Warringtonfire
Chiltern House
Stocking Lane
High Wycombe
HP14 4ND
United Kingdom
T: +44 (0)1494 569750
W: www.warringtonfire.com

Title:

Global Assessment of:
KLW Wood Products
30 Minute Fire Resisting Doorset

Report No:

Chilt/08073 Revision G

WF Number:
433300

Valid From:
28th September 2020

Valid Until:
6th April 2023

Prepared for:
KLW Wood Products (M) Sdn Bhd.

PL0 32 & 34, Simpang Renggam Industrial Estate

86200 Simpang Renggam

Johore

Malaysia

Contents

Page No.

1 Foreword

This field of application report has been commissioned by KLW Wood Products (M) Sdn Bhd. and relates to the fire resistance of 30 minute fire resisting doorset designs.

The report has been written in accordance with the general principles outlined in BS EN 15725: 2010; *Extended application reports on the fire performance of construction products and building elements*.

This field of application (scope) uses established empirical methods of extrapolation and experience of fire testing similar door assemblies, in order to extend the scope of application by determining the limits for the designs based on the tested constructions and performances obtained. The scope is an evaluation of the potential fire resistance performance, if the variations specified herein were to be tested in accordance with BS 476: Part 22: 1987 and therefore can neither be considered for a CE marking application nor can the conclusion be used to establish a formal classification against EN13501-2.

This field of application has been written using appropriate test evidence generated at UKAS accredited laboratories, to the relevant test standard. The supporting test evidence has been deemed appropriate to support the manufacturers stated door design and is summarised in section 3 and appendix B.

The scope presented in this report relates to the behaviour of the proposed door design variations under the particular conditions of the test; they are not intended to be the sole criterion for considering the potential fire hazard of the door assembly in use.

This field of application has been prepared and checked by product assessors with the necessary competence, who subscribe to the principles outlined in the Passive Fire Protection Forum (PFPF) guidelines to undertaking assessments. The aim of the PFPF guidelines is to give confidence to end-users that assessments that exist in the UK are of a satisfactory standard to be used for building control and other purposes.

The PFPF guidelines are produced by the UK Fire Test Study Group (FTSG) an association of the major fire testing laboratories in the UK and are published by the PFPF, the representative body for the passive fire protection industry in the UK.

2 Proposal

It is proposed to consider the fire resistance performance of the KLW Wood Products (M) Sdn Bhd doorset design described in the technical specification in section 4 of this assessment report, for 30 minutes fire resistance, if the doorset were to be tested to the requirements of BS 476: Part 22: 1987, *Fire tests on building materials and structures – Part 22: Method for determination of the fire resistance of non-load bearing elements of construction.*

The field of application defined in this report is based on the fire resistance test evidence for the doorset design, which is summarised in section 3. Analysis of specific construction details that require assessment are given within this report against the relevant element of construction, as appropriate.

3 Test Evidence

The first 4 test evidence summarises below have been generated to support the fire resistance performance of the door design that is the subject of this field of application. Test report WF423349 is reference solely as sampled test evidence and has not been used to increase scope in this assessment.

3.1 Test report Chilt/RF10105B

The referenced test report, the essential details of which are summarised below, is the primary data for the door designs A, B, C and E with grooving details being considered for assessment in this report.

Date of test		27th September 2010
Identification of test body:		Warringtonfire formerly known as Chiltern International Fire ltd
Sponsor:		KLW Wood Products
Tested Product:		Fully insulating single leaf, unlatched, single acting, timber doorset. For the purpose of the test the doorset was referenced 'B'
Summary of test specimen:		Leaf dimensions: 1981mm (h) x 838mm (w) x 44mm (t) Doorset B: Veneered Particleboard Core 44mm (t), Oak vertical Lippings 6mm (t), with grooving incorporating Oak decorative inlay 13.5 mm (w) x 7mm (h) with a 10mm (w) x 4mm (d) groove. Leaf hung in a European Redwood frame on 3No. Stainless steel lift off hinges. This door design can be seen in section 5 as Design A, B, C and E. The doorset was oriented to open towards heat conditions. The doorset included a tubular mortice latch, positioned at approximately mid-height of the doorset. The door leaf was disengaged for the duration of the test
Test Standard:		BS 476: Part 22: 1987
Performance	**Doorset B**	Integrity: 41 minutes Insulation: 41 minutes

3.2 Test report Chilt/RF07159

The referenced test report, the essential details of which are summarised below, is the primary data for the door designs A and E mock panel design being considered for assessment in this report.

Date of test		11th December 2007
Identification of test body:		Warringtonfire formerly known as Chiltern International Fire ltd
Sponsor:		KLW Wood Products
Tested Product:		Fully insulating single leaf and leaf and a half, latch and unlatched, single acting, timber doorset. For the purpose of the test the doorset were referenced 'A' and 'B'
Summary of test specimen:		Doorset A leaf dimensions: 2050mm (h) x 915/400mm (w) x 41mm (t). Doorset B leaf dimensions: 2050mm (h) x 915mm (w) x 44mm (t). Doorset A: Chipboard Core 35mm (t), Plywood facings 3mm (t), Oak vertical Lippings 6mm (t), Leaf hung in a European Redwood frame on 3No. Stainless steel lift off hinges. This door design can be seen in section 5.1.1 as Design A. Doorset B: Veneered Chipboard Core 25mm (t), Mock stile Chipboard facings 9mm (t), Oak vertical Lippings 6mm (t), Leaf hung in a European Redwood frame on 3No. Stainless steel lift off hinges. This door design can be seen in section 5.2.1 as Design E. The doorset was oriented to open towards heat conditions. The doorset included a tubular mortice latch, positioned at approximately mid-height of the doorset. Doorset A leaf was disengaged and Doorset B leaf was engaged for the duration of the test
Test Standard:		BS 476: Part 22: 1987
Performance	**Doorset A**	Integrity: 27 minutes[1] Insulation: 27 minutes
	Doorset B	Integrity: 41 minutes Insulation: 41 minutes

[1]The specimens failures identified above were all at the latch location, with no intumescent protection, no other failure was observed until after 30 minutes.

It is our opinion that any latch/lockset that complies with section 17.2 must be protected in line with the requirements of section 14 and will then achieve 30 minutes for integrity as long as all other aspects comply with this assessment.

3.3 Test report WF 393927

The referenced test report, the essential details of which are summarised below, is the primary data for the door designs A and C with glazing being considered for assessment in this report.

Date of test		4th January 2018
Identification of test body:		Warringtonfire
Sponsor:		KLW Wood Products
Tested Product:		Single leaf, unlatched, single acting, timber doorset. For the purpose of the test the doorset were referenced 'A' and 'B'
Summary of test specimen:		Doorset A leaf dimensions: 1981mm (h) x 762mm (w) x 44mm (t). Doorset B leaf dimensions: 1981mm (h) x 762mm (w) x 44mm (t). Doorset A: Veneered Particleboard Core 44mm (t), hardwood Lippings 7mm (t), fitted with Pilkington Pyroshield 2 Georgian Wired polished plate glass 6mm (t), with aluminium foil wrapped edges, aperture size 1721mm (h) x 562mm (w), with profile Oak beading 24mm (h) x 19mm (d). Leaf hung in a European Redwood frame on 3No. Stainless steel lift off hinges. This door design can be seen in section 5.1.3 as Design C Doorset B: Particleboard Core 25mm (t), Veneered Particleboard facings 9mm (t), Oak Lippings 6mm (t), fitted with Pilkington Pyroshield 2 Georgian Wired polished plate glass 6mm (t), with aluminium foil wrapped edges, aperture size 1721mm (h) x 562mm (w) with profile Oak beading 19mm (h) x 19mm (d). Leaf hung in a European Redwood frame on 3No. Stainless steel lift off hinges. This door design can be seen in section 5.1.1 as Design A. Both doorsets was oriented to open towards heat conditions. The doorset included a tubular mortice latch, positioned at approximately mid-height of the doorset. The leaves were disengaged for the duration of the test
Test Standard:		BS 476: Part 22: 1987
Performance	**Doorset A**	Integrity: 27 minutes[1] Insulation: 0 minutes
	Doorset B	Integrity: 33 minutes Insulation: 0 minutes

[1]In WF 393927 the first glazing failure in doorset A was at 35 minutes and at 33 minutes in doorset B. Based on an aperture of 0.562m by 1.721m being successfully tested, the maximum pane area for both single and multipane applications can be increased to 0.96m^2.

3.4 Test report Chilt/IF08080

The referenced test report, the essential details of which are summarised below, is the supplementary data for Pilkington Pyroshield glazing being considered for assessment in this report.

Date of test		10th February 2009
Identification of test body:		Warringtonfire formerly known as Chiltern International Fire ltd
Sponsor:		KLW Wood Products
Tested Product:		Section of leaf, unlatched, single acting, timber doorset. For the purpose of the test the doorset was referenced 'A'.
Summary of test specimen:		Leaf dimensions: 990mm (h) x 915mm (w) x 43mm (t). Doorset A: Chipboard Core 43mm (t), hardwood Lippings vertical edges 6mm (t), fitted with Pilkington Pyroshield glazing 6mm (t), aperture size 790mm (h) x 715mm (w), incorporating Sapele glazing bead 22mm (h) x 17mm (d) including a 5mm x 5mm bolection return with 17mm upstand and a 20Deg chamfer, fitted with 2mm (t) Intumescent Seals Ltd Fireglaze mastic between the glass and bead on both sides. Leaf hung in a European Redwood frame on 2No. Stainless steel lift off hinges. This door design can be seen in section 5.1.2 as Design B. No latch was fitted in the specimen. The handle was wired shut until intumescent seals had reacted.
Test Standard:		To the conditions given in BS 476: Part 22: 1987, the full requirements of the test standard were not complied with.
Performance	**Doorset A**	Integrity: 34 minutes[1] Insulation: 34 minutes

[1]Test Chilt/IF08080 used to justify increased maximum glazed area from 0.2m^2 up to 0.57m^2. The area has now been increased based on WF 393927. Glazing systems must be in accordance with the details outlined in section 10 and appendix B of this assessment.

3.5 Test report Chilt/IF09014

The referenced test report, the essential details of which are summarised below, is the supplementary data for CFG Toughened glazing being considered for assessment in this report.

Date of test		25th February 2009
Identification of test body:		Warringtonfire formerly known as Chiltern International Fire ltd
Sponsor:		KLW Wood Products
Tested Product:		Section of leaf, unlatched, single acting, timber doorset. For the purpose of the test the doorset was referenced 'A'.
Summary of test specimen:		Leaf dimensions: 990mm (h) x 906mm (w) x 44mm (t). Doorset A: Chipboard Core 44mm (t), hardwood Lippings vertical edges 6mm (t), fitted with CFG Toughened glass 6mm (t), aperture size 790mm (h) x 715mm (w), incorporating Sapele glazing bead 22mm (h) x 17mm (d) including a 5mm x 5mm bolection return with 17mm upstand and a 20Deg chamfer, fitted with 2mm (t) Intumescent Seals Ltd There-A-Strip between the glass and bead on both sides and aluminium foil was fitted to the edge of the glass projecting 11mm on each face. Leaf hung in a European Redwood frame on 2No. Stainless steel lift off hinges. This door design can be seen in section 5.1.2 as Design B. No latch was fitted in the specimen. The handle was wired shut until intumescent seals had reacted.
Test Standard:		To the conditions given in BS 476: Part 22: 1987, the full requirements of the test standard were not complied with.
Performance	**Doorset A**	Integrity: 35 minutes[1] Insulation: 35 minutes

[1] Test Chilt/IF09014 used to justify increased maximum glazed area from 0.2m^2 up to 0.57m^2 and the use of CFG toughened glass. Note: Based on the testing conducted in WF393927 the maximum glazed area has been further increased to 0.96m^2.

