minutes
DMT-DO-50-296	LSASD+OP	2470 x 1250 x 68mm	EN 1634-1: 2008	36 minutes
DMT-DO-50-299	LSASD+Fanlight	2470 x 1250 x 68mm	EN 1634-1: 2008	39 minutes
DMT-DO-50-300	LSASD+Fanlight	2470 x 1250 x 68mm	EN 1634-1: 2008	33 minutes
DMT-DO-50-301	LSADD+Sidelight +Fanlight	2470 x 1250 x 68mm	EN 1634-1: 2008	36 minutes
DMT-DO-50-432	LSADD+Sidelight +Fanlight	2470 x 1250 x 68mm	EN 1634-1: 2008	34 minutes
DMT-DO-50-431	LSADD+OP	2470 x 1200 x 68mm	EN 1634-1: 2008	36 minutes

LSASD = Latched, Single Acting, Single leaf Doorset
LSADD = Latched, Single Acting, Double leaf Doorset
OP = Overpanel