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**IFC FIELD OF APPLICATION REPORT
PAR/10969/01**

**Field of Application of the Fire
Resistance of 56mm Thick Moralt
'Laminasse Multi' FD30 Door Leaf
Range Installed in Timber Frames**

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1. INTRODUCTION

This report has been prepared by International Fire Consultants Ltd (IFC) to define the Field of Application for the 56mm thick Moralt 'Laminesse Multi' FD30 door leaf range installed in timber frames, that are required to provide 30 minutes fire resistance performance, when adjudged against BS 476: Part 22: 1987.

The methodologies used in preparing this document are based upon the guidance in BS ISO/TR 12470: 1998; 'Fire resistance tests - Guidance on the application and extension of results'.

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 proven in tests summarised herein.

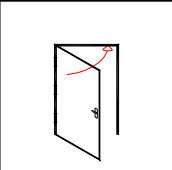
2. TEST EVIDENCE

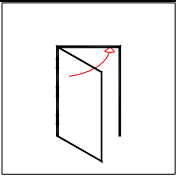
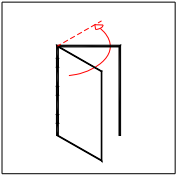
The test evidence used to support this assessment is summarised in Appendix D of this report.

3. SCOPE OF APPROVAL

3.1 Doorset Configuration

The following doorset configurations are approved for the doorset constructions within the scope of this report:

Configuration		Envelope of Approved Leaf Size
		Timber Frames
	<ul style="list-style-type: none">• Latched• Single Acting• Single Door• Without Overpanel	Figure PAR/10969/01:03 in Appendix C

Configuration		Envelope of Approved Leaf Size
		Timber Frames
	<ul style="list-style-type: none"> • Unlatched • Single Acting • Single Door • Without Overpanel 	Figure PAR/10969/01:04 in Appendix C
	<ul style="list-style-type: none"> • Unlatched • Double Acting • Single Door • Without Overpanel 	Figure PAR/10969/01:04 in Appendix C

3.2 Maximum Assessable Door Leaf Sizes

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

3.3 Overpanels

Overpanels are not permitted within the scope of this Field of Application Report.

3.4 Door Leaf Specification

The Moralt 'Laminesse Multi' FD30 door construction is a minimum overall 56mm thick leaf (excluding any decorative facings). Detailed constructional specifications are given below.

The leaf specifications, below, are based upon the test evidence detailed in Appendix D, and define 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).

Component		Species/Material	Dimensions	Minimum Density
Core		Softboard	25mm thick	80kg/m ³ <i>Note 1</i>
Stiles	Inner	Balsa wood	100mm wide x 25mm thick	160kg/m ³ <i>Note 1</i>
Facings	Inner	Spruce ply veneers	10.5mm thick from 4.6mm (+/-1mm) wide lamels	450kg/m ³ <i>Note 1</i>
Stiles	Outer	Pine – finger jointed lamels	55mm wide (formed from 3 layers) x 46 mm thick	480kg/m ³ <i>Note 1</i>

Component		Species/Material	Dimensions	Minimum Density
Rails		Pine – finger jointed lamels	55mm wide (formed from 3 layers) x 46 mm thick	480kg/m ³ <i>Note 1</i>
Facings	Outer	5 layer plywood	5mm thick	350kg/m ³ <i>Note 1</i>
Lippings		Hardwood <i>Note 2</i>	10mm thick	640kg/m ³ <i>Note 2</i>
Adhesive	Lippings	Urea formaldehyde, cross-linking PVA or cross-linking polyurethane (PU)	–	–
Optional additional decorative finishes		Timber veneer, decorative plastic based laminate, PVC or paint	Maximum 2mm thick	–

Note 1 Nominal stated density.

Note 2 Lippings to be straight grained hardwood, with minimum measured density 640kg/m³ (measured at 12% moisture content) of appropriate quality in accordance with BS EN 942: 1996. Moisture content to be 10 ± 2% for UK market (or to suit internal joinery moisture content specification of export countries). Lippings shall be applied to all four edges of the leaf.

3.5 Frames

Material	Density	Minimum Face Width		Minimum Frame Depth	Minimum Stop Depth
		Single Acting	Double Acting		
Softwood or hardwood	510kg/m ³ <i>Note 3</i>	32mm, excluding stop <i>Note 4</i>	38mm <i>Note 5</i>	70mm	12mm <i>Note 6</i>

Note 3 Timber must have a minimum measured density at 12% moisture content. The timber must be straight grained and of appropriate quality in accordance with BS EN 942: 1996. The moisture content shall be 10 ± 2% for UK market, (or to suit internal joinery moisture content specification of export countries).

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. See Section 3.8 regarding projecting frames and shadow gaps.