When using 6mm CFG toughened glass particular care should be taken when glazing it and must be in accordance with details in section 10.2

3.6 Test report WF 423349 Doorset B

The referenced test report, the essential details of which are summarised below, is the primary data for a sampled test of the door design C used for certification being considered for assessment in this report.

Date of test		31st January 2020
Identification of test body:		Warringtonfire
Sponsor:		KLW Wood Products
Tested Product:		Single leaf, latched, single acting, timber doorset.
Sampling		The sampling took place on the 26th-27th November 2019 by Steve Bell a BMT representative.
Summary of test specimen:		Doorset leaf dimensions: 2040mm (h) x 926mm (w) x 44mm (t). Core: Veneered Particleboard Core 44mm (t), White Oak Lippings 6mm (t) and 7No vertical and 2No horizontal White Oak decorative groove inserts 18mm (w) x 7 (t) with a 10mm (w) x 4mm (d) groove. Leaf hung in a White Oak frame measuring 30mm (t) x 100mm (d) including a 15 by 47 integral stop on 3No. Stainless Assa Abloy butt hinges. 1No. 15 x 4 Lorient Polyproducts Ltd LP1504 Type 617 seal fitted in the frame head and jambs reveal. This door design can be seen in section 5.1.3 as Design C The doorset was oriented to open towards heat conditions. The doorset included a mortice latch, positioned at approximately mid-height of the doorset. The leaves were engaged for the duration of the test
Test Standard:		BS 476: Part 22: 1987
Performance	**Doorset B**	Integrity: 45 minutes Insulation: 45 minutes

Doorset A from this test has not be cited in this assessment due to the failure occurring at 19 minutes which has been attributed to a perimeter intumescent seal issue. Doorset A does not match any of the doorset designs currently listed in this assessment and therefore does not change the scope currently provided in this assessment.

4 Technical Specification

4.1 General

The technical specification for the proposed door assembly is given in the following sections and is based on the test evidence for the door design, summarised in section 3.

4.2 Intended use

The intended use of the proposed door assembly is summarised below:

A pedestrian doorset including any frame, door leaf or leaves which is provided to give a fire resisting capability when used for the closing of permanent openings in fire resisting separating elements, which together with the building hardware and any seals (whether provided for the purpose of fire resistance or smoke control or for other purposes such as draught or acoustics) which form the assembly.

5 Description of Construction

The constructions for door leaves covered by this assessment are divided into the following categories and comprise the following designs:

5.1 Flat Leaves

5.1.1 Design A – 41 mm thick

Element	Species/Type	Dimensions (mm)	Density (kg/m^3)
Core	Chipboard	35 thick	650
Facings	Plywood	3 thick	400
Lippings – vertical edges only	Hardwood	6 thick	500

5.1.2 Design B – (44mm thick)

Element	Species/Type	Dimensions (mm)	Density (kg/m^3)
Core	Chipboard	44 thick	650
Lippings – vertical edges only	Hardwood	6 thick	500

5.1.3 Design C – (44 thick) with decorative Inlay

Element	Species/Type		Dimensions (mm)	Density (kg/m³)
Core	Veneered particleboard		44 thick reduced to 30 thick under 7 thick decorative inlay	520-580
Decorative inlay	Hardwood		13.5 - 35 wide x 7 deep to each face incorporating grooves up to 10 wide x 4 deep	500
Adhesives	Lipping	PVAC	-	-
	Decorative inlay	PVAC	-	-
Lippings – vertical edges only	Hardwood		6 thick	500

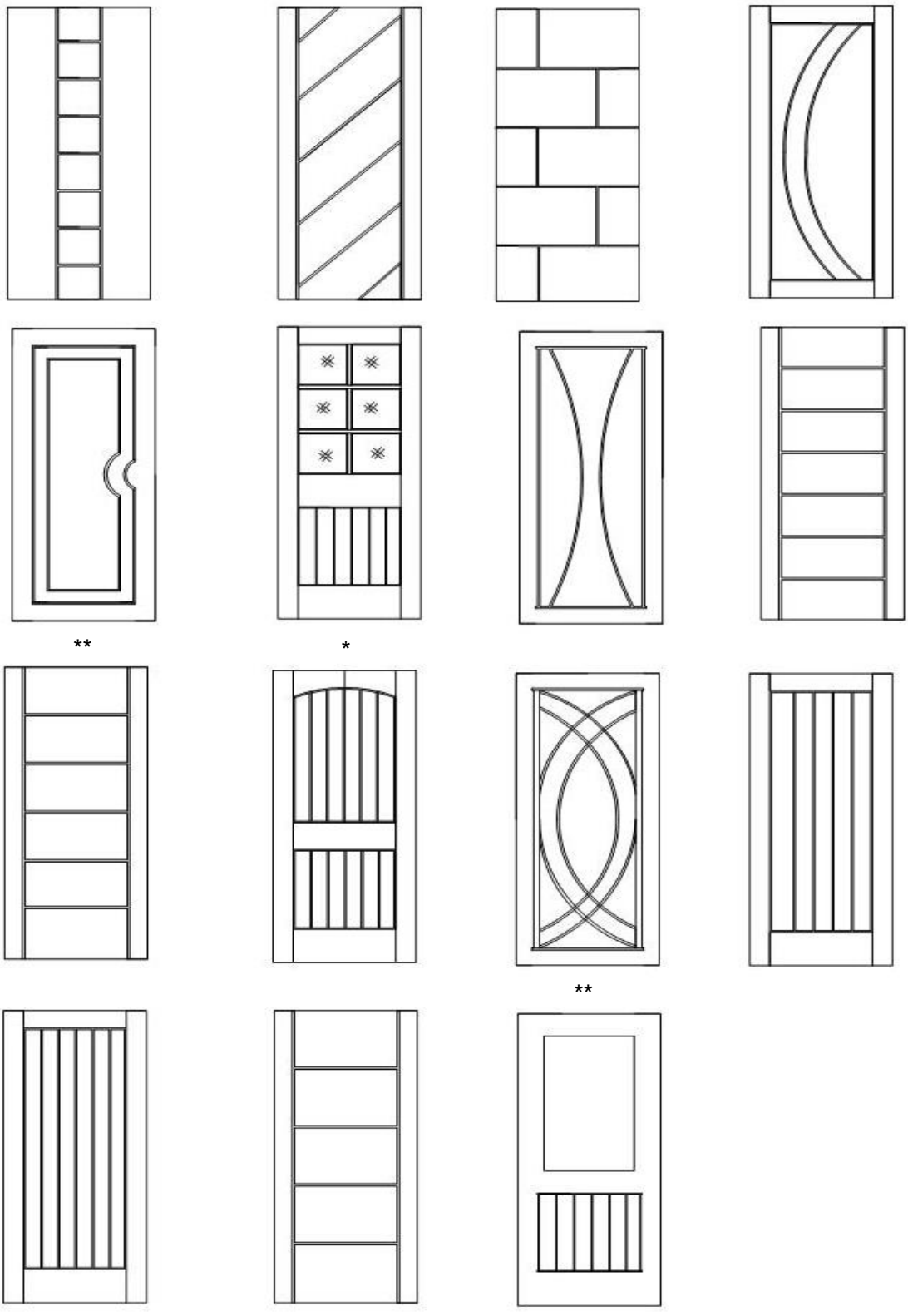
5.1.3.1 Specification for decorative grooves

The inlay for decorative grooves must be to the following specification:

Element	Details
Max. groove size (mm)	10 x 4 mm
Inlay size (mm)[1]	13.5 - 35mm x 7mm
Inlay material	Hardwood 700 kg/m³
Parallel Grooves	Must be a minimum of 64mm apart
Grooves Running to Edge of the Door Leaf	Maximum of 4 to long edges Maximum of 3 to short edges
Configuration	Latched and unlatched, single and double acting, single leaf doorsets
Leaf size range (mm)	As specified in appendix D
Intumescent seal dimensions (mm)	As specified in appendix D

[1]The inlay for grooves was tested at 13.5mm wide but extended to 35mm to accommodate curved groove designs. The increase to a 35mm wide inlay is permitted due to being located within the central section of the door leaf.

The following diagrams show the permitted groove designs.



**

*

**

Note:

*Limitation on glass type see section 10.5 point 4.

**A maximum 35mm wide inlay is permitted to enable both the semi-circular groove designs where they meet the vertical grooves.

5.1.4 Design D (50mm thick)

Element	Species/Type	Dimensions (mm)	Density (kg/m³)
Core	Chipboard	44 thick	650
Facings	Plywood	3.2 thick	650
Lippings – vertical edges only	Oak	6 thick	500

It is the opinion of Warringtonfire that plywood can be bonded to the faces of the door leaf with no adverse effect on the fire resistance performance. See section 15 for facing adhesive

5.2 Applied Panel Feature Leaves (44mm thick)

5.2.1 Design E – Chipboard faced Mock stiles and rails with flat panels

Element	Species/Type	Dimensions (mm)	Density (kg/m³)
Core	Veneered chipboard	25 thick	650
Facings (mock stiles and rails)	Chipboard bonded at the edges of the leaf creating a panelled effect	Top & verticals 9 x 110 wide. Bottom 9 x 160 wide	400
Lippings – vertical edges only	Hardwood	6 thick	500

For number of panels see section 13.2.1

5.2.2 Design F – Oak veneered chipboard faced Mock stile and rail with vertical bars

Element	Species/Type	Dimensions (mm)	Density (kg/m³)
Core	Veneered chipboard	25 thick	650
Facings (mock stiles and rails)	Hardwood veneered Chipboard with hardwood lipping bonded at the edges of the leaf creating a panelled effect	Top & verticals 9 x 110 wide. Bottom 9 x 160 wide	400
Vertical applied bars	Hardwood bead	16 x 9.5	
Lippings – vertical edges only	Hardwood	6 thick	500

For number of panels see section 13.2.1.

5.2.3 Design G – Oak veneered chipboard faced Mock stile and rail with Raised and fielded panels

Element	Species/Type	Dimensions (mm)	Density (kg/m^3)
Panel Facing	Hardwood veneered MDF	6.5 thick reducing to 2 at perimeter	400
Core	chipboard	25 thick reduced to 21 in panel area	650
Facings (mock stiles and rails)	Hardwood veneered Chipboard with hardwood lipping bonded at the edges of the leaf creating a panelled effect	Top & verticals 9 x 110 wide. Bottom 9 x 160 wide	400
Beads around panel perimeter	Hardwood bead	16 x 9.5	
Lippings – vertical edges only	Hardwood	6 thick	500

For number of panels see section 13.2.1.

6 Leaf Sizes

Assessment for increased leaf dimensions is based on the design's performance and the characteristics exhibited during test. Data sheets specifying the maximum assessed leaf sizes and graphs showing the permitted gradient between maximum height and width are contained in appendix D.