Note 5 Frames for double acting doors do not require a stop but must have the stated minimum frame thickness at the head to facilitate the fitment of the top pivot. The frame may be reduced to 32mm at the scalloped edge to suit the radius of the pivot stile of the door.

Note 6 The doorstop 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. 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 protrudes 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.

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: Architraves are optional and have no fire performance requirements. (See Section 3.8 regarding wall/frame gaps).

3.6 Glazed Apertures

3.6.1 Glass Types

The doorset design outlined in Section 3.4 of this report has been successfully tested with the inclusion of glazed apertures. 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 3.6.2, although some restrictions on size may be given in subsequent sections. See also Section 3.6.6 regarding ladder glazing.

The codes used, below, for the glass types, glazing materials, and bead types, (e.g. G1, S1 and B1), 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.

- G1 5mm thick Firelite (by Southern Ceramics) ^{Note 7}
- G2 6mm thick Pyroshield Fire and Safety (GWPP) (by Pilkington)
- G3 6mm thick Pyroshield 2 (by Pilkington)
- G4 6mm thick Pyran S (by Schott)
- G5 7mm thick Pyroguard Clear (by CGI)
- G6 7mm thick Pyroguard Wired (by CGI)
- G7 7mm thick Pyrobelite (by AGC Flat Glass)
- G8 7mm thick Pyrodur Plus (by Pilkington)
- G9 10mm thick Pyrodur (by Pilkington)

^{Note 7} *Limitations apply to the pane size of glass type G1, 5mm thick Firelite, as it does not satisfy the requirements of BS6206. Panes are restricted to a smaller dimension not exceeding 250mm and an area not exceeding 0.5m², each measured between glazing beads, in accordance with the requirements of Approved Document N to The Building Regulations 2000 for England and Wales. (Applicable guidance must be followed in other parts of the UK or other countries).*

For door assemblies that are to satisfy the insulation requirement, the following glass types are also approved;

- G10 15mm thick Pyrostop (by Pilkington)
- G11 16mm thick Pyrobel 16 (by AGC Flat Glass)

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.

- S1 10 x 2mm Pyrostrip 300 (use with glass type G1, G2, G3, G4, G5, G6, G7, G8 & G9)
- S2 10 x 2mm Interdens (use with glass type G1, G2, G3, G4, G5, G6, G7, G8 & G9)
- S3 10 x 2mm Therm-A-Strip (use with glass type G1, G2, G3, G4, G5, G6, G7, G8 & G9)
- S4 10 x 2mm G30 (use with glass type G1, G2, G3, G4, G5, G6, G7, G8 & G9)
- S5 15 x 4mm Fireglaze 30 mastic (use with glass type G1, G2, G3, G4, G5, G6, G7, G8 & G9)
- S6 Lorient Flexible Figure One (use with glass type G1, G2, G3, G4, G5 & G6)
- S7 10 x 5mm Closed cell foam (use with glass type G10 & G11)
- S8 10 x 4mm Ceramic fibre tape (use with glass type G10 & G11)
- S9 Lorient System 36 to suit glass thickness (use with glass type G1, G2, G3, G4, G5, G6, G7, G8, G9, G10 & G11)

3.6.3 Bead Profiles and Installation

Apertures are created by cutting directly into the door blank and lining the aperture with 4mm thick Sapele, to the specification given in Note 2 in Section 3.4.

The approved bead sizes and profiles, and relevant fixing details, are shown on the **Figures PAR/10969/01:01** and **02** in Appendix A, which also define any limitations upon options of interchangeability with glass types, glazing systems and bead profiles.

Glazing beads shall be formed from good quality, straight grained, hardwood, with 640kg/m³ minimum density (measured at 12% moisture content). Timber must be free of splits, shakes and checks. Moisture content shall be 10 ± 2% for UK market (or to suit internal joinery moisture content specification of export countries).

Expansion gaps suitable for the size and type of glass must be allowed for within the glazing system.

3.6.4 Assessed Aperture Sizes

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

- Maximum total area of aperture(s) - 0.33m² *Notes 8 & 9*
- Maximum height of aperture - 1020mm
- Maximum width of aperture - 320mm
- Minimum distance from leaf edge (top) - 150mm
- Minimum distance from leaf edge (sides) - 150mm

- Minimum distance from bottom of leaf - 250mm
- Minimum distance between apertures - 150mm

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

Note 8 Any aperture(s) for intumescent air transfer grilles, (see Section 3.7.5), must also be included in the total area permitted for apertures given above. Margins between apertures apply whether for glazing or grilles.

Note 9 Refer to Section 3.6.1 regarding limitations upon sizes approved with certain glass types.

3.6.5 Circular Glazing

The leaves are approved for the incorporation of circular glazing, subject to the parameters for margins and total area of glazing per leaf, described in Section 3.6.4 above.

Bead profiles must include a bolection moulding and the method of forming the curved beads shall be a tested details, in light of the proprietary nature of curved beads. The glazing system must be one which can be suitably modified to be utilised with curved beads and the associated glass must be approved for use by the manufacturer with curved edges.

Apertures with some straight and some curved edges (such as full semi-circles or rectangular openings with semi-circular top and bottom ends) are also approved, subject to incorporation of the glazing system, bead type and fixing details as outlined above for circular glazing, across the whole of the aperture. The parameters for aperture margins, total area per leaf, and maximum dimensions are to be as described in Section 3.6.4 above.

3.6.6 Ladder Glazing

To create the effect of narrow glazing bars separating multiple apertures within a door leaf, it is permitted to include a single aperture, with mock glazing bars applied to the faces of the pane of glass. In all cases, the sizes and margins of the aperture(s) must be in accordance with Section 3.6.4 above.

The mock beads may only be applied to fully insulating glass types G10 and G11, and may be bonded to the glass/seal using double sided adhesive tape and mechanical fixed to the perimeter bead. The profile/size of mock beads and perimeter bead, and the approved glazing seals, are shown in **Figure PAR/10969/01:02** in Appendix A.

3.7 Hardware

Some of the various items of hardware to be used with the proposed doorsets 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.

All hardware beyond the scope of the general guidance given below must have been subjected to fire resistance testing, and/or assessed by a notified body, to support its use in doors of a similar construction to that proposed, or third party certification shall be available to support its use on doorsets of the proposed type.

General guidance for all items of hardware is outlined below, based upon the range of items tested.

3.7.1 Hinges

The hinges used in testing were Union steel butt type, but other hinges may be used, subject to compliance with the specifications below.

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

Number of hinges: 3no (1.5 pairs) per leaf. (4no should be used on leaves greater than 2200mm high).

Positions: Top hinge set 150mm from head of leaf and bottom hinge set 225mm up from the bottom of the leaf. The middle hinge must be equispaced between the top and bottom hinge or 200-250mm below the top hinge. (All positions ± 25 mm).

Fixings: Steel screws, as recommended by the hinge manufacturers, but in no case smaller than No 8 (3.8mm diameter) by 32mm long, and having thread for the full length. Position of screws (in relation to the door face) in blades of alternative hinge shall be similar to hinges tested with the proposed door type.

Hinge blade sizes: 2.4–3.5mm thick by 89–110mm high by 32–37mm wide. (These dimensions refer to the blade size, i.e. the part of the hinges that are recessed into the edge of the leaves/frame).

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

Additional protection: Minimum 2mm thick non-pressure forming intumescent sheet under each hinge blade.

Rising butt, non-cranked butts and spring hinges 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.

3.7.2 Mortice latches/locks

The doorset was tested with a Laidlaw steel mortice latch but other mortice locks/latches may be used, subject to compliance with the specifications below.

Mortice latches or locks should be centred at 1000mm (\pm 200mm), above the bottom of the door leaf, and should comply with the following specifications:

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

Maximum dimensions: Forend plate - 235mm long x 20mm wide

Latch body - 18mm wide (thick)

Strikeplate - 235mm long x 20mm wide

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

The lock/latch body and the lock/latch forend and strike plates must be lined with minimum 1mm thick non-pressure forming intumescent sheet.

Mortice locks/latches may be utilised with lever handles or push pads/bars, as required.

Over-morticing is to be avoided; mortices should 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 should be kept as small as is compatible with the operation of the hardware.

Where apertures are specified, and are positioned such that locks/latches are included in the margin between the aperture and the 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 Field of Application Report 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.

3.7.3 Door closers

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: Part 1: 1990. The closer used in the test was not specified but other closers may be used, subject to compliance with the specifications below.

- Face-fixed overhead door closer (and accessories such as soffit brackets) that have been tested, assessed or otherwise approved for use on unlatched FD30 cellulosic door leaves 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.
- This report does not approve the use of concealed overhead or jamb mounted closers.

It is essential that the closers 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.

3.7.4 Floor springs and accessories

Floor springs and accessories (straps and top pivots) are necessary for double acting assemblies. These items are approved, subject to having appropriate test or assessment evidence for use on timber door assemblies, and the following limitations;

- Incorporation of any intumescent gasketry used in the test;
- Continuation of at least 10mm (total width) of the intumescent edge seals in the leaf or frame head (as applicable); either 5mm along both sides of the top strap/pivot for double acting straps, or 10mm on one side for single acting straps.
- If intumescent edge seals are in the door frame, then 2mm thick intumescent sheet must also be included to the sides of the mortice for top straps in the door.
- There should be no removal of timber or intumescent strip in the leaf stiles.