- For Flat leaves - designs A, B and D see Pages 45 and 47.
- For Flat leaves - Design C see Page 46.
- For Applied Panel feature leaves - Designs E, F and G see Page 48.

Doorsets containing leaves with smaller dimensions than those stated in Appendix D are deemed to be less onerous and are therefore automatically covered.

7 Configurations and Orientation

7.1 Configurations

Based on the test evidence listed in Section 3, this assessment covers the following doorset configurations:

Abbreviation	Description	Design
LSASD	Latched, single acting, single doorset	Flat leaf and Applied Panel Feature leaf
ULSASD	Unlatched, single acting, single doorset	Flat leaf
DASD	Double acting, single doorset (with timber frames only see Section 10)	Flat leaf
LSADD & ULSADD	Latched & unlatched, single acting, double doorset	Flat leaf
DADD	Double acting, double doorset (with timber frames only see Section 10)	Flat leaf

Unequal leaf double doorsets are covered by this assessment with no restriction on the smaller leaf dimension.

7.2 Orientation

The primary fire resistance tests for the design were conducted with the doorset hung such that the door leaf opened towards the fire, which is considered the most onerous orientation in terms of fire resistance performance. Based on this testing, assessment is made that doorsets to this design may be hung to open either away from or towards the fire risk side of the doorset.

8 Leaf Size Adjustment

Door leaves of this design may be altered as follows:

Element	Reduction
Flat Leaf Designs	The manufactured size of the leaf may be reduced in height or width without restriction
Applied Panel Designs	The manufactured size of the leaf may be reduced in height or width without restriction, subject to maintaining the minimum width of mock simulated stiles and rails tested (see section 5.2)
Lipping – All designs	The dimensions stated in section 12.1 may be reduced by 20% for fitting purposes

9 Overpanels

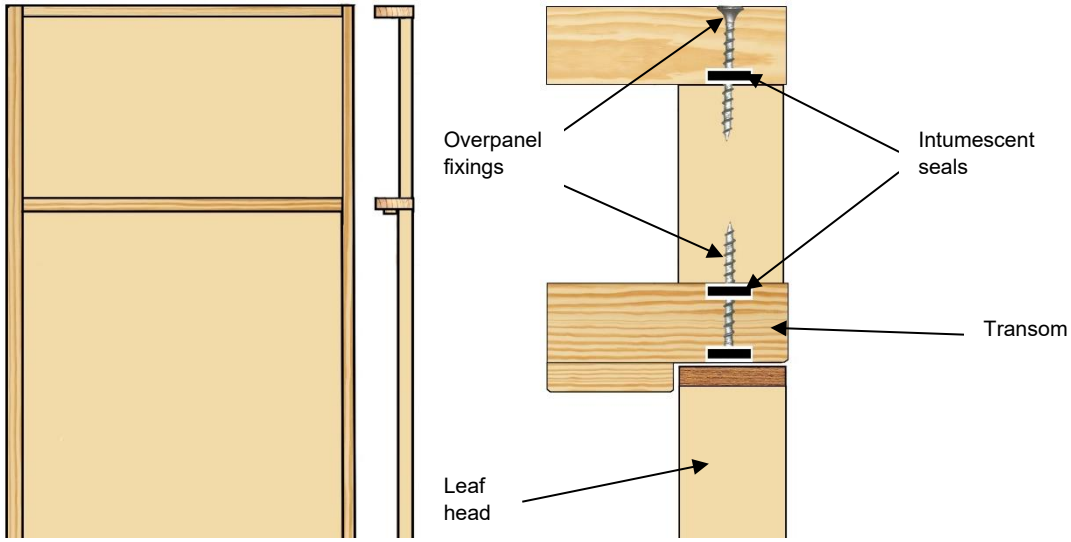
Overpanels of the same construction as the door leaves may be used with these doorset designs, only when separated from the leaves by a transom. The overpanel must be fully contained within the door frame (see following diagram).

As a transom is required to separate the leaf heads from the overpanel, it must be to the same specification as the door frame (see the note under the table in section 11.1).

MDF must not be used for doorsets with overpanels.

Door frame joints must utilise one of the following four methods: mortise and tenon joints; half lapped joints; mitre joints; butt joints (see section 11.2).

All methods require joints to be tight, with no gaps, and require mechanical fixing with the appropriate size ring shank nails or screws. Butt joints must be additionally bonded with urea formaldehyde or equivalent.



Note: Drawing is representative of doorset construction; actual construction must be as the text within this document specifies.

Overpanels must be fixed by:

- Screwing through the rear of the frame with steel screws passing at least 40mm into the centre line of the overpanel. Fixings must be no more than 100mm from each corner and a maximum of 250mm centres in between.

Maximum overpanel heights are as follows:

- Single doorsets - 2000mm;
- Double doorsets - 1500mm.

The intumescent seals specified for the jambs in appendix D, must be fitted in the concealed edges of the overpanel or frame reveal.

10 Glazing

10.1 General

Applied panel designs cannot accept glazing

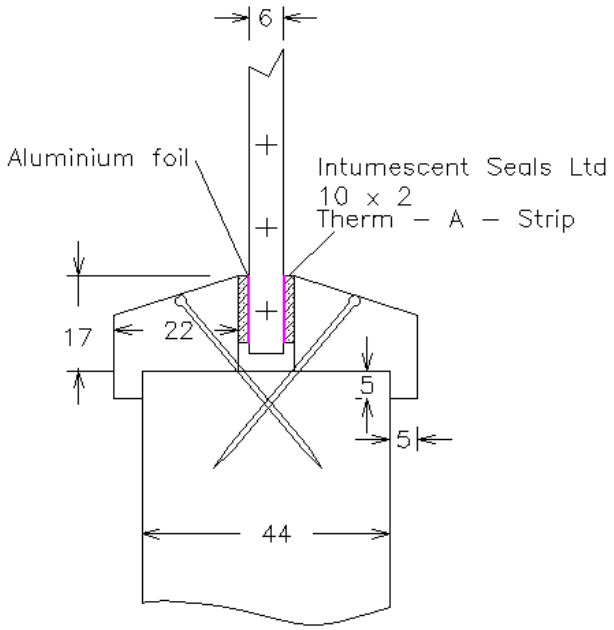
The testing conducted on the flat door designs A has demonstrated that these designs are capable of tolerating glazed apertures within the following parameters:

- Based on WF393927 the total maximum assessed glazed area for multiple apertures is 0.96m^2.
- The maximum assessed glazed area for a single aperture is 0.96m^2
- Doorset design B is not assessed for glazing.
- The glazing system may be the tested system shown in section 10.2, or one of the proprietary systems shown in section 10.3 and detailed in Appendix B.
- The glazing must not be within 100mm of the door edge and multiple apertures must be separated by 100mm of the full thickness core
- The glazing system for CFG toughened glass must meet that detailed in section 10.2
- For alternative glass types and glazing systems, see section 10.3.

10.2 CFG Toughened Glass and Glazing System

The glazing system tested in Chilt/IF09014 must be installed exactly as tested, and illustrated below:

1. Hardwood (min. density 640kg/m³) glazing beads 22mm high x 17mm deep with a 20° chamfer and a 5mm x 5mm bolection return.
2. Beads must be retained in position with 40mm long steel pins, inserted at 30° to the vertical and at no more than 50mm from each corner and at 150mm maximum centres.
3. Aluminium foil must be used between the intumescent material and face of the glass. The foil must finish flush with the top of the bead.
4. The glass must be fitted with maximum 14mm edge cover.
5. The glass must be fitted to allow for 3mm expansion on all edges.
6. Aperture shape is not restricted, providing the glazing system and beads are compatible with that shape.
7. Timber for glazing beads must be hardwood with density greater than 640kg/m³, and straight grained, joinery quality, free from knots, splits and checks.



10.3 Assessed Glazing Systems

The glazing system may be as tested, or alternatively one of the following tested proprietary systems:

Glazing System	Manufacturer
1. Therm-A-Strip 30	Intumescent Seals Ltd.
2. Fireglaze 30	Sealmaster Ltd.
3. Firestrip 30	Hodgsons Sealants Ltd.
4. Pyroglaze 30	Mann McGowan Ltd.
5. System 36	Lorient Polyproducts Ltd.
6. FF1	Lorient Polyproducts Ltd.
7. R8913	Pyroplex

10.4 Assessed Glass Products

Assessed glass types are as follows:

Glass Type	Manufacturer	Thickness (mm)	Max. Area (m^2)
1. Pyroshield	Pilkington UK Ltd.	6 & 7	0.96
2. Pyroshield 2	Pilkington UK Ltd.	6 & 7	0.96
3. Pyran S	Schott Glass Ltd.	6	0.96
4. Pyrostem	Pyroguard UK Ltd.	6	0.96
5. Pyroguard EW 30	Pyroguard UK Ltd.	7	0.87
6. Pyranova S3.07	Schott UK Ltd.	7	0.96
7. Pyrobelite 7	AGC Flat Glass UK	7	0.96
8. Pyrodur 30-104	Pilkington UK Ltd.	7	0.96
9. Pyrodur 60-10	Pilkington UK Ltd.	10	0.96
10. Pyroguard EW MAXI	Pyroguard UK Ltd.	11	0.58
11. Pyrobelite 12	AGC Flat Glass UK	12	0.96
12. Pyrodur 60-20	Pilkington UK Ltd.	13	0.96
13. Swissflam Lite	Vetrotech Saint Gobain	14	0.96
14. Pyranova 15-S2.0	Schott UK Ltd.	15	0.96
15. Pyroguard EI 30	Pyroguard UK Ltd.	15	0.57
16. Pyrostop 30-10	Pilkington UK Ltd.	15	0.96
17. Pyrobel 16	AGC Flat Glass UK	16	0.96
18. Toughened Glass	CFG	6	0.96

Notes:

1. All glass types must be fitted strictly in accordance with the manufacturers' tested details/installation requirements, particularly with reference to suitable tolerances for expansion of the glass pane;
2. Glass types 14-17 are fully insulating for 30 minutes in terms of the criteria set out in BS 476: Part 20: 1987.
3. For glass type 18 the glazing system detailed in section 10.2 must be followed exactly.

10.5 Glazing Beads and Installation

Glazing beads must be from hardwood as specified in the following table:

Material	Profile	Min. Density (kg/m³)	Application
Hardwood	Splayed	640	All proprietary systems detailed in section 10.3 and all glass types listed in section 10.4
Hardwood	Square See appendix B	640	Proprietary systems 1-3 detailed in section 10.3 with glass types 5 & 7-17 listed in section 10.4

1. The shape of glazed apertures is not restricted providing the glazing system can accommodate the profile.
2. All timber for glazing beads must be joinery quality, straight grained hardwood and free from splits, checks and knots.
3. Glazing beads must be retained in position with 40mm long No. 6 or 8 steel wood screws, inserted at 35-40º to the vertical at no more than 50mm from each corner and at 140mm maximum centres.
4. False timber beads may be applied to glass types 7-9 and 11-17 using one of the following intumescent glazing products:

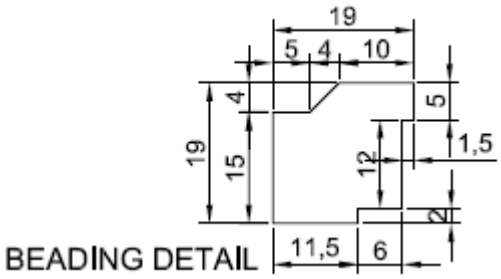
10.5.1 Glazing Systems for False Glazing Beads

Glazing System	Manufacturer
1. Therm-A-Strip 30	Intumescent Seals Ltd.
2. Fireglaze 30	Sealmaster Ltd.
3. Firestrip 30	Hodgson Sealants Ltd.
4. Envirograf Product 77 - G10/10	Intumescent Systems Ltd.