3.7.5 Non-essential hardware items

Letter plates: These must be tested, assessed or otherwise approved for use in 44mm thick (or less) timber/cellulosic FD30 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.

Note 10 The installation of such items in a door leaf may compromise its performance as a smoke control doorset.

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 doorsets, 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.

Intumescent air transfer grilles: These must be tested, assessed or otherwise approved for use with 44mm thick (or less) timber/cellulosic FD30 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 3.6.4 for restrictions on maximum size and placement of any apertures). These restrictions also apply to grilles, which must also be included in the total area permitted for apertures given in Section 3.6.4.

Note 11 The installation of such items in a door leaf may compromise its performance as a smoke control doorset.

Security viewers: These may be fixed into the proposed doors, subject to the following limitations, unless specific fire test evidence exists to the contrary;

- Viewers must not exceed 15mm outer diameter, and be made from brass or steel.
- Holes bored through the door must be no greater than 1mm larger than the bore of the viewer.
- The viewer must include an effective shutter/cover plate.

3.8 Installation, Supporting Construction and Door Edge Gaps

The frames must be fixed back to the supporting construction with steel fixings at centres not exceeding 600mm; this applies to jambs and head. Screws shall be of sufficient length to penetrate the wall by at least 40mm, and shall be positioned such that they are not exploited by charring of the frame, irrespective of the direction of test exposure; (this may necessitate a twin line of screws). Packers shall be used at all fixing positions, 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 12 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 frames should follow the recommendations of Table 2 in BS8214: 2008, "*Code of practice for fire door assemblies*", using a product proven in such 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).

The gap between the door and the frame should be 2 – 4mm. Gaps under the door(s) should not exceed 6mm for fire performance, although, if smoke control is also required, these gaps should only be 3mm, or smoke seals should be included in accordance with BS8214 (see also Section 3.10 regarding suitability of smoke seals).

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

3.9 Intumescent Seals

Pyroplex Ltd graphite based, Intumescent Seals Ltd Therm-A-Seal, and Lorient Polyproducts Ltd Type 617 or Palusol type seals may be employed across the complete range of door sizes and configurations approved herein. Intumescent protection is required for specific items of building hardware and this has been detailed in Section 3.7.

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

3.10 Ambient Temperature Smoke Seals

Smoke seals, or combined intumescent/smoke seals (using the intumescent products approved in Section 3.9), that have been tested to 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 to BS476: Part 31: Section 31.1: 1983 to achieve the desired level of smoke control, unless these conflict with the intumescent seal widths and positions as shown in Appendix B, in which case, the latter shall take precedence.

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

4. CONCLUSION

It is the opinion of International Fire Consultants Ltd that, if the proposed 56mm thick Moralt 'Laminesse Multi' door leaf range installed in timber frames were manufactured and installed in accordance with the requirements of this Field of Application Report, the leaf sizes are within the envelope of approved dimensions/sizes given for the configuration outlined in Appendix C, and the hardware, glazing details, and intumescent seal specification are in accordance with the recommendations of this report, then the assemblies, as described, would satisfy the integrity criteria for 30 minutes when tested for fire resistance to the conditions of BS476: Part 22: 1987.

5. LIMITATIONS

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

This document only considers the doorset constructions 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.

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 doorsets are installed, to ensure that no parts of the assembly are damaged or faulty. Further, the doorsets 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 doorsets 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 doorsets to the required condition, should only be carried out following consultation with the manufacturer and IFC.

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

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 to 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 May 2016 should confirm its ongoing validity.

Prepared by:



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International Fire Consultants Ltd (IFC)

Checked by:



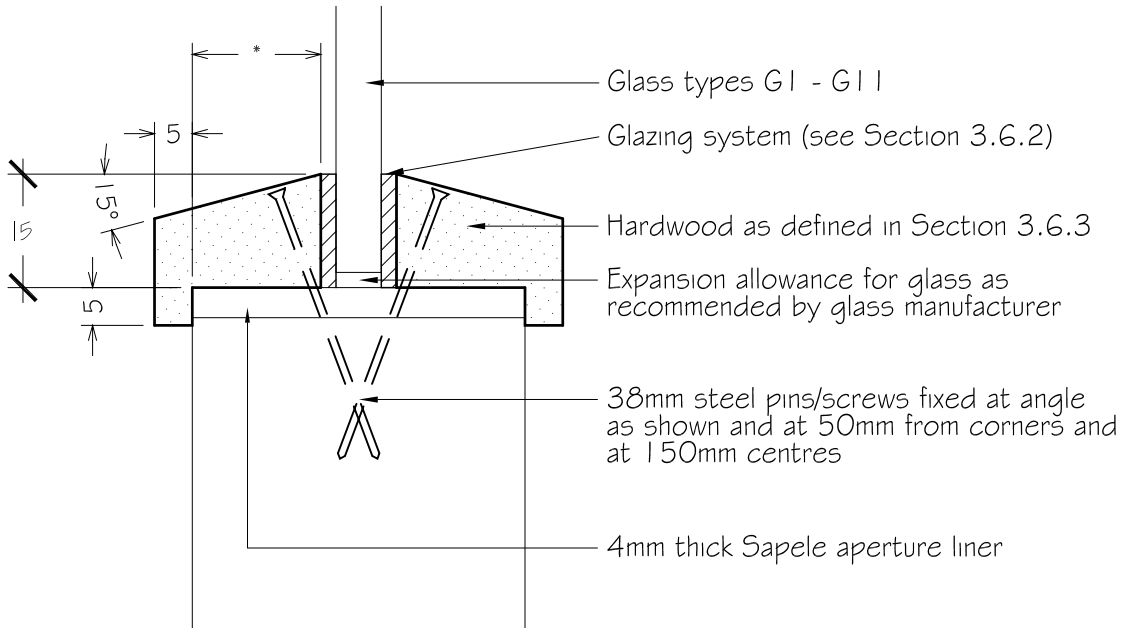
Mark Billingham
Senior Engineer
International Fire Consultants Ltd (IFC)