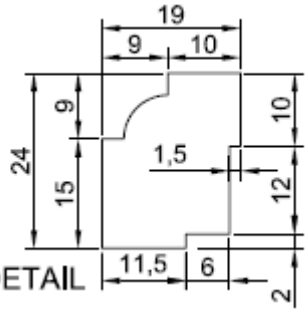
Seals for false glazing beads must be a minimum of 10mm wide x 0.5 - 3mm thick. Preformed strip systems 1-4 may be self adhesive and grooved into the rear of the glazing bars. Sectional drawings detailing the proprietary glazing systems are contained in appendix B.

10.5.2 Alternate Glazing Bead Profiles

Alternative beads tested in WF393272 to be used in conjunction with glasses listed in section 10.4 and the glazing material (10 x 2 Palusol and a 20 x 2 Palusol Liner) and fixing as detailed in WF393272.



BEADING DETAIL



BEADING DETAIL

11 Door Frames

11.1 Door Frame Construction

Door frames for these doorset designs may be timber or MDF as follows:

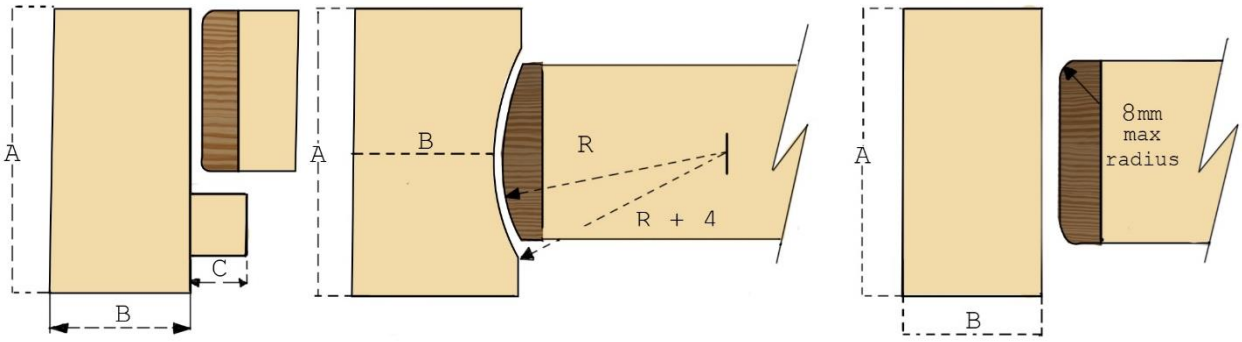
Material	**Section Size excluding stop** (mm)	**Min. Density** (kg/m³)	**Application**
Softwood	70 x 32	510	All configurations
MDF	70 x 30	700	LSASD, ULSASD, LSADD and ULSADD
Hardwood	70 x 32	510	All configurations

1. All door frame timber must meet or exceed class J30 as specified in BS EN 942: 2007 (subject to adequate repair of any defects).
2. MDF frames are not permitted for double acting doorsets or when overpanels present.
3. A 12mm deep planted stop is adequate for single acting frames whilst double acting frames may be scalloped or square (see diagram below).
4. Frame joints may be mortice and tenoned, mitred, half lapped or butted and with no gaps (see section 11.2). All jointing methods require mechanical fixing with the appropriate size ring shank nails or screws.

The following diagram depicts the assessed frame profiles and dimensions:

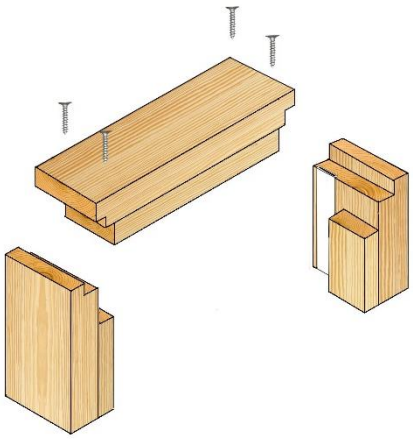
A = min. 70mm B = min. 30-32mm C = min. 12mm

R = radius from floor spring 8mm max radius to create a maximum 2mm edge profiling

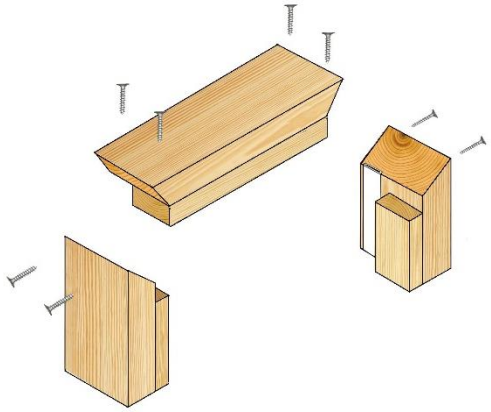


Standard **Scalloped** **Profiled edges**

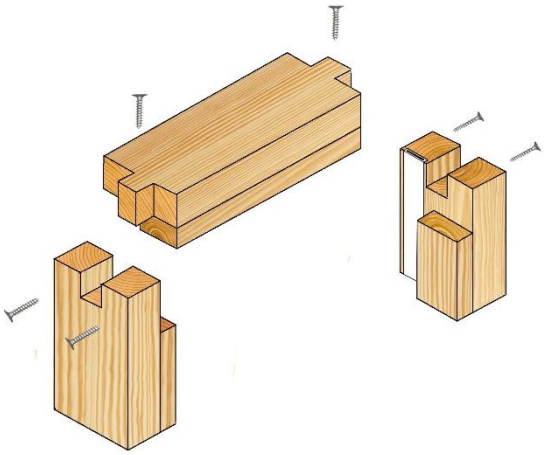
11.2 Door Frame Joints



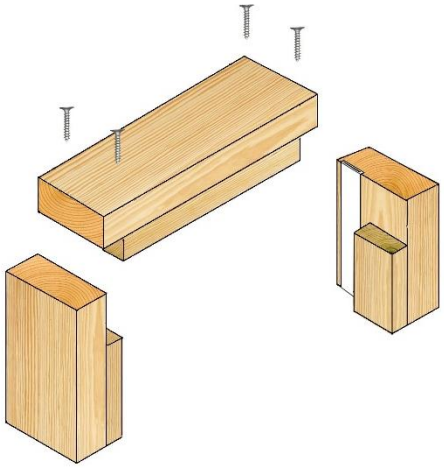
Half Lapped Joint



Mitre Joint



Mortice and Tenon Joint

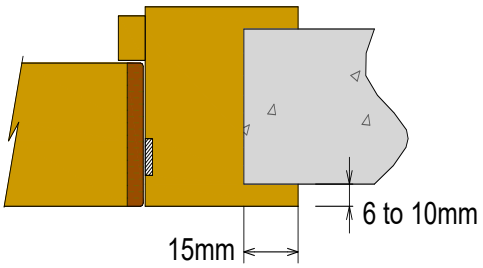
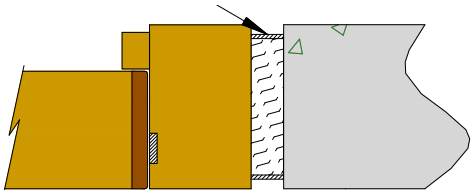
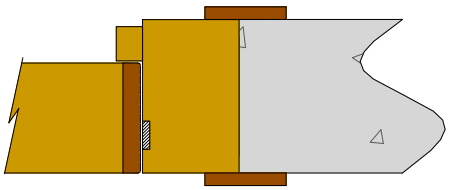
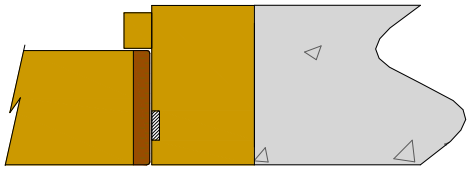
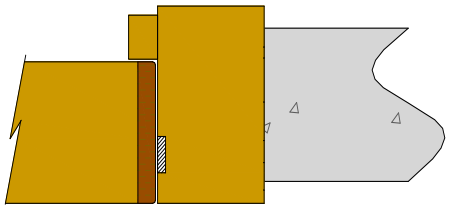
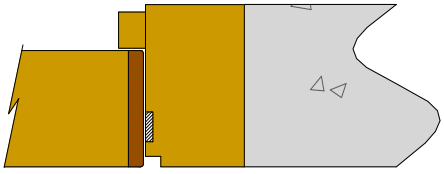


Butt Joint

Note: Drawing is representative of each type of door frame joint; actual construction in terms of intumescent seal location and material, etc. must be as the text within this document specifies.

11.3 Door Frame Installations

The following diagrams indicate acceptable and unacceptable door frame installations:

Permitted Installations	
	Max 10 x 10mm shadow gap with 2mm intumescent mastic capping or 10 x 4mm PVC encased intumescent seal 
6-10mm is the maximum a frame is permitted to be proud of the structural surround when combined with a 15mm bolection return. Projecting frames outside these dimensions will require specific test evidence or assessment.	Shadow gaps are permitted as shown in the above diagram providing the frame to structural surround is infilled with timber of the same density as the frame or a non combustible material such as plasterboard. Other shadow gap dimensions will require specific test evidence or assessment.
	
Architraves overlapping the frame to structural surround junction are always permitted where required but may be mandatory depending on the size of frame to surround junction gap and the fire stopping used. See section on Sealing to the Structural Surround.	Depending on the size of the frame to surround junction gap and the fire stopping methods used, it may be permitted to install doorsets without architraves. See section on Sealing to the Structural Surround.
Installations Not Permitted	
	
Projecting frames without bolection returns are not permitted without specific test evidence or assessment due to the potential for increased charring to the back of the frame.	Quirks between the leaf and frame are not permitted without specific test evidence or assessment due to the potential for increased charring of the leaf to frame gap.

12 Edging Materials

12.1 Timber Lippings

The assessed designs must be lipped in accordance with the following specification:

Material	Size (mm)	Min. Density (kg/m³)
Timber for lippings must meet or exceed class J30 as specified in BS EN 942: 2007 (subject to adequate repair of any defects)	Square = 6mm to 11mm thick	500
	Rounded = 8mm-13mm thick with a maximum of 2mm profiling permitted at corners of lipping (see section 11.1)	
	Rebated = Not permitted	

Notes:

1. Single & double doorsets must be lipped on the vertical edges, but may be lipped on all edges if required.
2. A 2.5^0 chamfer is permitted to the lipping at the leading edge of leaves providing the door gaps meet the requirements of section 18.

13 Leaf Facing Materials

13.1 Design A – Flat Leaves (41mm thick)

The following alternative facing materials have been assessed as suitable for use with this door design:

Material	**Minimum Density** (kg/m³)	**Thickness** (mm)
Plywood	600	3
Chipboard	650	3
MDF	700	3

13.2 Designs E – G - Applied Panel Feature Leaves (44mm thick)

The following dimensions for mock facings to create panel features have been assessed as suitable for use with this door design type:

Element	**Dimensions** (mm)
Top rail	9 thick x 100-150 wide
Stiles	9 thick x 100-150 wide
Bottom rail	9 thick x 150-250 wide
Intermediate framing	9 thick x 60-150 wide

13.2.1 Variation to Construction

The following variation to the construction of these designs has been assessed as suitable:

1. Door leaves may be constructed to simulate a minimum of one, and a maximum of ten panels.
2. In addition to the flat panel design tested, a raised and fielded option is acceptable. The area between the simulated framing may be recessed to a maximum of 3.5mm each side of the door and a raised & fielded panel may be bonded to the following specification:

Material	**Min. Density** (kg/m³)	**Dimensions** (mm)	**Fixing Method**
MDF	700	Min. 4 thick, raised to max. 12 thick	Bonding with UF

3. Any profile of MDF or timber moulding up to dimensions of 30mm x 30mm may be surface applied.

13.3 Decorative and Protective Facings

The following additional facing materials are permitted for all door designs (A, B & C) since they would degrade rapidly under test conditions without significant effect:

Facing Material	**Maximum Permitted Thickness** (mm)
Paint	0.5
Timber veneers	2
PVC/plastic laminates	2
Cellulosic and non-metallic foils	0.5

Notes:

1. Metallic facings are not permitted except for push plates and kick plates.
2. Materials must not conceal intumescent strips.
3. PVC/plastic laminates must not be applied to the edges of leaves.

14 Intumescent Material

It is important that the type, size and fitting detail for the intumescent seals remains as tested. These products can often exhibit significantly different characteristics, which could alter the performances obtained during test, and therefore they must not be considered interchangeable, irrespective of whether the product has been tested and the seal dimensions are maintained.

The intumescent materials tested for this doorset design are as follows:

Application	**Location**	**Product/Manufacturer**	**Size** (mm)
Edge seals	See appendix D	Lorient Polyproducts Ltd. - Type 617	See appendix D[1]
Locks/ latches	Under latch keep & face plates and around the body of the latch	Lorient Polyproducts Ltd. – MAP paper; Dufaylite Development Ltd. – Interdens; Sealmaster Ltd. – G30; Intumescent Seals Ltd. – Therm-A-Strip.	1 thick
Hinges	Under both blades for leaves taller than 2300mm	Lorient Polyproducts Ltd. – MAP paper; Dufaylite Development Ltd. – Interdens; Sealmaster Ltd. – G30; Intumescent Seals Ltd. – Therm-A-Strip.	1 thick
Flush bolts	Lining all sides of the mortice for body and keep	Lorient Polyproducts Ltd. – MAP paper; Dufaylite Development Ltd. – Interdens; Sealmaster Ltd. – G30; Intumescent Seals Ltd. – Therm-A-Strip	2 thick
Top Pivots and Floor springs	Lining all sides of the top pivot mortice & underneath the strap plates	Lorient Polyproducts Ltd. – MAP paper; Dufaylite Development Ltd. – Interdens; Sealmaster Ltd. – G30; Intumescent Seals Ltd. – Therm-A-Strip	2 thick

Notes:

1. The seal specification for each configuration is shown in appendix D.

15 Adhesives

The following adhesives must be used in construction:

Element	**Product/Manufacturer**
Core	Urea formaldehyde
Facings, simulated framing & applied panels	Urea formaldehyde
Lipping	PVAC

16 Tested Hardware

The following hardware has been successfully incorporated in the test on these designs:

Element	Make/type	Size (mm)
Hinges	3No. Royde & Tucker H105 Hi-load lift-off type hinges	100 x 35 (blade size)
Closer	Dorma Door Controls Ltd. TS73V surface-mounted overhead closer	233 x 60 (footprint size)
Locks/latches	Standard tubular mortise latch - disengaged	57 x 26 (forend size)
Furniture	Aluminium lever handle	100 x 38 (footprint size)

17 Additional & Alternative Hardware

17.1 General

The following sections detail a generic specification for hardware assessed for use with this doorset design.

17.2 Certifire

The Certifire third party certification scheme approves various items of hardware for different door types and different fire ratings and has its own set of requirements relating to that individual item of hardware.

Certifire approved hardware may be used as alternative to the tested hardware. Some items of hardware may be specifically excluded as a result of the doors performance in fire, if this is the case then this takes precedent over the Certifire certification.

Specifically the Certifire approved hardware must comply with the following

- It must comply with the requirements of the relevant following section e.g. hinges
- It must comply with the limitations specified for hardware in terms of design, material and dimensions
- Any other relevant requirement of this report take precedence.

17.3 CE Marking

The following items of hardware must also bear the CE mark:

- Single axis hinges: test standard EN 1935
- Controlled door closing devices: test standard EN 1154
- Electrically powered hold open devices: test standard EN 1155
- Door co-ordinators: test standard EN 1158
- Emergency exit hardware: test standard EN 179
- Panic exit hardware: test standard EN 1125.

17.4 Latches & Locks

Latches and locks must either be as tested, or alternatively components with the following specification are acceptable:

Maximum forend and strike plate dimensions	235mm high by 25mm wide by 4mm thick
Maximum body dimensions	165mm high by 100mm wide by 18mm thick
Intumescent protection	See section 14
Materials	All parts essential to the locking/latching action (including the latch bolt, forend and strike) to be steel
Position	800mm – 1200mm above threshold

17.5 Hinges

Door leaves must be hung on a minimum of 3 hinges, whilst doorsets containing leaves over 2400mm high must use 4 hinges. Products with the following specification are acceptable:

Blade height	90 – 120mm
Blade width (excluding knuckle)	30 – 35mm
Blade thickness	2.5 - 4mm
Fixings	Minimum of 4No. 30mm long No. 8 or No.10 steel wood screws per blade
Materials	Steel or stainless steel
Hinge positions (to top of blade)	Top: 120 – 180mm from the head 2nd and 3rd: Equispaced between top and bottom Bottom: 150 – 250mm from the foot
Intumescent protection	See section 14

17.6 Automatic Closing

Automatic closing devices, must either be as tested or components of equal specification that have demonstrated contribution to the required performance of these types of 30 minute doorset designs, when tested to BS 476: Part 22: 1987 or BS EN 1634-1.

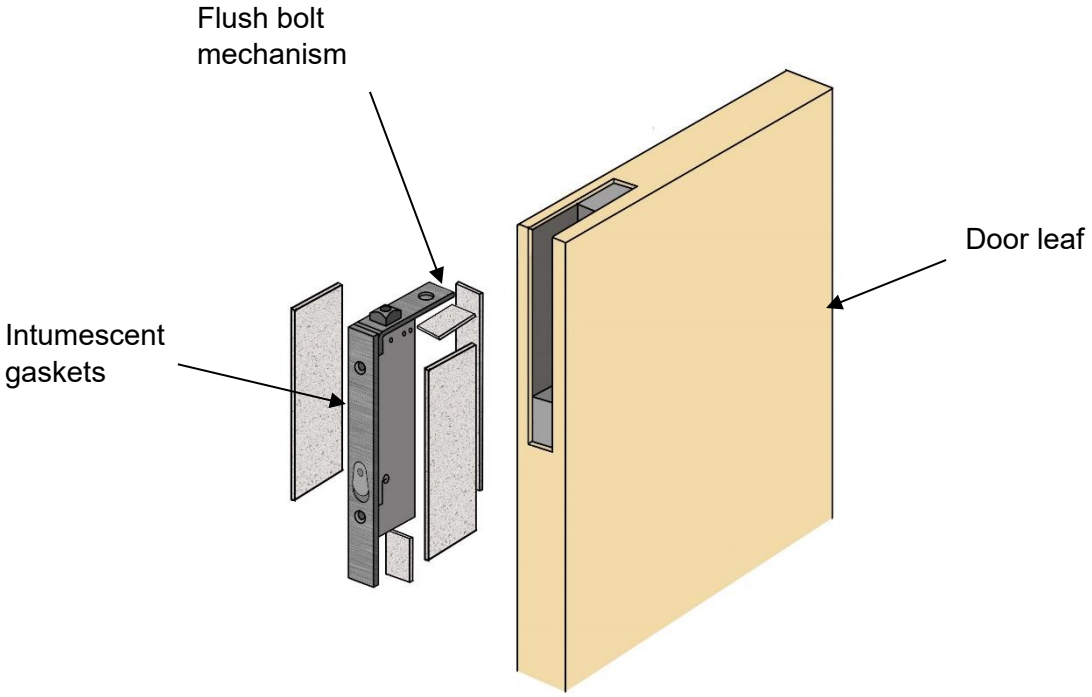
Note: The top pivots to floorspring assemblies must be protected with 2mm thick intumescent gasket (see section 14) or alternatively the manufacturers tested intumescent pack.

17.7 Flush Bolts

Flush bolts may be incorporated centrally into the top and bottom of one meeting edge, providing the following maximum dimensions are not exceeded and the components are fitted opposite the edge fitted with intumescent strips:

- 205mm long x 20mm deep x 22mm wide

Flush bolts must be steel or brass and the mortice must be as tight to the mechanism as is compatible with its operation. All edges of the mortices for the body and keep must be protected with intumescent gaskets as specified in section 14. Alternatively, the hardware manufacturers tested gaskets may be used.



17.8 Pull Handles

These may be surface-fixed to the door leaf provided that they are stainless steel, steel or brass (with a melting point greater than 800 deg C) and the length is limited to 1200mm between the fixing points. No additional intumescent protection is required provided that the hole for the bolt through the leaf is tight.

17.9 Push Plates/Kick Plates

Stainless steel, steel face and brass (melting point greater than 800 deg C)-fixed hardware such as push plates and kick plates may be fitted to the doorsets on both sides of the door leaf. These items of hardware are permitted up to a maximum of 20% of the door leaf area if mechanically fixed and a maximum of 30% if bonded with a contact or other thermally softening adhesive. Plates must not return around the door edges.

17.10 Door Security Viewers

Door security viewers with brass or steel bodies of a diameter less than or equal to 15mm may be used provided that the through-hole is bored tight to the case of the viewer (maximum tolerance +1mm). Lenses must be glass and the item must be bedded in to a tested intumescent mastic.

17.11 Panic Hardware

Panic hardware may be fitted, provided they have no combustible elements and that its installation does not require the removal of any timber from the leaf, stop or frame reveal and it in no way interferes with the self-closing action of the door leaf.

17.12 Environmental Seals

Silicon based flame retardant acoustic, weather and dust seals (e.g. Norsound 710, 720 and Lorient IS1212, IS1511, IS7025, IS7060) may be fitted to this doorset design without compromising the performance, providing their fitting does not interfere with the activation of the intumescent seals or hinder the self closing function of the leaves.

17.13 Threshold Seals

The following types of automatic threshold drop seals may be recessed in to the bottom rail of leaves to this design without compromising the performance:

Manufacturer	Product
Lorient Polyproducts	IS8010si
Pemko	411 – AR
Raven	RP8Si
Athmer	Sound-Ex Duo L-15
Norsound	810

17.14 Letter Boxes/Plates

Letter boxes/plates may be fitted providing the product can demonstrate contribution to the required performance of this type of 30 minute doorset design, when tested to BS 476: Part 22: 1987 or BS EN 1634-1, when installed within a timber based doorset of comparable thickness. Margins to the leaf edges must remain as detailed for glazing. The position of the letter box/plate will be dictated by the pressure regime tested in the proving evidence (normally below mid height). For doorset design B, letter plates must be fitted through 44mm thick framing, i.e. a mid-rail.