APPENDIX A

Glazing Details

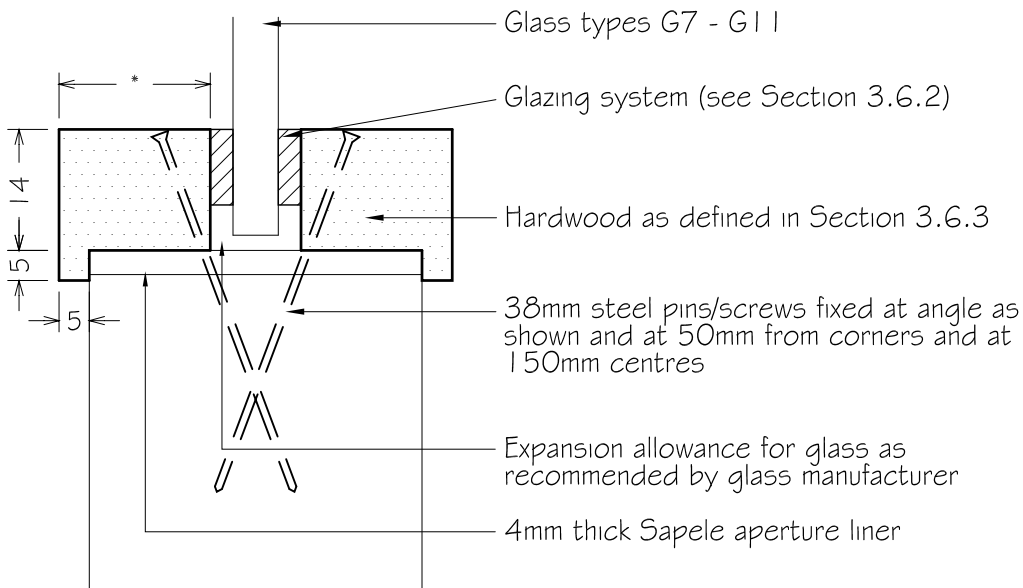
Figures PAR/10969/01:01 and 02

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



BEAD DETAIL B1

*Bead size is dependant upon glass/seal thickness



BEAD DETAIL B2

*Bead size is dependant upon glass/seal thickness

Refer to text of Report for details of glass and seal types

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

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Field of Application Report PAR/10969/01
 Moralt Tischlerplatten GmbH & Co KG
 56mm Thick Moralt 'Laminesse Multi'
 FD30 Door Leaf Range Installed in
 Timber Frames