18 Classification of Timber

Other than as specified within specific sections of this report, timber must meet or exceed class J30 as specified in BS EN 942: 2007 (subject to adequate repair of any defects).

19 Door Gaps

For fire resistance performance, door gaps and alignment tolerances must fall within the following range:

Location	Dimensions
Door edge gaps	Representative of those tested but as a guideline, a minimum of 2mm and a maximum of 4mm
Alignment tolerances	Leaves must not be proud of each other or from the door frame by more than 1mm
Threshold	10mm between bottom of leaf and top of floor covering. For ambient smoke control tolerances refer to Section 24

20 Structural Opening

The supporting construction must be capable of staying in place and intact for the full period of fire resistance required from the doorset.

21 Fixings

The frame jambs are to be fixed to the supporting construction using steel fixings at 500mm maximum centres. The fixings must be of the appropriate type for the supporting construction and must penetrate to a minimum depth of 50mm. For doorsets without overpanels, it is not necessary to fix the frame head, although packers must be inserted.

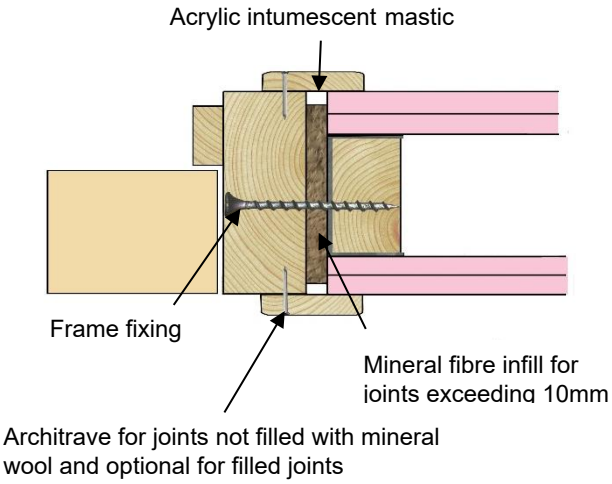
Where overpanels are fitted it will be necessary to secure the head of the frame using the fixing specification for the jambs as stated above.

22 Sealing to Structural Opening

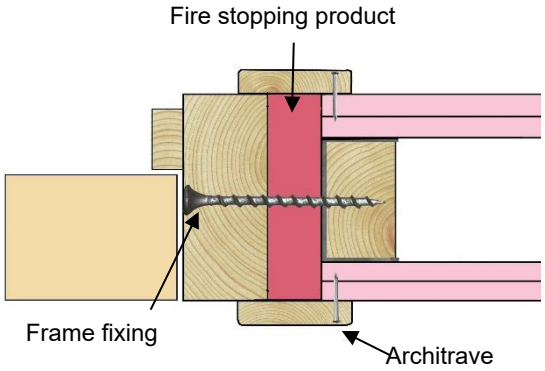
The door frame to structural opening gap must be protected using one of the following methods:

1. Gaps up to 10mm must be sealed on both sides with a 10mm depth of acrylic intumescent mastic, fire tested for this application to BS 476: Part 22: 1987 or BS EN 1634-1. Joint must be fitted with 15mm thick architraves overlapping at least 15mm each side.

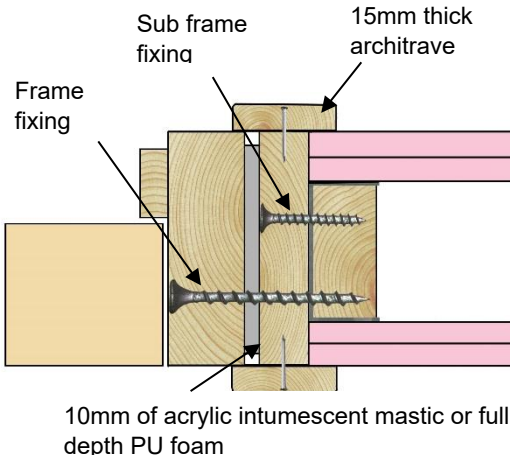
2. Gaps between 10mm and 20mm must be tightly packed with mineral fibre capped on both sides with a 10mm depth of acrylic intumescent mastic, fire tested for this application to BS 476: Part 22: 1987 or BS EN 1634-1. Architraves are optional.



3. Gaps up to 20mm filled with proprietary fire stopping product (e.g. expanding PU foam or preformed compressible intumescent foam). Products must be tested for this application to BS 476: Part 22: 1987 or BS EN 1634-1. Joint must be fitted with 15mm thick architraves overlapping at least 15mm each side.



4. Timber based or non-combustible subframe up to 50mm thick, with gaps up to 10mm between the components filled on both sides with 10mm depth of acrylic intumescent mastic or full depth expanding PU foam, fire tested for this application to BS 476: Part 22: 1987 or BS EN 1634-1 Joint must be fitted with 15mm thick architraves overlapping at least 15mm each side.



Note: Drawings are representative of doorset installation only; actual installations must be as the text within this document specifies.

22.1 Additional Guidance

Guidance for various methods of sealing the frame to structural opening gap is also given in BS 8214: 2016, "*Timber-based fire door assemblies. Code of practice*", which may be referred to where appropriate.

23 Insulation

Insulation performance may be claimed for a doorset to this design meeting the following:

Type	Details
Partially insulating	Doorsets with timber frames incorporating up to 20% of non-insulating glazing
Fully insulating	Doorsets unglazed or including 30 minute insulating glazing (see table 10.4 for fully insulated glasses)

24 Smoke Control

24.1 General

If the doorset design is required to provide a smoke control function to comply with Building Regulations, in the absence of a suitable pressurisation system, the doorset must meet one of the following criteria:

(a) have a leakage rate not exceeding 3m^3/m/hour (head and jambs only) when tested at 25Pa under BS 476 *Fire tests on building materials and structures*, Section 31.1 - *Methods for measuring smoke penetration through doorsets and shutter assemblies, Method of measurement under ambient temperature conditions*; or

(b) meet the additional classification requirement of Sa when tested to BS EN 1634-3: 2004 - *Fire resistance tests for door and shutter assemblies*, Part 3 – *Smoke control doors*.

Smoke seals or combined intumescent/smoke seals that are fitted to the door to achieve the performance requirements specified above must have been tested in accordance with the associated test method. Providing the smoke seals, any interruptions, door gaps, and the type/configuration of the doorset are consistent with the detail tested, the doorset will comply with current smoke control legislation under Approved Document B; and a suffix ‘S’ or ‘Sa’, as appropriate, may be added to the designation. Any other components installed where smoke leakage may occur must also be taken into account.

Note: The incorrect specification and fitting of smoke seals may impair the operation of a doorset and therefore compromise the fire resistance performance. Advice should be sought from the seal manufacturers regarding the correct specification and installation of smoke seals or combined smoke and intumescent seals.

24.2 Further Considerations

Note that there is other guidance available, including BS EN 9999-2017 - *Code of practice for fire safety in the design, management and use of buildings,* which may impose different or additional requirements, such as consideration of the gap between door leaf and threshold.

Responsibility for the appropriate smoke sealing specification and performance of the doors should be agreed between the relevant parties (i.e. specifier, manufacturer, contractor) prior to commencing manufacture and/or installation.

25 Conclusion

If the KLW Wood Products (M) Sdn Bhd doorset designs, constructed in accordance with the specification documented in this global assessment, were to be tested in accordance with BS 476: Part 22: 1987, it is the opinion of Warringtonfire that they would provide a minimum of 30 minutes integrity and insulation (subject to section 23).

26 Declaration by the Applicant

Report Chilt/08073 Revision G

1) We the undersigned confirm that we have read and comply with obligations placed on us by FTSG Resolution No. 82: 2001.

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

3) We agree to withdraw this assessment from circulation should the component or element of structure be the subject of a fire test to the Standard against which this assessment is being made.

4) We are not aware of any information that could adversely affect the conclusions of this assessment.

5) If we subsequently become aware of any such information we agree to ask the assessing authority to withdraw the assessment.

Signed:

Name:

For and on behalf of: **KLW Wood Products (M) Sdn Bhd**

27 Limitations

The following limitations apply to this assessment:

1) This field of application addresses itself solely to the elements and subjects discussed and do not cover any other criteria. All other details not specifically referred to should remain as tested or assessed.
2) This field of application report is issued on the basis of test data and information to hand at the time of issue. If contradictory evidence becomes available, Warringtonfire reserves the right to withdraw the report unconditionally but not retrospectively.
3) This field of application has been carried out in accordance with Fire Test Study Group Resolution No. 82: 2001.
4) Opinions and interpretation expressed herein are outside the scope of UKAS accreditation.
5) This field of application relates only to those aspects of design, materials and construction that influence the performance of the element(s) under fire resistance test conditions. It does not purport to be a complete specification ensuring fitness for purpose and long-term serviceability. It is the responsibility of the client to ensure that the element conforms to recognised good practice in all other respects and that, with the incorporation of the guidance given in this field of application, the element is suitable for its intended purpose.
6) This field of application report represents our opinion as to the performance likely to be demonstrated on a test in accordance with BS 476: Part 22: 1987, on the basis of the test evidence referred to in this report. We express no opinion as to whether that evidence, and/or this field of application would be regarded by any Building Control authority as sufficient for that or any other purpose. This field of application report is provided to the client for its own purposes and we cannot opine on whether it will be accepted by Building Control authorities or any other third parties for any purpose.
7) This report may only be reproduced in full. Extracts or abridgements of reports shall not be published without permission of Warringtonfire. All work and services carried out by Warringtonfire Testing and Certification Limited are subject to, and conducted in accordance with, the Standard Terms and Conditions of Warringtonfire Testing and Certification Limited, which are available at https://www.element.com/terms/terms-and-conditions or upon request.
8) The version/revision stated on the front of this field of application supersedes all previous versions/revisions and must be used to manufacture doorsets from the stated validity date on this front cover. Previous revisions of the Field of Application cannot be used once an updated Field of Application has been issued under a new revision.

28 Validity

1) The assessment valid until the date specified on the front cover, after which time it must be submitted to Warringtonfire for technical review and revalidation.

2) This assessment report is not valid unless it incorporates the declaration given in Section 26 duly signed by the applicant.

Signature:		
Name:	Liam Dunk	Dr Kevin Towler
Title:	Product Assessor	Senior Product Assessor

Appendix A

Performance Data

Primary Data

Report No.	Configuration	Leaf Size (mm)	Test Standard	Performance (mins)
Chilt/RF10105B Design C	ULSASD	1981x838x44	BS 476 Pt 22 1987	41
Chilt/RF07159	A – ULSADD (unequal pair–flat)	2050x915x41 + 2050x400x41	BS 476: Pt 22: 1987	27[1] (perimeter failure 40)
	B – LSASD (simulated panel)	2050x915x44	BS 476: Pt 22: 1987	41
WF 393927[2]	A - ULSASD (glazed Design A)	1981x 762x44	BS 476: Pt 22: 1987	27[1]
	B – ULSASD (glazed Design C)	1981x762x44	BS 476: Pt 22: 1987	33
WF423349	B – LSASD (Design C)	2040x926x44	BS 476: Pt 22: 1987	45

1. Assessment of Premature Failure

The specimens failures identified above were all at the latch location, with no intumescent protection, no other failure was observed until after 30 minutes.