Glazing Details
 Sheet One of Two

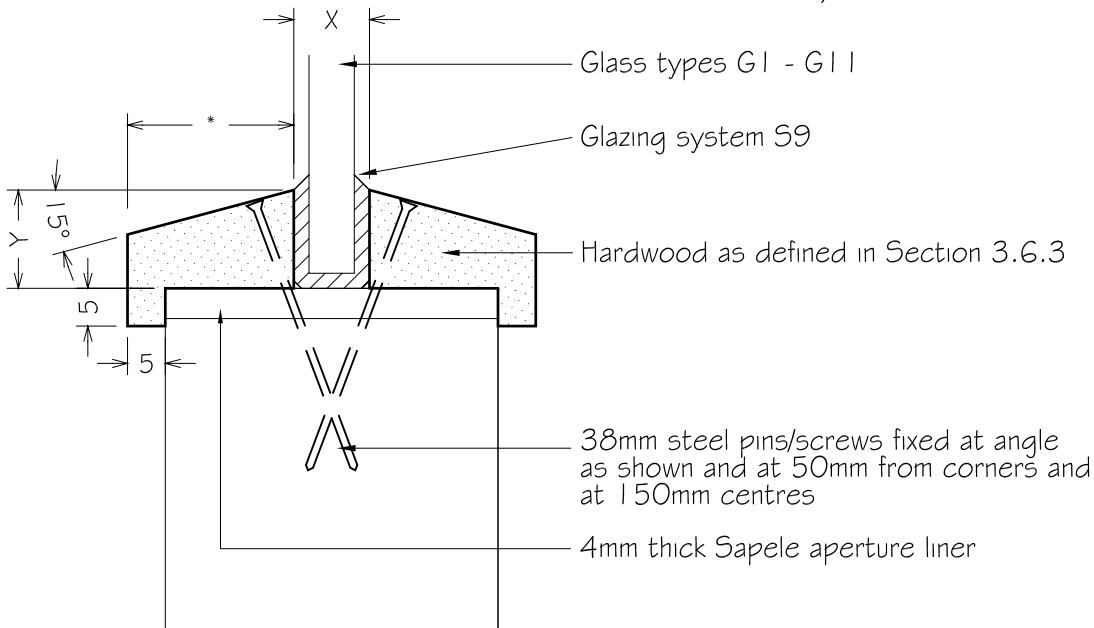
Job number : 10969

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 Not To Scale May 2011

PAR/10969/01:01

X = Channel thickness (varies to suit glass thickness)

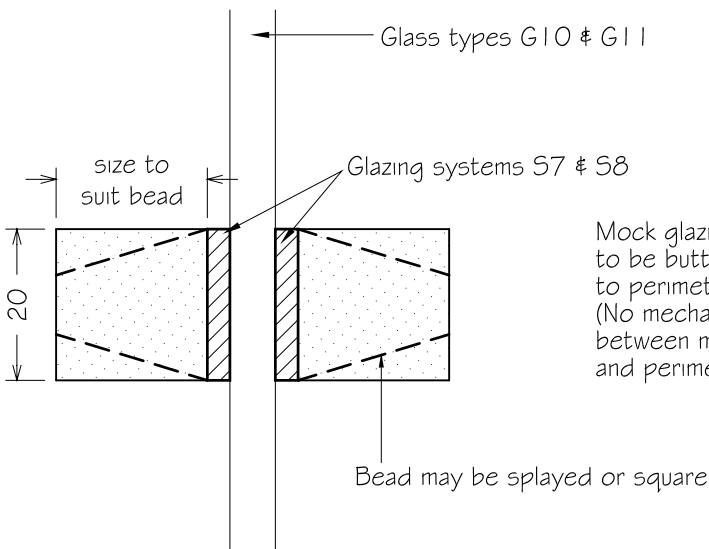
Y = Bead height (must NOT exceed height of channel shoulder)



BEAD DETAIL B3

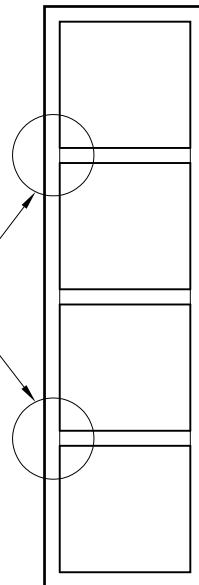
To be used in conjunction with glazing system S9 only

*Bead size is dependant upon glass thickness



MOCK GLAZING BEAD

LADDER DETAIL for use with bead details B1 and B2 only



TYPICAL ELEVATION

Refer to text of Report for details of glass and seal types

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Glazing Details
 Sheet Two of Two

Job number : 10969

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PAR/10969/01:02

APPENDIX B

Assessed Intumescent Seal Specifications

Intumescent Seal Specifications

Location	Reduced Specification
Hanging and closing edge (stiles/jambs)	1no 15 x 4mm strip centrally fitted in the leaf edge or frame reveal
Head	1no 15 x 4mm strip centrally fitted in the leaf edge or frame reveal

Note:

Pyroplex Ltd graphite based, Intumescent Seals Ltd Therm-A-Seal, and Lorient Polyproducts Ltd Type 617 or Palusol type seals may be employed across the complete range of door sizes and configurations approved herein.