It is our opinion that any latch/lockset that complies with section 17.2 must be protected in line with the requirements of section 14 and will then achieve 30 minutes for integrity as long as all other aspect comply with this assessment.

2. Increased Glazing

In WF 393927 the first glazing failure in doorset A was at 35 minutes and 33 minutes in doorset B. Based on an aperture of 0.562m by 1.721m being successfully tested, assessment is made that the maximum pane area for both single and multipane applications to be increased to 0.96m^2.

When using 6mm CFG modified toughened glass the glazing system must be in accordance with the details in section 10.2

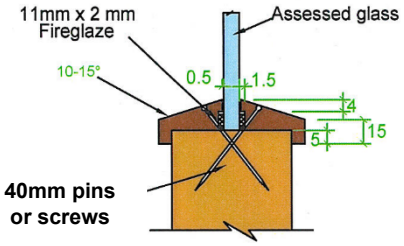
Supplementary Data

Report No.	Configuration	Leaf size (mm)	Test Standard	Performance (mins)
Chilt/IF08080	LSASD	990h x 915w x 43t	BS 476: Pt 22: 1987	34
Chilt/IF09014 (1)	LSASD	990h x 906w x 44t	BS 476: Pt 22: 1987	35

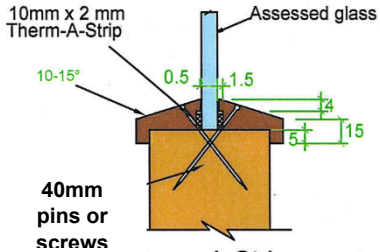
1 – Assessment of Alternative Glazing

Test Chilt/IF09014 used to justify the use of CFG modified toughened glass.

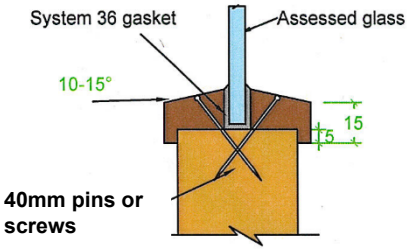
Appendix B
Proprietary 30 Minute Glazing Systems



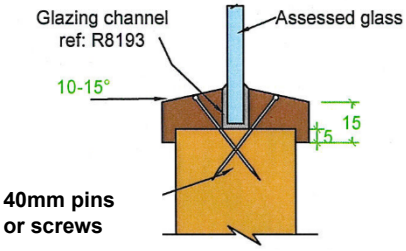
Fireglaze
Sealmaster Ltd



nerm-A-Strip
Intumescent Seals Ltd

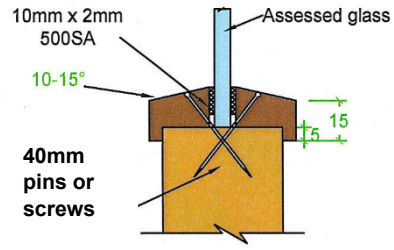


System 36
Lorient Polyproducts Ltd

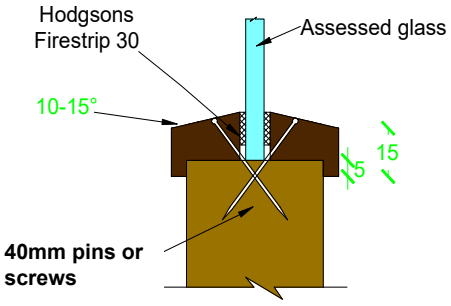


R8913

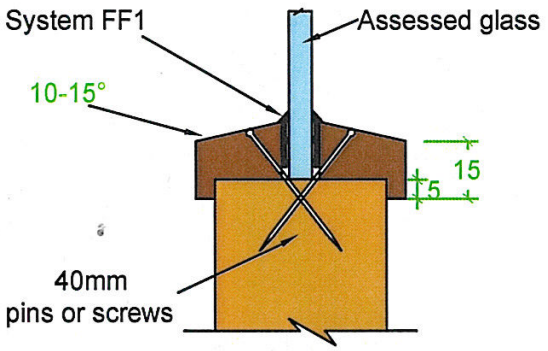
Pyroplex



Pyroglaze 30
Mann McGowan Ltd



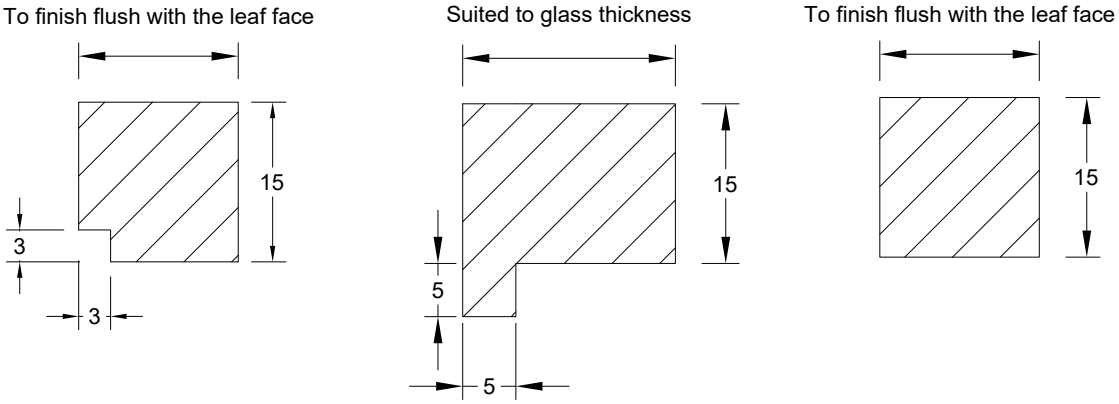
Firestrip 30
Hodgsons Sealants Ltd



System FF1
Lorient Polyproducts Ltd

Assessed Square Glazing Bead Profiles

(The following square bead profile may be used as an alternative to the splayed beads detailed above - refer to section 9 for glazing system and glass restrictions.)



Appendix C

Revisions and Amendments

Revision No.	Date	Description
A – CIFL Ref. 08172	09/09/2008	Inclusion of assessed 44mm thick solid particleboard doorsets – Design C.
B – CIFL Ref. 09090	12/06/2009	Inclusion of glass type and increase glazing size. Correction to graphs in appendix D of intumescent seal type.
C – CIFL Ref. 12309	27/03/2013	Review and revalidation with assessed inclusion of MDF door frames.
D – WF390116	6/04/2018	Technical review, updated to Exova Warringtonfire format and 5 year revalidation. Double acting doorsets design option removed with MDF frame. Test WF 393927 included specification for intumescent protection at latch position modified and changes to glazed areas and beads. New designs added and supporting test evidence for designs C, D, F and G
E - 417001	26/07/19	Updated into the new Warringtonfire format and to the general principles of BS EN 15725 and incorporate additional grooving options.
F - 418906	13/09/19	Removal of door design names within grooving section and the addition of 2 more grooved designs.
G - 433300	28/09/20	Incorporate test report WF423349 doorset B into the assessment as sampled test evidence of door design C.

Appendix D

Data Sheets for:

30 Minutes Fire Resisting Doorsets

KLW Wood Products - Flat leaf Door Designs

Latched & Unlatched, Single & Double Acting, Single Doorsets

Leaf Sizes	Configuration		Height (mm)		Width (mm)
	LSASD	From:	2050	x	1155
		To:	2569	x	915
	ULSASD & DASD	From:	2050	x	1130
		To:	2519	x	915
Maximum Overpanel Height (mm)		Transomed	2000		
Glazing		Maximum Glazed Area	0.96m^2 - see section 10 for details		
		Approved Systems	See section 10 and appendix B		
Frame Specification (see section 11)		Min. Section (mm) excluding stop	70 x 32	70 x 32	70 x 30
		Material	Softwood	Hardwood	MDF Not Double Acting
		Min. Density (kg/m^3)	510	510	700

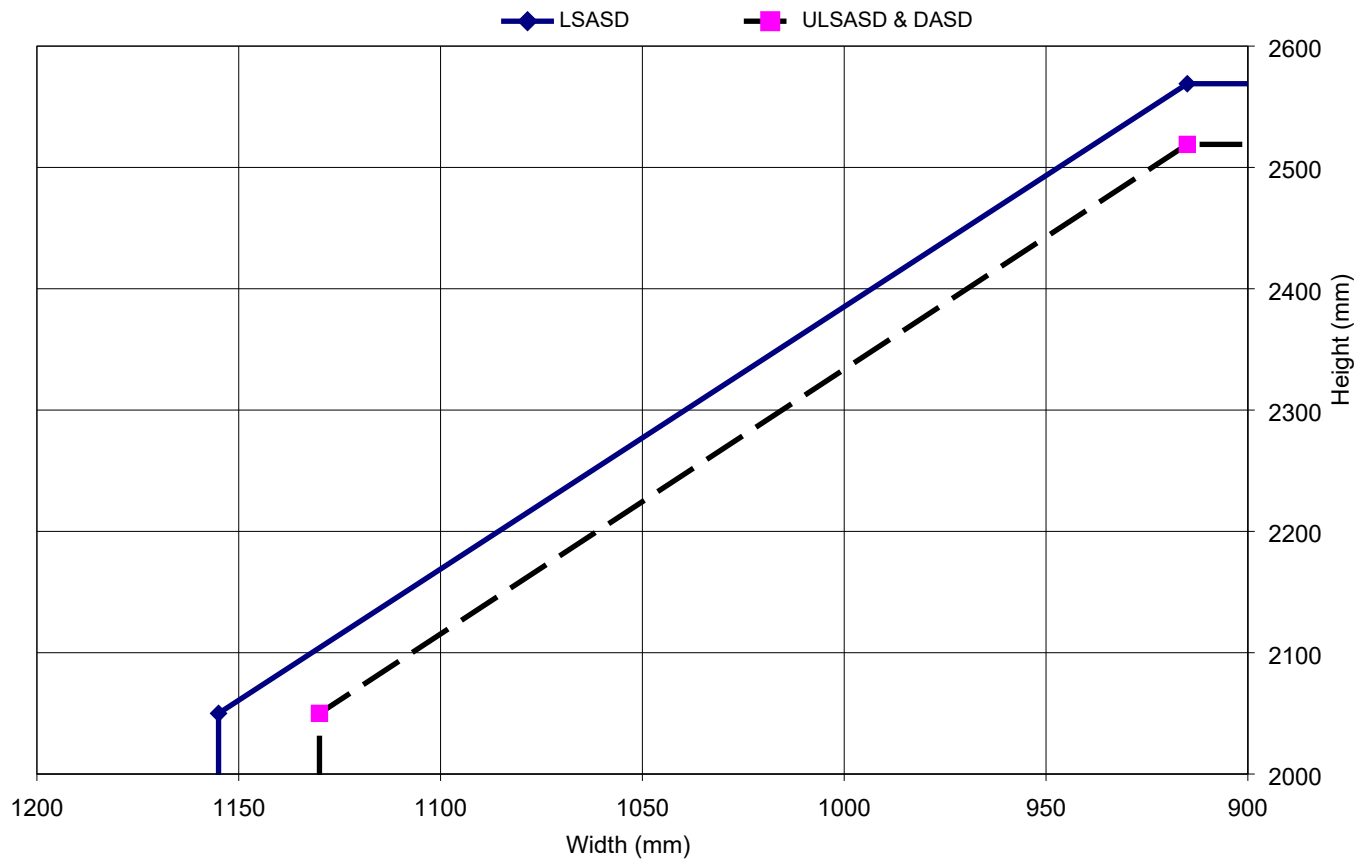
Intumescent Materials: Lorient Polyproducts Ltd. – Type 617

Head: 1No. 15x4mm strip fitted centrally in the frame reveal. For leaves over 2300mm high, increase to 20x4mm.