APPENDIX C

Assessed Leaf Size Envelopes

Figure PAR/10969/01:03 and 04

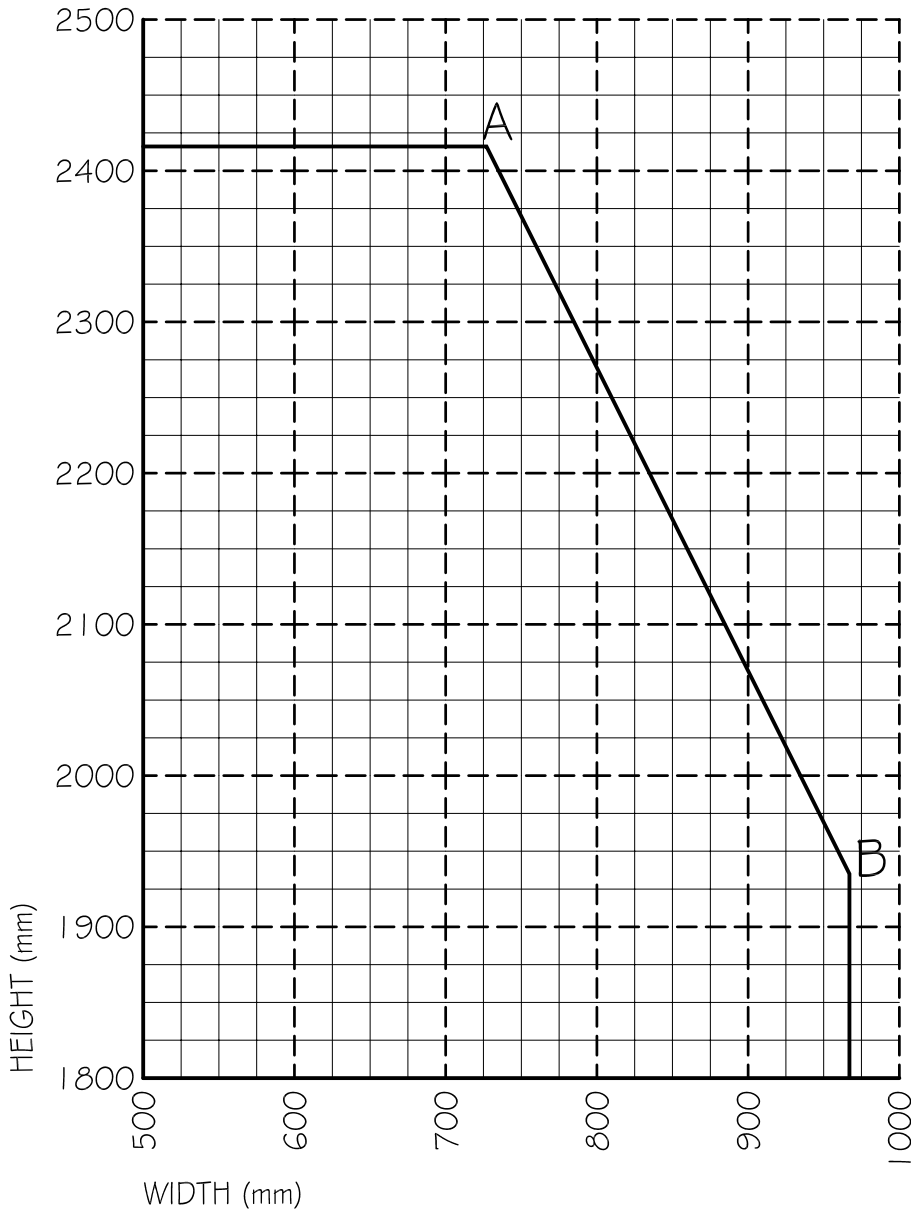
*The figures in this Appendix are not included
in the sequential page numbering of this report*

	A	B
Width	727	967
Height	2416	1935

LEAF SIZE ENVELOPE POINTS

PROPOSED CONFIGURATION:

LATCHED
SINGLE ACTING
SINGLE LEAF



Note:
These sizes relate to the door leaf.

This figure must be read in conjunction with International Fire Consultants Ltd's Field of Application Report PAR/10969/01 which contains full details of the assessed doorset construction.

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Field of Application Report PAR/10969/01
Moralt Tischlerplatten GmbH & Co KG
56mm Thick Moralt 'Laminesse Multi'
FD30 Door Leaf Range Installed in
Timber Frames

Envelope of Approved Leaf Sizes
Latched, Single Acting,
Single Leaf

Job number : 10969

Drawn by : CSP Checked by : DJC

Not To Scale May 2011

PAR/10969/01:03

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 solid line on the graph above are approved.

POINT A represents the maximum leaf height and its associated width.