Jambs & Transomed Overpanel: 1No. 15x4mm fitted centrally in the frame reveal.

Hardware Protection: See section 14.

Maximum Door Leaf Size



KLW Wood Products - Flat leaf Door Designs with decorative groove design C

Latched & Unlatched, Single & Double Acting, Single Doorsets

Leaf Sizes	Configuration		Height (mm)		Width (mm)
	LSASD	From:	1981	x	1014
		To:	2388	x	838
	ULSASD & DASD	From:	1981	x	989
		To:	2338	x	838
Maximum Overpanel Height (mm)		Transomed	2000		
Glazing		Maximum Glazed Area	0.96m^2 - see section 10 for details		
		Approved Systems	See section 10 and appendix B		
Frame Specification (see section 11)		Min. Section (mm) excluding stop	70 x 32	70 x 32	70 x 30
		Material	Softwood	Hardwood	MDF Not Double Acting
		Min. Density (kg/m^3)	510	510	700

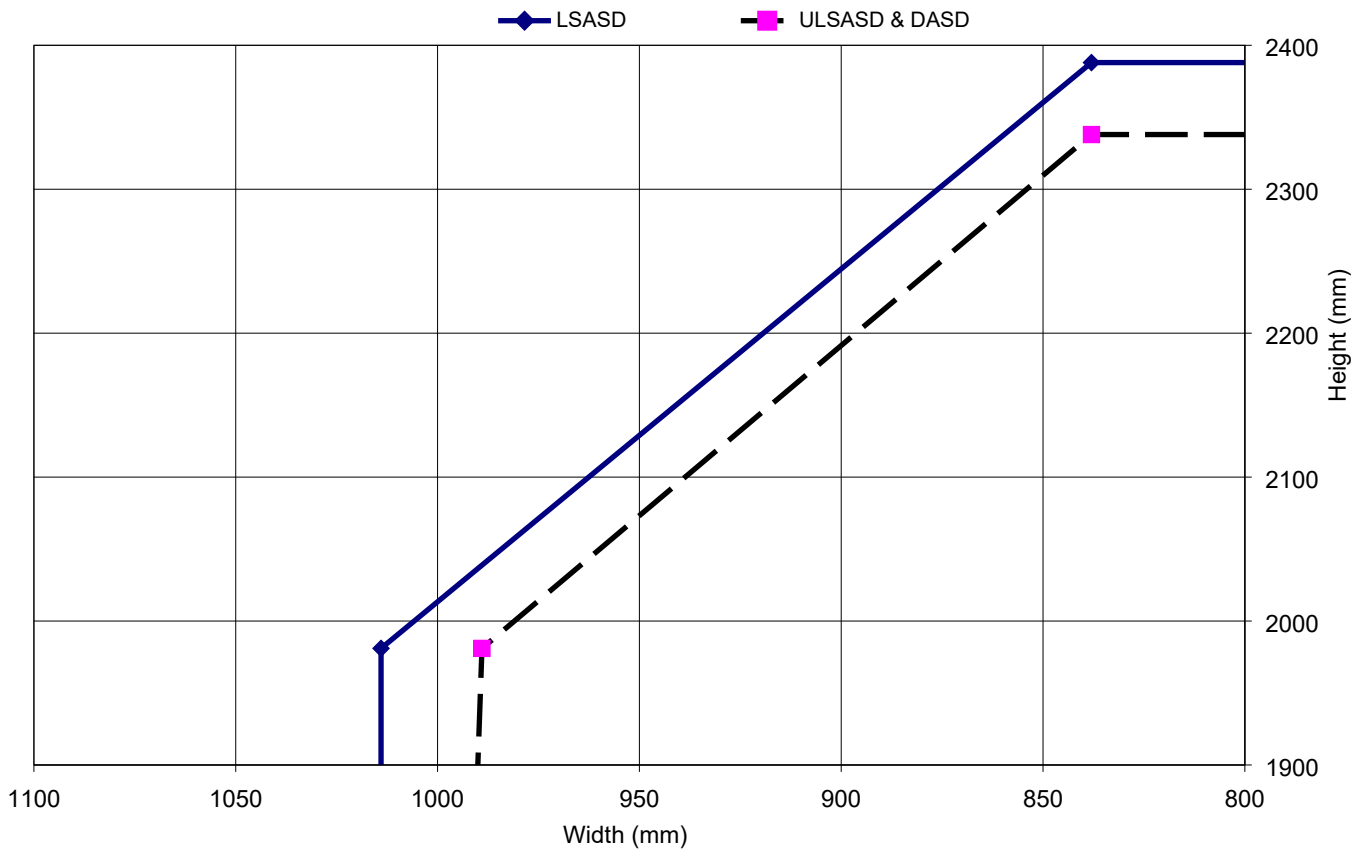
Intumescent Materials: Lorient Polyproducts Ltd. – Type 617

Head: 1No. 15x4mm strip fitted centrally in the frame reveal. For leaves over 2300mm high, increase to 20x4mm.

Jambs & Transomed Overpanel: 1No. 15x4mm fitted centrally in the frame reveal.

Hardware Protection: See section 14.

Maximum Door Leaf Size



KLW Wood Products – Flat Leaf Door Designs

Latched & Unlatched, Single & Double Acting, Double Doorsets

Leaf Sizes	Configuration		Height (mm)		Width (mm)
	LSADD	From:	2050	x	1105
		To:	2469	x	915
	ULSADD & DADD	From:	2050	x	1078
		To:	2419	x	915
Maximum Overpanel Height (mm)		Transomed	1500		
Glazing		Maximum Glazed Area	0.96m^2 - see section 10 for details		
		Approved Systems	See section 10 and appendix B		
Frame Specification (see section 11)		Min. Section (mm) excluding stop	70 x 32	70 x 32	70 x 30
		Material	Softwood	Hardwood	MDF Not Double Acting
		Min. Density (kg/m^3)	510	510	700

Intumescent Materials: Lorient Polyproducts Ltd. – Type 617

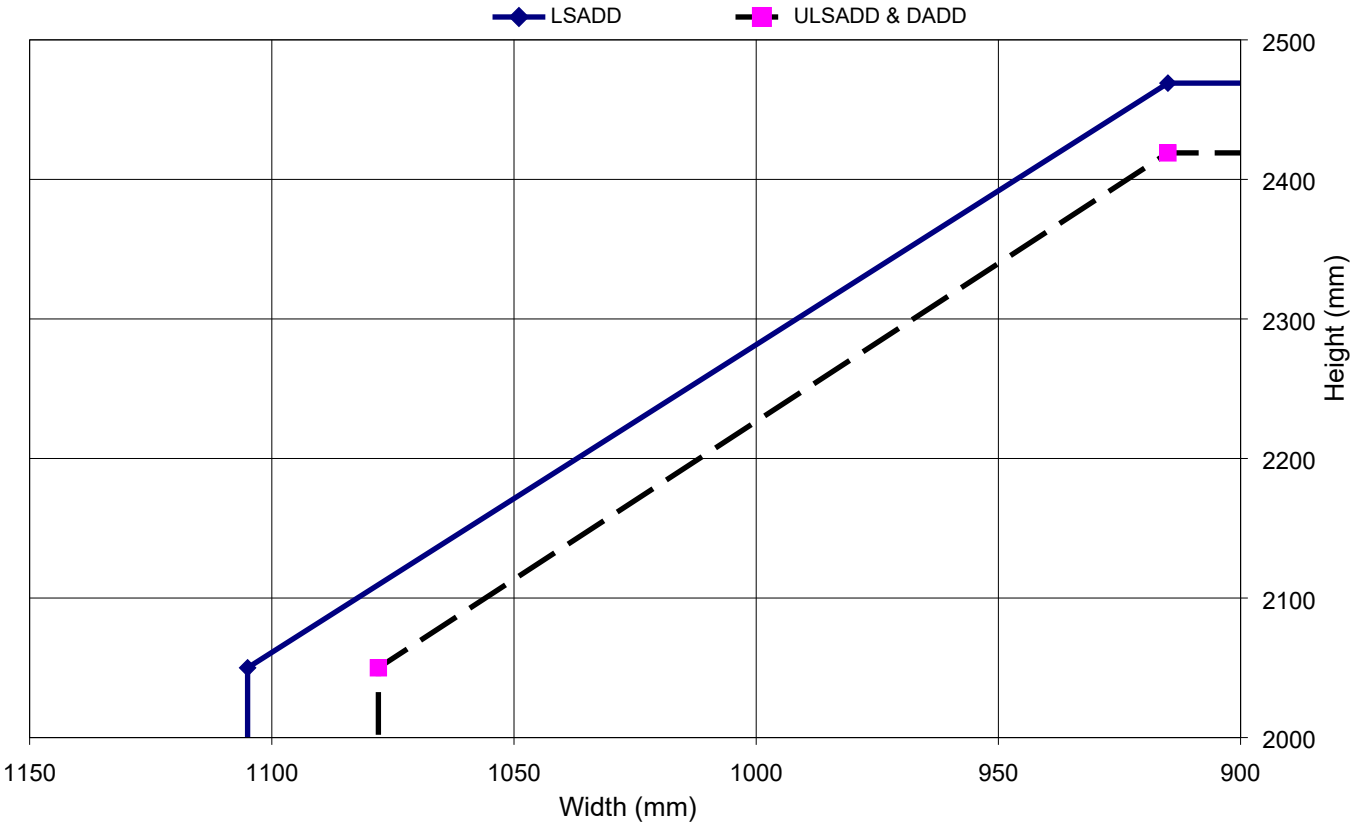
Head: 1No. 15x4mm strip fitted centrally in the frame reveal. For leaves over 2250mm high, increase to 20x4mm.

Meeting Edges: 1No. 15x4mm strip fitted centrally in the edge of one leaf only.

Jambs & Transomed Overpanels: 1No. 15x4mm strip fitted centrally in the frame reveal.

Hardware Protection: See section 14.

Maximum Door Leaf Size



KLW Wood Products – Applied Panel leaf designs

Latched, Single Acting, Single Doorsets

Leaf Sizes	Configuration		Height (mm)		Width (mm)
	LSASD	From:	2050	x	1078
		To:	2419	x	915
Maximum Overpanel Height (mm)		Transomed	2000		
Glazing		Maximum Glazed Area	0.96m² - see section 10 for details		
		Approved Systems	See section 10 and appendix B		
Frame Specification (see section 11)		Min. Section (mm)	70 x 32	70 x 32	70 x 30
		Material	Softwood	Hardwood	MDF Not Double Acting
		Min. Density (kg/m³)	510	510	700

Intumescent Materials: Lorient Polyproducts Ltd. – Type 617

Head: 1No. 15x4mm strip fitted centrally in the frame reveal. For leaves over 2300mm high, increase to 20x4mm.

Jambs & Transomed Overpanel: 1No. 15x4mm strip fitted centrally in the frame reveal.

Hardware Protection: See section 14.

Maximum Door Leaf Size