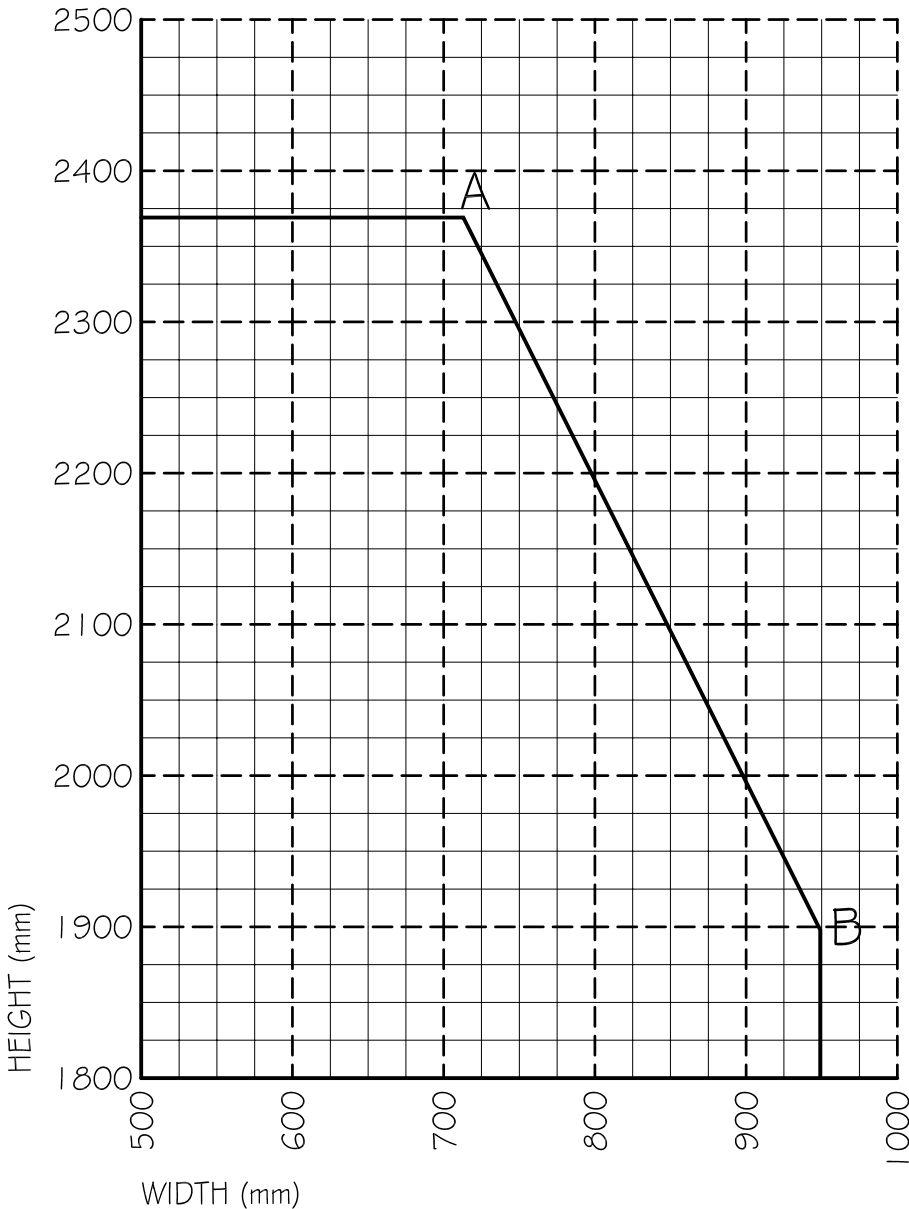
POINT B represents the maximum leaf width and its associated height.

	A	B
Width	713	949
Height	2369	1898

LEAF SIZE ENVELOPE POINTS

PROPOSED CONFIGURATION:

UNLATCHED
SINGLE or DOUBLE ACTING
SINGLE LEAF



Note:
These sizes relate to the door leaf.

This figure must be read in conjunction with International Fire Consultants Ltd's Field of Application Report PAR/10969/01 which contains full details of the assessed doorset construction.

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Field of Application Report PAR/10969/01
Moralt Tischlerplatten GmbH & Co KG
56mm Thick Moralt 'Laminesse Multi'
FD30 Door Leaf Range Installed in
Timber Frames

Envelope of Approved Leaf Sizes
Unlatched, Single or
Double Acting, Single Leaf

Job number : 10969

Drawn by : CSP Checked by : DJC
Not To Scale May 2011

PAR/10969/01:04

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 solid line on the graph above are approved.

POINT A represents the maximum leaf height and its associated width.

POINT B represents the maximum leaf width and its associated height.

APPENDIX D

Summary of Fire Test Evidence

Summary of Fire Test Evidence

Test Report	Configuration Tested	Leaf Sizes	Test Standard	Integrity
Chilt/RF10191	ULSASD	2040mm high x 878mm wide x 56mm thick	EN 1634-1: 2008	21 minutes*

ULSASD = Unlatched, Single Acting, Single leaf Doorset

* *Integrity failure occurred due to cotton pad ignition at the closing jamb at a height of 200mm from the bottom. The test was continued and further integrity failure did not occur until 49 minutes. The cause of the premature integrity failure has been nullified in the analysis which led to the scope of approval within this report which considers the performance against BS476: Part 22: 1987.*

Note:

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